

Site Characterization Report

Assessment of Contaminated Sediments in Swan Creek Maumee Area of Concern, Toledo, Ohio

Prepared for
U.S. Environmental Protection Agency
Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604-3507

Prepared by
EA Engineering, Science, and Technology, Inc., PBC
225 Schilling Circle, Suite 400
Hunt Valley, Maryland 21031

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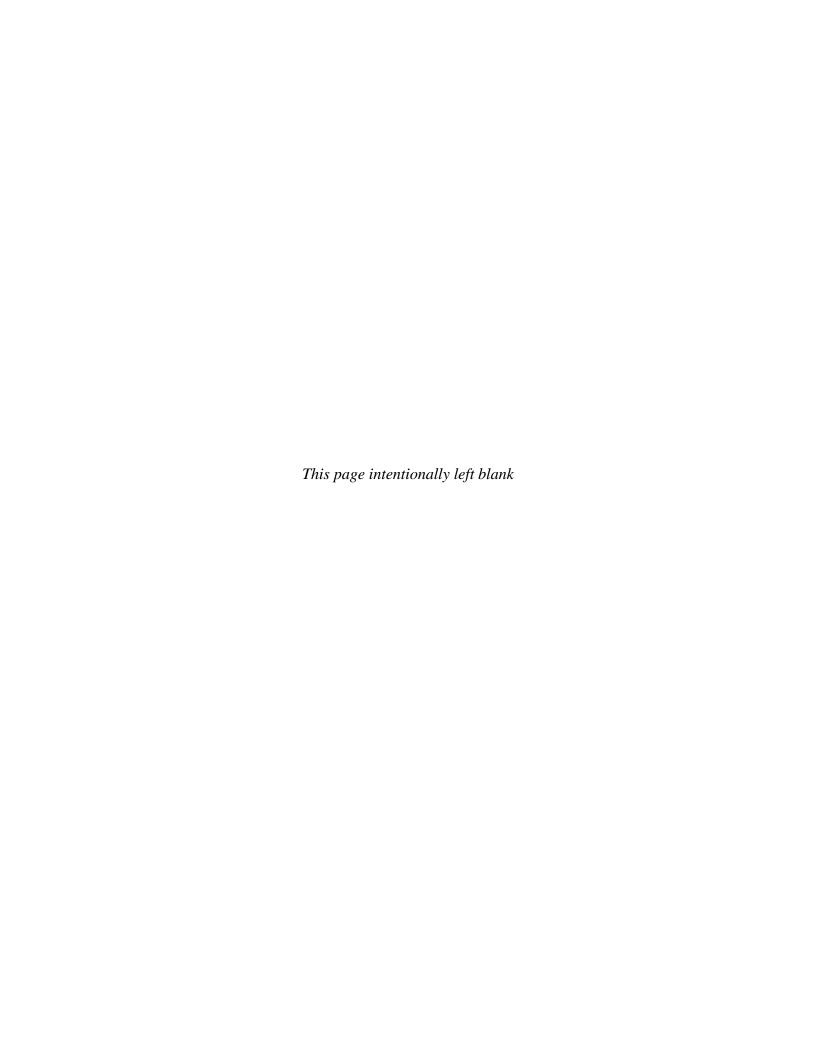


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LIST OF ACRONYMS AND ABBREVIATIONS

°C Degrees Celsius

μg/kg Microgram(s) per kilogram μg/L Microgram(s) per liter

μmol/g_{oc} Micromole(s) per gram of organic carbon

Affiliated Affiliated Researchers, LLC

AOC Area of Concern AVS Acid volatile sulfide

bss Below sediment surface BUI Beneficial Use Impairment

CDF Confined Disposal Facility

DRO Diesel range organics

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EPA U.S. Environmental Protection Agency

FSP Field Sampling Plan

ft Foot (feet)

LC50 Mean lethal concentration

mg/kg Milligram(s) per kilogram mg/L Milligram(s) per liter

mL Milliliter(s)
MS Matrix spike

MSD Matrix spike duplicate

ND Non-detect/not detected

NELAC National Environmental Laboratory Accreditation Conference

Ohio EPA Ohio Environmental Protection Agency
Ohio SRV Ohio-specific Sediment Reference Values
OMZA Outside mixing zone average values

ORO Oil range organics

PAH Polycyclic aromatic hydrocarbon

PCB Polychlorinated biphenyl PEC Probable effect concentration

QAPP Quality Assurance Project Plan

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Region 4 ESV Region 4 Ecological Screening Values

Region 5 ECO Region 5 Resource Conservation and Recovery Act Ecological Screening Value

RL Reporting limit

SCR Site Characterization Report SEM Simultaneously extracted metals

TAL Target Analyte List

TCLP Toxicity Characteristic Leaching Procedure

TEC Threshold effect concentration

TKN Total Kjeldahl nitrogen TOC Total organic carbon

TPH Total petroleum hydrocarbons

USACE U.S. Army Corps of Engineers

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1. INTRODUCTION

EA Engineering, Science, and Technology, Inc., PBC (EA), for the U.S. Environmental Protection Agency (EPA) Great Lakes Architect-Engineer Services Contract Number 68HE0519D0001, has prepared this Site Characterization Report (SCR) to describe the 2021 Assessment of Contaminated Sediments in Swan Creek, Maumee Area of Concern (AOC), Toledo, Ohio (Swan Creek), Lucas County, Ohio (Figure 1-1) in accordance with the Swan Creek Quality Assurance Project Plan (QAPP) and Field Sampling Plan (FSP) (EA 2021).

SITE DESCRIPTION AND BACKGROUND

The Swan Creek project area extends from approximately river mile 3 downstream to the confluence of Swan Creek with the Maumee River and along the western bank of the Maumee River from the Swan Creek confluence to the I-280 Bridge. Swan Creek flows into the Maumee River in downtown Toledo, Ohio, and is in the Maumee AOC. The land use surrounding the project site supports commercial and industrial activities. Current and historic land uses include gas and chemical manufacturing plants, municipal landfills, and other industrial activities that may have contributed to contamination in Swan Creek. Based on results from 2011 and 2014 sampling events (Weston Solutions, Inc. 2012; CH2M HILL 2014), the contaminants of potential concern for Swan Creek sediments are oil and grease, mercury, heavy metals, total petroleum hydrocarbons (TPH), diesel range organics (DRO)/oil range organics (ORO), polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs).

The drainage area of Swan Creek is 204 square miles, and over 200 miles of creeks and ditches drain this watershed. Swan Creek itself is about 40 miles long. The headwaters of Swan Creek flow northeasterly through Fulton County until joining with Blue Creek to flow in a northeasterly direction toward downtown Toledo and the Maumee River. The major streams that feed Swan Creek are Ai Creek, Blue Creek, and Blystone Ditch. Swan Creek is the only major tributary to the Maumee River located within the Maumee AOC. The Maumee River drains into Lake Erie at Toledo (Maumee Remedial Action Plan and Duck & Otter Creeks Partnership, Inc. 2006).

The Maumee AOC was originally identified as the area extending from the Bowling Green water intake near Waterville along the Maumee River downstream to Maumee Bay. The area includes direct drainage into the waters that are within Lucas, Ottawa, and Wood counties. This includes Swan Creek, Ottawa River (Ten Mile Creek), Duck Creek, Otter Creek, Cedar Creek, Grassy Creek, and Crane Creek. In 1992, the Maumee AOC was extended to the east to include Turtle Creek, Packer Creek, and the Toussaint River. When the Maumee AOC was designated, it was primarily due to the large problem of agricultural runoff. However, upon further investigation, additional influences were identified including former dumps and contaminated industrial sites, combined sewer overflows, and disposal of dredged materials (Maumee Remedial Action Plan and Duck & Otter Creeks Partnership, Inc. 2006). Heavy metals and organic chemical contamination in sediment led to the lower Maumee River being classified as an AOC. A series of Beneficial Use Impairments (BUIs) were determined for Swan Creek. The removal of these BUIs will be necessary to meet the goals of the Maumee AOC restoration, and the eventual delisting of the Maumee AOC.

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A total of three BUIs currently apply to Swan Creek (Partners for Clean Streams 2021):

- BUI 6—Degradation of benthos
- BUI 8—Eutrophication or undesirable algae
- BUI 14—Loss of fish and wildlife habitat

Project Area

The Swan Creek project area extends from approximately river mile 3 downstream to the confluence of Swan Creek with the Maumee River and along the western bank of the Maumee River from the Swan Creek confluence to the I-280 Bridge (Figure 1-1). Swan Creek flows into the Maumee River in downtown Toledo, Ohio, and is in the Maumee AOC.

1.2 PURPOSE AND OBJECTIVES

1.2.1 Project Purpose and Objective

The purpose of this project is to assess sediments in Swan Creek and the Maumee River between the confluence with Swan Creek and upstream of the I-280 bridge within the Maumee AOC. The primary constituents of concern at the site are TPH (DRO/ORO), oil and grease, metals, PCBs, and PAHs. The primary goal of the Swan Creek Project is to collect data to support conceptual design-level evaluations that will be presented as part of a focused feasibility study. Generally, the objectives of the project are delineation of sediment contamination, assessment of biological risks, and determination of sediment disposal options.

1.2.2 Objectives of the Site Characterization Report

This SCR summarizes the findings from the field investigation, including data tables and maps, data interpretation, and conclusions of the investigation. The results of this site characterization were evaluated to assess the sediment quality in Swan Creek and to delineate sediment contamination, to identify the potential for biological risks, and to provide data in support of evaluation of sediment disposal options. The overall objective of this report is to present the data collected to support conceptual design-level evaluations that will be presented as part of a focused feasibility study.

2. SAMPLING NARRATIVE

The Swan Creek field investigation included surface sediment sampling, sediment core collection, surface water collection, and sample/core processing for physical, chemical, and biological analysis. Work was performed in coordination with EPA. The investigation, including all sampling activities and analytical testing methods, was carried out in accordance with procedures outlined in the QAPP and FSP (EA 2021).

2.1 SEDIMENT CORE AND SURFACE SAMPLE COLLECTION

Mobilization for the Swan Creek sediment sampling effort commenced on 1 November 2021. EA and Affiliated Researchers, LLC (Affiliated) initiated vibracore operations on 2 November 2021 and continued through 10 November 2021. Staging for the field investigation and for core processing took place at the City of Toledo's Streets, Bridges, and Harbor facility at 1020 Water Street in Toledo, Ohio. EPA selected 34 locations for sediment sampling in the Swan Creek area and 7 locations in the Maumee River area (Figure 2-1). Sample locations were chosen based on the location of historical and current outfalls, water depth, input from EPA, and sampling data where available. Some locations were chosen to fill data gaps based on previous investigations.

Sampling was attempted at all 41 locations using vibracore technology and Ponar grab sampler. The sampling equipment was onboard Affiliated's vibracoring vessel. Figure 2-1 provides the actual sample locations in the Swan Creek project area. Some of these locations were adjusted from those identified in the QAPP due to lack of soft sediment or obstructions such as moored vessels, debris, low hanging obstructions, and shallow water depths preventing access to the sample location. Collection of cores for physical and chemical analysis was attempted at each location. Ponar grabs were successfully collected from each of the 12 target Ponar locations in the Swan Creek project area. Sediment cores were collected from each of the target coring locations. Six of the core and Ponar locations were co-located.

Affiliated used an onboard real-time kinematic global positioning system receiver—with a geodetic accuracy of 10 centimeters in the horizontal and 2 centimeters in the vertical planes at an update frequency of 1 hertz—with a preloaded base map identifying target sample locations to navigate to each location. Proposed (target) and actual coordinates for the coring locations are provided in Table 2-1 (note this table includes 36 core locations as 2 cores were collected from SC21-MR03). Ponar sample coordinates are provided in Table 2-2. Separate coordinates were recorded for co-located locations where the Ponar sampler was not deployed at the exact same geographic location as the core; the core was retrieved through the Affiliated vessel's moonpool and the Ponar sampler was deployed off Affiliated's vessel, in accordance with the QAPP (EA 2021).

Three surface water samples were successfully collected at 3 target locations (Swan Creek, Maumee River, and Port Authority Confined Disposal Facility [CDF] location) from Affiliated's vessel and analyzed for chemical constituents. In addition, 25 gallons of elutriate preparation water was collected from the surface water location in Swan Creek. Surface water collection location coordinates are provided in Table 2-3.

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Field notes that describe the coring, grab, and surface water sampling activities, sampling locations, and water depths were recorded in permanently bound logbooks and field collection forms with indelible ink. Personnel names, local weather conditions, and other information that impacted the field sampling program were also recorded. Each page of the logbooks was numbered and dated by the personnel entering the information. Copies of the field logbooks and field collection forms are provided in Appendix A and lithologic logs are provided in Appendix B. A photographic record is presented in Appendix C.

Analytical samples were defined as surface (collected via Ponar) from 0 to 0.5 foot (ft) below sediment surface (bss), and discrete intervals from each core were defined from 0 to 1.0 ft bss, 1–3 ft bss, and 3–5 ft bss, and every 2 ft thereafter to the end of the core at refusal or 10 ft total depth in accordance with the QAPP (EA 2021).

Sample identifications included a designation of "SC" for Swan Creek, the year of sampling (21), location number, reference to the site area where the sample was collected, either "SC" for Swan Creek or "MR" for Maumee River, and either "SURF" for surface samples or the interval from the core in feet. For example, the analytical sample SC21-SC06-SURF is the surface (Ponar) sample collected at Swan Creek location 06, and SC21-SC17-1030 is the sediment sample collected from the 1–3 ft interval of the core collected at Swan Creek location 17.

2.1.1 Sediment Cores

Affiliated used vibracore technology to retrieve a total of 98 sediment cores from 35 target locations. Cores were retrieved as described in the QAPP and FSP (EA 2021). Affiliated's Rossfelder P3C Vibracore system consists of a vibracore head, and control box located between the underwater cable and the power source. The vibracore head has a core tube clamp and an internal vibrator motor. The vibracorer applies thousands of vibrations per minute to help penetrate the sediment. Once the core tube is inserted in the core tube clamp the vibracorer is lowered to 1 ft above the sediment surface and then turned on as soon as the core tube touches the sediment. The core tube is vibrated into the sediment to the prescribed depth. Polycarbonate 2.75-inch inner diameter core tubes were used to collect the sediment. Details on core sample collection, processing, and recovery are provided in Tables 2-1 and 2-4.

After retrieval, the core tubes were carefully removed from the metal barrel. Each core tube was capped at both ends, sealed, measured, and labeled with the location number, direction of top and bottom of core, and date and time of retrieval. All sediment cores were stored upright onboard Affiliated's vessel. At the end of each sampling day, or periodically throughout the day, sediment cores were transferred to a refrigerated truck (cooled to 4 degrees Celsius [°C]) at the onshore core processing area. The cores were stored upright in the secured refrigeration truck until they were processed.

2.1.2 Surface Sediment Samples

A total of 12 surface sediment samples were successfully collected using a Ponar sampler onboard Affiliated's vessel. The Ponar sampler was manually deployed and retrieved as

described in the QAPP and FSP (EA 2021). The procedure included deploying the sampler off the vessel by hand and retrieving the sampler to the deck, decanting water at the top of the sampler, and transferring the sediment into a disposable aluminum tray, unless otherwise as noted in the discussion provided in Section 2.3. Sediment for analysis of the ratio of simultaneously extracted metals (SEM) to acid volatile sulfide (AVS) was placed into a jar directly after the Ponar sample was collected, prior to documentation and homogenization of the material to minimize aeration of the sample. Samples for SEM/AVS analysis were filled with no headspace. Following collection of sediment for SEM/AVS, the remaining sediment was homogenized and transferred directly into laboratory-provided sample containers which were labeled while onboard the vessel. Surface samples were stored in a cooler with ice onboard Affiliated's AR1 vessel until they could be transferred to the sample processing area onshore.

2.1.3 Surface Water and Elutriate Preparation Water Sampling

A total of 3 surface water samples were collected and submitted for chemistry analysis on 10 November 2021 (Table 2-3). The 3 surface water samples were collected from mid-depth of the water column at each location using monsoon pumps with dedicated Tygon tubing. Water collection was conducted from Affiliated's vessel.

Elutriate preparation water in the Swan Creek project area was collected from mid-depth of the water column at 1 of the 3 surface water locations [Swan Creek channel (SC21-SC-WAT)] on 10 November 2021 using monsoon pumps with dedicated Tygon tubing (Figure 2-1).

Water targeted for use in standard elutriate testing and ecotoxicological testing was stored in 2.5-gallon high-density polyethylene carboys. At the end of the workday, elutriate preparation water and ecotoxicological testing water were transferred to a refrigeration unit (cooled at 4°C) at the staging area, and delivered to EA's Ecotoxicology Laboratory, for analyses at the completion of sampling.

Upon receipt at the analytical laboratory, the samples were checked against the chain-of-custody, logged, and given a unique accession number. Samples were stored in walk-in refrigeration units (cooled to 4°C) following receipt and prior to analysis. Holding times for the surface water samples began when the water samples were collected and placed into the appropriate sample containers. The holding time for the elutriate samples was initiated at the completion of the elutriate preparation process.

2.1.4 In Situ Water Quality Measurements

Water quality measurements were recorded in situ at the surface water and elutriate preparation water locations using a YSI-EXO water quality probe. Water temperature (°C), pH, turbidity (nephelometric turbidity unit), and dissolved oxygen (milligrams per liter [mg/L]) measurements were recorded at bottom, mid-depth, and surface of the water column where applicable (Table 2-5). If water depth was less than 5 ft, measurements were recorded for bottom and surface of the water column. A copy of the field logbook with the water quality data is provided in Appendix A.

2.2 CORE PROCESSING

2.2.1 Core Processing – Depth Intervals

Sediment core sample processing was performed at a temporary staging location at the City of Toledo's Roads, Bridges, and Harbor facility at 1020 Water Street in Toledo, Ohio. At the processing facility, cores were split length-wise, photographed, lithologically logged, and sampled at depth intervals as described in the FSP and QAPP (EA 2021), unless otherwise noted in the discussion provided in Section 2.3. Core samples were homogenized by removing material collected from the prescribed depth interval in a single core and mixing until consistency was uniform (Table 2-6a). Sediment samples were packaged on wet ice and shipped to Pace South Carolina, Pace Green Bay, ALS Environmental, and Battelle in accordance with the QAPP (EA 2021). Lithologic and photographic logs of sediment cores are included in Appendixes B and C, respectively.

2.2.2 Core Processing – Sampling Unit Composites

Cores targeted for compositing were processed at the City of Toledo's Streets, Bridges, and Harbor facility. Prior to processing, cores were sorted and checked against the logbook. Sediments were extracted from each core into a pre-cleaned stainless-steel pot. Each composite sample was created using an equal volume of sediment (approximately 12 gallons total per sampling unit) from the selected locations within the sampling unit. Each composite sediment sample was homogenized until the sediment was thoroughly mixed and of uniform consistency. The compositing scheme and sampling units are provided in Table 2-6b.

After compositing was completed, the homogenized material was transferred into appropriately labeled, laboratory certified pre-cleaned containers using stainless-steel spoons. Containers were placed in a cooler on wet ice and documented on a chain-of-custody form. All equipment that encountered the sediment was decontaminated as outlined in the QAPP between the creation of each composite.

Composite chemistry samples were shipped overnight to Pace South Carolina and Pace Green Bay. Sediment and surface water targeted for elutriate preparation was driven by an EA employee in a refrigerated truck to EA's Ecotoxicological Laboratory and placed in a walk-in refrigeration unit until testing. Sediment targeted for ecotoxicological testing was hand delivered to EA's Ecotoxicological Laboratory, checked against chain-of-custody, logged in, given a unique accession number, and placed in a walk-in refrigeration unit until testing. The sample containers, preservatives, and holding time requirements for sediment samples are provided in the QAPP (EA 2021).

2.3 ELUTRIATE GENERATION AND TESTING

At EA's Ecotoxicological Laboratory, sampling unit composite sediments and Swan Creek elutriate preparation water were used to generate elutriates for aquatic toxicity testing. Elutriate generation was completed as follows:

- Samples were subsampled to create a volumetric sediment-to water ratio of 1:4 using surface water from Swan Creek. Volumetric measurements of the sediment were completed in a graduated cylinder or Erlenmeyer flask and the contents were added to an aquarium. The mixing was performed at room temperature (20±2°C).
- An air-diffuser tube was inserted near the bottom of the aquarium and the slurry was aerated vigorously for 30 minutes. The flask contents were manually stirred at 10-minute intervals to ensure complete mixing.

After mixing, the suspension was allowed to settle for 1 hour.

• The resulting liquid and material remaining in suspension after the 1-hour settling period is the suspended particulate phase or elutriate. The test organisms could be viewed sufficiently without issue and the samples were not centrifuged. The elutriate was decanted into pre-cleaned laboratory-provided containers and the settled material was discarded. A subsample of the elutriate was sent to Pace for chemical analysis (Table 2-6c).

Water column bioassays were initiated at the ecotoxicology laboratory within 24 hours of elutriate preparation (Table 2-6d). Methodology for the water column bioassays is provided in Appendix D.

2.4 WHOLE SEDIMENT BIOASSAYS AND BIOACCUMULATION EXPOSURES

Whole sediment bioassays and bioaccumulation testing was conducted in accordance with the QAPP and test methodologies and followed EA's standard toxicity testing protocol as documented in the QAPP (EA 2021).

Daphnia magna Water Column Toxicity Testing

The *Daphnia magna* acute toxicity test was conducted in 30-milliliter (mL) beakers with 25 mL of test solution per cup. The toxicity test had 4 replicates per concentration and control, with 5 organisms per replicate, for a total of 20 organisms exposed per test concentration and control. To initiate the acute toxicity test, neonates (<24 hours old) were randomly assigned to the test chambers. The test was maintained at 20±1°C with a 16-hour light/8-hour dark photoperiod. Temperature, pH, dissolved oxygen, conductivity measurements as well as survival were recorded on each concentration at test initiation, at 24 hours and test termination. Detailed information regarding the *Daphnia magna* water column toxicity testing is provided in Appendix D.

Pimephales promelas Water Column Toxicity Testing

The *Pimephales promelas* acute toxicity test was conducted in 1,000-mL beakers, with each beaker containing 250 mL of test solution. For the acute toxicity test, each test concentration and the control had 5 replicates of 10 organisms, for a total of 50 organisms exposed per test

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concentration and control. The test was performed at $25\pm1^{\circ}$ C with a 16-hour light/8-hour dark photoperiod. Observations of mortality were recorded daily, and dead organisms were removed when observed. Temperature, pH, dissolved oxygen, and conductivity measurements were recorded on one replicate of each concentration at test initiation and termination, and daily on the test solutions. Test organisms were fed daily to prevent starvation. Detailed information regarding the *Pimephales promelas* water column toxicity testing is provided in Appendix D.

Chironomus dilutus 10-Day Toxicity Tests

Toxicity testing was conducted in accordance with EPA guidance (EPA 2000), and test methodologies followed EA's standard toxicity testing protocol CT-AC-06 (EA 2018).

The test chambers used in the *Chironomus dilutus* 10-day survival and growth toxicity test were 300-mL lipless glass beakers, each containing 100 mL of sediment and 175 mL of overlying water. The tests were performed with 8 replicates per sediment. The sediments and overlying water were added to the chambers 1 day prior to introduction of the test organisms. The beakers were left undisturbed overnight to allow any suspended sediment particles in the water column to settle. The introduction of the test organisms to the test chambers marked the initiation of the toxicity tests. Ten organisms were randomly introduced into each replicate beaker for a total of 80 organisms per sediment. The test chambers were placed in a water bath to maintain temperatures at a target range of 23±1°C, with a 16-hour light/8-hour dark photoperiod. The *Chironomus dilutus* were fed 1.5 mL per replicate of a 4 grams per liter slurry of Tetramin flake food daily.

The overlying water in the exposure chambers was renewed a minimum of twice daily using a water delivery system. Fresh overlying water was slowly added to each replicate, displacing the water already in the beaker to flow out through a notch cut into the top of the beaker. The notch was sealed with fine mesh screen to prevent loss of organisms during the renewal process.

For the midge toxicity testing, water quality parameters of temperature, pH, dissolved oxygen, and conductivity were recorded daily on the overlying water in one replicate of each sediment. Composite samples of the overlying water of each sediment were also analyzed for alkalinity, hardness, conductivity, and ammonia at test initiation and termination.

At the end of the 10-day exposure period, the surviving organisms from each replicate were retrieved from the sediment. The number of surviving organisms from each replicate was recorded. The surviving *Chironomus dilutus* from each replicate were then placed in a dried, preweighed ceramic crucible and placed in a drying oven at 100°C for a minimum of 24 hours. The crucibles were then removed from the oven, placed in a desiccator to cool, and weighed. The dry weight of the surviving organisms in each replicate was determined by subtracting the weight of the crucible from the weight of the crucible plus dried organisms. The mean dry weight per organism was obtained by dividing the total organism dry weight per replicate by the number of surviving organisms per replicate.

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The ash-free dry weight was determined for the *Chironomus dilutus* by placing the crucibles with oven-dried organisms in a muffle furnace at 550°C for at least 2 hours, then weighing the crucibles with organisms following an appropriate cooling period. For each replicate, the weight of the crucible with furnace-dried organisms was subtracted from the weight of the crucible with oven-dried organisms, yielding a total organism ash-free dry weight. A mean ash-free dry weight per organism was obtained by dividing the total organism ash-free dry weight per replicate by the number of surviving organisms per replicate. Detailed information regarding the *Chironomus dilutus* 10-day toxicity tests is provided in Appendix D.

Hyalella azteca 10-Day Toxicity Tests

Hyalella azteca 10-day survival and growth toxicity test were conducted in test chambers of 300-mL lipless glass beakers, each containing 100 mL of sediment and 175 mL of overlying water (lab water). The tests were performed with 8 replicates per sediment. The sediments and overlying water were added to the chambers at least 24 hours prior to introduction of the test organisms. The beakers were left undisturbed overnight to allow any suspended sediment particles in the water column to settle. The introduction of the test organisms to the test chambers marked the initiation of the toxicity tests. Ten organisms were randomly introduced into each replicate beaker for a total of 80 organisms per sediment. The test chambers were placed in a water bath to maintain temperatures at a target range of 23±1°C, with a 16-hour light/8-hour dark photoperiod.

The *Hyalella azteca* were fed 1.0 mL per replicate of YCT (a suspension of yeast, ground cereal leaves, and trout chow) daily. The overlying water in the exposure chambers was renewed a minimum of twice daily using a water delivery system. Fresh overlying water was slowly added to each replicate, displacing the water already in the beaker to flow out through a notch cut into the top of the beaker. The notch was sealed with fine mesh screen to prevent loss of organisms during the renewal process.

For the amphipod toxicity testing, water quality parameters of temperature, pH, dissolved oxygen, and conductivity were recorded daily on the overlying water in one replicate of each sediment. Composite samples of the overlying water of each sediment were also analyzed for alkalinity, hardness, and ammonia at test initiation and termination.

At the end of the 10-day (*Hyalella azteca*) exposure period, the surviving organisms from each replicate were retrieved from the sediment. The number of surviving organisms from each replicate was recorded. The surviving *Hyalella azteca* from each replicate were then placed in a dried, pre-weighed aluminum pan, and placed in a drying oven at 100°C for at least 24 hours. The pans were then removed from the oven, placed in a desiccator to cool, and weighed. The dry weight of the surviving organisms in each replicate was determined by subtracting the weight of the empty pan from the weight of the pan plus dried organisms. The mean dry weight per organism was obtained by dividing the total organism dry weight per replicate by the number of surviving organisms per replicate. Detailed information regarding the *Hyalella azteca* 10-Day toxicity tests is provided in Appendix D.

Lumbriculus variegatus bioaccumulation test

The *Lumbriculus variegatus* bioaccumulation test was conducted in 5-gallon aquaria, with 5 replicates per test sediment and control. Based on the analytical tissue biomass requirements, approximately 15 grams wet weight of *Lumbriculus variegatus* were loaded into each replicate. Each replicate had 1.5 liters of sediment and 6 liters of overlying water. Sediment and overlying water were loaded into the test chambers 1 day prior to test initiation to allow time for the suspended sediments to settle.

The overlying water was replaced twice daily by siphoning approximately 80 percent of the overlying water from the aquaria and replacing with new overlying water, taking care not to disturb the sediment surface. During the 28-day exposure period, the test chambers were maintained at a target temperature of $23\pm1^{\circ}\text{C}$ with a 16-hour light/8-hour dark photoperiod. Measurements of temperature, pH, dissolved oxygen, and conductivity of the overlying water were recorded on one replicate of each sample and control at test initiation, termination, and on each intermediate day. Composite samples of the overlying water of each sediment were also analyzed for alkalinity, hardness, and ammonia at test initiation and termination. The organisms were not fed during the exposure period.

After 28 days of exposure, the *Lumbriculus variegatus* were recovered from each sediment and placed into clean laboratory water for 24 hours to purge their digestive tracts. Detailed information regarding the bioaccumulation exposures is provided in Appendix D.

2.5 ANALYTICAL PROGRAM

Samples were successfully collected from each location in accordance with the QAPP (EA 2021). Sediment samples were designated for shipment via overnight delivery and were sealed inside plastic bubble-wrapped bags and placed upright inside lined coolers filled with ice. Each cooler also contained a chain-of- custody specific to its contents and a temperature blank. Each cooler was sealed with custody seals and packing tape and was affixed an airbill in a viable location. Samples designated for transport via refrigeration trailer (sealed 5-gallon buckets) were securely placed within the trailer to prevent the bucket from tipping or rolling. Additional detail on samples submitted for analysis are provided in Tables 2-6a, 2-6b, 2-6c and 2-6d.

- 136 sediment samples and 8 field duplicates were submitted for TPH-DRO and ORO, Target Analyte List (TAL) metals, total organic carbon (TOC), and oil and grease.
- 132 sediment samples and 7 field duplicates were submitted for PCB Aroclor analysis.
- 136 sediment samples and 8 field duplicates were submitted for moisture content analysis.
- 12 sediment samples and 1 field duplicate were submitted for 34 PAH analysis.
- 124 sediment samples and 7 field duplicates were submitted for 17 PAH analysis.

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- 4 sediment samples and 1 field duplicate were submitted for PCB congener analysis.
- 48 sediment samples and 3 field duplicates were submitted for SEM/AVS analysis.
- 135 sediment samples and 8 field duplicates were submitted for grain size analysis.
- 8 sediment samples and 1 field duplicate were submitted for total Kjeldahl nitrogen (TKN), nitrogen ammonia, total cyanide, and total phosphorus analysis.
- 8 sediment samples were submitted for Toxicity Characteristic Leaching Procedure (TCLP) (includes herbicides, metals, pesticides, semivolatile organic compounds, volatile organic compounds, cyanide, ignitability, pH, flashpoint, paint filter test, and percent solids/moisture content) analysis.
- 12 sediment samples and a control were submitted for benthic toxicity testing with, *Hyalella azteca* (10-day).
- 12 sediment samples and a control were submitted for benthic toxicity testing with *Chironomus dilutus* (10-day).
- 4 sediment samples, a control and a pre-test were submitted for sediment bioaccumulation exposures with *Lumbriculus variegatus* (28-day).

Surface water and elutriate samples submitted for analysis as follows:

- 3 surface water samples and 1 field duplicate were submitted for TPH-DRO and ORO, TAL metals, oil and grease, PCB Aroclors, 17 PAHs, TKN, nitrogen ammonia, total cyanide, and total phosphorus analysis.
- 8 standard elutriate samples and 1 field duplicate were generated in EA's
 Ecotoxicological Laboratory and submitted for TPH-DRO and ORO, TAL metals, oil and
 grease, PCB Aroclors, 17 PAHs, TKN, nitrogen ammonia, total cyanide, and total
 phosphorus analysis. The 8 elutriate samples and a control, were also used to conduct the
 following aquatic toxicity tests: *Daphnia magna* (48-hours) and *Pimephales promelas* (96-hours).

Tissue samples from the sediment bioaccumulation testing were submitted for analysis as follows:

• 30 tissue samples were submitted for percent lipids, percent moisture, and PCB congener analysis.

The APTIM Federal Services, LLC (APTIM) Quality Assurance Technical Support Program was subcontracted by EPA to conduct a 100 percent Tier I and 20 percent Tier II data validation

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verification check for this project. The Tier I and Tier II reviews were performed according to the National Functional Guidelines for Superfund Organics Method Data Review (EPA 2014a) and National Functional Guidelines for Inorganic Superfund Data Review (EPA 2014b). Electronic data validation was performed within the Great Lakes National Program Office's exchange and Evaluation System prior to review by APTIM's Quality Assurance Technical Support Program (EA 2018). To assess compliance with the Laboratory Statement of Work, data validation included completeness and compliance checks, data assessment, and validation at Stage 2 following Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use (EPA 2009).

2.6 SAMPLE HANDLING, CHAIN-OF-CUSTODY, AND QUALITY ASSURANCE/QUALITY CONTROL

2.6.1 Sample Handling, Chain-of-Custody, and Documentation

Sediment and surface water samples for chemical analysis (except for 34 PAHs and SEM/AVS) were shipped priority overnight to Pace Analytical Services, LLC. Samples to be analyzed for SEM/AVS were shipped to ALS Environmental (a subcontractor to Pace). Samples analyzed for 34 PAHs were shipped to Battelle (Office of Research and Development contracted lab). Samples collected for bioassay testing and standard elutriate preparation were transported via refrigerated truck to EA's Ecotoxicology Laboratory in Hunt Valley, Maryland. Following bioaccumulation testing at EA's Ecotoxicology Laboratory, tissue samples were delivered to Eurofins TestAmerica. Following elutriate preparation, elutriate samples were shipped priority overnight to Pace Analytical Services, LLC for chemical analysis.

Samples were placed in the appropriate sample containers (obtained from TestAmerica), preserved, and labeled in accordance with the QAPP/FSP (EA 2021). With exception given to sediment collected for SEM/AVS analysis, sediments within an interval were mixed to uniform consistency to homogenize prior to placing in jars. Sediment sampled for SEM/AVS analysis was placed directly into jars after sufficient surface sample volume was collected, prior to homogenization. SEM/AVS samples were filled without headspace. In preparation for shipment to the laboratories, all samples were packaged in accordance with the procedures outlined in the FSP (EA 2021).

Sample labeling was performed in accordance with Standard Operating Procedure 001 (Attachment A of the FSP [EA 2021]). Individual sample containers were labeled with a unique designation that corresponded to the specific geographic location, year of collection, and subsample depth interval. The FSP (EA 2021) outlines the specific sample identification procedures that were implemented. Sample identifications included the location (SC for Swan Creek, MR for Maumee River), the year of sampling (21 for 2021), the location number, and either "-SURF" for surface samples or the interval from the core in feet. An example of a sample identifier is "SC21-22-2040," which describes a sample collected from the Swan Creek Area in 2021 at location 22 at the depth interval of 2-4 ft bss. Field duplicates were designated by adding "FD" to the end of the sample identifier. Matrix spike (MS)/matrix spike duplicates (MSDs)

were designated by adding "MS" or "MSD" to the end of the sample identifier. For example: SC21-23-2040-FD or SC21-12-SURF-MS.

Chain-of-custody forms were completed and used to track samples from the time of sampling to the arrival of samples at the laboratory. Completed chain-of-custody forms are provided in Appendix A (available electronically) of the Data Usability Assessment Report (EA 2022).

2.6.2 Quality Control

Throughout the project, various measures were implemented to help facilitate the overall quality and usability of the collected data. The field investigation activities included collection of additional quality control samples (e.g., duplicates, MS/MSD, etc.) sufficient to meet the requirements of the data quality objectives as defined in the QAPP (EA 2021). Duplicate samples were submitted as described in the FSP, and field and laboratory quality control requirements were completed in accordance with the QAPP (EA 2021). Deviations from the QAPP/FSP can be found in Section 2.9.

2.7 DECONTAMINATION

Decontamination procedures were implemented during the field investigation to prevent cross-contamination between sampling locations. During sampling activities, disposable or dedicated sampling tools and materials were utilized whenever possible to minimize the decontamination effort. Decontamination procedures were carried out in accordance with the standard operating procedures presented in Attachment A of the FSP (EA 2021).

2.8 INVESTIGATION-DERIVED WASTE

Following collection of the sediment samples, investigation-derived waste was managed in accordance with the procedures described in the FSP (EA 2021). In general, residual sediments and decontamination water were collected, drummed, and disposed of off-site. Water used for decontamination of the sampling equipment on Affiliated's vessel was allowed to drain back into the creek at each respective sampling location. Disposable materials and personal protective equipment that came into contact with site sediments were bagged and disposed of as general municipal waste.

2.9 DEVIATIONS FROM THE QAPP AND FSP

2.9.1 Target Locations

Of the 35 sediment core sampling locations, 26 were more than 10 ft from the target sampling location and were moved during the field investigation based on discussions with EPA and due to lack of soft sediment, gravel, debris, shallow water, or other obstructions preventing sample collection (Ponar grab samples were collected at the target sampling locations). Due to limited material recovery, sample volume requirements, and target recovery depth desired based on historical data in the vicinity, an additional core was collected for analysis at SC21-MR03.

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Deviations greater than 10 ft were noted in the field logbook and approved by EPA during the field investigation. Table 2-1 presents coordinates for the target and the actual locations. Detailed information on sample location deviations is also presented in Table 2-1. Appendix B includes documentation of attempts at each location and details on refusal where encountered.

2.9.2 Sample Recovery

Sediment penetration and recovery of the cores, as observed through the clear core liner, were recorded on a field data collection form for each location. The recovery value was also verified immediately prior to processing to ensure sediment had settled in core tubes that were partially full. Sediment penetration and recovery of the cores used for chemical analysis are presented in Table 2-4. Appendix B provided documentation of attempts made to reach target penetration depths and retain the desired recovery.

3. SEDIMENT, SURFACE WATER AND ELUTRIATE RESULTS

The overall data quality objective for the project is to provide data of known and documented quality to characterize current site conditions. Data collected from the Swan Creek site were validated by evaluating the completeness, correctness, and conformance of the data set against the method, standard operating procedure, or contract requirements documented in the QAPP/FSP (EA 2021). The data review and validation achieved the project goals. The overall data review and validation program attained the project objectives with no adverse effects on data quality or usability.

To complete the assessment of contaminated sediments in Swan Creek, the extent of potential sediment contamination was evaluated. Surficial samples (collected via Ponar) were analyzed to assess surficial contamination, potential toxicity to benthic organisms, and bioaccumulation. Sediment cores were collected and sampled to assess sediment contamination at depth. To address the goals of this assessment, the validated sediment data collected under this investigation were compared to the following screening levels, as available: Ohio-specific Sediment Reference Values (Ohio SRV) (Ohio EPA 2018) for metals only, threshold effect concentrations (TECs) and probable effect concentrations (PECs) (MacDonald et al. 2000), Region 4 Ecological Screening Values (Region 4 ESV) (EPA Region 4 2018) for compounds other than metals without TECs and PECs (DRO-ORO), and EPA Region 5 Resource Conservation and Recovery Act Ecological Screening Value (Region 5 ECO) (EPA 2003) for cyanide only. A comparison of screening criteria is provided in Appendix E. EPA will use sediment data to determine if contaminant concentrations in an area exceed the project screening levels (MacDonald et al. 2000; Ohio EPA 2018; EPA Region 5 2003). Based on this evaluation, areas may be selected for further assessment, designated as remedial sites, and/or moved on to restoration.

Composite sediment samples, elutriate samples, elutriate toxicity testing, and surface water samples were collected for future evaluations of sediment disposal options. Sediment cores were composited and analyzed for bulk chemistry, waste characterization, and elutriate preparation. The elutriate and surface water samples were analyzed for chemistry. Following elutriate generation, water column toxicity testing was completed using two different organisms. Samples with statistically significant lower survival when compared to the control sample indicate potential biological risk during disposal. The surface water samples will help determine whether placement of sediments dredged and placed in the CDF will require additional controls to comply with water quality standards and will be used as a reference material for aquatic toxicity testing.

For surface water and elutriates, detected concentrations of constituents were compared to aquatic screening levels determined following consultation with Ohio EPA and the U.S. Army Corps of Engineers (USACE). Where available, results were screened against Ohio's Lake Erie Drainage Basin aquatic life water quality criteria for outside mixing zone average values (OMZA). If there were no screening values for Ohio's Lake Erie OMZA then Lake Erie Human Health non-drink values were used to screen results. If Lake Erie Human Health non-drink values were not available for parameters, then Ohio River Basin Human Health non-drink values

were used to screen results. If none of the previously mentioned screening criteria were available EPA Region 4 values were used to screen criteria (Ohio EPA 2017; EPA 2021). Specific references to the water quality criteria used in the aforementioned hierarchy are included in the Chapter 3 results tables. The surface water, elutriate, and toxicity testing data are provided for informational purposes for use in potential future mixing zone evaluations and to determine if additional controls would need to be used at the CDF in order to protect aquatic life from water discharges resulting from the CDF disposal of contaminated sediments.

Biological risks were assessed via comparison of sediment concentrations to screening levels, sediment toxicity testing, and bioaccumulation testing. The results of the sediment toxicity and bioaccumulation testing were statistically compared to the controls, reference, and pre-test (bioaccumulation testing only). These results are further discussed in Chapter 4.

Figures have been prepared to visually present contaminant concentrations and identify potential focus areas within the study area.

Detected values equal to or greater than the method detection limit, but less than the laboratory reporting limit (RL), were J-qualified and are estimated. Analytes that were not detected were U-qualified. Field duplicate results are presented in the analytical tables but are not included in the bulk sediment results figures and discussion.

3.1 DATA EVALUATION

3.1.1 Screening Criteria

The sediment quality guidelines were developed as informal (non-regulatory) guidelines for use in interpreting chemical data from analyses of sediments. Several biological-effects approaches have been used to assess freshwater sediment quality relative to the potential for adverse effects on benthic organisms, including the TEC/PEC (MacDonald et al. 2000) approach. The TEC and PEC levels were derived using concentrations with both effects and no observed effects (MacDonald et al. 2000). TECs typically represent concentrations below which adverse biological effects are unlikely to be observed, while PECs typically represent concentrations above which adverse effects are likely to be observed (MacDonald et al. 2000). Concentrations that are between the TEC and PEC represent the concentrations at which adverse biological effects occasionally occur.

For metal contaminants in Ohio, Sediment Reference Values (Ohio SRVs) provide background sediment concentration values specific to sediments in Ohio. These values were developed by the Ohio EPA (Ohio EPA 2018) and are proposed for use if site-specific background concentrations do not exist, to indicate if sediments have been impacted by site-related activities.

For compounds other than metals without TECs and PECs, including DRO-ORO and cyanide, Region 4 ESV (EPA Region 4 2018) and Region 5 ECO (EPA 2003) were used.

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Following consultation with Ohio EPA and USACE, screening criteria for surface water and elutriates were compared to aquatic screening levels including Ohio's Lake Erie Drainage Basin aquatic life OMZA. The OMZA represent chemical concentrations that are protective of aquatic life for long-term exposure. If there were no screening values for Ohio's Lake Erie OMZA then Lake Erie Human Health non-drink values were used to screen results, non-drink values are applied to locations outside the influence of a drinking water intake. If Lake Erie Human Health non-drink values were not available for parameters, then Ohio River Basin Human Health non-drink values were used to screen results, these values apply to the Ohio River basin as a whole. If none of the previously mentioned screening criteria were available, EPA Region 4 values, which can be broadly applied, were used as screening criteria (Ohio EPA 2017; EPA 2021). The screening criteria used by compound are described in the results tables.

Validated results for bulk sediment, surface water, and elutriate chemical testing are presented in Tables 3-1 through 3-17 and are summarized in the following sections by analytical group. A summary of PEC exceedances in sediment is provided in Table 3-18.

3.1.2 Calculation of Total Polycyclic Aromatic Hydrocarbons and Total Polychlorinated Biphenyls

When calculating total 17 PAHs, results that were J-qualified were calculated using the result value, and results that were U-qualified were calculated using one-half the RL. Substituting one-half the RL (not detected [ND] = ½ RL) for each ND provides a conservative estimate of the concentration. This method, however, tends to produce results that are biased high, especially in data sets where many analytes are NDs. This overestimation is important to consider when comparing calculated total values to guidelines. Total PCB results often have a significant number of NDs. Additionally, individual PCB Aroclors represent mixtures of PCB congeners, creating the potential for double counting. For these reasons, total PCB concentrations were calculated by summing the concentrations of each PCB Aroclor with NDs set equal to zero (ND=0) to reduce the potential for overestimation.

3.1.3 Ratio of Simultaneously Extracted Metals to Acid Volatile Sulfide

The bioavailability of divalent metals to aquatic organisms is influenced by the presence of AVS. In low oxygenated (anaerobic) environments, divalent metals precipitate as metal sulfides, making them unavailable for uptake by aquatic organisms. Using this method, five metals (cadmium, copper, lead, nickel and zinc) were extracted, measured, converted to units of micromoles per gram and added together (including any values that were J-qualified) to determine the amount of SEM. If a metal was not detected, it was considered a zero in the calculation. SEM was then compared to the amount of AVS detected (units of micromoles per gram) in the same sediment sample. If AVS was not detected in the sample, the SEM/AVS ratio was not calculated.

An SEM/AVS ratio less than 1 indicates a high degree of probability that the metals are bound as metal sulfides and not bioavailable to aquatic organisms. If the SEM/AVS ratio is greater than 1,

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then the metals in sediment exceed the sulfide binding ability and have a higher probability of being bioavailable to aquatic organisms.

While the SEM/AVS ratio provides information on bioavailability, it does not always inform toxicity. Metal toxicity is evaluated through an indirect estimate of bioavailability based on the concentrations of AVS and SEM, as well as TOC in the sediments.

Site-specific bioavailability of metals may reduce toxicity based on SEM/AVS and TOC results. Bioavailability of divalent metals in sediments can be predicted by measuring the relationship between AVS and SEM where total SEM is the sum of cadmium, copper, lead, nickel, silver, and zinc. The sulfides naturally occurring in sediment react with the metals forming an insoluble metal sulfide that is not bioavailable for uptake by ecological receptors. An excess of AVS will ensure that the bioavailability of metals (and the probability for toxicity) is low; an excess of SEM may indicate the potential for toxicity (Interstate Technology & Regulatory Council 2011). Organic carbon content also can reduce bioavailability of metals. The sum of SEM – AVS difference is divided by fraction of organic carbon in sediment. Per EPA guidance (2005), if the result is <130 micromoles per gram of organic carbon (μ mol/goc), then toxicity to benthic invertebrates is not anticipated. If the result is >3,000 μ mol/goc, then toxicity is likely. If the result is between 130 and 3,000 μ mol/goc, then toxicity is uncertain (Interstate Technology & Regulatory Council 2011). Samples with high site-specific bioavailability and metals concentrations exceeding PECs (MacDonald et al. 2000) may indicate biological risk.

3.2 DISCRETE CORE AND SURFACE GRAB SEDIMENT RESULTS

Discrete core samples were collected from 28 locations in Swan Creek beginning just downstream of Western Avenue to the confluence of the Maumee River. Cores were also collected from 8 locations on the Maumee River. Surface grab samples were collected from 10 locations along Swan Creek and at 2 locations along the Maumee River as described in Chapter 2. A summary of the screening criteria, number of exceedances, and maximum values for each constituent is provided in Table 3-18.

The following sections document the results of sample recovery, lithology, and the analytical results. The depths to refusal and lithology cross-sections are presented in Figures 3-1a through 3-1d and Figures 3-2a and 3-2b, respectively. A summary of the Ponar sample results (0-0.5 ft) is presented in Figure 3-3.

Core profile figures showing the concentrations with depth are presented in Figures 3-4 through 3-29. These figures include data from the current Swan Creek site characterization as well as samples collected in 2012 and 2014 (Weston Solutions, Inc. 2012; CH2M HILL 2014). The sediment core surface interval (0-1 ft) concentration is portrayed as the color in the plan view/aerial portion of the figure, a text box at each location summarizes the maximum concentration at that location and the depth interval where the maximum concentration was detected. Depth profiles for each location are displayed in the chart at the bottom of each figure. Color bins were based on contaminant-specific screening criteria and in consultation with EPA, USACE, and Ohio EPA.

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3.2.1 Sample Recovery

One core was collected and processed from each of the 36 core locations during the 2021 field effort (Table 2-4). Ponar surface samples were collected at each of the 12 sample locations. Core collection attempts were targeted to reach refusal at each location, with the average depth of refusal expected to be 3.5 ft. The actual depth of penetration ranged from 1.2 to 8 ft, with an average depth of 5.5 ft. Ponar surface samples were recovered successfully at each of the proposed 12 locations.

Multiple attempts were required at the core locations to achieve 70 percent recovery at the majority of locations, due to hard bottom conditions encountered throughout the creek. Coordinates were collected for each attempt and field notes were recorded for locations where refusal was encountered (Appendix B). Core recovery did not meet or exceed 70 percent after at least three attempts at the following sample locations: SC21-SC13 (65 percent), SC21-SC24 (66 percent), SC21-SC29 (60 percent), and SC21-MR03-A (65 percent).

The depth of refusal was recorded for each sample attempt and plotted in Figures 3-1a through 3-1d. Figure 3-1a presents an overview and Figures 3-1b, 3-1c and 3-1d provide detailed views of the depths of refusal for the west, central, and east areas of the site, respectively. In general, the depth of refusal is lower further upstream Swan Creek and increases downstream Swan Creek and into Maumee River. But the depth of refusal seems location dependent as the sediment thickness is related to the physical features of Swan Creek in the specific stretch of water.

Sediment recovery ranged from 1.7 ft (SC21-SC08, SC21-SC10, and SC21-SC28) to 7.8 ft (SC21-SC32) (Table 2-4). Detailed lithographic descriptions of the 36 collected cores are presented in Appendix B.

3.2.2 Lithology

A total of 36 sediment cores were collected in the Swan Creek Area; 28 from Swan Creek and 8 from the Maumee River. The cores demonstrated lithologic profiles consistent with sediment types associated with a fluvial system with a strong current (Maumee River) and a lower-discharge tributary (Swan Creek). Most cores were comprised of a mixture of clay and/or silt, with some sandy or gravelly intervals present at varying depths. Overall, the Swan Creek cores exhibited a more varied lithology compared to those from the Maumee River. Coarse-grained intervals ranged from thinly to thickly bedded. Native and non-native material such as shells, roots, woody material, and industrial slag were observed within various sediment types and depths. Hydrocarbon odors were observed in 22 cores. Complete core logs and photographs are provided in Appendixes B and C, respectively. A general description of cores collected during the investigation is included in the text that follows.

Starting in the upstream area of Swan Creek, core SC21-SC02 contained a mixture of fine and coarse-grained intervals, with a basal gravel layer. SC21-SC03 was largely silt with some sand. SC21-SC04 was comprised mainly of sand with a few beds of fine-grained material. SC21-SC06

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through -08 were comprised mostly of silt/clay with a little sand and trace amounts of gravel. SC21-SC09 contained alternating layers of organic clay/silt and sand, with sandy intervals coarsening at depth. SC21-SC10 was comprised of fine-grained material with sand. SC21-SC11 was comprised mostly of sand, with a thick, siltier layer at the bottom. SC21-SC12 and -13 were mostly silt/clay and some sand, coarsening slightly at depth. SC21-SC15 contained organic silt/clay with a layer of sand. SC21-SC16 and -17 were highly variable, containing thin, alternating layers of silt, clay, sand, and gravel, with most intervals containing organic material. SC21-SC19 was comprised mainly of silt, with sand content decreasing at depth. SC21-SC20 and -21 were also comprised mainly of silt with a little sand and trace amounts of gravel, though SC21-SC21 contained discreet intervals of coarse-grained material. SC21-SC22 was a nearly equal mixture of fine- and coarse-grained material in the upper interval, becoming sandier at depth. SC21-SC23 was mainly comprised of silt, with fine sand throughout. SC21-SC24 was mainly silt/clay with a thin interval of sand near the bottom. SC21-SC25 had thick intervals of organic silt/clay with a bed of silty sand between. SC21-SC26 was again mostly silt/clay with some sand throughout. SC21-SC28 contained some gravel and sand near the top and generally became finer-grained with depth, with fluctuations in amounts of sand, silt, and clay. SC21-SC29 was comprised of gravel, sand, and silt. SC21-SC30 contained mostly fine-grained material with some basal sand and gravel. SC21-SC31 and -32 were largely silt/clay in the upper intervals, with the lower half of SC31 alternating between fine-grained sand and organic silty intervals, and SC32 containing a discreet sandy interval present above a basal silt/clay layer. Finally, SC21-SC33, located at the confluence of Swan Creek and the Maumee River, was mostly finegrained at the top, with a gravelly interval below and a slightly sandier bottom. A cross-section depicting the primary lithology of cores along Swan Creek is presented in Figure 3-2a.

In the Maumee River, starting with the location furthest upstream, SC21-MR06 had a silty top and sandy bed at the bottom. SC21-MR05 was mainly comprised of silt/clay with a discreet sandy bed halfway through the core. SC21-MR04 was almost entirely silt/clay, with a little sand in the upper intervals. SC21-MR03-1 contained organic, slightly finer-grained material at the top, with sandier intervals near the bottom. SC21-MR03-2 contained alternating layers of silt/clay and sand, with variations in plasticity between finer layers and relative coarseness between sandier layers. SC21-MR02 was almost entirely silt and/or clay. SC21-MR01 was largely comprised of silt/clay, with a sandy interval halfway through the core. A cross-section depicting the primary lithology of cores along the Maumee River is presented in Figure 3-2b.

3.2.3 Physical Properties - Grain Size and Moisture Content

A total of 143 samples (including field duplicates) were submitted for grain size with hydrometer analysis. Of the total, 134 were discrete core and Ponar samples and 9 were composite samples collected for waste characterization purposes. Detailed analytical results are presented in Table 3-1a for discrete samples and Table 3-1b for composite samples.

Of the discrete samples, 87 were composed primarily (greater than 50 percent) of silt and clay. Silt and clay content in samples ranged from 0.9 percent (SC21-SC01-SURF) to 100 percent (SC21-SC24-0010). Of the discrete samples, 35 were composed primarily (greater than

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50 percent) of sand. Sand content in samples ranged from 3.9 percent (SC21-SC32-0010) to 93.4 percent (SC21-SC01-SURF).

Of the composite samples, 4 were composed primarily (greater than 50 percent) of silt and clay. Silt and clay content in samples ranged from 28 percent (SC21-COMP-01) to 64.6 percent (SC21-COMP-03). Of the composite samples, 3 were composed primarily (greater than 50 percent) of sand. Sand content in samples ranged from 31 percent (SC21-COMP-03) to 65.6 percent (SC21-COMP-01).

A total of 144 samples (including field duplicates) were submitted for moisture content analysis. Of the total, 135 were discrete core and Ponar samples and 9 were composite samples collected for waste characterization purposes. Detailed analytical results are presented in Table 3-1a for discrete samples and Table 3-1b for composite samples.

In the discrete samples, moisture content in samples ranged from 15.6 percent (SC21-SC01-SURF) to 175.7 percent (SC21-MR04-0010). In the composite samples, moisture content in samples ranged from 17.8 percent (SC21-COMP-03) to 60.9 percent (SC21-COMP-04). In some samples, the moisture content exceeded 100 percent. This is due to the fact that the moisture content analysis measures the ratio of the weight (mass) of water to the dry weight of solids in a given mass of soil. In cases where the weight of the water in the soil is greater than the dry weight of soil, the moisture content will be greater than 100 percent.

3.2.4 Total Petroleum Hydrocarbons and Oil and Grease

A total of 144 sediment samples (including field duplicates) were submitted for TPH-DRO (C10-C28)/ORO (C28-C40) and oil and grease analysis. Of the total, 135 were discrete core and Ponar samples and 9 were composite samples collected for waste characterization purposes. Detailed analytical results are presented in Table 3-2a for discrete samples and Table 3-2b for composite samples. Figure 3-4a presents the summed TPH results (C10 to C40) and Figures 3-4b and 3-4c present the DRO and ORO fraction results, respectively. Figure 3-5 presents oil and grease results.

In the discrete samples, TPH was detected in 135 of 135 samples submitted. Concentrations of TPH ranged from 23.5 milligrams per kilogram (mg/kg) (SC21-SC07-4060) to 4,500 mg/kg (SC21-SC21-1020). DRO was detected in 134 of 135 samples submitted. Concentrations of DRO ranged from 8.5 mg/kg (SC21-SC07-4060) to 3,700 mg/kg (SC21-SC31-1020). ORO was detected in 121 of 135 samples submitted, and concentrations ranged from 10 mg/kg (SC21-SC10-0010) to 1,300 mg/kg (SC21-SC21-1020). Oil and grease was detected in 94 of 135 samples submitted and concentrations ranged from 110 mg/kg (SC21-SC06-2040) to 11,000 mg/kg (SC21-SC17-6080).

In the composite samples, TPH was detected in 9 of 9 samples submitted. Concentrations of TPH ranged from 129 mg/kg (SC21-COMP-06) to 3,880 mg/kg (SC21-COMP-05FD). DRO was detected in 9 of 9 samples submitted. Concentrations of DRO ranged from 100 mg/kg (SC21-COMP-06) to 3,100 mg/kg (SC21-COMP-05FD). ORO was detected in 9 of 9 samples

submitted, and concentrations ranged from 29 mg/kg (SC21-COMP-06) to 780 mg/kg (SC21-COMP-05FD). Oil and grease was detected in 9 of 9 samples submitted and concentrations ranged from 280 mg/kg (SC21-COMP-03) to 2,000 mg/kg (SC21-COMP-05, SC21-COMP-05FD).

3.2.5 Total Organic Carbon

A total of 144 samples (including field duplicates) were submitted for TOC analysis. Of the total, 135 were discrete core and Ponar samples and 9 were composite samples collected for waste characterization purposes. Detailed analytical results are presented in Table 3-3a for discrete samples and Table 3-3b for composite samples.

In discrete samples, TOC concentrations ranged from 0.459 percent (SC21-SC04-4060FD) to 94.3 percent (SC21-SC21-2040). In composite samples, TOC concentrations ranged from 1.32 percent (SC21-COMP-03) to 5.26 percent (SC21-COMP-07).

3.2.6 Metals

A total of 144 sediment samples (including field duplicates) were submitted for TAL metals analysis. Of the total, 135 were discrete core and Ponar samples and 9 were composite samples collected for waste characterization purposes. Detailed analytical results are presented in Table 3-3a for discrete samples and Table 3-3b for composite samples. Figure 3-6 through Figure 3-27 present individual metals results.

Results were compared to respective TEC, PEC, and Ohio SRV. Of the 23 analyzed metals, 22 have screening criteria: 8 have TEC/PEC values (arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc) from MacDonald et al. (2000), and 22 have an Ohio SRV (aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium. silver, thallium, vanadium, and zinc) from Ohio EPA (2018). The results discussion for metals focuses on the comparison to the Ohio SRV and the PEC, as available.

Aluminum

Aluminum sediment sample results are presented in Figure 3-6. In the discrete samples, aluminum was detected in 135 samples and concentrations ranged from 2,860 mg/kg (SC21-SC04-4060) to 27,800 mg/kg (SC21-MR04-1020). Of the total samples submitted for aluminum analysis (including field duplicates), 0 had concentrations that exceeded the Ohio SRV (42,000 mg/kg). There is no PEC value for aluminum.

In the composite samples, aluminum was detected in 9 samples and concentrations ranged from 5,640 mg/kg (SC21-COMP-02) to 18,200 mg/kg (SC21-COMP-07). Of the total samples submitted for aluminum analysis (including field duplicates), 0 had concentrations that exceeded the Ohio SRV (42,000 mg/kg). There is no PEC value for aluminum.

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Antimony

Antimony sediment sample results are presented in Figure 3-7. In the discrete samples, antimony was detected in 10 samples and concentrations ranged from 2.2 mg/kg SC21-SC21-1020, SC21-SC28-0010FD) to 9.2 mg/kg (SC21-SC29-0010). Of the total samples submitted for antimony analysis (including field duplicates), 10 had concentrations that exceeded the Ohio SRV (0.84 mg/kg). There is no PEC value for antimony.

Antimony was not detected in any of the composite samples.

Arsenic

Arsenic sediment sample results are presented in Figure 3-8. In the discrete samples, arsenic was detected in 135 samples and concentrations ranged from 1.2 mg/kg (SC21-SC25-0010) to 394 mg/kg (SC21-SC31-2040). Of the total samples submitted for arsenic analysis (including field duplicates), 59 had concentrations that exceeded the Ohio SRV (11 mg/kg) and 19 had concentrations that exceeded the PEC (33 mg/kg).

In the composite samples, arsenic was detected in 9 samples and concentrations ranged from 6.5 mg/kg (SC21-COMP-01) to 60.7 mg/kg (SC21-COMP-07). Of the total samples submitted for arsenic analysis (including field duplicates), 6 had concentrations that exceeded the Ohio SRV (11 mg/kg) and 2 had concentrations that exceeded the PEC (33 mg/kg).

Barium

Barium sediment sample results are presented in Figure 3-9. In the discrete samples, barium was detected in 135 samples and concentrations ranged from 15 mg/kg (SC21-SC04-4060) to 298 mg/kg (SC21-SC21-2040). Of the total samples submitted for barium analysis (including field duplicates), 5 had concentrations that exceeded the Ohio SRV (210 mg/kg). There is no PEC value for barium.

In the composite samples, barium was detected in 9 samples and concentrations ranged from 53.2 mg/kg (SC21-COMP-02) to 191 mg/kg (SC21-COMP-07). Of the total samples submitted for barium analysis (including field duplicates), none had concentrations that exceeded the Ohio SRV (210 mg/kg). There is no PEC value for barium.

Beryllium

Beryllium sediment sample results are presented in Figure 3-10. In the discrete samples, beryllium was detected in 135 samples and concentrations ranged from 0.13 mg/kg (SC21-SC04-4060) to 1.2 mg/kg (SC21-MR04-1020). Of the total samples submitted for beryllium analysis (including field duplicates), 25 had concentrations that exceeded the Ohio SRV (0.8 mg/kg). There is no PEC value for beryllium.

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In the composite samples, beryllium was detected in 9 samples and concentrations ranged from 0.31 mg/kg (SC21-COMP-02) to 0.94 mg/kg (SC21-COMP-07). Of the total samples submitted for beryllium analysis (including field duplicates), 1 had a concentration that exceeded the Ohio SRV (0.8 mg/kg). There is no PEC value for beryllium.

Cadmium

Cadmium sediment sample results are presented in Figure 3-11. In the discrete samples, cadmium was detected in 130 samples and concentrations ranged from 0.12 mg/kg (SC21-SC04-4060FD) to 11.5 mg/kg (SC21-SC21-2040). Of the total samples submitted for cadmium analysis (including field duplicates), 52 had concentrations that exceeded the Ohio SRV (0.96 mg/kg) and 6 had concentrations that exceeded the PEC (4.98 mg/kg).

In the composite samples, cadmium was detected in 9 samples and concentrations ranged from 0.5 mg/kg (SC21-COMP-06) to 4.8 mg/kg (SC21-COMP-07). Of the total samples submitted for cadmium analysis (including field duplicates), 6 had concentrations that exceeded the Ohio SRV (0.96 mg/kg) and none had concentrations that exceeded the PEC (4.98 mg/kg).

Calcium

Calcium sediment sample results are presented in Figure 3-12. In the discrete samples, calcium was detected in 135 samples and concentrations ranged from 394 mg/kg (SC21-SC25-0010) to 132,000 mg/kg (SC21-SC20-0010). Of the total samples submitted for calcium analysis (including field duplicates), 1 had a concentration that exceeded the Ohio SRV (110,000 mg/kg). There is no PEC value for calcium.

In the composite samples, calcium was detected in 9 samples and concentrations ranged from 26,300 mg/kg (SC21-COMP-05FD) to 84,900 mg/kg (SC21-COMP-03). Of the total samples submitted for calcium analysis (including field duplicates), none had a concentration that exceeded the Ohio SRV (110,000 mg/kg). There is no PEC value for calcium.

Chromium

Chromium sediment sample results are presented in Figure 3-13. In the discrete samples, chromium was detected in 135 samples and concentrations ranged from 5.3 mg/kg (SC21-SC04-4060) to 1,820 mg/kg (SC21-SC19-0010). Of the total samples submitted for chromium analysis (including field duplicates), 10 had concentrations that exceeded the Ohio SRV (51 mg/kg) and 6 had concentrations that exceeded the PEC (111 mg/kg).

In the composite samples, chromium was detected in 9 samples and concentrations ranged from 13.6 mg/kg (SC21-COMP-02) to 415 mg/kg (SC21-COMP-08). Of the total samples submitted for chromium analysis (including field duplicates), 2 had concentrations that exceeded the Ohio SRV (51 mg/kg) and 1 had a concentration that exceeded the PEC (111 mg/kg).

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Cobalt

Cobalt sediment sample results are presented in Figure 3-14. In the discrete samples, cobalt was detected in 134 samples and concentrations ranged from 3.2 mg/kg (SC21-SCREF-SURF) to 17.4 mg/kg (SC21-SC12-1020). Of the total samples submitted for cobalt analysis (including field duplicates), 10 had concentrations that exceeded the Ohio SRV (12 mg/kg). There is no PEC value for cobalt.

In the composite samples, cobalt was detected in 9 samples and concentrations ranged from 5.8 mg/kg (SC21-COMP-02) to 13.4 mg/kg (SC21-COMP-07). Of the total samples submitted for cobalt analysis (including field duplicates), 1 had a concentration that exceeded the Ohio SRV (12 mg/kg). There is no PEC value for cobalt.

Copper

Copper sediment sample results are presented in Figure 3-15. In the discrete samples, copper was detected in 135 samples and concentrations ranged from 3.7 mg/kg (SC21-SC25-0010) to 1,210 mg/kg (SC21-SC19-0010). Of the total samples submitted for copper analysis (including field duplicates), 80 had concentrations that exceeded the Ohio SRV (42 mg/kg) and 24 had concentrations that exceeded the PEC (149 mg/kg).

In the composite samples, copper was detected in 9 samples and concentrations ranged from 39 mg/kg (SC21-COMP-02) to 345 mg/kg (SC21-COMP-04). Of the total samples submitted for copper analysis (including field duplicates), 8 had concentrations that exceeded the Ohio SRV (42 mg/kg) and 3 had concentrations that exceeded the PEC (149 mg/kg).

Iron

Iron sediment sample results are presented in Figure 3-16. In the discrete samples, iron was detected in 135 samples and concentrations ranged from 2,490 mg/kg (SC21-SC25-0010) to 33,600 mg/kg (SC21-MR04-1020). Of the total samples submitted for iron analysis (including field duplicates), none had concentrations that exceeded the Ohio SRV (44,000 mg/kg). There is no PEC value for iron.

In the composite samples, iron was detected in 9 samples and concentrations ranged from 10,800 mg/kg (SC21-COMP-02) to 29,100 mg/kg (SC21-COMP-07). Of the total samples submitted for iron analysis (including field duplicates), none had concentrations that exceeded the Ohio SRV (44,000 mg/kg). There is no PEC value for iron.

Lead

Lead sediment sample results are presented in Figure 3-17. In the discrete samples, lead was detected in 135 samples and concentrations ranged from 3.6 mg/kg (SC21-SC04-4060) to 1,290 mg/kg (SC21-SC21-2040). Of the total samples submitted for lead analysis (including

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field duplicates), 77 had concentrations that exceeded the Ohio SRV (47 mg/kg) and 52 had concentrations that exceeded the PEC (128 mg/kg).

In the composite samples, lead was detected in 9 samples and concentrations ranged from 43.7 mg/kg (SC21-COMP-01) to 570 mg/kg (SC21-COMP-07). Of the total samples submitted for lead analysis (including field duplicates), 8 had concentrations that exceeded the Ohio SRV (47 mg/kg) and 5 had concentrations that exceeded the PEC (128 mg/kg).

Magnesium

Magnesium sediment sample results are presented in Figure 3-18. In the discrete samples, magnesium was detected in 135 samples and concentrations ranged from 270 mg/kg (SC21-SC25-0010) to 23,800 mg/kg (SC21-MR04-4060). Of the total samples submitted for magnesium analysis (including field duplicates), none had concentrations that exceeded the Ohio SRV (29,000 mg/kg). There is no PEC value for magnesium.

In the composite samples, magnesium was detected in 9 samples and concentrations ranged from 8,160 mg/kg (SC21-COMP-05FD) to 21,600 mg/kg (SC21-COMP-03). Of the total samples submitted for magnesium analysis (including field duplicates), none had concentrations that exceeded the Ohio SRV (29,000 mg/kg). There is no PEC value for magnesium.

Manganese

Manganese sediment sample results are presented in Figure 3-19. In the discrete samples, manganese was detected in 135 samples and concentrations ranged from 9.7 mg/kg (SC21-SC25-0010) to 670 mg/kg (SC21-MR03-A-1020, SC21-MR04-1020). Of the total samples submitted for manganese analysis (including field duplicates), none had concentrations that exceeded the Ohio SRV (1,000 mg/kg). There is no PEC value for manganese.

In the composite samples, manganese was detected in 9 samples and concentrations ranged from 201 mg/kg (SC21-COMP-02) to 546 mg/kg (SC21-COMP-03). Of the total samples submitted for manganese analysis (including field duplicates), none had concentrations that exceeded the Ohio SRV (1,000 mg/kg). There is no PEC value for manganese.

Mercury

Mercury sediment sample results are presented in Figure 3-20. In the discrete samples, mercury was detected in 115 samples and concentrations ranged from 0.016 mg/kg (SC21-SC07-2040) to 4.6 mg/kg (SC21-SC31-2040). Of the total samples submitted for mercury analysis (including field duplicates), 78 had concentrations that exceeded the Ohio SRV (0.12 mg/kg) and 31 had concentrations that exceeded the PEC (1.06 mg/kg).

In the composite samples, mercury was detected in 9 samples and concentrations ranged from 0.075 mg/kg (SC21-COMP-01) to 1.2 mg/kg (SC21-COMP-07). Of the total samples submitted

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for mercury analysis (including field duplicates), 7 had concentrations that exceeded the Ohio SRV (0.12 mg/kg) and 1 had a concentration that exceeded the PEC (1.06 mg/kg).

Nickel

Nickel sediment sample results are presented in Figure 3-21. In the discrete samples, nickel was detected in 135 samples and concentrations ranged from 5.9 mg/kg (SC21-SC25-0010) to 97.1 mg/kg (SC21-SC29-0010). Of the total samples submitted for nickel analysis (including field duplicates), 14 had concentrations that exceeded the Ohio SRV (36 mg/kg) and 6 had concentrations that exceeded the PEC (48.6 mg/kg).

In the composite samples, nickel was detected in 9 samples and concentrations ranged from 14.2 mg/kg (SC21-COMP-02) to 47.8 mg/kg (SC21-COMP-08). Of the total samples submitted for nickel analysis (including field duplicates), 2 had concentrations that exceeded the Ohio SRV (36 mg/kg) and none had concentrations that exceeded the PEC (48.6 mg/kg).

Potassium

Potassium sediment sample results are presented in Figure 3-22. In the discrete samples, potassium was detected in 135 samples and concentrations ranged from 255 mg/kg (SC21-SC25-0010) to 6,830 mg/kg (SC21-SC12-1020). Of the total samples submitted for potassium analysis (including field duplicates), none had concentrations that exceeded the Ohio SRV (12,000 mg/kg). There is no PEC value for potassium.

In the composite samples, potassium was detected in 9 samples and concentrations ranged from 1,250 mg/kg (SC21-COMP-02) to 4,050 mg/kg (SC21-COMP-03). Of the total samples submitted for potassium analysis (including field duplicates), none had concentrations that exceeded the Ohio SRV (12,000 mg/kg). There is no PEC value for potassium.

Selenium

Selenium was not detected in any of the 2021 sediment samples, but the historical sediment sample results are presented in Figure 3-23.

Silver

Silver sediment sample results are presented in Figure 3-24. In the discrete samples, silver was detected in 56 samples and concentrations ranged from 0.21 mg/kg (SC21-SC09-2040) to 7.2 mg/kg (SC21-SC21-2040). Of the total samples submitted for silver analysis (including field duplicates), 52 had concentrations that exceeded the Ohio SRV (0.43 mg/kg). There is no PEC value for silver.

In the composite samples, silver was detected in 3 samples and concentrations ranged from 0.47 mg/kg (SC21-COMP-05) to 2.1 mg/kg (SC21-COMP-08). Of the total samples submitted

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for silver analysis (including field duplicates), 3 had concentrations that exceeded the Ohio SRV (0.43 mg/kg). There is no PEC value for silver.

Sodium

There is no Ohio SRV or PEC value for sodium, so sediment results are not presented on a figure.

In the discrete samples, sodium was detected in 133 samples and concentrations ranged from 82.1 mg/kg (SC21-SC04-4060) to 1,520 mg/kg (SC21-SC03-1020).

In the composite samples, sodium was detected in 9 samples and concentrations ranged from 187 mg/kg (SC21-COMP-05FD) to 450 mg/kg (SC21-COMP-07).

Thallium

Thallium was not detected in any of the 2021 sediment samples, but the historical sediment sample results are presented in Figure 3-25.

Vanadium

Vanadium sediment sample results are presented in Figure 3-26. In the discrete samples, vanadium was detected in 135 samples and concentrations ranged from 8.9 mg/kg (SC21-SC04-4060) to 57 mg/kg (SC21-SC12-1020). Of the total samples submitted for vanadium analysis (including field duplicates), 13 had concentrations that exceeded the Ohio SRV (40 mg/kg). There is no PEC value for vanadium.

In the composite samples, vanadium was detected in 9 samples and concentrations ranged from 15.7 mg/kg (SC21-COMP-02) to 41.8 mg/kg (SC21-COMP-07). Of the total samples submitted for vanadium analysis (including field duplicates), 1 had a concentration that exceeded the Ohio SRV (40 mg/kg). There is no PEC value for vanadium.

Zinc

Zinc sediment sample results are presented in Figure 3-27. In the discrete samples, zinc was detected in 135 samples and concentrations ranged from 6 mg/kg (SC21-SC25-0010) to 1,290 mg/kg (SC21-SC25-4060). Of the total samples submitted for zinc analysis (including field duplicates), 56 had concentrations that exceeded the Ohio SRV (190 mg/kg) and 21 had concentrations that exceeded the PEC (459 mg/kg).

In the composite samples, zinc was detected in 9 samples and concentrations ranged from 108 mg/kg (SC21-COMP-03) to 680 mg/kg (SC21-COMP-07). Of the total samples submitted for zinc analysis (including field duplicates), 5 had concentrations that exceeded the Ohio SRV (190 mg/kg) and 2 had concentrations that exceeded the PEC (459 mg/kg).

3.2.7 Ratio of Simultaneously Extracted Metals to Acid Volatile Sulfide

The bioavailability of divalent metals to aquatic organisms is influenced by the presence of AVS. In low oxygenated (anaerobic) environments, divalent metals precipitate as metal sulfides, making them unavailable for uptake by aquatic organisms. Using this method, five metals (cadmium, copper, lead, nickel, and zinc) were extracted, measured, converted to units of micromoles per gram (μ mol/g) and added together (including any values that were J-qualified) to determine the amount of SEM. If a metal was not detected, it was considered a zero in the calculation. SEM was then compared to the amount of AVS detected (units of μ mol/g) in the same sediment sample. If AVS was not detected in the sample, the SEM/AVS ratio was not calculated.

An SEM/AVS ratio less than 1 indicates a high degree of probability that the metals are bound as metal sulfides and not bioavailable to aquatic organisms. If the SEM/AVS ratio is greater than 1, then the metals in sediment exceed the sulfide binding ability and have a higher probability of being bioavailable to aquatic organisms (EPA 2005).

A total of 51 discrete surface samples, including field duplicates, were submitted for SEM and AVS analysis and the SEM/AVS ratio was calculated (Table 3-4). Two samples had a ratio greater than 1 (ratios in parentheses): SC21-SC01-SURF (6.04) and SC21-SC19-0010 (1.93). The SEM/AVS ratio was not calculated for 5 samples (SC21-SC06-0010, SC21-SC08-0010, SC21-SC10-0010, SC21-SC12-0010, and SC21-SC20-0010) because AVS was not detected. With the exception of these 7 samples, all samples produced SEM/AVS ratios less than 1, indicating a high probability that the metals are bound as sulfides and not bioavailable.

Organic carbon content also can reduce bioavailability of metals. The sum of SEM – AVS difference is divided by fraction of organic carbon in sediment. Per EPA guidance (2005), if the result is $<130 \,\mu mol/g_{oc}$, then toxicity to benthic invertebrates is not anticipated. If the result is $>3,000 \,\mu mol/g_{oc}$, then toxicity is likely. If the result is between 130 and 3,000 $\mu mol/g_{oc}$, then toxicity is uncertain (Interstate Technology & Regulatory Council 2011).

A total of 51 discrete surface samples, including field duplicates, were submitted for SEM and AVS analysis and the (Σ SEM - AVS) / fraction of organic carbon ratio was calculated (Table 3-4). One sample had a ratio greater than 130 μ mol/goc: SC21-SC19-0010 (187 μ mol/goc). There were no samples with results >3,000 μ mol/goc.

3.2.8 Polychlorinated Biphenyl Aroclors

There are TEC and PEC values only for total PCB concentrations, not for individual Aroclors: 59.8 and 676 micrograms per kilogram (µg/kg), respectively. Total PCB Aroclor concentrations were calculated and compared to the screening criteria by summing the concentrations of individual PCB Aroclors with non-detects treated as 0 (ND=0). A total of 139 sediment samples, including field duplicates, were submitted for PCB Aroclor analysis of 9 individual Aroclors. Of the total, 130 were discrete core and Ponar samples and 9 were composite samples collected for waste characterization purposes. Detailed analytical results of individual Aroclor concentrations

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and summed totals are presented in Table 3-5a for discrete samples and Table 3-5b for composite samples. The summed total PCBs sediment sample results are presented in Figure 3-28.

In discrete samples, 5 of the individual Aroclors were detected: Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260, and Aroclor-1268. Aroclor-1242 was detected in 53 of the samples submitted, Aroclor-1248 in 5 samples, Aroclor-1254 in 44, Aroclor-1260 in 8 samples, and Aroclor-1268 was detected in 4 samples. Total PCB Aroclor concentrations (ND=0) ranged from 18.7 μ g/kg (SC21-SC32-6080) to 31,400 μ g/kg (SC21-SC15-1020). Of the samples submitted, 47 (including field duplicates) had total PCB concentrations (ND=0) that exceeded the TEC (59.8 μ g/kg) and 11 samples exceeded the PEC (676 μ g/kg).

In composite samples, 3 of the individual Aroclors were detected: Aroclor-1242, Aroclor-1254, and Aroclor-1268. Aroclor-1242 was detected in 9 of the samples submitted, Aroclor-1254 in 6, and Aroclor-1268 in 1. Total PCB Aroclor concentrations (ND=0) ranged from 51 μ g/kg (SC21-COMP-03) to 15,000 μ g/kg (SC21-COMP-05, SC21-COMP-05FD). Of the samples submitted, 8 (including field duplicates) had total PCB concentrations (ND=0) that exceeded the TEC (59.8 μ g/kg) and 3 samples exceeded the PEC (676 μ g/kg).

3.2.9 Polychlorinated Biphenyl Congeners

There are TEC and PEC values only for total PCB concentrations, not for individual congeners: 59.8 and $676 \mu g/kg$, respectively. Total PCB congener concentrations were calculated and compared to the screening criteria by summing the concentrations of individual PCB congeners with non-detects treated as 0 (ND=0).

A total of 5 discrete sediment samples, including field duplicates, were submitted for PCB congener analysis. Total PCB congener concentrations (ND=0) ranged from 30.6 μ g/kg (SC21-SC11-SURF) to 17,279 μ g/kg (SC21-SC18-SURFFD). Of the samples submitted, 4 (including field duplicates) had total PCB concentrations (ND=0) that exceeded the TEC (59.8 μ g/kg) and 2 samples exceeded the PEC (676 μ g/kg). Individual congener concentrations as well as the summed totals are presented in Table 3-6.

The surface samples analyzed for PCB congeners (SC21-SC11, SC21-SC14, SC21-SC18, and SC21-SCREF) were also analyzed for PCB aroclors (see below). It is worth noting, the aroclor and congener total concentrations did not follow a specific pattern in relation to each other. For SC21-SC11, the total PCB congener concentration was between 5 to 10 times lower than the total PCB aroclor concentration. For SC21-SC14, the total PCB congener and total PCB aroclor concentrations were similar. For SC21-SC18, the total PCB congener concentrations of the parent and duplicate samples was approximately half of or nearly equal to the total PCB aroclor concentration. For SC21-SCREF, the total PCB congener concentration was between 5 to 10 times higher than the total PCB aroclor concentration. However, when the total PCB congener and total PCB aroclor concentrations were compared to the PEC, both either exceeded or did not exceed for a given sample.

11/9/2021

0 - 0.5

Sample Location	SC21-SC11	SC21-SC14	SC21-SC18/ SC21-SC18 (FD)	SC21-SCREF
Total PCB Congeners				
Sample Date	11/9/2021	11/9/2021	11/9/2021	11/9/2021
Depth Interval	0-0.5	0-0.5	0-0.5	0-0.5
Total PCB Congener	30.6	<u>170</u>	<u>8,400/17,279</u>	<u>406</u>
Concentration (µg/kg)				
Total PCB Aroclor Data at Locations Analyzed for Congeners				

Depth Interval 0-0.5 0-0.5 **Total PCB Aroclor** 224 127 17,000 **60** Concentration (µg/kg) Note: Underlined and bolded values indicate a concentration exceeding the TEC (59.8 µg/kg). Shaded cells indicate a concentration exceeding the PEC (676 µg/kg). See also Tables 3-5A and 3-6.

11/9/2021

11/9/2021

0 - 0.5

11/10/2021

3.2.10 Polycyclic Aromatic Hydrocarbons

Sample Date

A total of 131 sediment samples, including field duplicates, were submitted for 17 PAH analysis. Of the total, 122 were discrete core and Ponar samples and 9 were composite samples collected for waste characterization purposes. Tables 3-7a and 3-7b provide the PAH results. In discrete samples, each of the 17 individual PAHs was detected in at least 1 sample, In composite samples, with the exception of dibenzo(a,h)anthracene, each of the 17 individual PAHs was detected in at least 1 sample, 9 had concentrations that exceeded respective PEC values in at least 1 sample, and 16 had concentrations that exceeded respective Region 4 ESV in at least 1 sample.

A total of 13 discrete sediment samples, including field duplicates, were submitted for 34 PAH analysis. Table 3-8 provides the results for each of the analyzed 34 PAHs. Nine of the 17 individual analyzed PAHs have PEC values from MacDonald et al. (2000) and each of the 17 has a Region 4 ESV. The results discussion focuses on the comparison to the PEC values, if available, and comparisons to the Region 4 ESV are discussed where PEC values are not available.

3.2.10.1 17 Polycyclic Aromatic Hydrocarbons

Results for individual 17 PAHs are provided below. Detailed analytical results of 17 PAH analysis are presented in Table 3-7a for discrete samples and Table 3-7b for composite samples. The summed total 17 PAHs (ND=1/2 RL) sediment sample results are presented in Figure 3-29.

2-Methylnaphthalene

In discrete samples, 2-methylnaphthalene was detected in 114 of the 122 samples submitted for analysis. 2-Methylnaphthalene concentrations ranged from 0.58 µg/kg (SC21-SC07-2040FD) to

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 $63,000 \mu g/kg$ (SC21-SC24-2040). Of the total samples submitted for 2-methylnaphthalene, 73 exceeded the Region 4 ESV (20.2 $\mu g/kg$). There is no PEC value for 2-methylnaphthalene.

In composite samples, 2-methylnaphthalene was detected in 9 of the 9 samples submitted for analysis. 2-Methylnaphthalene concentrations ranged from 17 μ g/kg (SC21-COMP-01) to 4,700 μ g/kg (SC21-COMP-08). Of the total samples submitted for 2-methylnaphthalene, 8 exceeded the Region 4 ESV (20.2 μ g/kg). There is no PEC value for 2-methylnaphthalene.

Acenaphthene

In discrete samples, acenaphthene was detected in 115 of the 122 samples submitted for analysis. Acenaphthene concentrations ranged from 1.9 μ g/kg (SC21-SC07-2040FD) to 89,000 μ g/kg (SC21-SC09-0010). Of the total samples submitted for acenaphthene, 101 exceeded the Region 4 ESV (6.71 μ g/kg). There is no PEC value for acenaphthene.

In composite samples, acenaphthene was detected in 9 of the 9 samples submitted for analysis. Acenaphthene concentrations ranged from 63 μ g/kg (SC21-COMP-01) to 16,000 μ g/kg (SC21-COMP-05FD). Of the total samples submitted for acenaphthene, 9 exceeded the Region 4 ESV (6.71 μ g/kg). There is no PEC value for acenaphthene.

Acenaphthylene

In discrete samples, acenaphthylene was detected in 110 of the 122 samples submitted for analysis. Acenaphthylene concentrations ranged from 0.91 $\mu g/kg$ (SC21-SC20-1020, SC21-SC07-2040FD) to 5,800 $\mu g/kg$ (SC21-SC31-4060). Of the total samples submitted for acenaphthylene, 90 exceeded the Region 4 ESV (5.9 $\mu g/kg$). There is no PEC value for acenaphthylene.

In composite samples, acenaphthylene was detected in 9 of the 9 samples submitted for analysis. Acenaphthylene concentrations ranged from 45 $\mu g/kg$ (SC21-COMP-01) to 1,400 $\mu g/kg$ (SC21-COMP-05FD). Of the total samples submitted for acenaphthylene, 9 exceeded the Region 4 ESV (5.9 $\mu g/kg$). There is no PEC value for acenaphthylene.

Anthracene

In discrete samples, anthracene was detected in 115 of the 122 samples submitted for analysis. Anthracene concentrations ranged from 1.2 μ g/kg (SC21-SC07-2040FD) to 50,000 μ g/kg (SC21-SC31-4060). Of the total samples submitted for anthracene (including field duplicates), 51 had concentrations that exceeded the PEC (845 μ g/kg).

In composite samples, anthracene was detected in 9 of the 9 samples submitted for analysis. Anthracene concentrations ranged from 160 μ g/kg (SC21-COMP-01) to 15,000 μ g/kg (SC21-COMP-05FD). Of the total samples submitted for anthracene (including field duplicates), 7 had concentrations that exceeded the PEC (845 μ g/kg).

Benzo(a)anthracene

In discrete samples, benzo(a)anthracene was detected in 116 of the 122 samples submitted for analysis. Benzo(a)anthracene concentrations ranged from 0.59 μ g/kg (SC21-SC12-2040) to 38,000 μ g/kg (SC21-SC31-4060). Of the total samples submitted for benzo(a)anthracene (including field duplicates), 57 had concentrations that exceeded the PEC (1,050 μ g/kg).

In composite samples, benzo(a)anthracene was detected in 9 of the 9 samples submitted for analysis. Benzo(a)anthracene concentrations ranged from 470 μ g/kg (SC21-COMP-01) to 9,400 μ g/kg (SC21-COMP-05FD). Of the total samples submitted for benzo(a)anthracene (including field duplicates), 6 had concentrations that exceeded the PEC (1,050 μ g/kg).

Benzo(a)pyrene

In discrete samples, benzo(a)pyrene was detected in 116 of the 122 samples submitted for analysis. Benzo(a)pyrene concentrations ranged from 0.51 μ g/kg (SC21-SC12-2040) to 25,000 μ g/kg (SC21-SC31-4060). Of the total samples submitted for benzo(a)pyrene (including field duplicates), 46 had concentrations that exceeded the PEC (1,450 μ g/kg).

In composite samples, benzo(a)pyrene was detected in 8 of the 9 samples submitted for analysis. Benzo(a)pyrene concentrations ranged from 380 μ g/kg (SC21-COMP-02) to 5,200 μ g/kg (SC21-COMP-05FD). Of the total samples submitted for benzo(a)pyrene (including field duplicates), 5 had concentrations that exceeded the PEC (1,450 μ g/kg).

Benzo(b)fluoranthene

In discrete samples, benzo(b)fluoranthene was detected in 117 of the 122 samples submitted for analysis. Benzo(b)fluoranthene concentrations ranged from 0.69 μ g/kg (SC21-SC12-2040) to 20,000 μ g/kg (SC21-SC31-4060). Of the total samples submitted for benzo(b)fluoranthene, 78 had concentrations that exceeded the Region 4 ESV (190 μ g/kg). There is no PEC value for benzo(b)fluoranthene.

In composite samples, benzo(b)fluoranthene was detected in 9 of the 9 samples submitted for analysis. Benzo(b)fluoranthene concentrations ranged from 340 μ g/kg (SC21-COMP-03) to 5,600 μ g/kg (SC21-COMP-05FD). Of the total samples submitted for benzo(b)fluoranthene, 9 had concentrations that exceeded the Region 4 ESV (190 μ g/kg). There is no PEC value for benzo(b)fluoranthene.

Benzo(g,h,i)perylene

In discrete samples, benzo(g,h,i)perylene was detected in 116 of the 122 samples submitted for analysis. Benzo(g,h,i)perylene concentrations ranged from 1.2 μ g/kg (SC21-SC07-2040FD) to 8,100 μ g/kg (SC21-SC31-4060). Of the total samples submitted for benzo(g,h,i)perylene (including field duplicates), 73 had concentrations that exceeded the Region 4 ESV (170 μ g/kg). There is no PEC value for benzo(g,h,i)perylene.

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In composite samples, benzo(g,h,i)perylene was detected in 9 of the 9 samples submitted for analysis. Benzo(g,h,i)perylene concentrations ranged from 98 μ g/kg (SC21-COMP-03) to 1,500 μ g/kg (SC21-COMP-08). Of the total samples submitted for benzo(g,h,i)perylene (including field duplicates), 7 had concentrations that exceeded the Region 4 ESV (170 μ g/kg). There is no PEC value for benzo(g,h,i)perylene.

Benzo(k)fluoranthene

In discrete samples, benzo(k)fluoranthene was detected in 109 of the 122 samples submitted for analysis. Benzo(k)fluoranthene concentrations ranged from 0.85 μ g/kg (SC21-SC07-2040FD) to 8,600 μ g/kg (SC21-SC31-4060). Of the total samples submitted for benzo(k)fluoranthene (including field duplicates), 64 had concentrations that exceeded the Region 4 ESV (240 μ g/kg). There is no PEC value for benzo(k)fluoranthene.

In composite samples, benzo(k)fluoranthene was detected in 9 of the 9 samples submitted for analysis. Benzo(k)fluoranthene concentrations ranged from 110 μ g/kg (SC21-COMP-03) to 2,400 μ g/kg (SC21-COMP-05FD). Of the total samples submitted for benzo(k)fluoranthene (including field duplicates), 6 had concentrations that exceeded the Region 4 ESV (240 μ g/kg). There is no PEC value for benzo(k)fluoranthene.

Chrysene

In discrete samples, chrysene was detected in 118 of the 122 samples submitted for analysis. Chrysene concentrations ranged from 1.8 μ g/kg (SC21-SC12-2040) to 28,000 μ g/kg (SC21-SC31-4060). Of the total samples submitted for chrysene (including field duplicates), 51 had concentrations that exceeded the PEC (1,290 μ g/kg).

In composite samples, chrysene was detected in 9 of the 9 samples submitted for analysis. Chrysene concentrations ranged from 440 μ g/kg (SC21-COMP-01) to 7,400 μ g/kg (SC21-COMP-05FD). Of the total samples submitted for chrysene (including field duplicates), 5 had concentrations that exceeded the PEC (1,290 μ g/kg).

Dibenzo(a,h)anthracene

In discrete samples, dibenzo(a,h)anthracene was detected in 4 of the 122 samples submitted for analysis. Dibenzo(a,h)anthracene concentrations ranged from 0.44 μ g/kg (SC21-SC06-2040) to 3.9 μ g/kg (SC21-SC11-2040). Of the total samples submitted for dibenzo(a,h)anthracene (including field duplicates), none had concentrations that exceeded the Region 4 ESV (33 μ g/kg). There is no PEC value for dibenzo(a,h)anthracene.

Dibenzo(a,h)anthracene was not detected in the 9 composite samples submitted for analysis.

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Fluoranthene

In discrete samples, fluoranthene was detected in 117 of the 122 samples submitted for analysis. Fluoranthene concentrations ranged from $0.82 \mu g/kg$ (SC21-SC12-2040) to $97,000 \mu g/kg$ (SC21-SC31-4060). Of the total samples submitted for fluoranthene (including field duplicates), 59 had concentrations that exceeded the PEC (2,230 $\mu g/kg$).

In composite samples, fluoranthene was detected in 9 of the 9 samples submitted for analysis. Fluoranthene concentrations ranged from 1,100 μ g/kg (SC21-COMP-01) to 30,000 μ g/kg (SC21-COMP-05FD). Of the total samples submitted for fluoranthene (including field duplicates), 6 had concentrations that exceeded the PEC (2,230 μ g/kg).

Fluorene

In discrete samples, fluorene was detected in 116 of the 122 samples submitted for analysis. Fluorene concentrations ranged from 1.3 μ g/kg (SC21-SC07-2040FD, SC21-SC12-2040) to 52,000 μ g/kg (SC21-SC09-0010). Of the total samples submitted for fluorene (including field duplicates), 53 had concentrations that exceeded the PEC (536 μ g/kg).

In composite samples, fluorene was detected in 9 of the 9 samples submitted for analysis. Fluorene concentrations ranged from 77 μ g/kg (SC21-COMP-01) to 16,000 μ g/kg (SC21-COMP-05FD). Of the total samples submitted for fluorene (including field duplicates), 7 had concentrations that exceeded the PEC (536 μ g/kg).

Indeno(1,2,3-cd)pyrene

In discrete samples, indeno(1,2,3-cd)pyrene was detected in 113 of the 122 samples submitted for analysis. Indeno(1,2,3-cd)pyrene concentrations ranged from 0.68 μ g/kg (SC21-SC08-0010) to 8,000 μ g/kg (SC21-SC31-4060). Of the total samples submitted for indeno(1,2,3-cd)pyrene (including field duplicates), 73 had concentrations that exceeded the Region 4 ESV (200 μ g/kg). There is no PEC value for indeno(1,2,3-cd)pyrene.

In composite samples, indeno(1,2,3-cd)pyrene was detected in 9 of the 9 samples submitted for analysis. Indeno(1,2,3-cd)pyrene concentrations ranged from 110 μ g/kg (SC21-COMP-03) to 1,700 μ g/kg (SC21-COMP-05FD). Of the total samples submitted for indeno(1,2,3-cd)pyrene (including field duplicates), 7 had concentrations that exceeded the Region 4 ESV (200 μ g/kg). There is no PEC value for indeno(1,2,3-cd)pyrene.

Naphthalene

In discrete samples, naphthalene was detected in 111 of the 122 samples submitted for analysis. Naphthalene concentrations ranged from 0.83 μ g/kg (SC21-SC07-2040FD) to 170,000 μ g/kg (SC21-SC24-2040). Of the total samples submitted for naphthalene (including field duplicates), 26 had concentrations that exceeded the PEC (561 μ g/kg).

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In composite samples, naphthalene was detected in 9 of the 9 samples submitted for analysis. Naphthalene concentrations ranged from 23 μ g/kg (SC21-COMP-06) to 8,100 μ g/kg (SC21-COMP-08). Of the total samples submitted for naphthalene (including field duplicates), 4 had concentrations that exceeded the PEC (561 μ g/kg).

Phenanthrene

In discrete samples, phenanthrene was detected in 122 of the 122 samples submitted for analysis. Phenanthrene concentrations ranged from 3.1 μ g/kg (SC21-SC07-2040FD) to 150,000 μ g/kg (SC21-SC31-4060 and SC21-SC31-6080). Of the total samples submitted for phenanthrene (including field duplicates), 57 had concentrations that exceeded the PEC (1,170 μ g/kg).

In composite samples, phenanthrene was detected in 9 of the 9 samples submitted for analysis. Phenanthrene concentrations ranged from 570 μ g/kg (SC21-COMP-01) to 49,000 μ g/kg (SC21-COMP-05FD). Of the total samples submitted for phenanthrene (including field duplicates), 8 had concentrations that exceeded the PEC (1,170 μ g/kg).

Pyrene

In discrete samples, pyrene was detected in 118 of the 122 samples submitted for analysis. Pyrene concentrations ranged from 2.7 μ g/kg (SC21-SC12-2040) to 85,000 μ g/kg (SC21-SC31-4060). Of the total samples submitted for pyrene (including field duplicates), 59 had concentrations that exceeded the PEC (1,520 μ g/kg).

In composite samples, pyrene was detected in 9 of the 9 samples submitted for analysis. Pyrene concentrations ranged from 930 μ g/kg (SC21-COMP-01) to 23,000 μ g/kg (SC21-COMP-05FD). Of the total samples submitted for pyrene (including field duplicates), 7 had concentrations that exceeded the PEC (1,520 μ g/kg).

Total PAHs

Total PAHs were calculated using 17 individual PAHs (Total 17 PAHs) to be consistent with the derivation of the TEC and PEC values. Total 17 PAH concentrations were calculated by summing the concentrations of individual 17 PAHs with non-detects treated as one-half the reporting limit (ND= $\frac{1}{2}$ RL).

In discrete samples, Total 17 PAH concentrations (ND=½ RL) ranged from 38.55 μ g/kg (SC21-SC04-4060FD) to 706,130 μ g/kg (SC21-SC31-6080). Of the samples submitted (including field duplicates), 49 had total 17 PAH concentrations (ND=½RL) that exceeded the PEC (22,800 μ g/kg). The highest total 17 PAH (ND=½RL) concentration was greater than 30 times the PEC. Detailed results are presented in Table 3-7a in numerical order of location numbers and presented in Figure 3-29.

In composite samples, Total 17 PAH concentrations (ND= $\frac{1}{2}$ RL) ranged from 5,441 μ g/kg (SC21-SC04-6080) to 185,160 μ g/kg (SC21-COMP-05FD). Of the samples submitted (including

field duplicates), 5 had total 17 PAH concentrations (ND= $\frac{1}{2}$ RL) that exceeded the PEC (22,800 μ g/kg). The highest total 17 PAH (ND= $\frac{1}{2}$ RL) concentration was greater than 8 times the PEC. Detailed results are presented in Table 3-7b in numerical order of location numbers and presented in Figure 3-29.

3.2.10.2 34 Polycyclic Aromatic Hydrocarbons

A total of 13 discrete sediment samples, including field duplicates, were submitted for 34 PAHs analysis. Of the 34 analyzed individual PAHs, each was detected in all 13 samples and 9 had concentrations that exceeded respective PEC values in at least 1 sample, and 16 had concentrations that exceeded respective Region 4 ESV in at least one sample.

Total 34 PAH concentrations were calculated by summing the concentrations of individual PAHs with non-detects treated as one-half the reporting limit (ND= $\frac{1}{2}$ RL). Total 34 PAH concentrations (ND= $\frac{1}{2}$ RL) ranged from 2,482 μ g/kg (SC21-MRREF-SURF) to 231,963 μ g/kg (SC21-SC18-SURF).

The Total 34 PAH concentrations (ND=½ RL) were compared to the 17 PAH PEC value as a benchmark comparison. Of the samples submitted (including field duplicates), 7 had total 34 PAH concentrations (ND=½RL) that exceeded the PEC (22,800 µg/kg). Detailed results are presented in Table 3-8 in numerical order of location numbers.

3.2.11 Nitrogen (Ammonia)

A total of 9 composite sediment samples, including field duplicates, were submitted for ammonia analysis. Ammonia was detected in 9 of the 9 samples submitted for nitrogen (ammonia) analysis, including field duplicates. Ammonia concentrations ranged from 14 mg/kg (SC21-COMP-03) to 230 mg/kg (SC21-COMP-08) (Table 3-9).

3.2.12 Nitrogen (TKN)

A total of 9 composite sediment samples, including field duplicates, were submitted for TKN analysis. TKN was detected in 9 of 9 samples submitted for nitrogen (TKN) analysis, including field duplicates. TKN concentrations ranged from 600 mg/kg (SC21-COMP-03) to 1,800 mg/kg (SC21-COMP-05FD, SC21-COMP-08) (Table 3-9).

3.2.13 Phosphorous

A total of 9 composite sediment samples, including field duplicates, were submitted for phosphorous analysis. Phosphorous was detected in 9 of the 9 samples submitted for analysis, including field duplicates. Phosphorous concentrations ranged from 370 mg/kg (SC21-COMP-01) to 1,100 mg/kg (SC21-COMP-05FD) (Table 3-9).

3.2.14 Cyanide

A total of 9 composite sediment samples, including field duplicates, were submitted for cyanide analysis. Total cyanide was detected in 2 of the 9 samples submitted for analysis, including field duplicates. Total cyanide concentrations ranged from 0.43 mg/kg (SC21-COMP-07) to 10 mg/kg (SC21-COMP-08). Of the total samples submitted for total cyanide 2 had concentrations that exceed the EPA Region 5 ECO screening value (0.0001 mg/kg) (Table 3-10).

3.2.15 TCLP

A total of 8 sediment samples were submitted for TCLP analysis. There were no detections for herbicides, pesticides, or semivolatile organic compounds. Arsenic, barium, and lead were the only metals detected and benzene was the only volatile organic compound detected. Each of the detected concentrations were below the TCLP regulatory levels from 40 Code of Federal Regulations 261.24. Ignitability was over 140 degrees Fahrenheit for each of the samples. pH ranged from 7.4 to 8.1. All but one sample (SC21-COMP-01) passed the paint filter test (Table 3-11).

3.3 STANDARD ELUTRIATES AND SURFACE WATER RESULTS

3.3.1 Total Petroleum Hydrocarbons and Oil and Grease

A total of 9 standard elutriates and 4 surface water samples, including field duplicates, were submitted for TPH-DRO (C10-C28)/ORO (C28-C40) and oil and grease analysis. TPH results are presented in Table 3-12. Oil and grease results are presented in Table 3-13.

DRO was detected in 4 of the 4 surface water samples submitted. Concentrations of DRO ranged from 0.22 mg/L (SC21-SC-WAT) to 0.31 mg/L (SC21-CDF-WAT). ORO was not detected in the 4 surface water samples submitted. Oil and grease was detected in 4 of the 4 surface water samples submitted. Concentration of oil and grease ranged from 2.6 mg/L (SC21-SC-WAT) to 11 mg/L (SC21-SC-WATFD).

DRO was detected in 9 of the 9 standard elutriate samples. Concentrations of DRO ranged from 0.22 mg/L (SC21-COMP-01-SETFD) to 0.88 mg/L (SC21-COMP-07-SET). ORO was not detected in the 9 samples submitted. Oil and grease was detected in 7 of the 9 samples submitted. Concentration of oil and grease ranged from 3 mg/L (SC21-COMP-02-SET) to 4.9 mg/L (SC21-COMP-04-SET, SC21-COMP-07-SET).

3.3.2 Metals

A total of 9 standard elutriate and 4 surface water samples, including field duplicates, were submitted for metals analysis. Results were compared to Ohio EPA and EPA water quality criteria (Ohio EPA 2021). Results are presented in Table 3-14. Of the 23 analyzed metals, 16 have screening criteria values (antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, nickel, selenium. silver, thallium, vanadium, and zinc) (Ohio EPA

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2021). Antimony, arsenic, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, nickel, selenium. silver, and thallium were not detected in any of the 4 surface water samples submitted for analysis. Antimony, selenium, silver, and thallium were not detected in any of the 9 standard elutriate samples submitted for analysis (Table 3-14).

Arsenic

Arsenic was not detected in surface water.

Arsenic was detected in 9 of 13 standard elutriate samples submitted for analysis. Arsenic concentrations ranged from 4.5 micrograms per liter ($\mu g/L$) (SC21-COMP-01-SETFD) to 36.3 $\mu g/L$ (SC21-COMP-02-SET). Of the total samples submitted for arsenic analysis (including field duplicates), none had concentrations that exceeded the criteria (150 $\mu g/L$) (Table 3-14).

Barium

Barium was detected in 4 of 4 samples submitted for surface water analysis. Barium concentrations ranged from 45.8 μ g/L (SC21-CDF-WAT) to 64.9 μ g/L (SC21-SC-WAT). Of the total samples submitted for barium analysis (including field duplicates), none had concentrations that exceeded the criteria (640 μ g/L) (Table 3-14).

Barium was detected in 9 of 9 standard elutriate samples submitted for analysis. Barium concentrations ranged from 129 μ g/L (SC21-COMP-03-SET) to 305 μ g/L (SC21-COMP-04-SET). Of the total samples submitted for barium analysis (including field duplicates), none had concentrations that exceeded the criteria (640 μ g/L) (Table 3-14).

Beryllium

Beryllium was not detected in surface water.

Beryllium was detected in 1 of 9 standard elutriate samples submitted for analysis (SC21-COMP-04-SET); the detected concentration was 0.88 μ g/L. Of the total samples submitted for beryllium analysis (including field duplicates), none had concentrations that exceeded the criteria (11 μ g/L) (Table 3-14).

Cadmium

Cadmium was not detected in surface water.

Cadmium was detected in 5 of 9 standard elutriate samples submitted for analysis. Cadmium concentrations ranged from 0.74 μ g/L (SC21-COMP-05-SET) to 2.4 μ g/L (SC21-COMP-04-SET). Of the total samples submitted for cadmium analysis (including field duplicates), none had concentrations that exceeded the criteria (11 μ g/L) (Table 3-14).

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Chromium

Chromium was not detected in surface water.

Chromium was detected in 9 of 9 standard elutriate samples submitted for analysis. Chromium concentrations ranged from 7.7 μ g/L (SC21-COMP-01-SET) to 83.2 μ g/L (SC21-COMP-08-SET). Of the total samples submitted for chromium analysis (including field duplicates), none had concentrations that exceeded the criteria (86 μ g/L) (Table 3-14).

Cobalt

Cobalt was not detected in surface water.

Cobalt was detected in 1 of 9 standard elutriate samples submitted for analysis (SC21-COMP-04-SET); the detected concentration was 12.7 μ g/L. Of the total samples submitted for cobalt analysis (including field duplicates), none had concentrations that exceeded the criteria (24 μ g/L) (Table 3-14).

Copper

Copper was not detected in surface water.

Copper was detected in 9 of 9 standard elutriate samples submitted for analysis. Copper concentrations ranged from 14.7 μ g/L (SC21-COMP-01-SET) to 115 μ g/L (SC21-COMP-04-SET). Of the total samples submitted for copper analysis (including field duplicates), 9 had concentrations that exceeded the criteria (9.3 μ g/L) (Table 3-14).

Lead

Lead was not detected in surface water.

Lead was detected in 9 of 9 standard elutriate samples submitted for analysis. Lead concentrations ranged from 17.7 μ g/L (SC21-COMP-01-SET) to 209 μ g/L (SC21-COMP-04-SET). Of the total samples submitted for lead analysis (including field duplicates), 9 had concentrations that exceeded the criteria (6.4 μ g/L) (Table 3-14).

Mercury

Mercury was not detected in surface water.

Mercury was detected in 5 of 9 standard elutriate samples submitted for analysis. Mercury concentrations ranged from 0.11 μ g/L (SC21-COMP-05-SET) to 0.26 μ g/L (SC21-COMP-04-SET). Of the total samples submitted for mercury analysis (including field duplicates), none had concentrations that exceeded the criteria (0.91 μ g/L) (Table 3-14).

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Nickel

Nickel was not detected in surface water.

Nickel was detected in 9 of 9 standard elutriate samples submitted for analysis. Nickel concentrations ranged from 8.9 μ g/L (SC21-COMP-01-SET) to 40.4 μ g/L (SC21-COMP-04-SET). Of the total samples submitted for nickel analysis (including field duplicates), none had concentrations that exceeded the criteria (52 μ g/L) (Table 3-14).

Vanadium

Vanadium was detected in 1 of 4 surface water samples submitted for analysis. The detected vanadium concentration was 3.5 μ g/L (SC21-CDF-WAT). Of the total samples submitted for vanadium analysis (including field duplicates), none had concentrations that exceeded the criteria (44 μ g/L) (Table 3-14).

Vanadium was detected in 9 of 9 standard elutriate samples submitted for analysis. Vanadium concentrations ranged from 5.7 μ g/L (SC21-COMP-01-SET) to 37.4 μ g/L (SC21-COMP-04-SET). Of the total samples submitted for vanadium analysis (including field duplicates), none had concentrations that exceeded the criteria (44 μ g/L) (Table 3-14).

Zinc

Zinc was detected in 1 of 4 surface water samples submitted for analysis. The detected zinc concentration was 9.9 mg/L. Of the total samples submitted for zinc analysis (including field duplicates), none had concentrations that exceeded the criteria (120 µg/L) (Table 3-14).

Zinc was detected in 9 of 9 standard elutriate samples submitted for analysis. Zinc concentrations ranged from 48 μ g/L (SC21-COMP-01-SET) to 375 μ g/L (SC21-COMP-04-SET). Of the total samples submitted for zinc analysis (including field duplicates), 3 had concentrations that exceeded the criteria (120 μ g/L) (Table 3-14).

Detailed results are presented in Table 3-14 in numerical order of location numbers.

3.3.3 Polychlorinated Biphenyl Aroclors

Total PCB Aroclor concentrations were calculated and compared to the screening criterion of $0.00012~\mu g/L$ by summing the concentrations of individual PCB Aroclors with non-detects treated as 0 (ND=0). A total of 9 standard elutriates and 4 surface water samples, including field duplicates, were submitted for PCB Aroclor analysis. PCB Aroclors were not detected in surface water.

Of the nine analyzed individual Aroclors, only Aroclor-1242 was detected in the standard elutriate samples. Aroclor-1242 was detected in 3 samples. Aroclor-1242 concentrations (ND=0) ranged from 0.33 (SC21-COMP-04-SET) to 3.5 μ g/L (SC21-COMP-05-SET). Of the samples

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submitted, 3 (including field duplicates) had total PCB concentrations (ND=0) that exceeded the criteria. Individual Aroclor concentrations as well as the summed total are presented in greater detail in Table 3-15 in numerical order of location numbers.

3.3.4 Polycyclic Aromatic Hydrocarbons

Table 3-16 provides the results for all of the analyzed PAHs; however, only individual compounds with screening criteria are included in this results discussion. There are criteria for 15 of the 17 individual PAHs analyzed (2-methylnaphthalane and benzo(g,h,i)perylene do not have a criterion).

A total of 9 standard elutriates and 4 surface water samples, including field duplicates, were submitted for 17 PAH analysis. None of the individual PAHs were detected in the surface water samples. In the standard elutriate samples, each of the 17 individual PAHs was detected in at least one sample except for dibenz(a,h)anthracene, and 6 individual PAHs had concentrations that exceeded respective criteria in at least one sample.

Acenaphthene was detected in 9 of the 9 standard elutriate samples submitted for analysis. Acenaphthene concentrations ranged from 0.02 μ g/L (SC21-COMP-02-SET) to 24 μ g/L (SC21-COMP-04-SET). Of the total samples submitted for acenaphthene (including field duplicates), 2 had concentrations that exceeded the criteria (15 μ g/L) (Table 3-16).

Acenaphthylene was detected in 7 of the 9 standard elutriate samples submitted for analysis. Acenaphthylene concentrations ranged from 0.077 μ g/L (SC21-COMP-03-SET) to 3.6 μ g/L (SC21-COMP-05-SET). Of the total samples submitted for acenaphthylene (including field duplicates), none had concentrations that exceeded the criteria (13 μ g/L) (Table 3-16).

Anthracene was detected in 8 of the 9 standard elutriate samples submitted for analysis. Anthracene concentrations ranged from 0.021 μ g/L (SC21-COMP-01-SET) to 1.1 μ g/L (SC21-COMP-04-SET and SC21-COMP-07-SET). Of the total samples submitted for anthracene (including field duplicates), 8 had concentrations that exceeded the criteria (0.02 μ g/L) (Table 3-16).

Benzo(a)anthracene was detected in 9 of the 9 standard elutriate samples submitted for analysis. Benzo(a)anthracene concentrations ranged from 0.035 μ g/L (SC21-COMP-02-SET) to 0.59 μ g/L (SC21-COMP-07-SET). Of the total samples submitted for benzo(a)anthracene (including field duplicates), none had concentrations that exceeded the criteria (4.7 μ g/L) (Table 3-16).

Benzo(a)pyrene was detected in 7 of the 9 standard elutriate samples submitted for analysis. Benzo(a)pyrene concentrations ranged from 0.035 μ g/L (SC21-COMP-03-SET) to 0.27 μ g/L (SC21-COMP-07-SET). Of the total samples submitted for benzo(a)pyrene (including field duplicates), 3 had concentrations that exceeded the criteria (0.06 μ g/L) (Table 3-16).

Benzo(b)fluoranthene was detected in 9 of the 9 standard elutriate samples submitted for analysis. Benzo(b)fluoranthene concentrations ranged from 0.03 µg/L (SC21-COMP-02-SET) to

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 $0.25~\mu g/L$ (SC21-COMP-07-SET). Of the total samples submitted for benzo(b)fluoranthene (including field duplicates), none had concentrations that exceeded the criteria (2.6 $\mu g/L$) (Table 3-16).

Benzo(k)fluoranthene was detected in 8 of the 9 standard elutriate samples submitted for analysis. Benzo(k)fluoranthene concentrations ranged from 0.016 μ g/L (SC21-COMP-03-SET) to 0.11 μ g/L (SC21-COMP-07-SET). Of the total samples submitted for benzo(k)fluoranthene (including field duplicates), none had concentrations that exceeded the criteria (0.13 μ g/L) (Table 3-16).

Chrysene was detected in 9 of the 9 standard elutriate samples submitted for analysis. Chrysene concentrations ranged from 0.055 μ g/L (SC21-COMP-02-SET) to 0.47 μ g/L (SC21-COMP-07-SET). Of the total samples submitted for chrysene (including field duplicates) (including field duplicates), none had concentrations that exceeded the criteria (4.7 μ g/L) (Table 3-16).

Fluoranthene was detected in 9 of the 9 standard elutriate samples submitted for analysis. Fluoranthene concentrations ranged from 0.19 μ g/L (SC21-COMP-01-SET) to 2.7 μ g/L (SC21-COMP-05-SET). Of the total samples submitted for fluoranthene (including field duplicates) (including field duplicates), 6 had concentrations that exceeded the criteria (0.8 μ g/L) (Table 3-16).

Fluorene was detected in 9 of the 9 standard elutriate samples submitted for analysis. Fluorene concentrations ranged from 0.02 μ g/L (SC21-COMP-01-SETFD) to 14 μ g/L (SC21-COMP-05-SET). Of the total samples submitted for fluorene (including field duplicates), none had concentrations that exceeded the criteria (19 μ g/L) (Table 3-16).

Indeno(1,2,3-cd)pyrene was detected in 6 of the 9 standard elutriate samples submitted for analysis. Indeno(1,2,3-cd)pyrene concentrations ranged from 0.025 μ g/L (SC21-COMP-04-SET) to 0.085 μ g/L (SC21-COMP-07-SET). Of the total samples submitted for indeno(1,2,3-cd)pyrene (including field duplicates), 6 had concentrations that exceeded the criteria (0.013 μ g/L) (Table 3-16).

Naphthalene was detected in 6 of the 9 standard elutriate samples submitted for analysis. Naphthalene concentrations ranged from 0.035 μ g/L (SC21-COMP-06-SET) to 0.44 μ g/L (SC21-COMP-07-SET). Of the total samples submitted for naphthalene (including field duplicates), none had concentrations that exceeded the criteria (21 μ g/L) (Table 3-16).

Phenanthrene was detected in 9 of the 9 standard elutriate samples submitted for analysis. Phenanthrene concentrations ranged from 0.098 μ g/L (SC21-COMP-03-SET) to 16 μ g/L (SC21-COMP-05-SET). Of the total samples submitted for phenanthrene (including field duplicates), 2 had concentrations that exceeded the criteria (2.3 μ g/L) (Table 3-16).

Pyrene was detected in 9 of the 9 standard elutriate samples submitted for analysis. Pyrene concentrations ranged from 0.11 μ g/L (SC21-COMP-02-SET) to 2.3 μ g/L (SC21-COMP-07-

SET). Of the total samples submitted for pyrene (including field duplicates), none had concentrations that exceeded the criteria (4.6 µg/L) (Table 3-16).

Total 17 PAH concentrations were calculated by summing the concentrations of individual 17 PAHs with non-detects treated as one-half the reporting limit (ND= $\frac{1}{2}$ RL). Total 17 PAH concentrations (ND= $\frac{1}{2}$ RL) ranged from 1.00 μ g/L (SC21-COMP-01-SET) to 57.9 μ g/L (SC21-COMP-05-SET).

Detailed results are presented in Table 3-16 in numerical order of location numbers.

3.3.5 Nitrogen (Ammonia)

A total of 9 standard elutriates and 4 surface water samples, including field duplicates, were submitted for nitrogen (ammonia) analysis. Ammonia was detected in 4 of the 4 surface water samples submitted for analysis, including field duplicates. Ammonia concentrations ranged from 0.035 mg/L (SC21-SC-WATFD) to 0.13 mg/L (SC21-CDF-WAT). Of the total samples submitted for nitrogen (ammonia) analysis (including field duplicates), none had concentrations that exceeded the criteria (0.5 mg/L) (Table 3-17).

Ammonia was detected in 9 of the 9 of the standard elutriate samples submitted for analysis, including field duplicates. Ammonia concentrations ranged from 0.31 mg/L (SC21-COMP-03-SET) to 13 mg/L (SC21-COMP-07-SET). Of the total samples submitted for nitrogen (ammonia) analysis (including field duplicates), 8 had concentrations that exceeded the criteria (0.5 mg/L) (Table 3-17).

3.3.6 Nitrogen (TKN)

A total of 9 standard elutriates and 4 surface water samples, including field duplicates, were submitted for nitrogen (TKN) analysis. TKN was detected in 4 of the 4 surface water samples submitted for analysis, including field duplicates. TKN concentrations ranged from 0.49 mg/L (SC21-SC-WATFD) to 1.2 mg/L (SC21-CDF-WAT) (Table 3-17).

TKN was detected in 9 of the 9 standard elutriate samples submitted for analysis, including field duplicates. TKN concentrations ranged from 1 mg/L (SC21-COMP-03-SET) to 14 mg/L (SC21-COMP-07-SET) (Table 3-17).

3.3.7 Phosphorus

A total of 9 standard elutriates and 4 surface water samples, including field duplicates, were submitted for phosphorus analysis. Phosphorus was detected in 4 of the 4 surface water samples submitted for analysis, including field duplicates. Phosphorus concentrations ranged from 0.041 mg/L (SC21-SC-WAT) to 0.19 mg/L (SC21-CDF-WAT) (Table 3-17).

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Phosphorus was detected in 9 of the 9 standard elutriate samples submitted for analysis, including field duplicates. Phosphorus concentrations ranged from 0.11 mg/L (SC21-COMP-03-SET) to 1.2 mg/L (SC21-COMP-04-SET) (Table 3-17).

3.3.8 Cyanide

A total of 9 standard elutriates and 4 surface water samples, including field duplicates, were submitted for cyanide analysis. Cyanide was not detected in any of the 13 samples submitted for analysis. (Table 3-17).

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4. TOXICITY AND BIOACCUMULATION TESTING RESULTS

Toxicity and bioaccumulation testing was conducted by EA's Ecotoxicology Laboratory located in Hunt Valley, Maryland. Toxicity testing included: water column bioassays with *Daphnia magna* (water flea) and *Pimephales promelas* (fathead minnow); 10-day whole sediment survival and growth toxicity tests with *Chironomus dilutus* (midge) and *Hyalella azteca* (amphipod); and 28-day bioaccumulation tests with *Lumbriculus variegatus* (Oligochaeta worm).

The water column bioassays evaluated the effects of exposure to the sediment elutriates on survival of the water column organisms. The whole sediment toxicity tests evaluated the effects of exposure to the sediment samples on survival and growth of the test organisms. The bioaccumulation tests evaluated percent recovery of the test organisms and bioaccumulative effects as a result of 28 days of exposure to the sediment samples. At the completion of the bioaccumulation testing, the organism tissues were submitted for selected chemical analyses.

The toxicity and bioaccumulation testing report is provided in Appendix D. A summary of the results for each test species is provided in this section.

4.1 AQUATIC TOXICITY TESTING

Elutriate was generated using site surface water samples for future evaluations of sediment disposal options. Subsequent elutriate toxicity testing was conducted on two different organisms *Daphnia magna* and *Pimephales promelas*, in accordance with EPA 2021.0 and EPA 2000.0 respectively. For the water column toxicity testing, elutriates were prepared from the 8 composited sediment samples using site surface water. Samples with statistically significant lower survival when compared to the control sample indicate potential biological risk during disposal. Elutriate toxicity results for survival were compared to the control for statistical difference.

4.1.1 Daphnia magna Elutriate Toxicity Test

Results of the *Daphnia magna* elutriate toxicity test indicated that none of the elutriate samples were acutely toxic to *Daphnia magna* (Table 4-1). Each of the elutriates had 48-hour mean lethal concentration (LC50) values of >100 percent elutriate (Figure 4-1), and survival in the 100 percent test concentrations ranged from 95 to 100 percent (Figure 4-2). There was a minimum of 95 percent survival in the laboratory controls, and the surface water had 95 percent survival at test termination.

4.1.2 Pimephales promelas Elutriate Toxicity Test

Results of the *Pimephales promelas* elutriate toxicity test indicated that of the 8 elutriate samples tested, 1 (SC21-COMP-07) of the 8 was acutely toxic to *Pimephales promelas* with a 96-hour LC50 of 96.1 percent (46 percent survival in 100 percent concentration) (Table 4-2). Each of the other elutriates had 96-hour LC50 values of >100 percent elutriate (Figure 4-1), and survival in the 100 percent test concentrations ranged from 90 to 100 percent (Figure 4-2). There was a

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minimum of 92 percent survival in the laboratory controls, and the surface water had 98 percent survival at test termination.

4.2 SEDIMENT TOXICITY TESTING

Ten-day sediment toxicity testing using 2 different organisms *Chironomus dilutus* (freshwater midge) and *Hyalella azteca* (freshwater amphipod) were completed on 12 sediment samples. Survival (percent survival) and growth (mean dry weight) results were compared to reference and control samples. Samples with statistically significant lower survival and growth when compared to reference and control samples indicate the potential for biological risk. Chemical analytical results from the surface ponar samples which were subjected to the toxicity tests are presented in Figure 3-3.

The testing consisted of a 10-day sediment exposure period, after which the organisms were retrieved from the sediment and survival was recorded. The organisms were processed for dry weight determinations to measure growth. Survival (percent survival) and growth (mean dry weight or mean ash free dry weight) results were statistically compared to reference and control samples. Samples with statistically significant lower survival or growth were identified.

4.2.1 *Chironomus dilutus* Sediment Toxicity Test

The results of the *C. dilutus* sediment toxicity tests complied with current National Environmental Laboratory Accreditation Conference (NELAC) standards. The survival and growth results of the *C. dilutus* toxicity tests were statistically analyzed according to EPA guidance (2000) to determine if any of the site sediments were significantly different (p=0.05) from the control or reference sediment. If the data were normally distributed, then a t-test was performed to detect statistically significant differences between test sediments and the reference sediment. If the data distribution was non-normal, then a Wilcoxon two sample test was used to compare the group means. The Shapiro-Wilk's test was used to determine if the data were normally distributed, and the f-test was used to test for homogeneity of variance. Samples with statistically significant lower survival and growth when compared to the reference sample were identified.

The survival and growth of *Chironomus dilutus* exposed to the site sediments were statistically compared to organisms exposed to the laboratory control and reference sediments (SC21-MRREF-SURF, SC21-SCREF-SURF) (Table 4-3). The survival results (Figure 4-3) indicated that the organisms exposed to 6 site sediments were statistically different (p=0.05) from the laboratory control (SC21-MR06-SURF, SC21-SC11-SURF, SC21-SC18-SURF, SC21-SC27-SURF, SC21-SC30-SURF, SC21-SC33-SURF). When compared to the laboratory control and to the reference samples, SC21-MR06-SURF, SC21-SC18-SURF and SC21-SC33-SURF had an adverse effect on *C. dilutus* survival in the 10-day sediment exposures.

Mean ash free dry weight indicated that 2 site sediment samples (SC21-MR06-SURF and SC21-SC30-SURF) were significantly different from the laboratory control and reference

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samples (Figure 4-4). Therefore, these samples had an adverse effect on C. dilutus growth in the 10-day sediment exposures.

Figure 4-5 presents the geographical distribution of toxicological effects at the locations with colocated toxicity testing.

4.2.2 Hyalella azteca Sediment Toxicity Test

The results of the *H. azteca* sediment toxicity tests complied with current NELAC standards. The survival and growth results of the H. azteca toxicity tests were statistically analyzed according to the EPA guidance (2000) to determine if any of the site sediments were significantly different (p=0.05) from the control or reference sediment. If the data were normally distributed, then a t-test was performed to detect statistically significant differences between test sediments and the reference sediment. If the data distribution was non-normal, then a Wilcoxon two sample test was used to compare the group means. Shapiro-Wilk's test was used to determine if the data were normally distributed, and the f-test was used to test for homogeneity of variance. Samples with statistically significant lower survival and growth when compared to the reference sample were identified.

The survival and growth of *Hyalella azteca* exposed to the site sediments were statistically compared to organisms exposed to the laboratory control and reference sediments (SC21-MRREF-SURF, SC21-SCREF-SURF) (Table 4-4). The results indicated that for survival the organisms exposed to each of the 10 site sediments were statistically different (p=0.05) from the laboratory control and at least one of the reference samples (Figure 4-3). Mean weight indicated that each of the 10 site sediment samples were significantly different from the control and at least one of the reference samples (Figure 4-4). For both survival and growth Hyalella azteca were statistically different (p=0.05) from the Swan Creek or Maumee River reference sample.

Figure 4-5 presents the geographical distribution of toxicological effects at the locations with colocated toxicity testing.

4.2.3 Lumbriculus variegatus Bioaccumulation Test

Bioaccumulation testing consisted of 28-day bioaccumulation exposures with *Lumbriculus* variegatus (freshwater oligochaete worm) on surface sediment samples from 4 locations (SC21-SC11, SC21-SC14, SC21-SC18 and a reference location SC21-SCREF). Following a 28-day sediment exposure period, organisms were retrieved from the sediment and allowed to depurate their digestive tracts for approximately 24 hours. After the depuration period, the organisms were placed into analytical jars and submitted for chemical analysis. The testing produced 5 replicates per sediment sample and control. Pre-test (control) tissues, which represent the constituent tissue concentrations in the test organisms upon arrival to the testing laboratory and prior to laboratory exposures, were also submitted for chemical analysis. These tissues originate from organisms that are sacrificed from each shipment and subsequently frozen. These organisms are not exposed to test sediments, but contaminants in their tissues represent baseline

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contaminants that accumulated in their natural environment. The tissues were processed and analyzed for PCB congeners and percent lipids. The organism weight that was recovered from the replicates is presented in Table 4-5.

The results of the *L. variegatus* sediment 28-day bioaccumulation tests complied with current NELAC standards. Tissue results were compared between organisms exposed to site sediments and reference sediments as well as pre-test tissue. Total PCB congener tissue data are represented by the sum of all PCB congeners (ND=0). Results are reported as wet weight.

Statistical analyses of tissue chemistry data were performed according to procedures outlined in Section 7.5.3 of the Southeast Regional Implementation Manual (EPA and USACE 2008). Results of total PCB congener of *L. variegatus* tissue were lipid-normalized (wet weight) and statistically compared to the reference site and the pre-test tissue concentration. Mean lipid concentrations are provided in Table 4-6 and total mean PCBs concentrations in *L. variegatus* tissue on a lipid-normalized and whole-body basis are provided in Table 4-7a and 4-7b, respectively. Figure 4-6 depicts mean PCBs concentrations in *L. variegatus* tissues (ND=0) exceedances compared to the reference and pre-test sample concentrations as well as PCB congener sediment results. Each of the 3 site tissue samples was statistically different (p < 0.05) from the reference tissue lipid-normalized concentration and the pre-test tissue concentration.

Total lipid-normalized mean PCB congener (ND=0) tissue concentrations from site sediment exposures ranged from 129 to 2,870 μ g/kg-lipid with an average concentration of 1,122 μ g/kg-lipid. The highest lipid normalized total PCB tissue concentration (>100 times greater than reference value) was at sample location SC21-SC18, which also exhibited the highest total PCBs congener concentration in the sediment. All other sample locations were at least 6 times greater than the lipid-normalized reference concentration.

Total mean PCB congener (ND=0) tissue concentrations from site sediment exposures ranged from 168 to 5,790 μ g/kg with an average concentration of 2,140 μ g/kg. The highest mean total PCB tissue concentration (>250 times greater than reference value) was at sample location SC21-SC18, which also exhibited the highest total PCBs congener concentration in the sediment (8,400 mg/kg and 17,279 μ g/kg in the parent sample and field duplicate respectively). All other sample locations were at least 7 times greater than the mean reference concentration.

The fact that the PCB congener tissue concentrations from all 3 site samples are significantly higher than the reference tissue concentrations is noteworthy given the surface sediment PCB congener concentrations. Although there may be other contributing factors, it is generally expected that PCB congener tissue concentrations would be higher at locations with higher PCB congener sediment concentrations. The surface sediment total PCB congener concentrations for SC21-SC11 (0.031 mg/kg) and SC21-SC14 (0.169 mg/kg) were lower than the reference site surface sediment concentration (0.406 mg/kg). Therefore, the results indicate that bioaccumulation of PCBs may be dependent upon more than the total PCB congener sediment concentration. In general, sediment concentrations in cores (SD036 and SD037, Figure 3-28) in the vicinity of the SC21-SCREF, were less than the PEC of 0.676 mg/kg. Although SC21-11 and SC21-14 surface samples were less than the PEC, there are other site samples with elevated

concentrations of PCBs collected in the vicinity of SC21-11 and SC21-14. Therefore, PCBs in pore water could be contributing to the higher tissue concentrations from site samples. It is also

possible that the bioavailability of PCBs in the site sediment samples is higher compared to the reference sample.

4.3 INTERPRETATION OF TOXICITY TESTING RESULTS IN ACCORDANCE WITH EPA/USACE DREDGING GUIDANCE

Additional evaluation of the sediment toxicity data was completed to address criteria consistent with the testing specific to the Great Lakes: Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S.—Testing Manual (EPA and USACE 1998a) and Great Lakes Dredged Material Testing and Evaluation Manual (EPA and USACE 1998b). The reference criteria include:

- For both whole sediment toxicity bioassays, two criteria are required to designate a sediment as potentially toxic based on survival:
 - 1. mean mortality that was more than 10 percent greater (*H. azteca*) or 20 percent greater (*C. dilutes*) than mean mortality for the reference sediment (EPA and USACE 1998 a, b), and
 - 2. a statistically significant, lower mean survival compared to mean survival for the reference sediment.
- In addition, for the *C. dilutus* sublethal growth endpoint, the following criteria are required for a sediment to be designated as potentially toxic:
 - 1. mean individual dry weight for a given sediment treatment must be below 0.6 milligram, and
 - 2. be more than 10 percent less than, and statistically significant from, the reference sediment individual dry weight mean.

Results of this evaluation are included for informational purposes in Table 4-8a and b.

This manual is directed towards evaluation of proposed discharges of dredged material (associated with navigational dredging or dredging activities of essentially the same character as navigational dredging) in open water and does not necessarily value the benthos the same as a restoration focused dredging program.

4.4 SEDIMENT TOXICITY AND BIOACCUMULATION TESTING SUMMARY

The results of the toxicity and bioaccumulation testing indicated the following:

• Elutriate samples collected from Swan Creek were not acutely toxic to *Daphnia magna*.

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- One of the 8 elutriate samples (SC21-COMP-07, collected from sample locations SC21-23 through SC21-26), was acutely toxic to *P. promelas* with a 96-hour LC50 of 96.1 percent (46 percent survival in 100 percent concentration).
- Site locations SC21-MR06, SC21-SC11, SC21-SC18, SC21-SC27, SC21-SC30, SC21-SC33 had an adverse effect on *C. dilutus* survival in the 10-day sediment exposures as determined by the laboratory control samples. When compared to the laboratory control and reference samples SC21-MR06, SC21-SC18 and SC21-SC33 had an adverse effect on *C. dilutus* survival in the 10-day sediment exposures.
- Sites SC21-MR06 and SC21-SC30 had an adverse effect on mean ash-free dry weight (growth) of *C. dilutus* exposures as determined by the laboratory control and reference samples. Therefore, these samples had an adverse effect on *C. dilutus* growth in the 10-day sediment exposures.
- Each of the 10 site sediments had an adverse effect on *H. azteca* survival in the 10-day sediment exposures, when compared to both the control and one or both reference samples. Each of the 10 site samples had an adverse effect on mean dry weight (growth) of *H. Azteca*, when compared to both the control and one or both reference samples.
- Overall, significantly inhibited survival when compared to Swan Creek and Maumee River reference samples was observed at 3 site locations (SC21-MR06, SC21-SC18, and SC21-SC33) for both *H. azteca* and *C. dilutus*.
- Overall, significantly inhibited growth when compared to reference samples was observed at 2 site locations (SC21-MR06 and SC21-SC30) for both *H. azteca* and *C. dilutus*.
- Total PCB concentrations in *L. variegatus* tissue were statistically different (higher) from the reference site and pre-test tissue concentrations for each tested location (SC21-SC11, SC21-SC14, and SC21-SC18). Surface sediment total PCB congener concentrations for SC21-SC11 (0.031 mg/kg) and SC21-SC14 (0.170 mg/kg) were lower than the reference site surface sediment concentration (0.406 mg/kg), SC21-SC18 and SC-18 (FD) were higher (8.4/17.3 mg/kg). Surface sediment total PCB aroclor concentrations for SC21-SC11 (0.224 mg/kg), SC21-SC14 (0.127 mg/kg) and SC21-SC18 (17 mg/kg) were higher than the reference site surface sediment concentration (0.06 mg/kg).

5. SUMMARY OF FINDINGS

The Swan Creek sediment assessment was conducted to obtain the data necessary to support conceptual design-level evaluations that will be presented as part of a focused feasibility study. EA completed a site characterization to evaluate the sediment quality in Swan Creek to delineate sediment contamination, to identify the potential for biological risks, and to provide data in support of evaluation of sediment disposal options. These efforts were conducted in coordination with EPA, Ohio EPA and USACE.

5.1 SITE INVESTIGATION

Sediment sampling was conducted from 2 through 10 November 2021. Samples were collected from a vibracoring vessel operated by Affiliated. Surface grab samples were collected using a Ponar sampler. A vibratory coring system was used to collect samples at depths up to 10 ft. Three surface water samples were successfully collected at locations in Swan Creek, Maumee River, and at the Port Authority CDF. In addition, 25 gallons of elutriate preparation water was collected from the surface water location in Swan Creek.

Analytical samples were submitted to Pace Analytical Services, LLC. Samples to be analyzed for SEM/AVS were shipped to ALS Environmental (a subcontractor to Pace). Samples analyzed for 34 PAHs were shipped to Battelle (Office of Research and Development contracted lab). Samples collected for bioassay testing and standard elutriate preparation were transported via refrigerated truck to EA's Ecotoxicology Laboratory in Hunt Valley, Maryland. Following bioaccumulation testing at EA's Ecotoxicology Laboratory, tissue samples were delivered to Eurofins TestAmerica.

Site characterization data from the Swan Creek sampling effort are summarized in Chapters 2, 3 and 4. Detected concentrations of constituents were compared to sediment screening criteria including Ohio SRV (Ohio EPA 2018) for metals only, TECs and PECs (MacDonald et al. 2000), Region 4 ESV (EPA Region 4 2018) for compounds other than metals without TECs and PECs (DRO-ORO), and Region 5 ECO (EPA 2003) for cyanide only. Results of the screening evaluation are provided in Tables 3-3 through 3-17, with a summary of PEC exceedances provided in Table 3-18. Results by compound are summarized in Figures 3-3 through 3-29; these figures include results from the current Swan Creek site characterization as well as samples collected in 2012 and 2014 (Weston Solutions, Inc. 2012; CH2M HILL 2014).

Figures 5-1a through 5-1c identify locations from the current Swan Creek site characterization where analytes were observed in sediment exceeding the SRV (for metals), TEC, and PEC values in each area of the site. Exceedances of the PEC values for metals in subsurface sediment were identified as far upstream as location SC21-SC03 and extending into the Maumee River through location SC21-MR06. Exceedances of the PEC for total 17 PAHs and PCBs are observed as far upstream as SC21-SC09 in both the surface and subsurface intervals and extending into the Maumee River through location SC21-MR06. A review of the 2012 and 2014 data (Figure 3-29) combined with the current data indicate total PAH concentrations exceeding PEC values beginning at S. Hawley Street (SC01-01RA), and PCBs just upstream of S. Hawley

Street at location SD048 (Figure 3-28). Whereas metals and PAH concentrations above PEC values are distributed throughout the creek, elevated levels of PCBs are generally located between SD021 and SD033 (railroad crossing downstream of S Hawley Street and S. Summit Street) (Figure 3-28).

A total of 51 discrete surface samples were submitted for SEM and AVS analysis and the SEM/AVS ratio was calculated (Table 3-4). The majority of samples produced SEM/AVS ratios less than 1, indicating a high probability that the metals are bound as sulfides and not bioavailable. Organic carbon content also can reduce bioavailability of metals. The sum of SEM – AVS difference was divided by fraction of organic carbon in sediment. Per EPA guidance (2005), if the result is <130 μ mol/goc, then toxicity to benthic invertebrates is not anticipated. If the result is >3,000 μ mol/goc, then toxicity is likely. If the result is between 130 and 3,000 μ mol/goc, then toxicity is uncertain (Interstate Technology & Regulatory Council 2011). Of the 51 samples, one sample had a ratio greater than 130 μ mol/goc threshold; there were no samples with results exceeding the 3,000 μ mol/goc. These results indicate metals toxicity to benthic invertebrates is not anticipated.

5.2 TOXICITY AND BIOACCUMULATION TESTING

Toxicity and bioaccumulation testing was conducted by EA's Ecotoxicology Laboratory located in Hunt Valley, Maryland. Toxicity testing included: water column bioassays with *Daphnia magna* (water flea) and *Pimephales promelas* (fathead minnow); 10-day whole sediment survival and growth toxicity tests with *Chironomus dilutus* (midge) and *Hyalella azteca* (amphipod); and 28-day bioaccumulation tests with *Lumbriculus variegatus* (Oligochaeta worm). Aquatic toxicity testing was conducted using elutriate generated from 8 composited site sediment samples and site surface water for future evaluations of sediment disposal options. Surface sediment samples were collected to evaluate sediment toxicity at 12 locations including 2 reference stations. These locations are shown as "*Coring and Surface Grab Sample Locations*", and "*Surface Grab Sample Locations*" on Figure 2-1, sediment chemistry at each of the surface grab sample locations is provided on Figure 3-3.

The results of the toxicity and bioaccumulation testing indicated the following:

- Elutriate samples collected from Swan Creek were not acutely toxic to *Daphnia magna*.
- One of the 8 elutriate samples (SC21-COMP-07, collected from sample locations SC21-23 through SC21-26) was acutely toxic to *P. promelas* with a 96-hour LC50 of 96.1 percent (46 percent survival in 100 percent concentration).
- The survival and growth of *Chironomus dilutus* exposed to the site sediments were statistically compared to organisms exposed to the laboratory control and reference sediments (Table 4-3). The survival results (Figure 4-3) indicated that the organisms exposed to 3 site sediments were statistically different (p=0.05) from the laboratory control and at least one of the reference samples: SC21-MR06-SURF, SC21-SC18-

SURF, and SC21-SC33-SURF. Therefore, these samples had an adverse effect on *C. dilutus* survival in the 10-day sediment exposures.

- Mean ash free dry weight indicated that 2 site sediment samples (SC21-MR06-SURF and SC21-SC30-SURF) were significantly different from the laboratory control and at least one of the reference samples (Figure 4-4). Therefore, these samples had an adverse effect on *C. dilutus* growth in the 10-day sediment exposures.
- The survival and growth of *H. azteca* exposed to the site sediments were statistically compared to organisms exposed to the laboratory control and reference sediments (Table 4-4). The results indicated that for survival the organisms exposed to each of the 10 site sediments were statistically different (p=0.05) from the laboratory control and at least one of the reference samples (Figure 4-3). Therefore, these samples had an adverse effect on *H. azteca* survival in the 10-day sediment exposures.
- Mean ash free dry weight indicated that each of the 10 site sediment samples were significantly different from the laboratory control and at least one of the reference samples (Figure 4-4). Therefore, these samples had an adverse effect on *H. azteca* growth in the 10-day sediment exposures.

Figure 4-6 depicts mean PCB congener concentrations in *L. variegatus* tissues (ND=0) exceedances compared to the reference and pre-test sample concentrations as well as the PCB congener surface sediment results. Each of the 3 site tissue samples was statistically different (p < 0.05) from the reference tissue lipid-normalized concentration and the pre-test tissue concentration. Surface sediment total PCB congener concentrations for SC21-SC11 (0.031 mg/kg) and SC21-SC14 (0.170 mg/kg) were lower than the reference site surface sediment concentration (0.406 mg/kg), SC21-SC18 and SC-18 (FD) were higher (8.4/17.3 mg/kg). Surface sediment total PCB aroclor concentrations for SC21-SC11 (0.224 mg/kg), SC21-SC14 (0.127 mg/kg) and SC21-SC18 (17 mg/kg) were higher than the reference site surface sediment concentration (0.06 mg/kg).

Table 5-1 summarizes results of the sediment toxicity testing and co-located Ponar surface sediment sample results. In each of the 9 samples collected in Swan Creek and the 1 sample collected in the Maumee River, 1 or more compounds exceeded background or threshold level effects concentrations. At 8 of the 10 locations the PEC was also exceeded. At each of the 4 locations (SC21-SC18, SC21-SC30, SC21-SC33, SC21-MR06) where significance for survival or growth was observed in the *C. dilutus*, exceedances of the PEC for organics was also observed. However, significance for survival or growth was not observed at all locations where concentrations exceeded the PEC. Results of the *H. azteca* testing indicated significance for survival and growth was observed in each of the 10 samples. The SEM/AVS ratio was > 1 at location SC21-SC01; however, when normalized for TOC the results were below the threshold value of 130 μ mole/goc. Metals were not observed above the PEC at this location.

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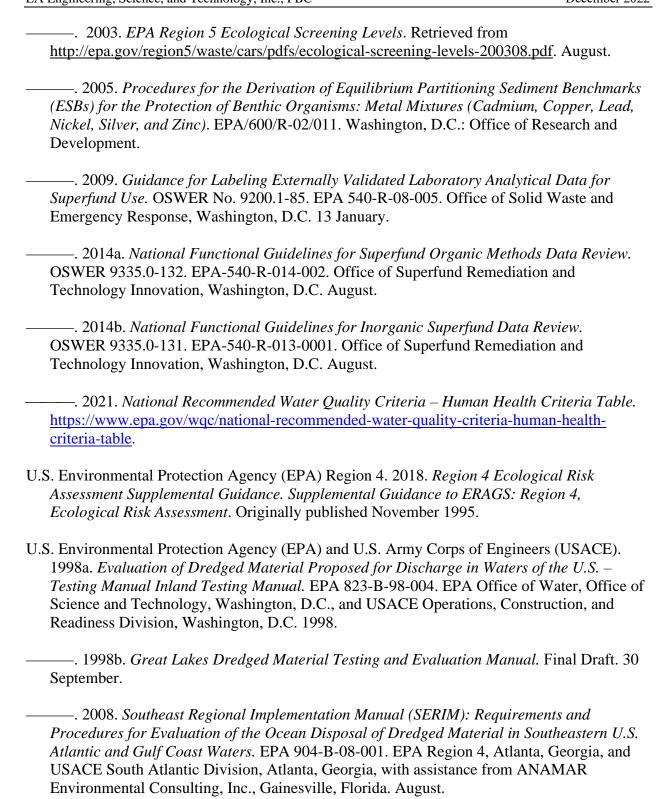
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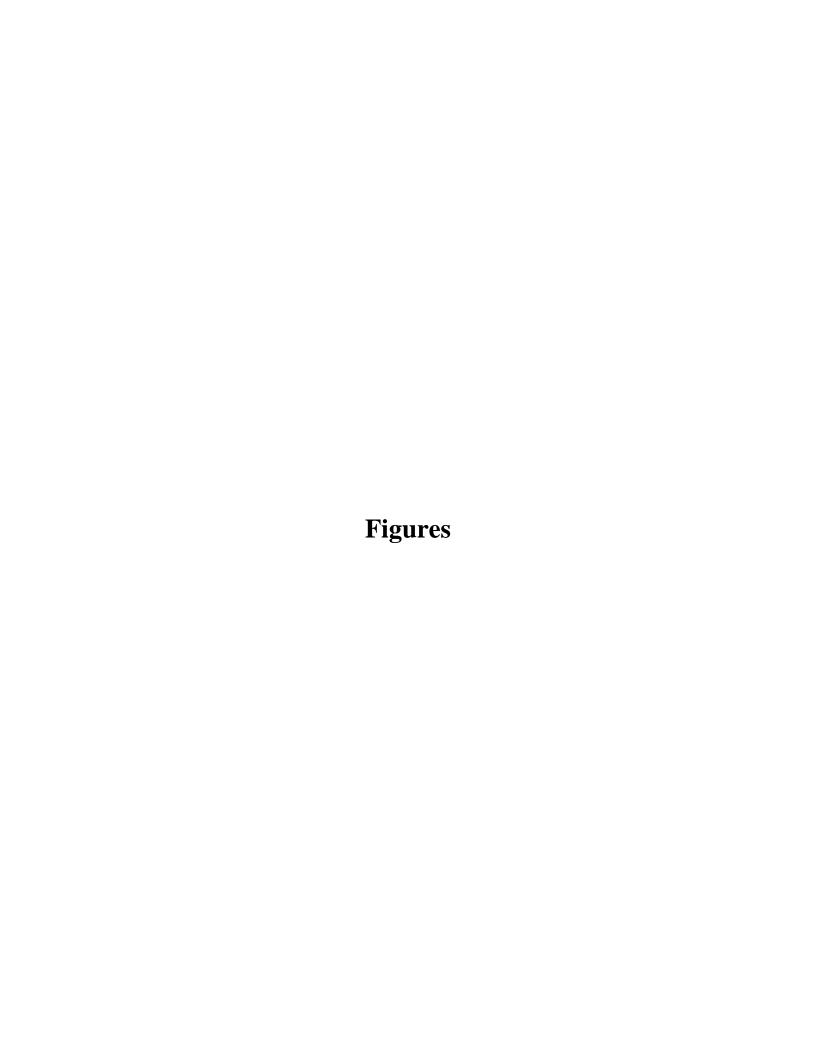
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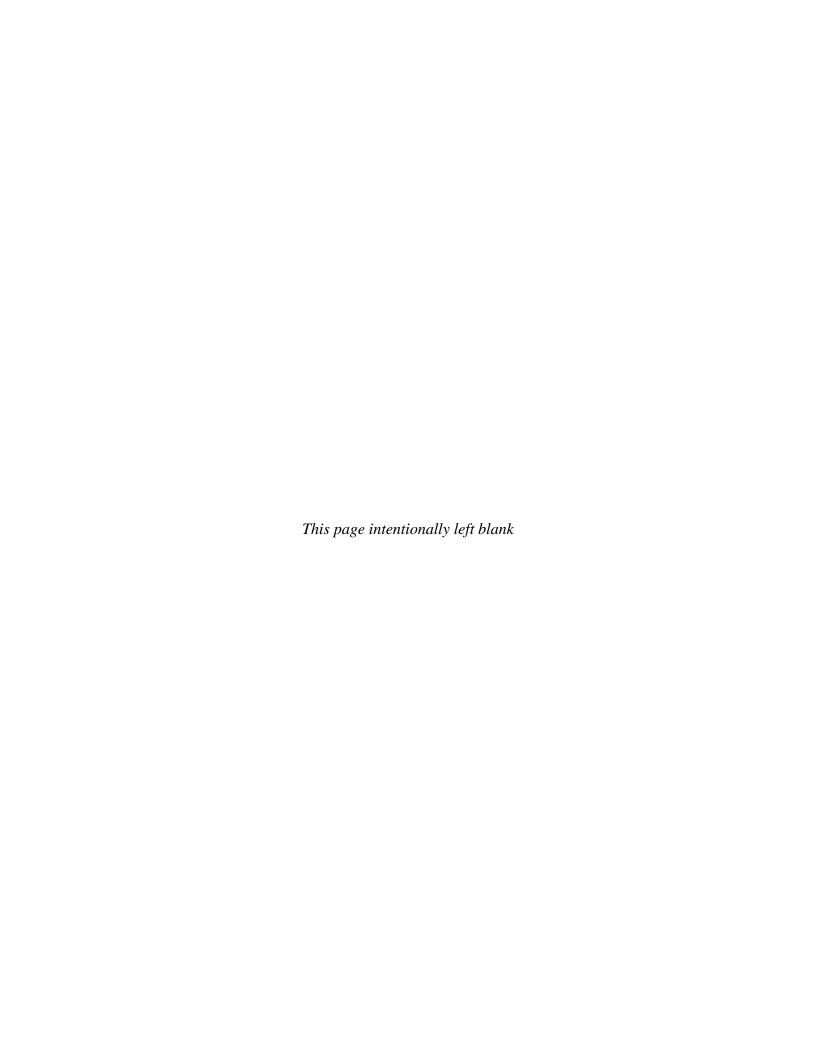
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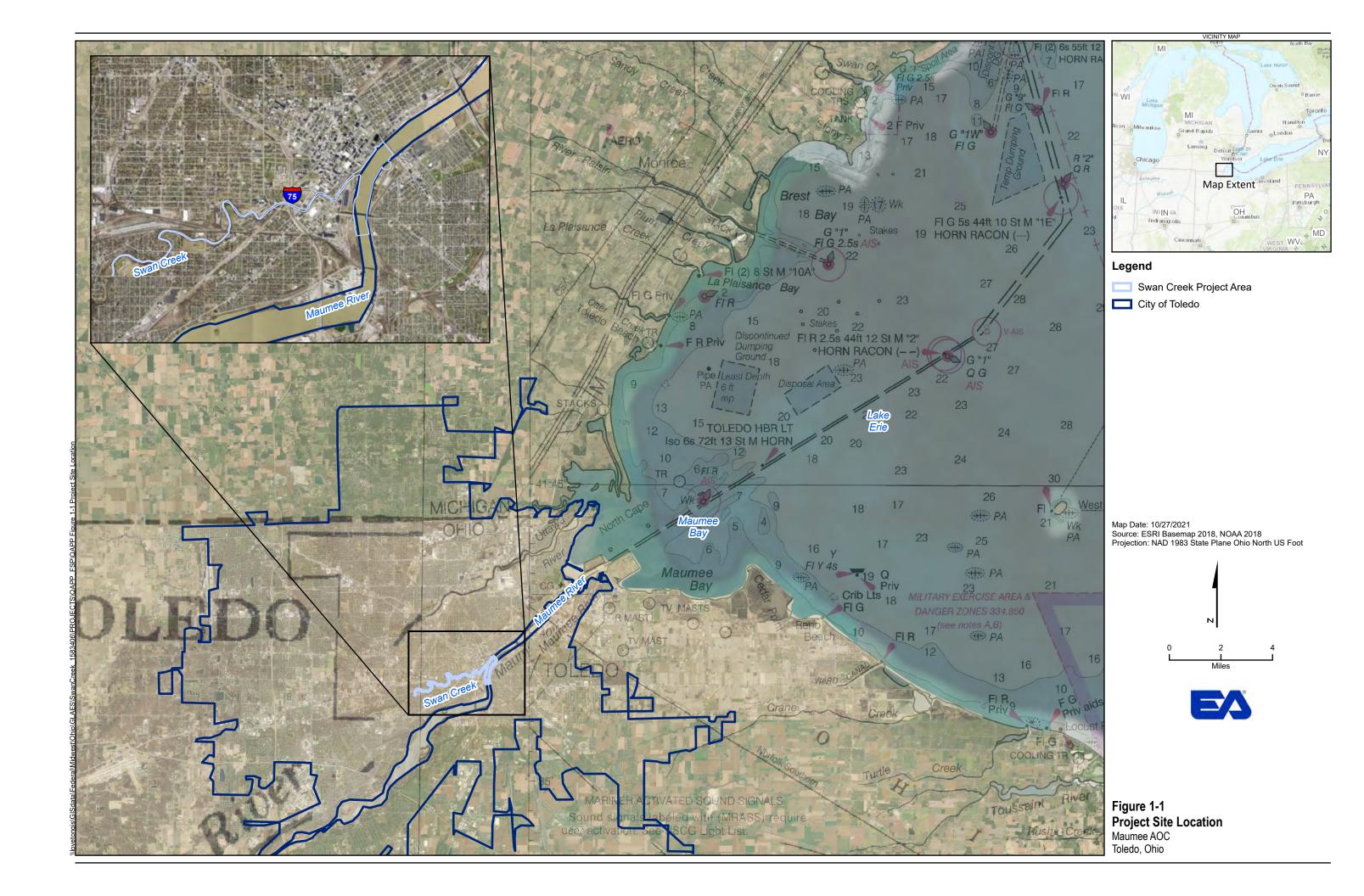


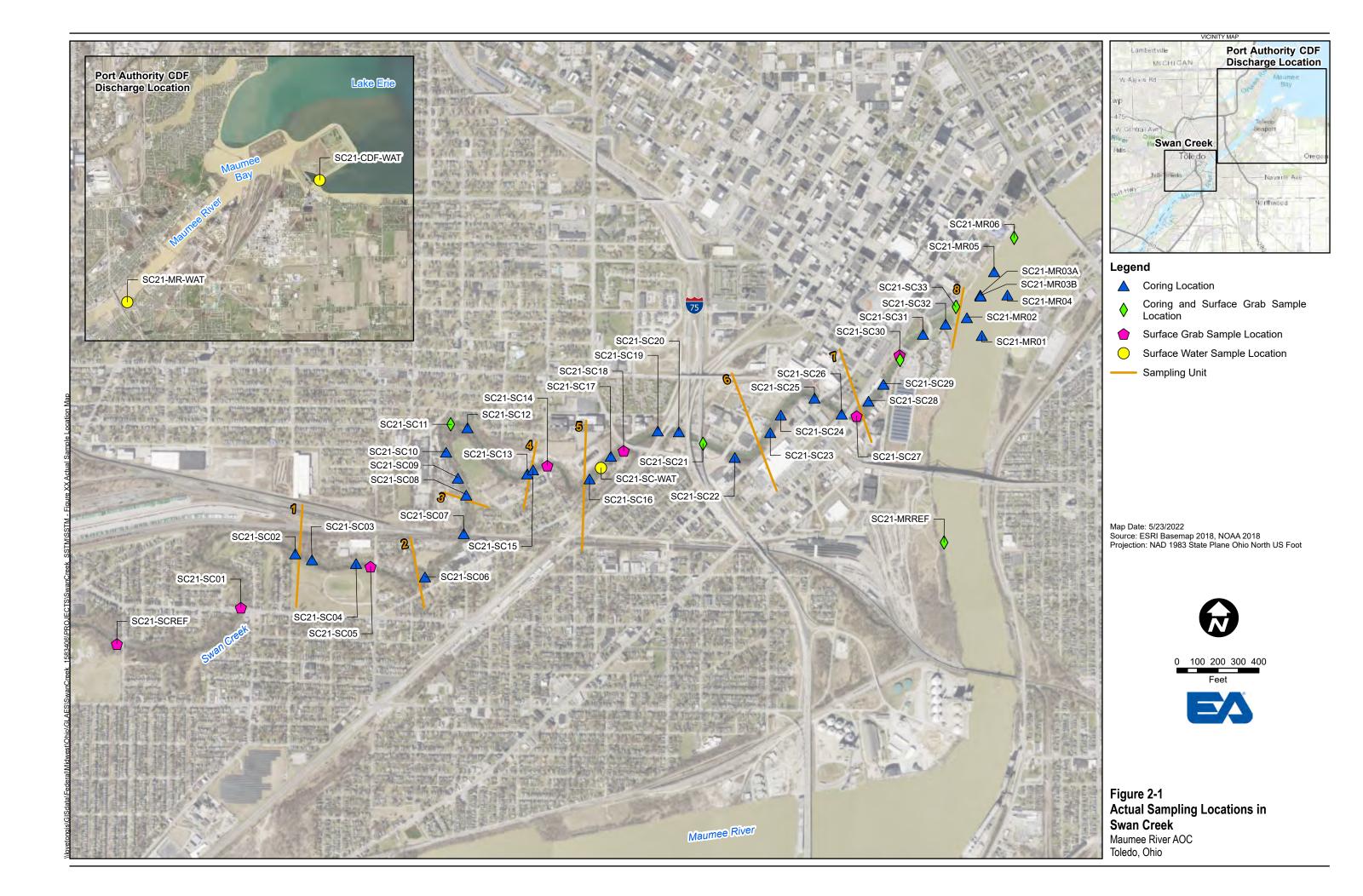
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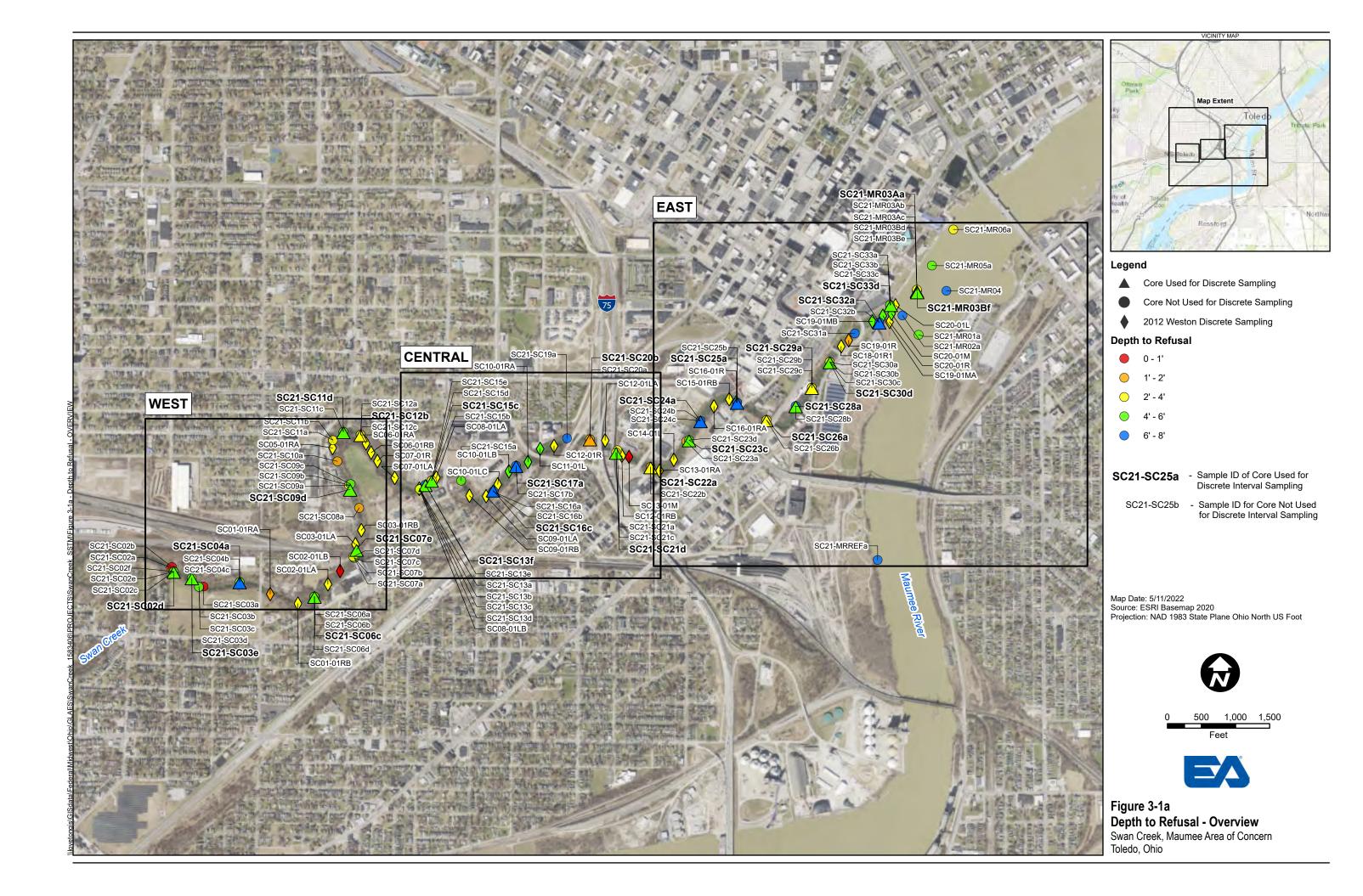
Concern, Toledo, Lucas County, Ohio. August.

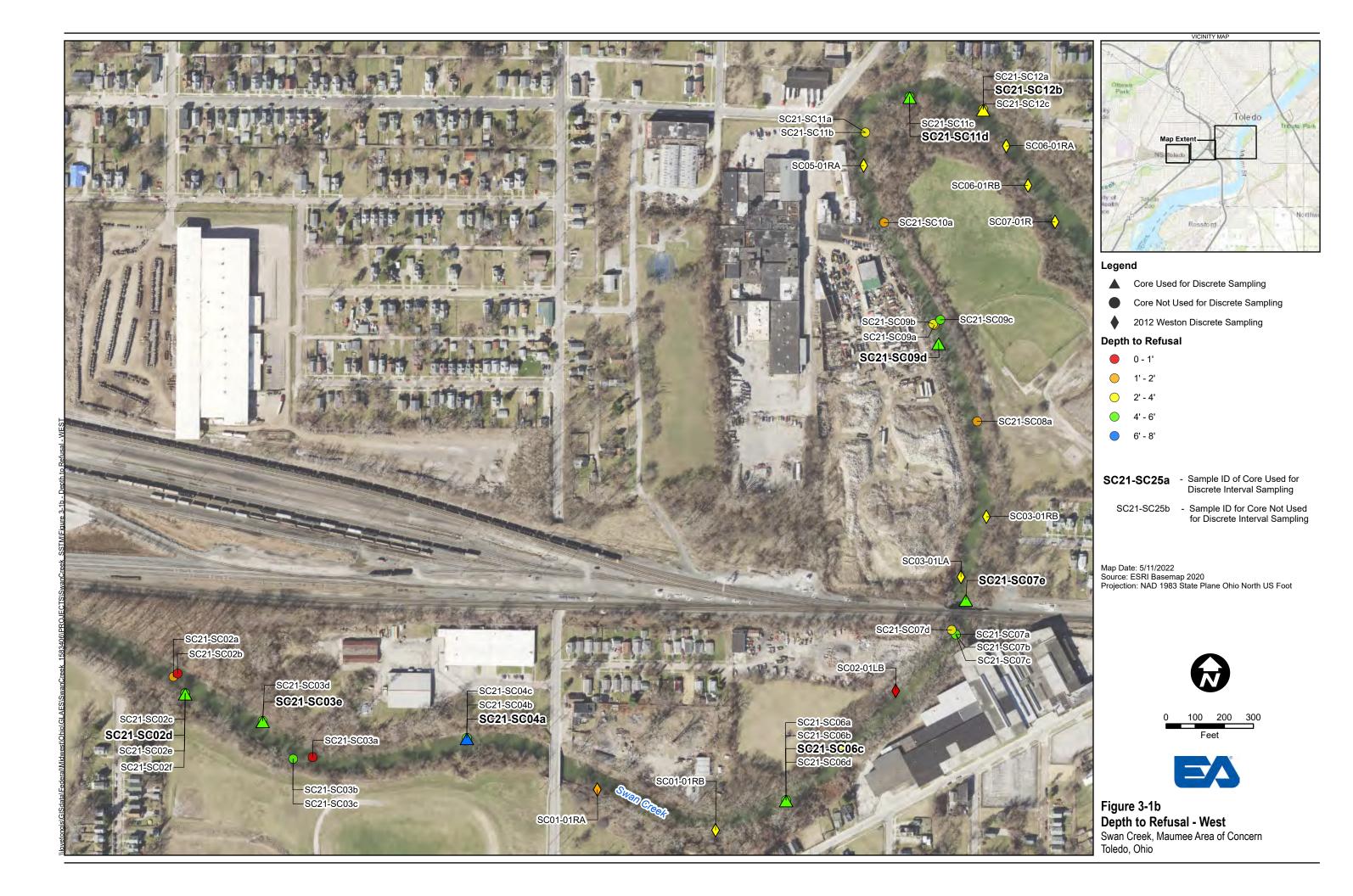


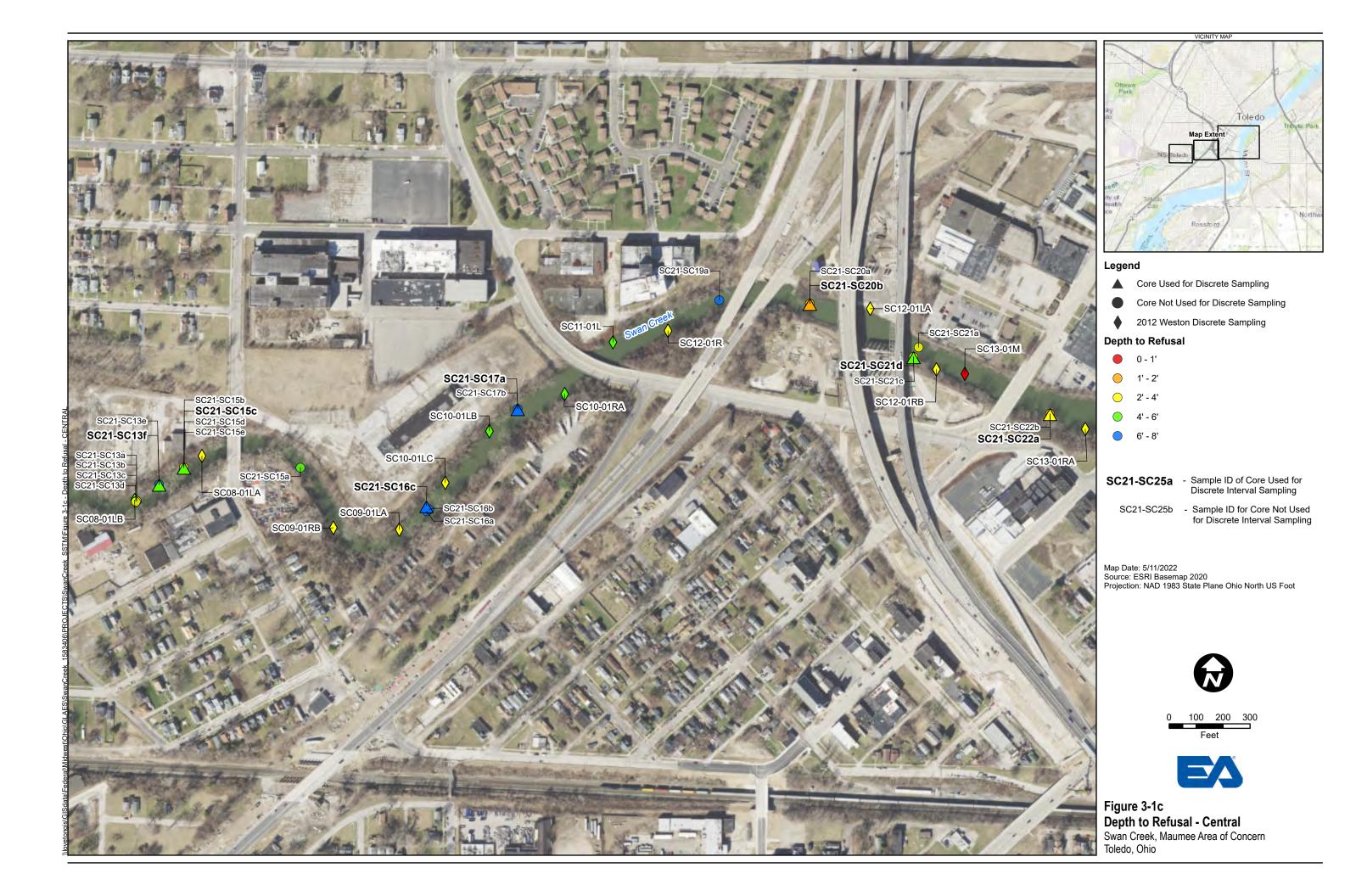


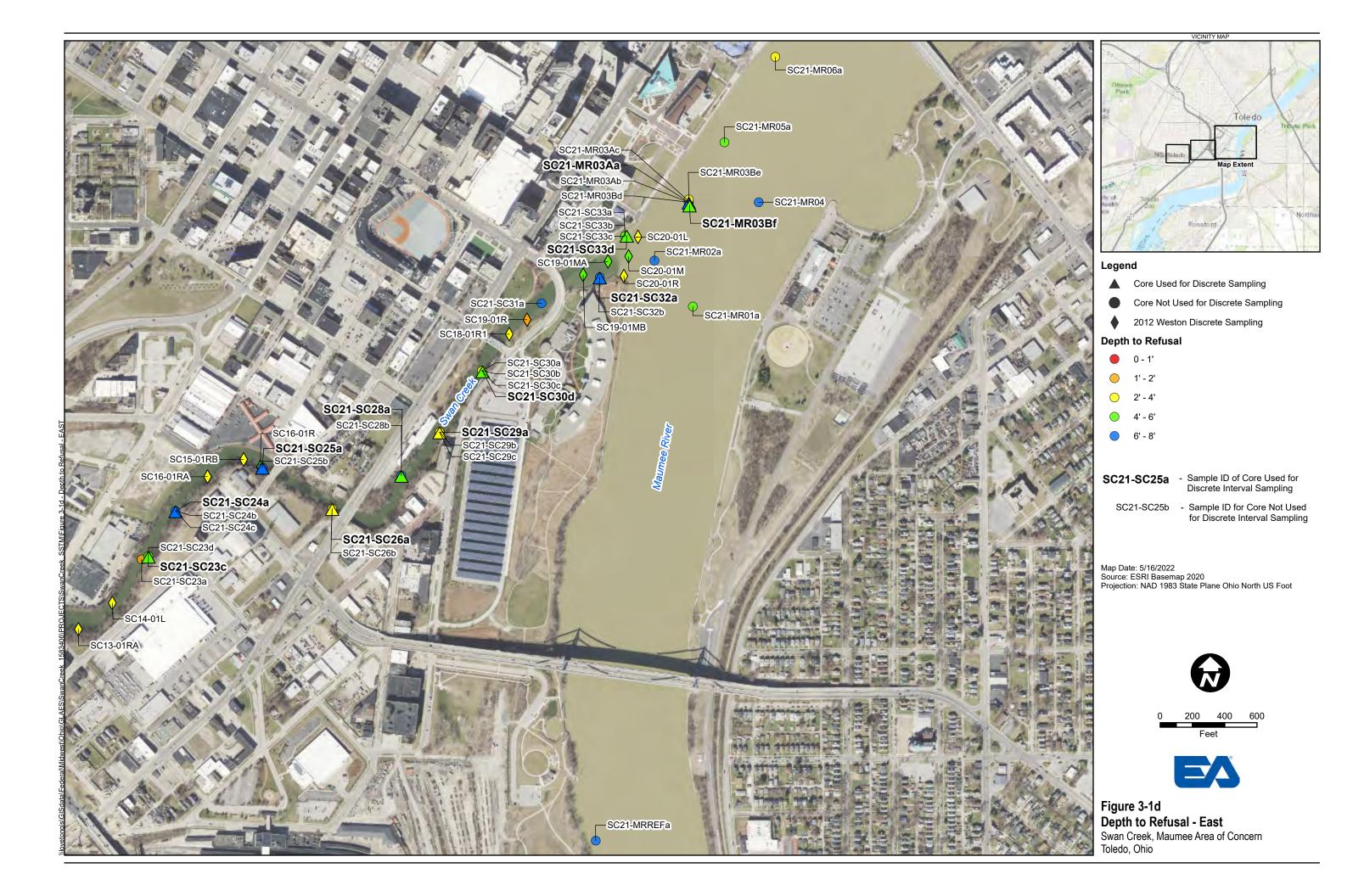


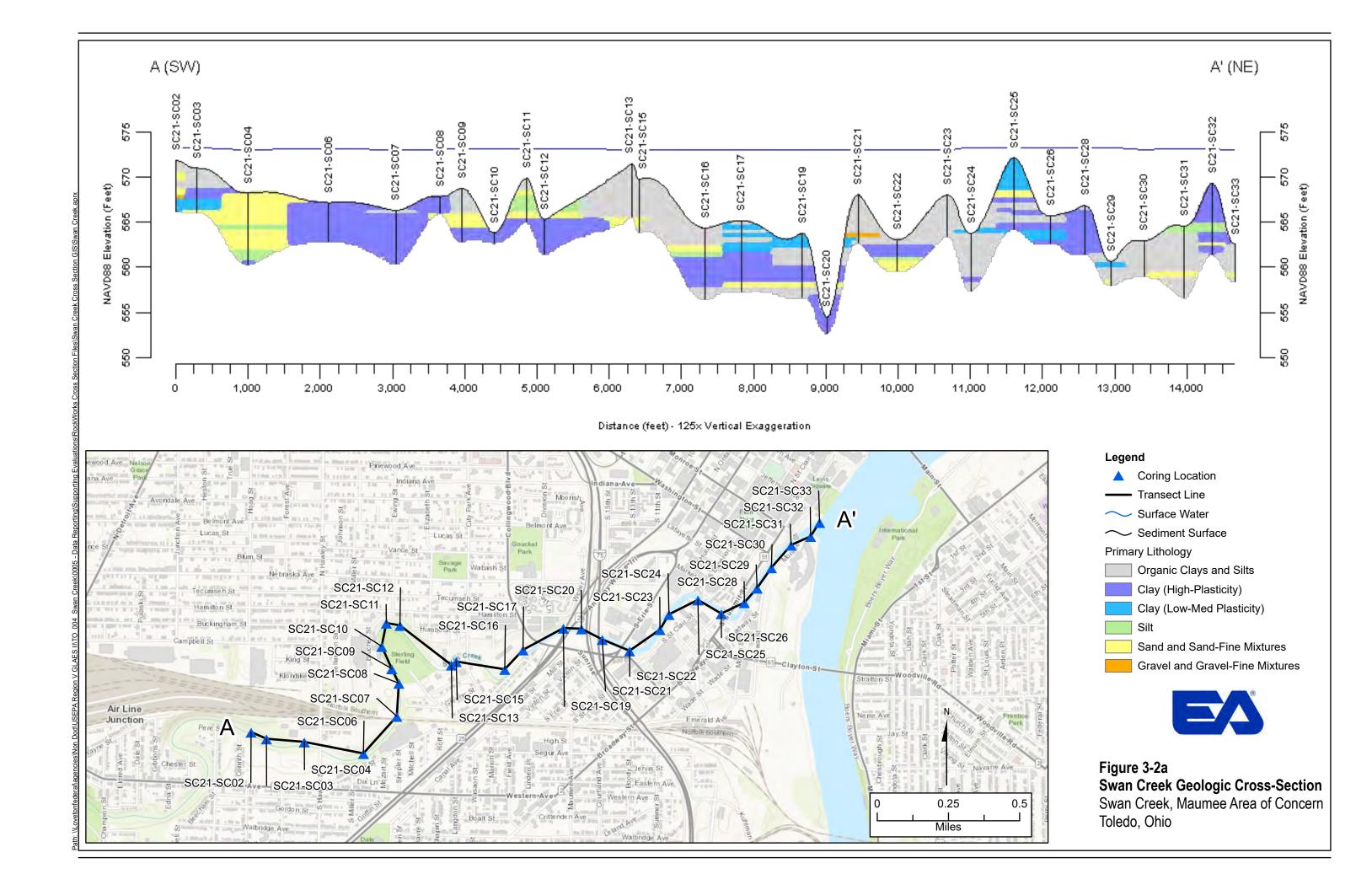


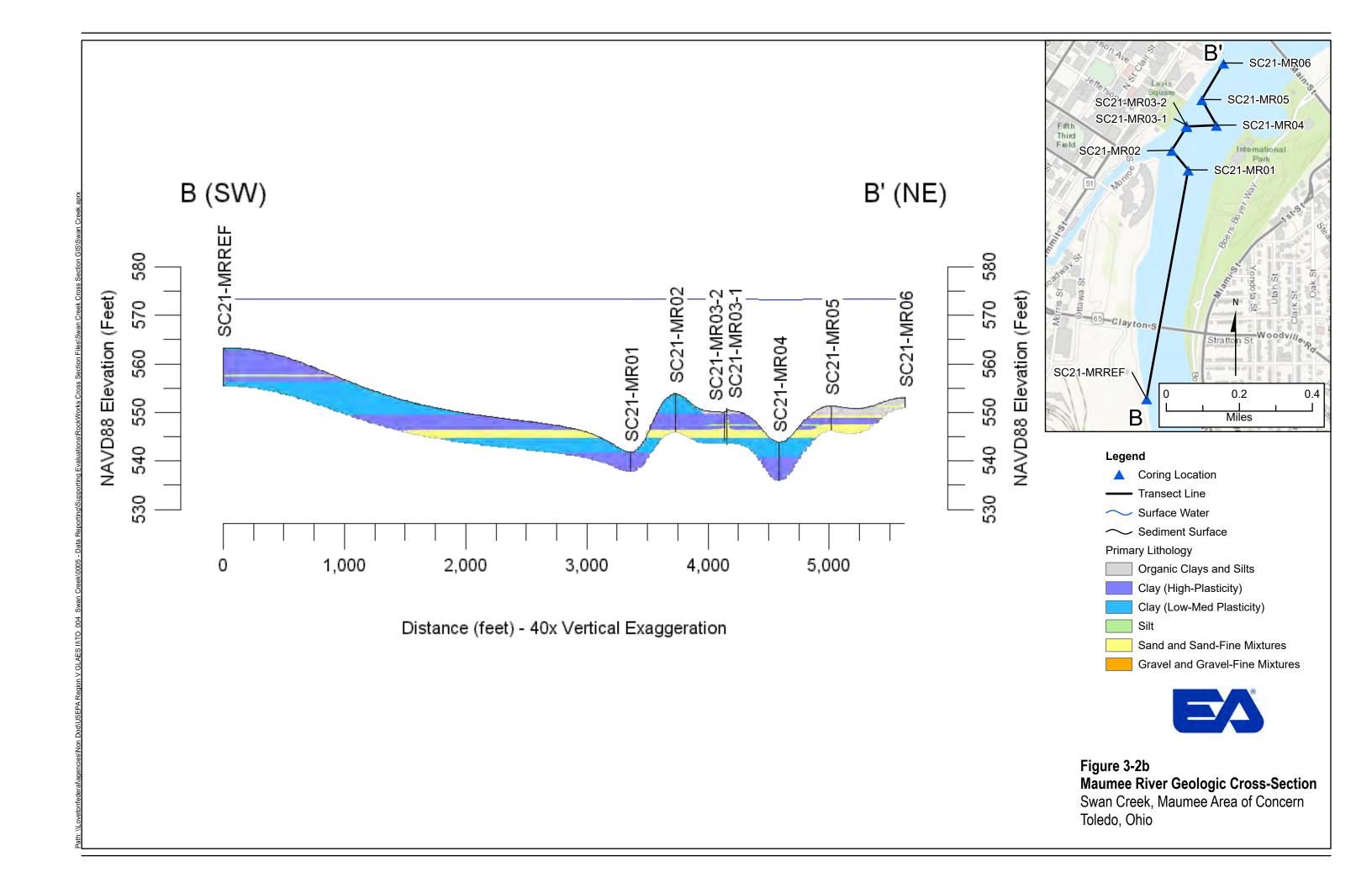


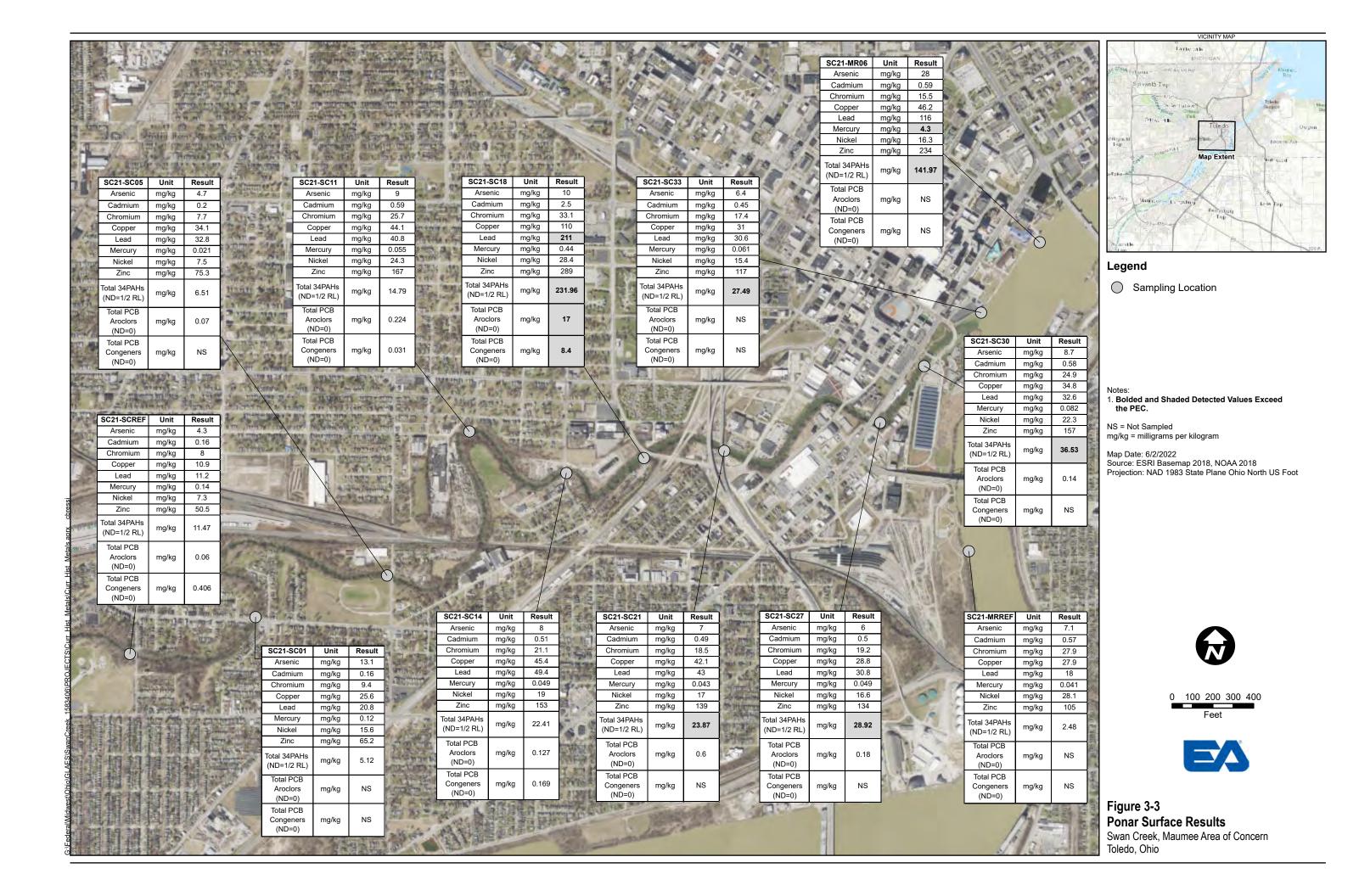


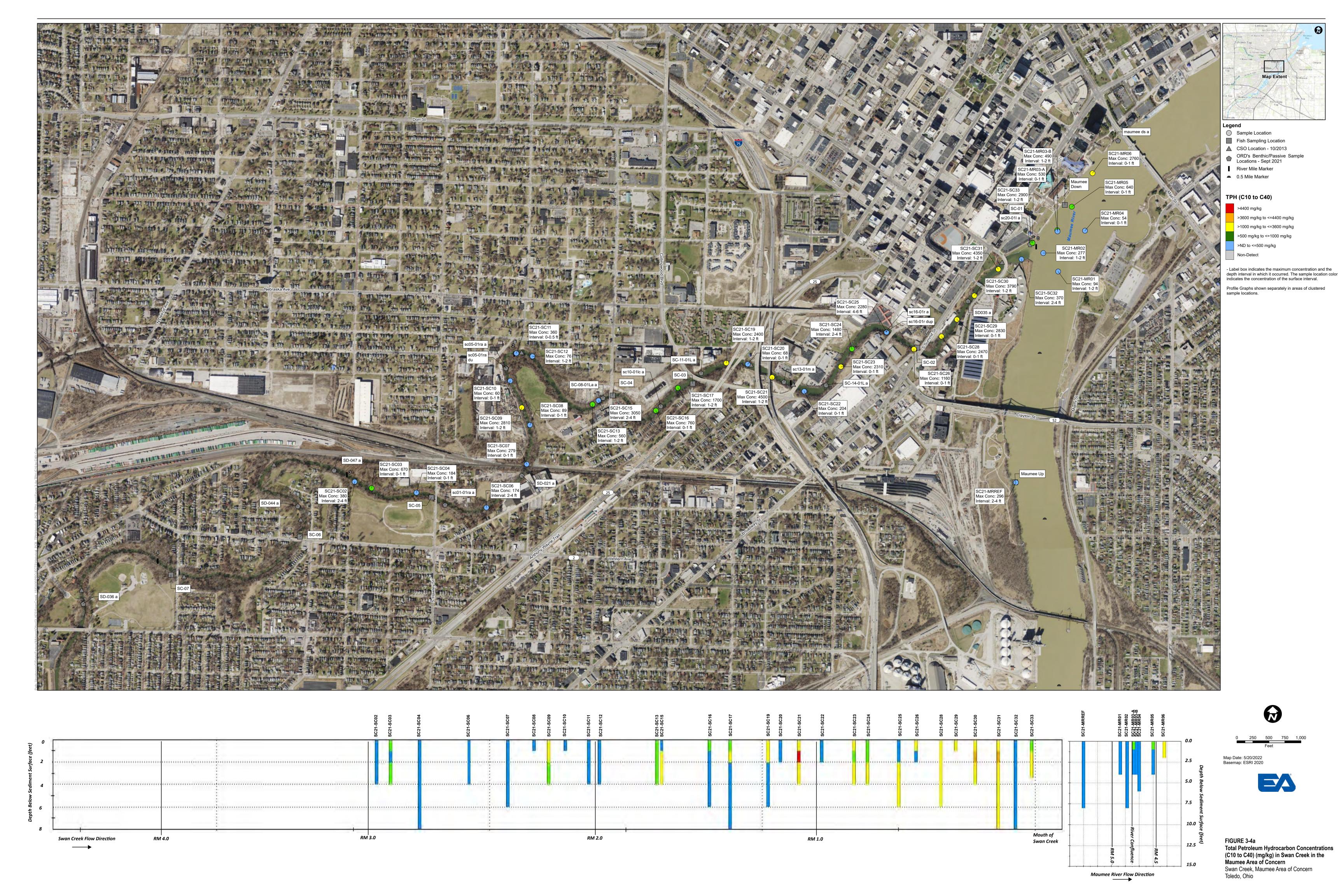


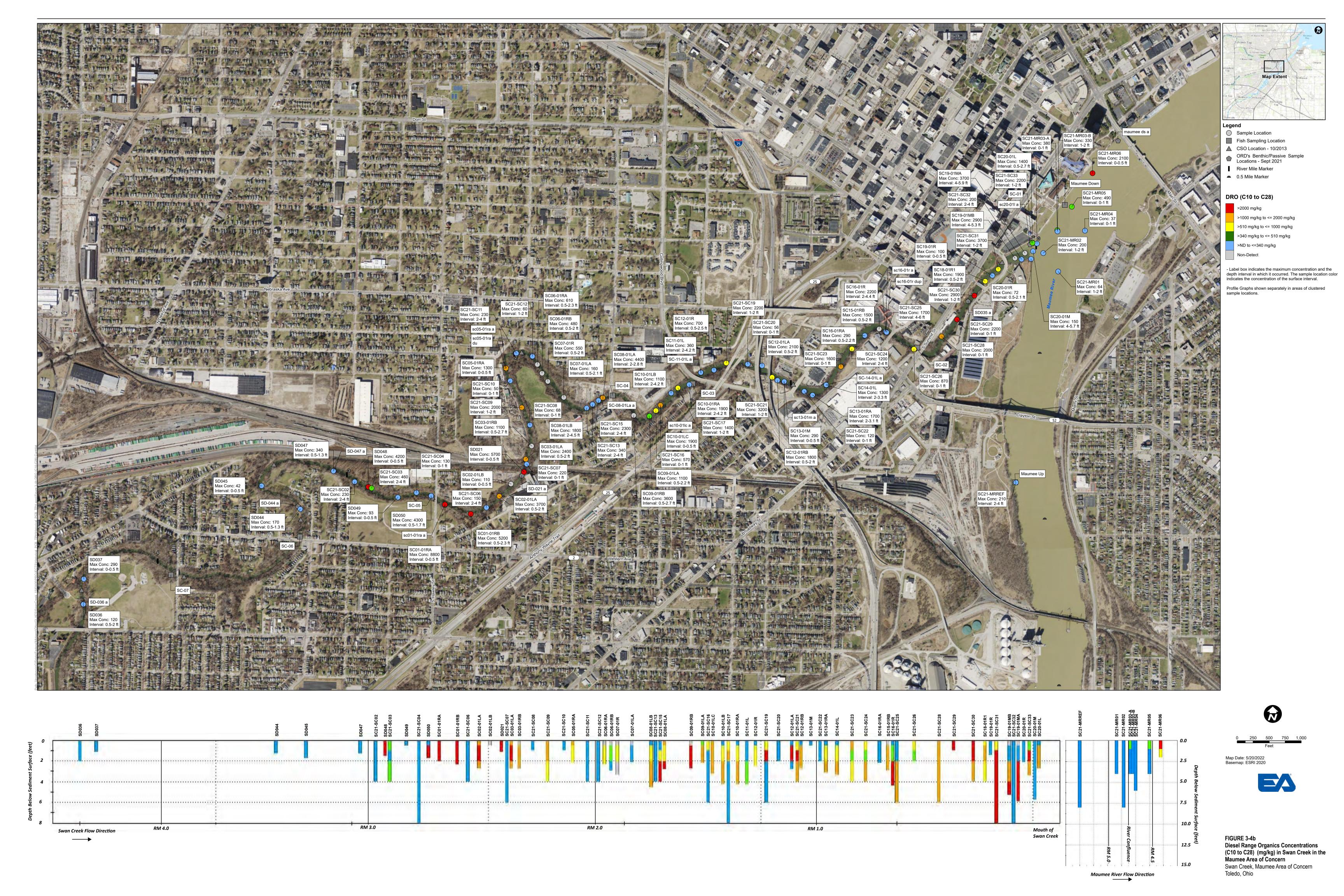


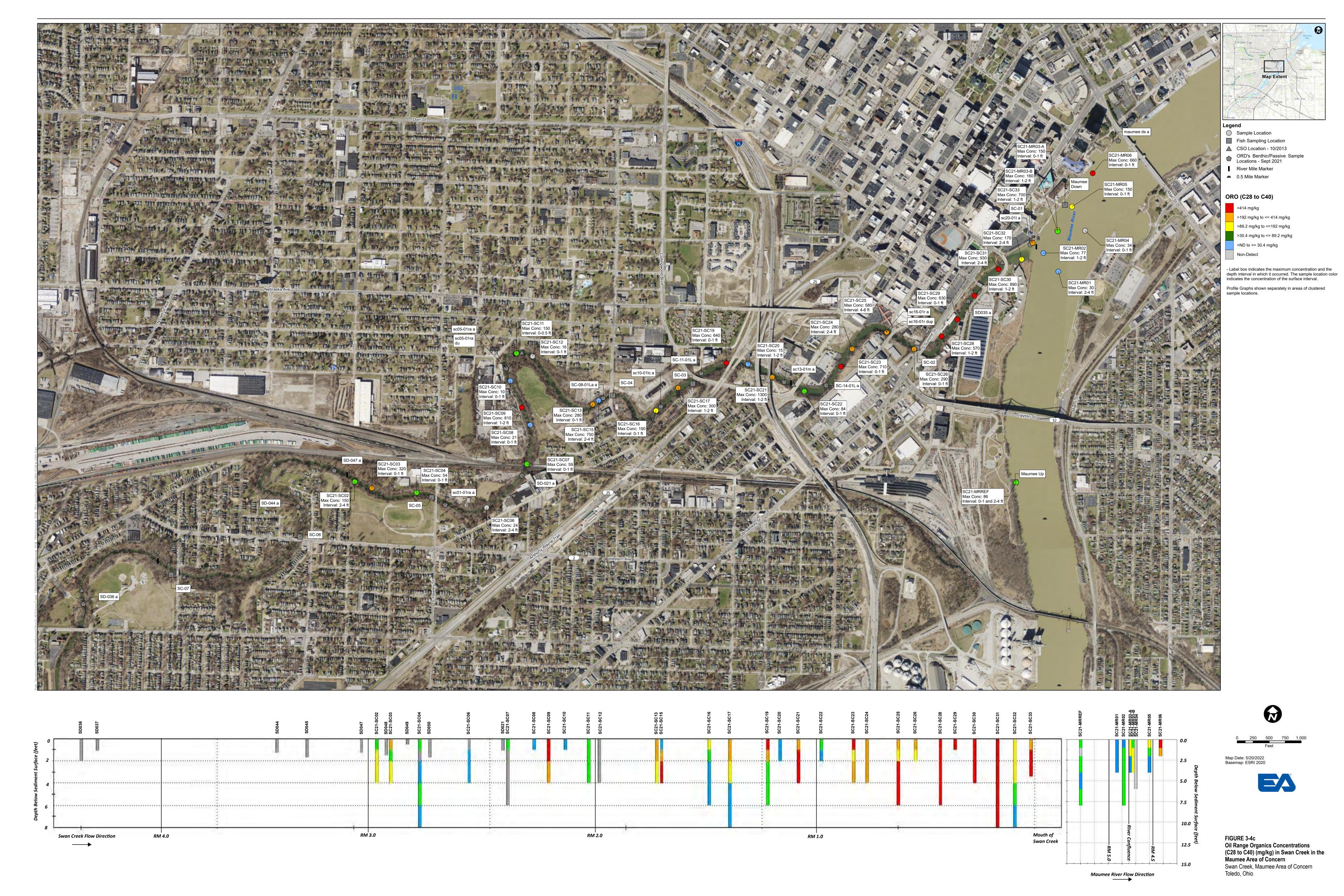


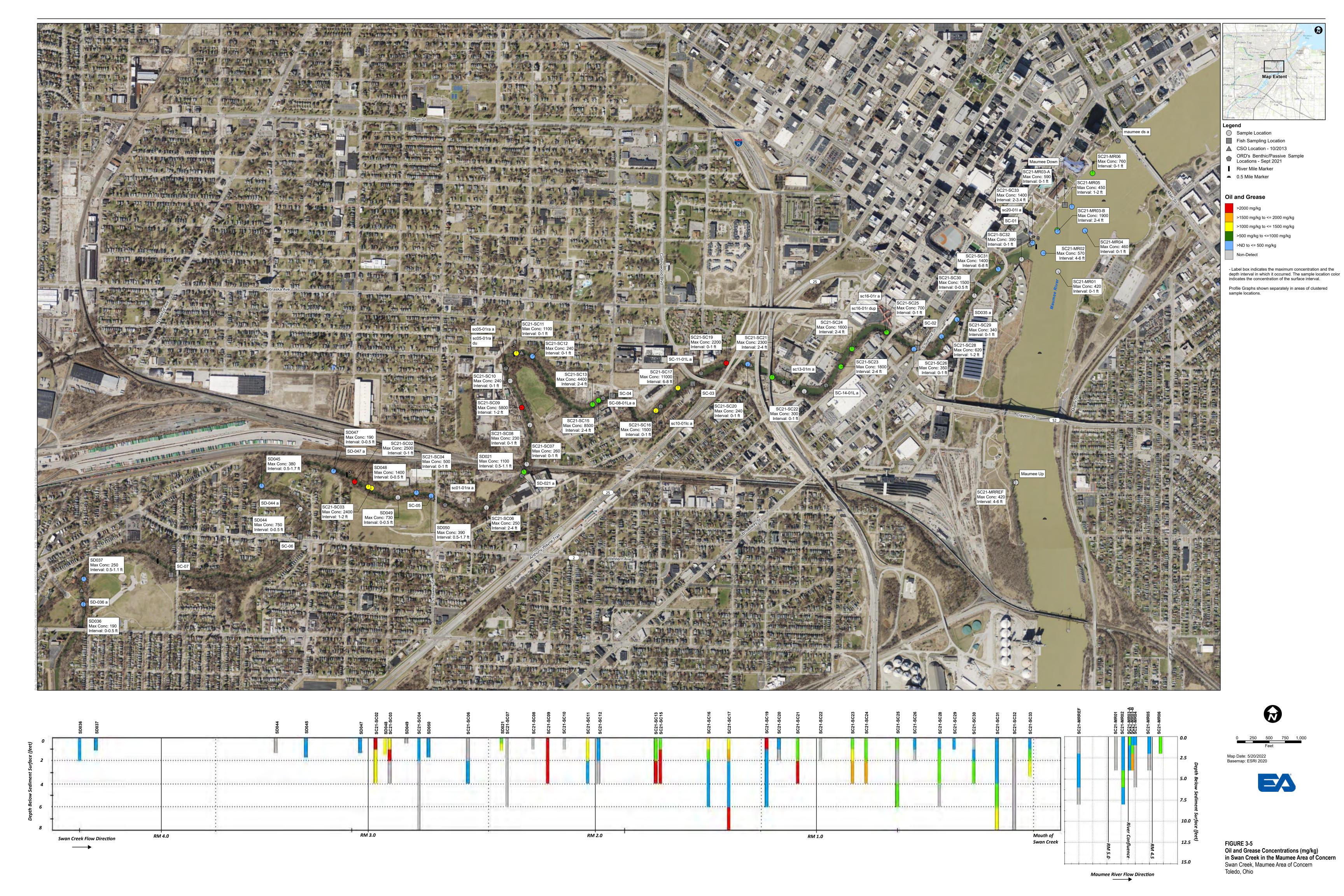












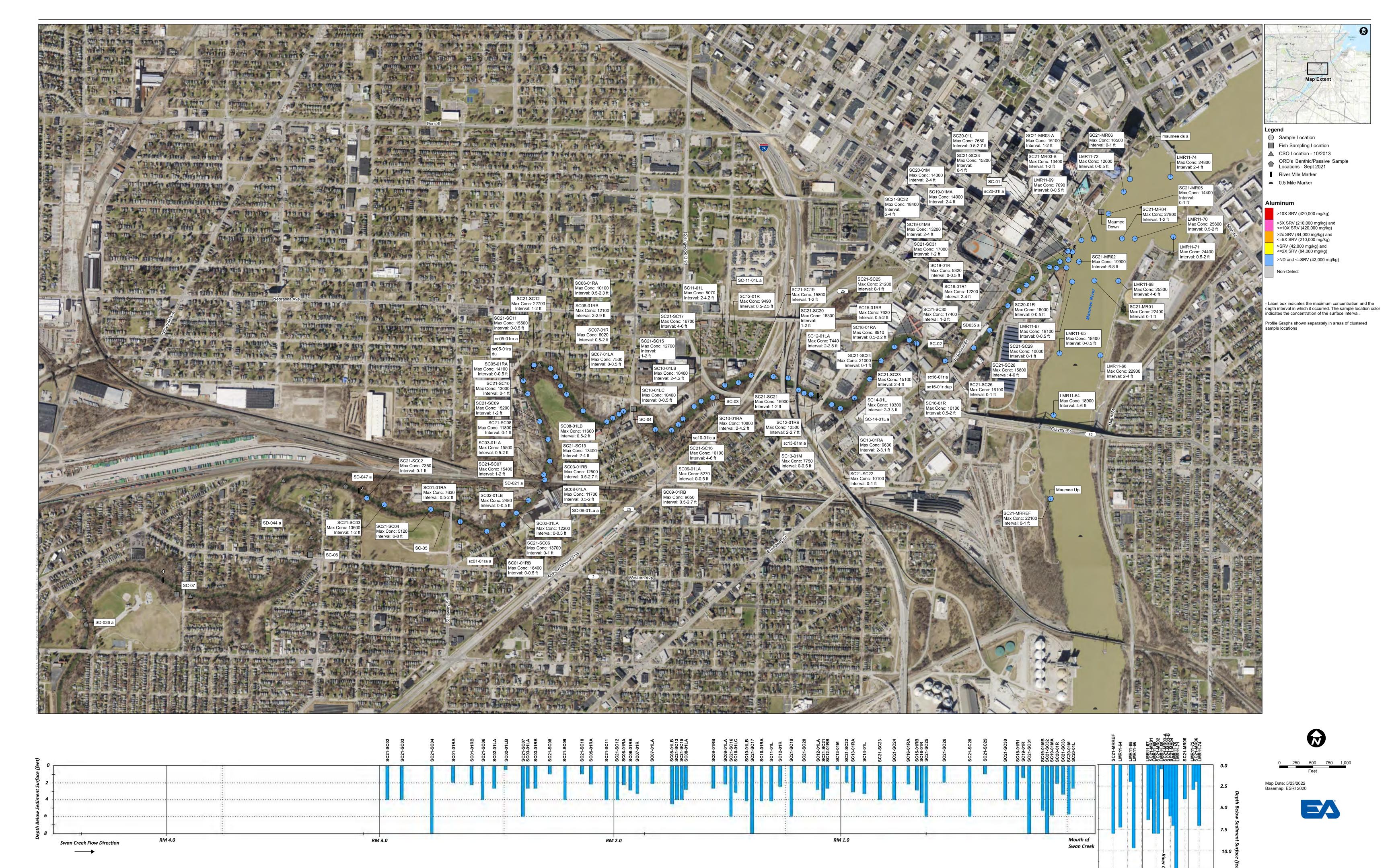


FIGURE 3-6
Aluminum Concentrations (mg/kg)
in Swan Creek in the Maumee Area of Concern
Swan Creek, Maumee Area of Concern
Toledo, Ohio

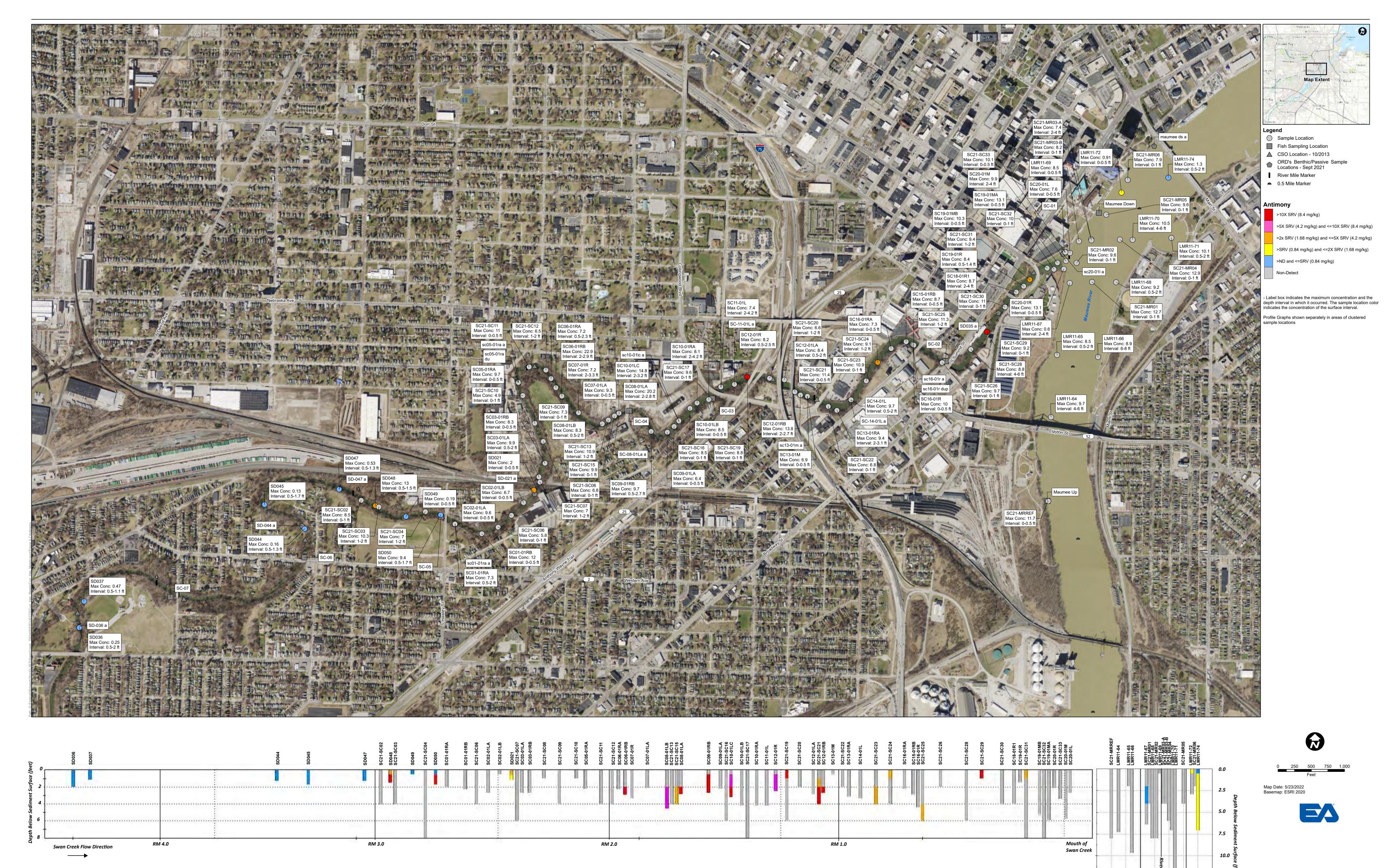
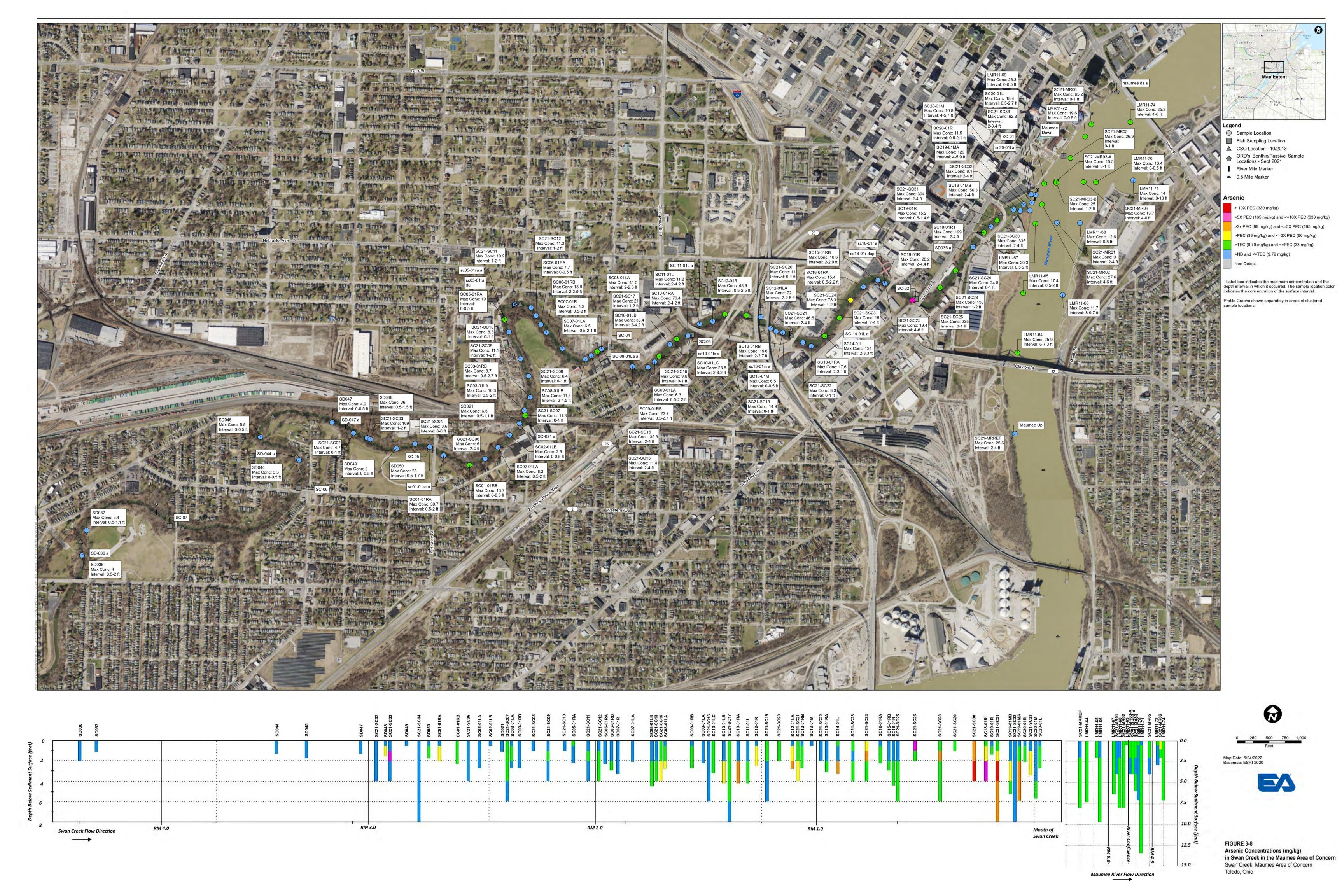
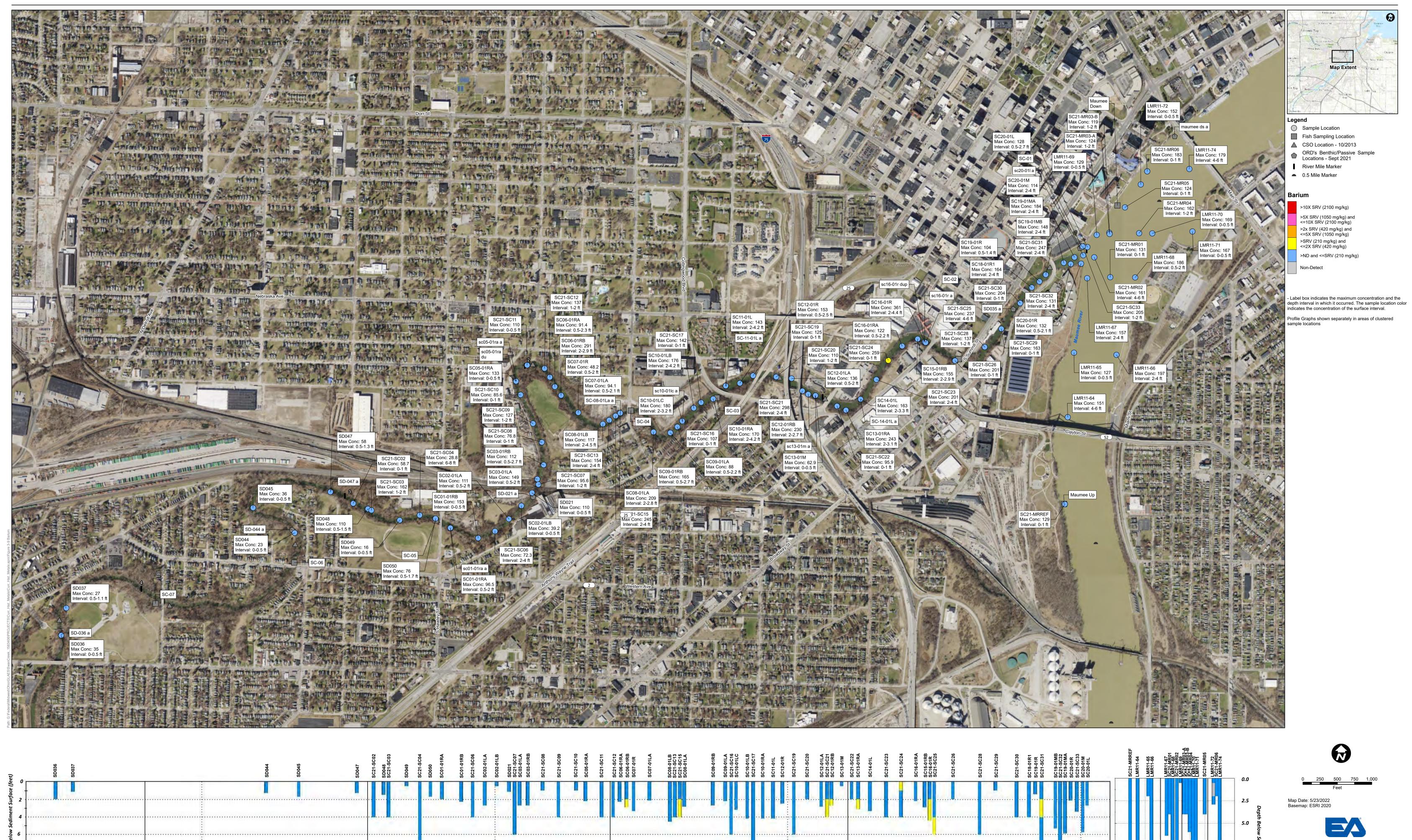


FIGURE 3-7
Antimony Concentrations (mg/kg)
in Swan Creek in the Maumee Area of Concern
Swan Creek, Maumee Area of Concern
Toledo, Ohio





RM 2.0

RM 1.0

RM 3.0

RM 4.0

Swan Creek Flow Direction



10.0

12.5

Maumee River Flow Direction

Mouth of

Swan Creek

FIGURE 3-9
Barium Concentrations (mg/kg)
in Swan Creek in the Maumee Area of Concern
Swan Creek, Maumee Area of Concern
Toledo, Ohio

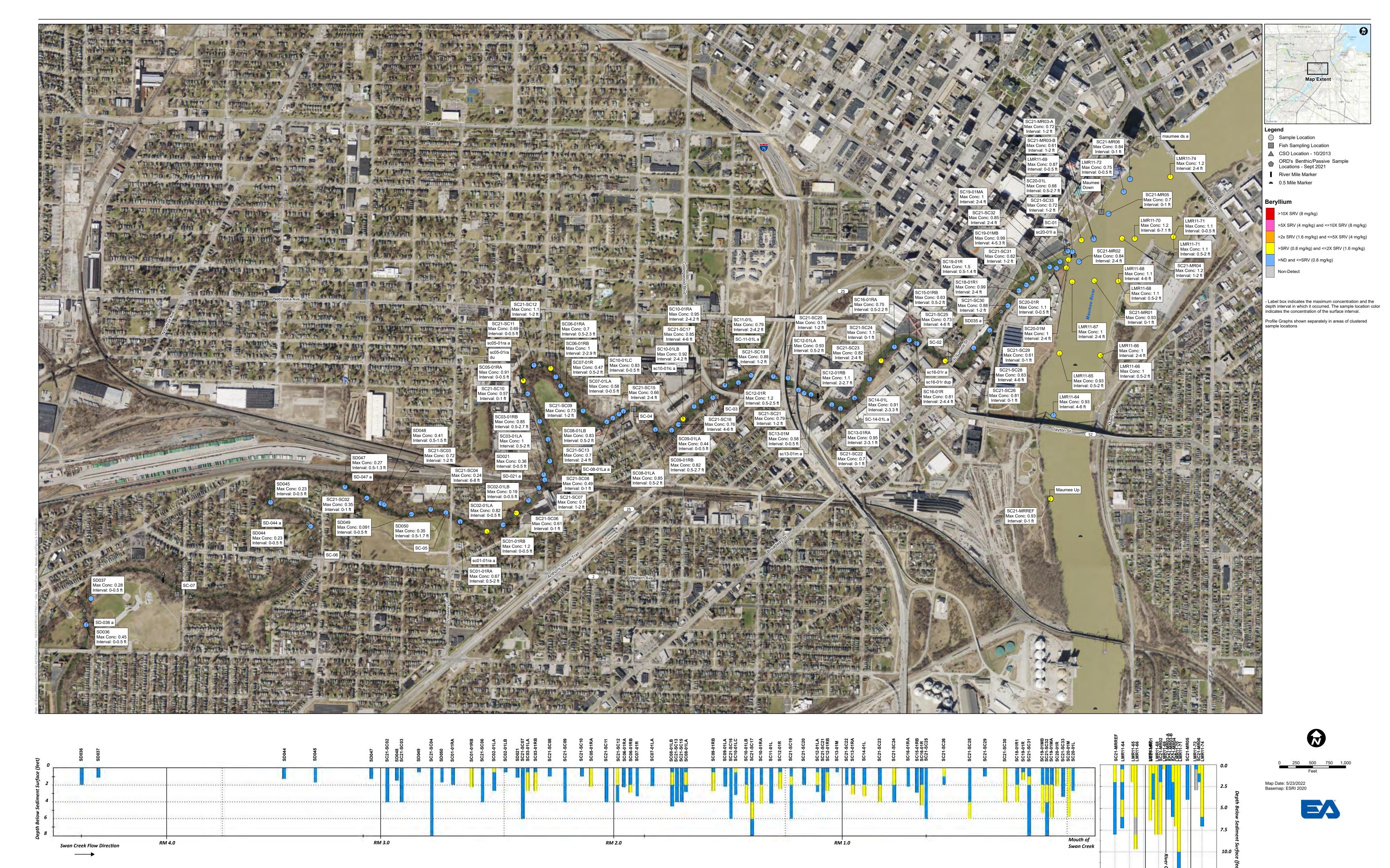
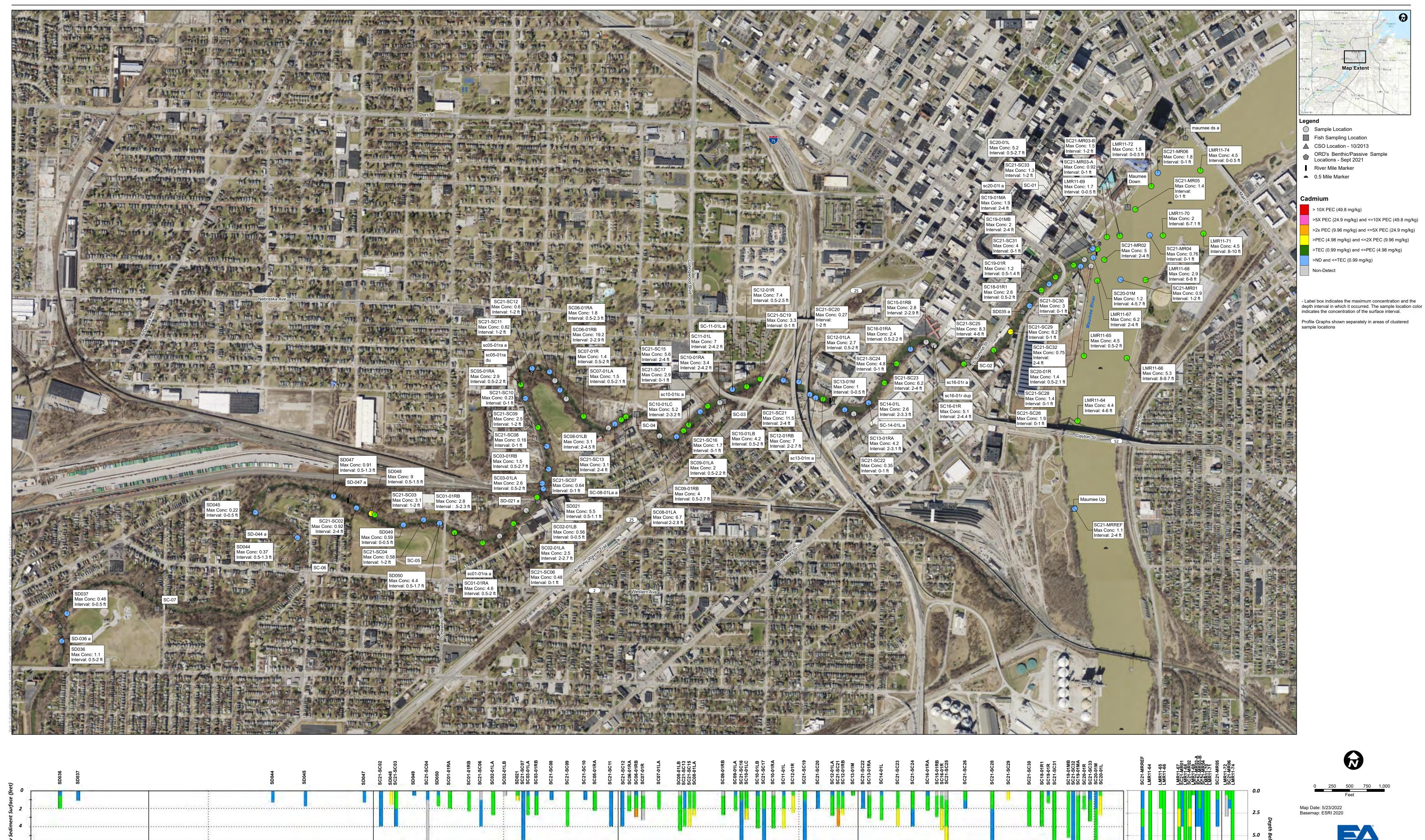


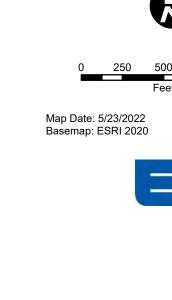
FIGURE 3-10
Beryllium Concentrations (mg/kg)
in Swan Creek in the Maumee Area of Concern
Swan Creek, Maumee Area of Concern
Toledo, Ohio



RM 2.0

RM 3.0

Swan Creek Flow Direction



10.0

Maumee River Flow Direction

Mouth of

Swan Creek

Cadmium Concentrations (mg/kg) in Swan Creek in the Maumee Area of Concern Swan Creek, Maumee Area of Concern Toledo, Ohio

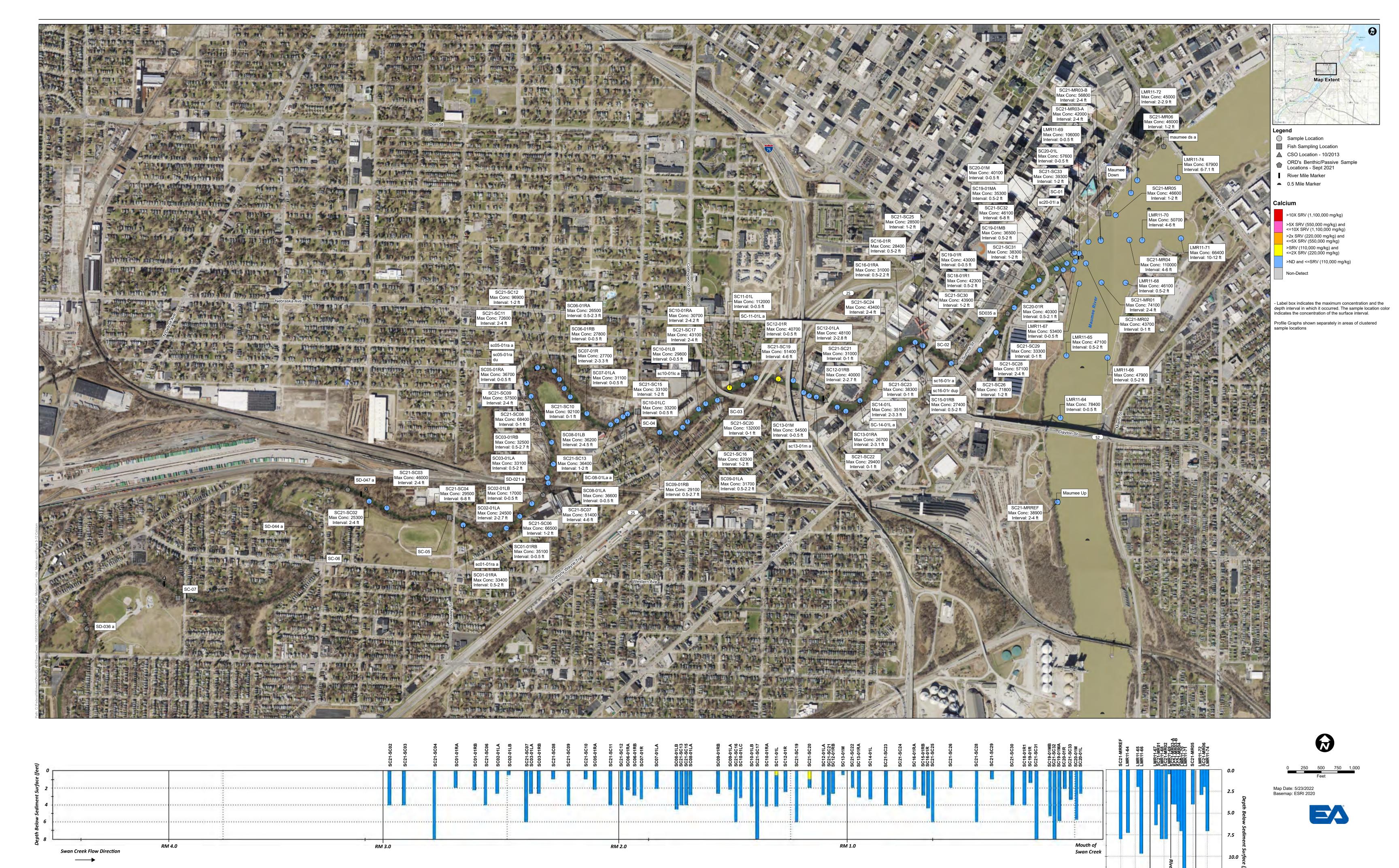
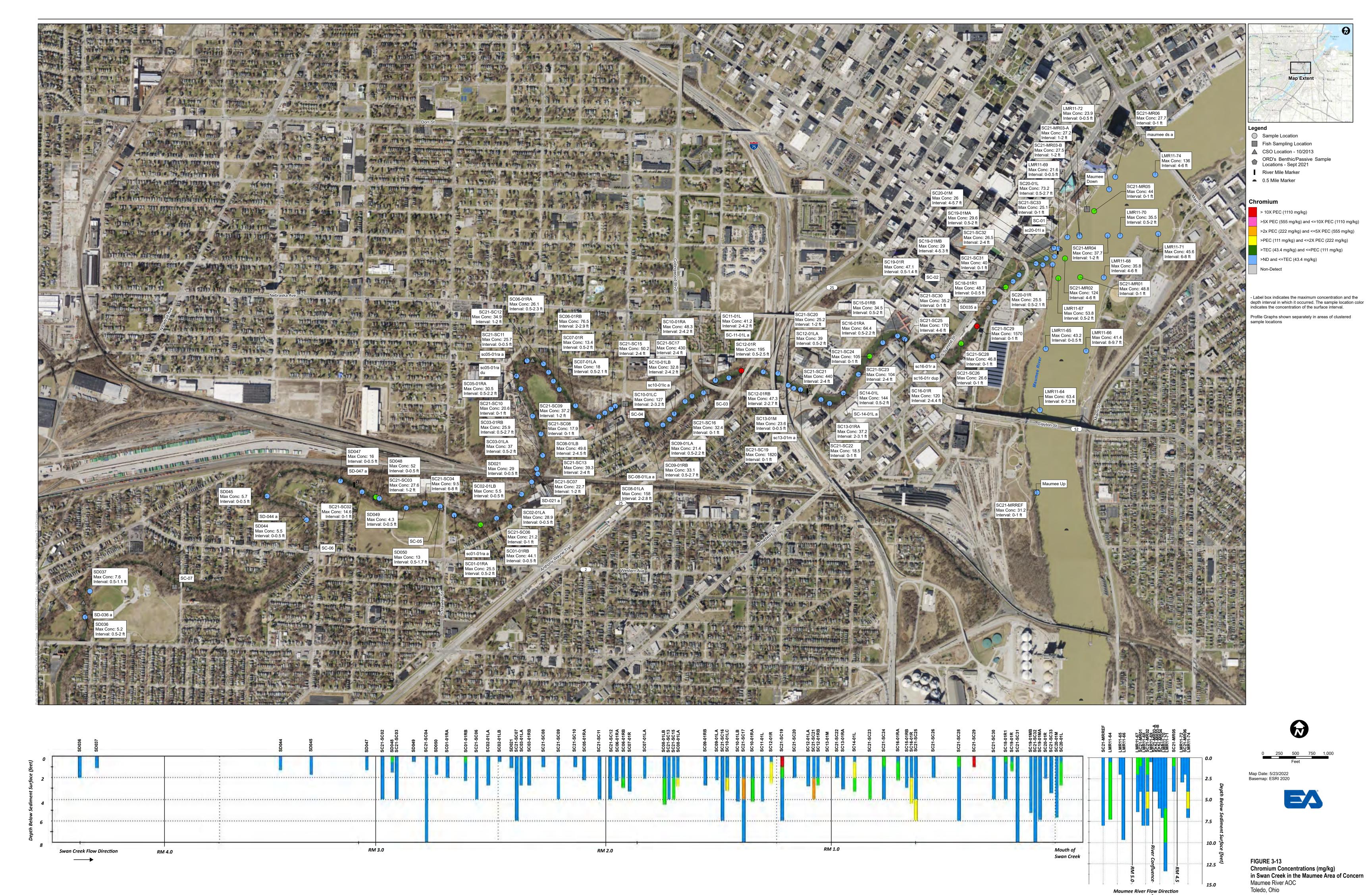


FIGURE 3-12
Calcium Concentrations (mg/kg)
in Swan Creek in the Maumee Area of Concern
Swan Creek, Maumee Area of Concern
Toledo, Ohio



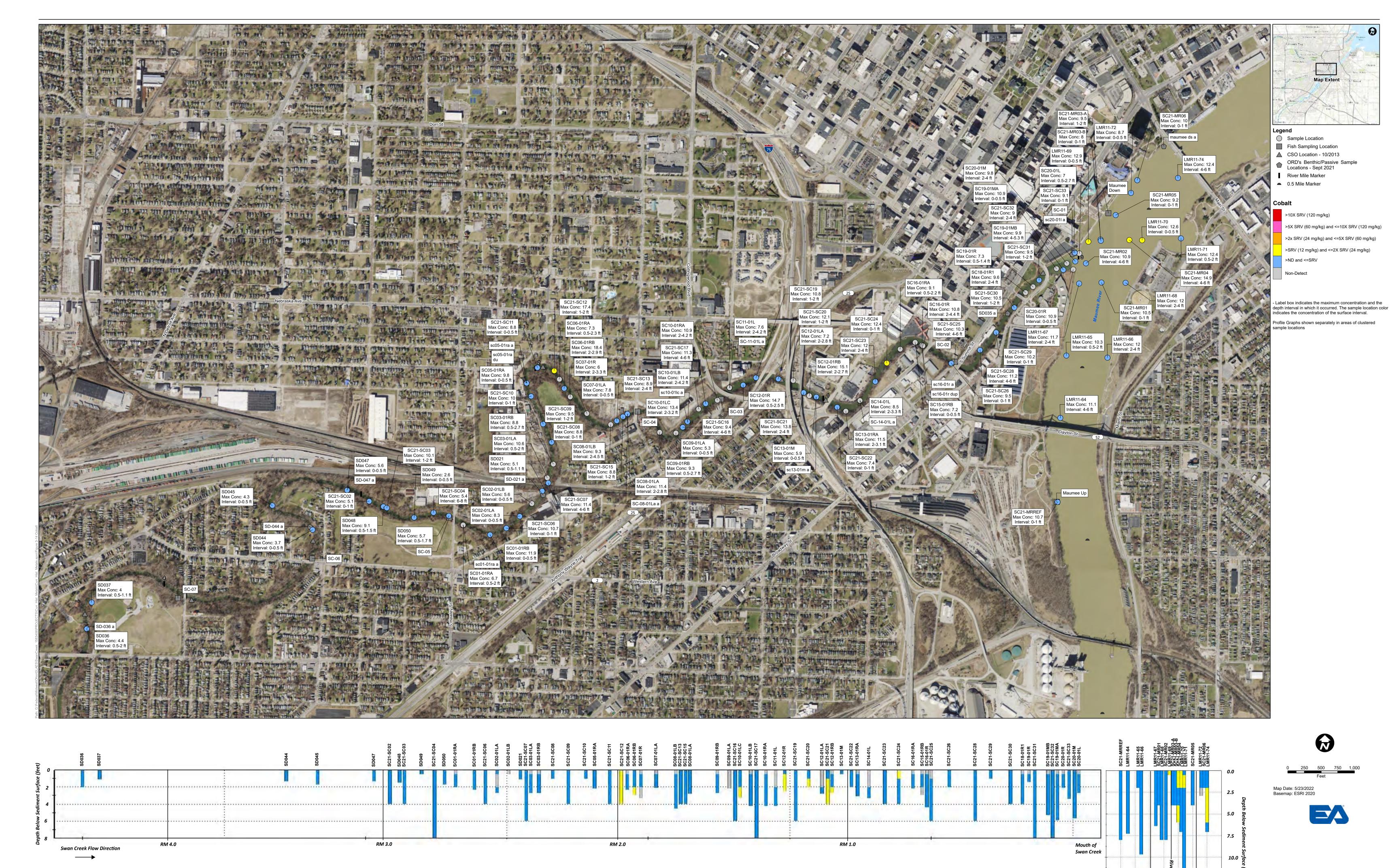


FIGURE 3-14
Cobalt Concentrations (mg/kg)
in Swan Creek in the Maumee Area of Concern
Swan Creek, Maumee Area of Concern
Toledo, Ohio

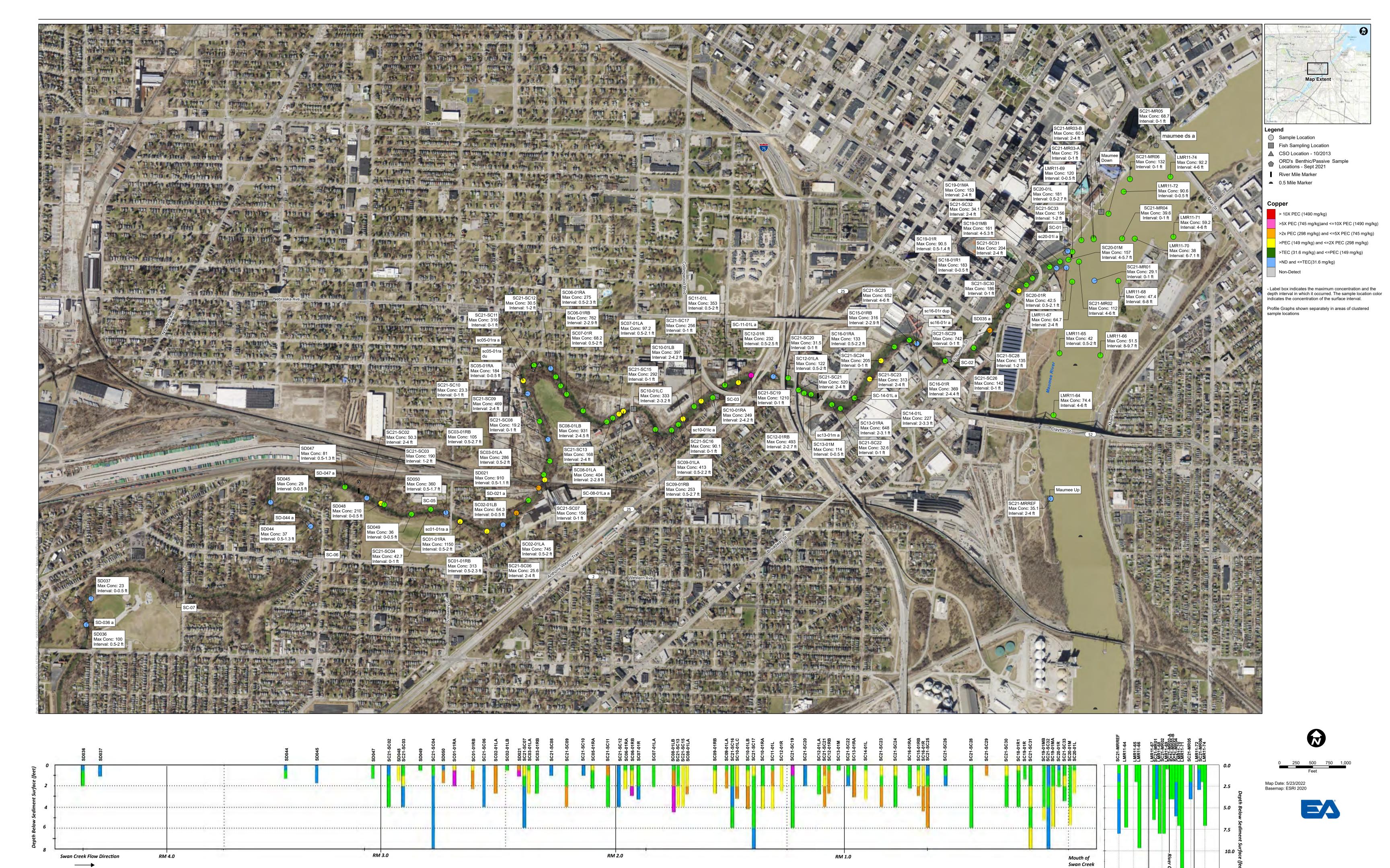


FIGURE 3-15
Copper Concentrations (mg/kg)
in Swan Creek in the Maumee Area of Concern
Maumee River AOC
Toledo, Ohio

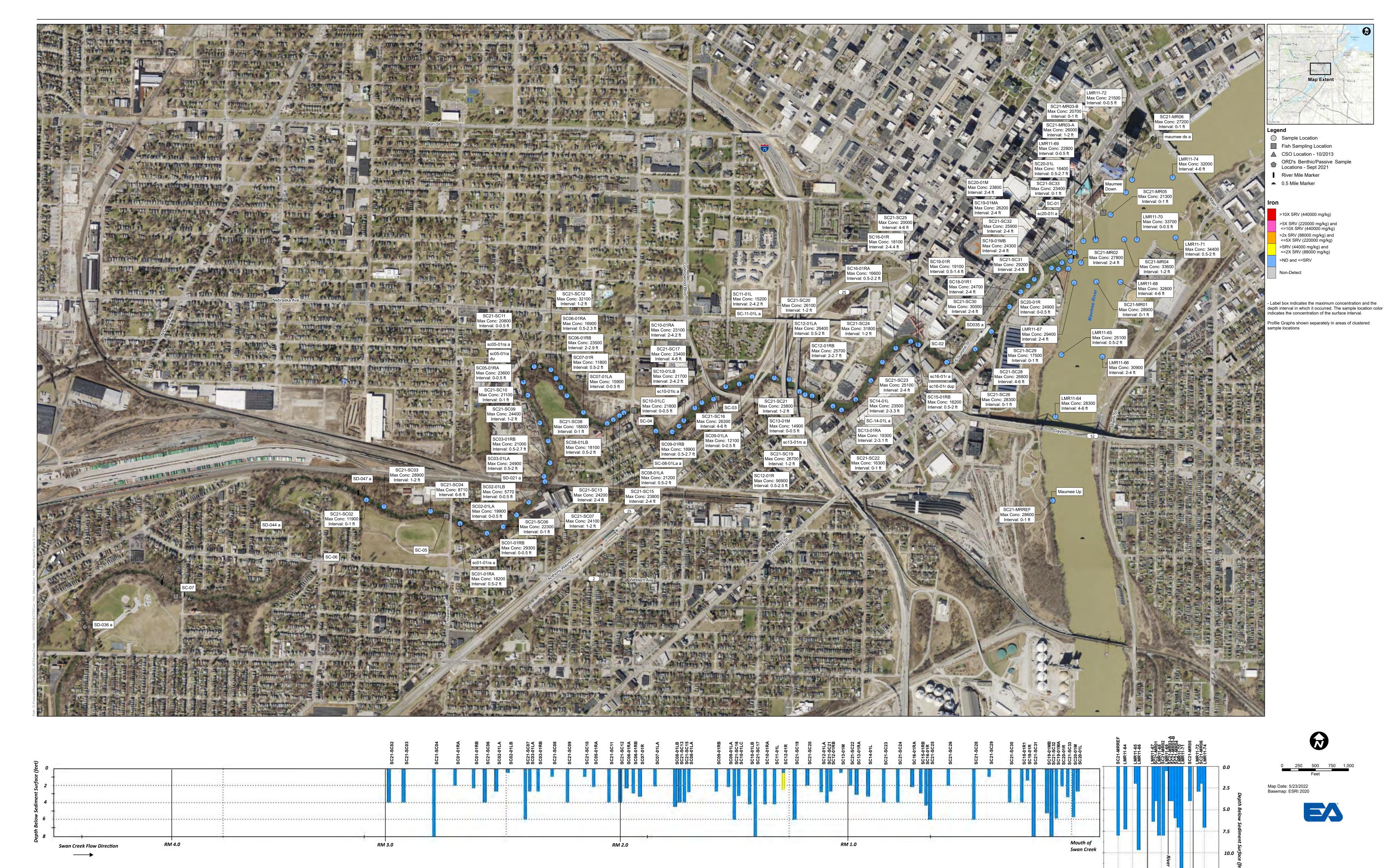
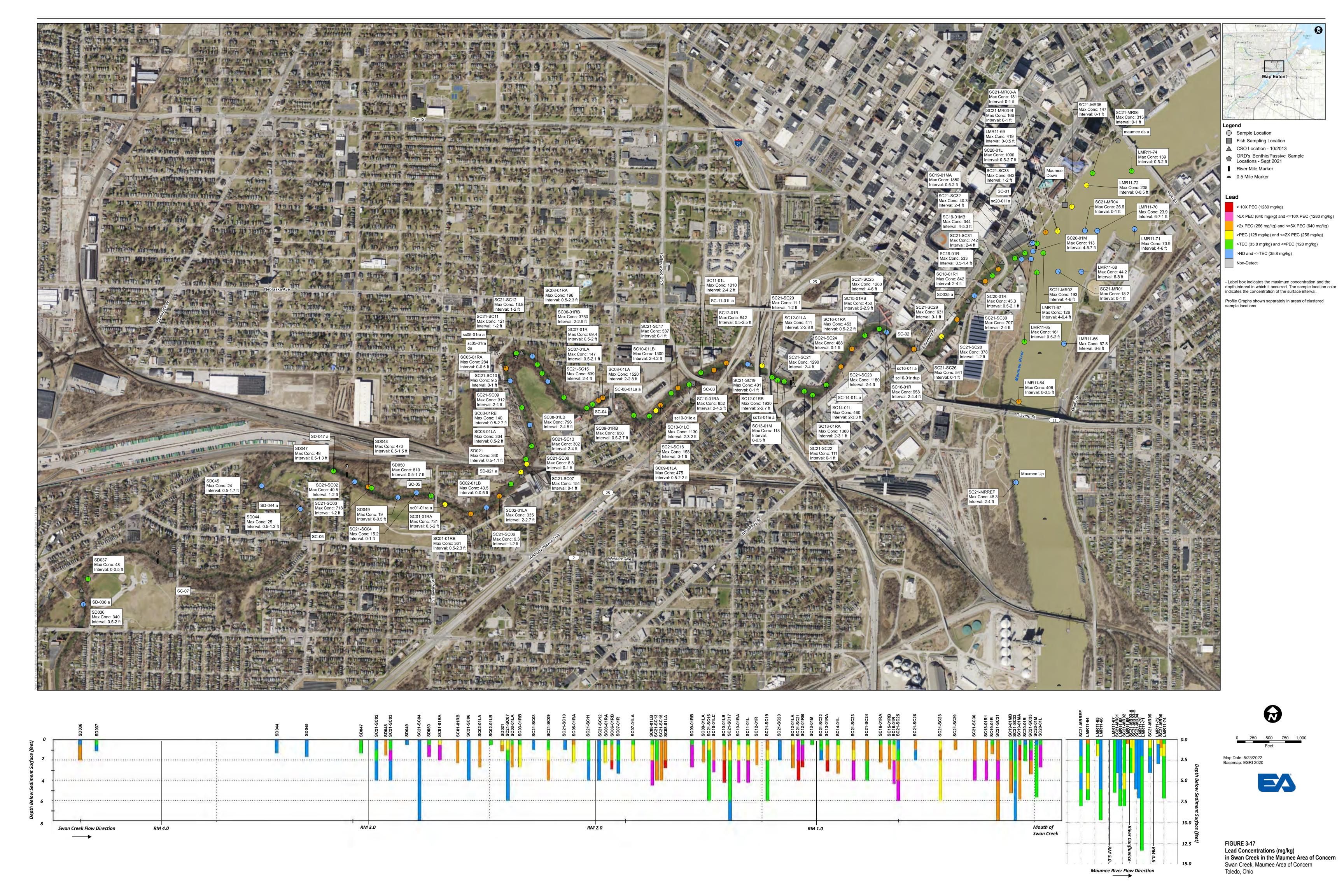


FIGURE 3-16
Iron Concentrations (mg/kg)
in Swan Creek in the Maumee Area of Concern
Swan Creek, Maumee Area of Concern
Toledo, Ohio



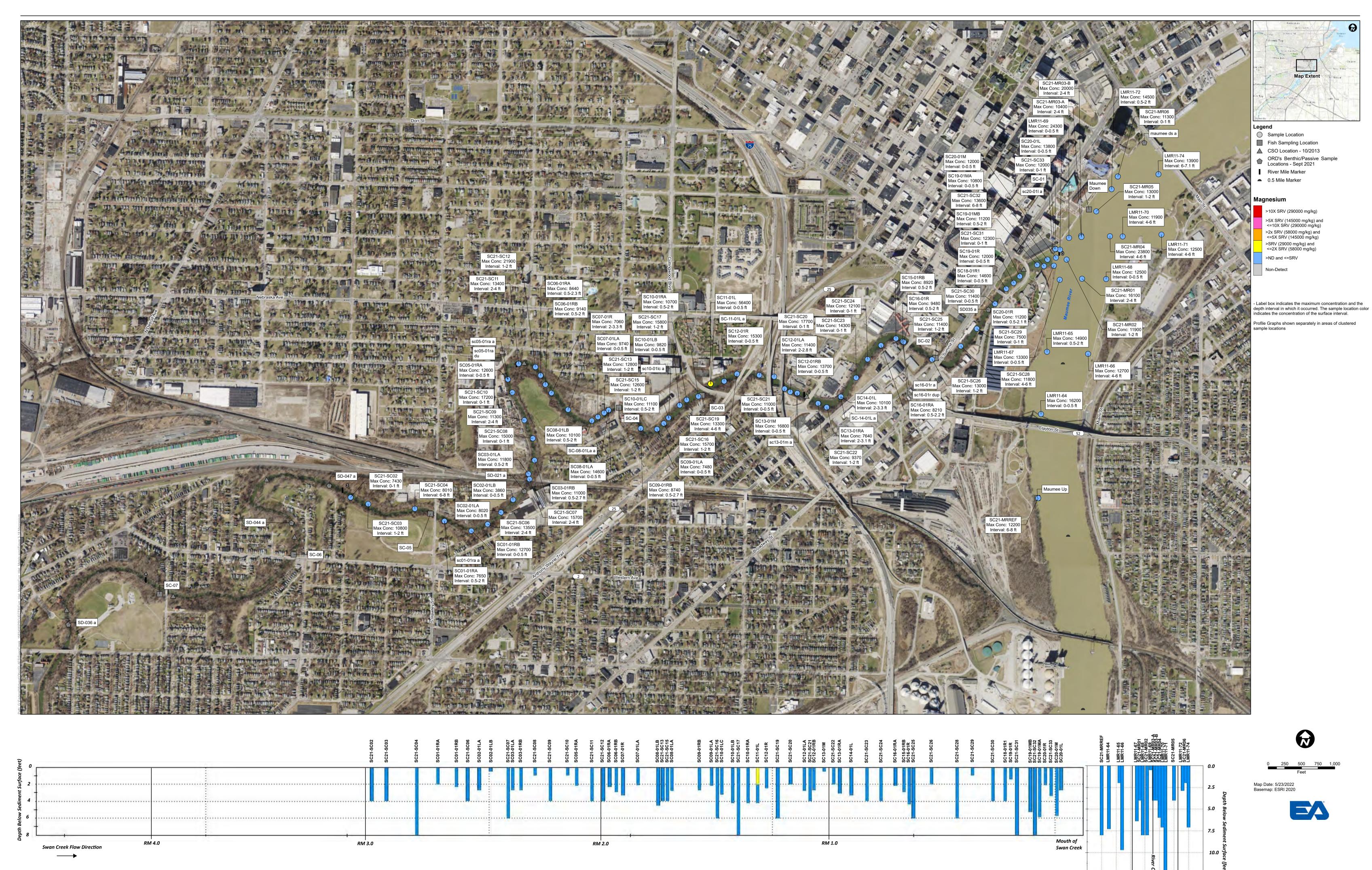
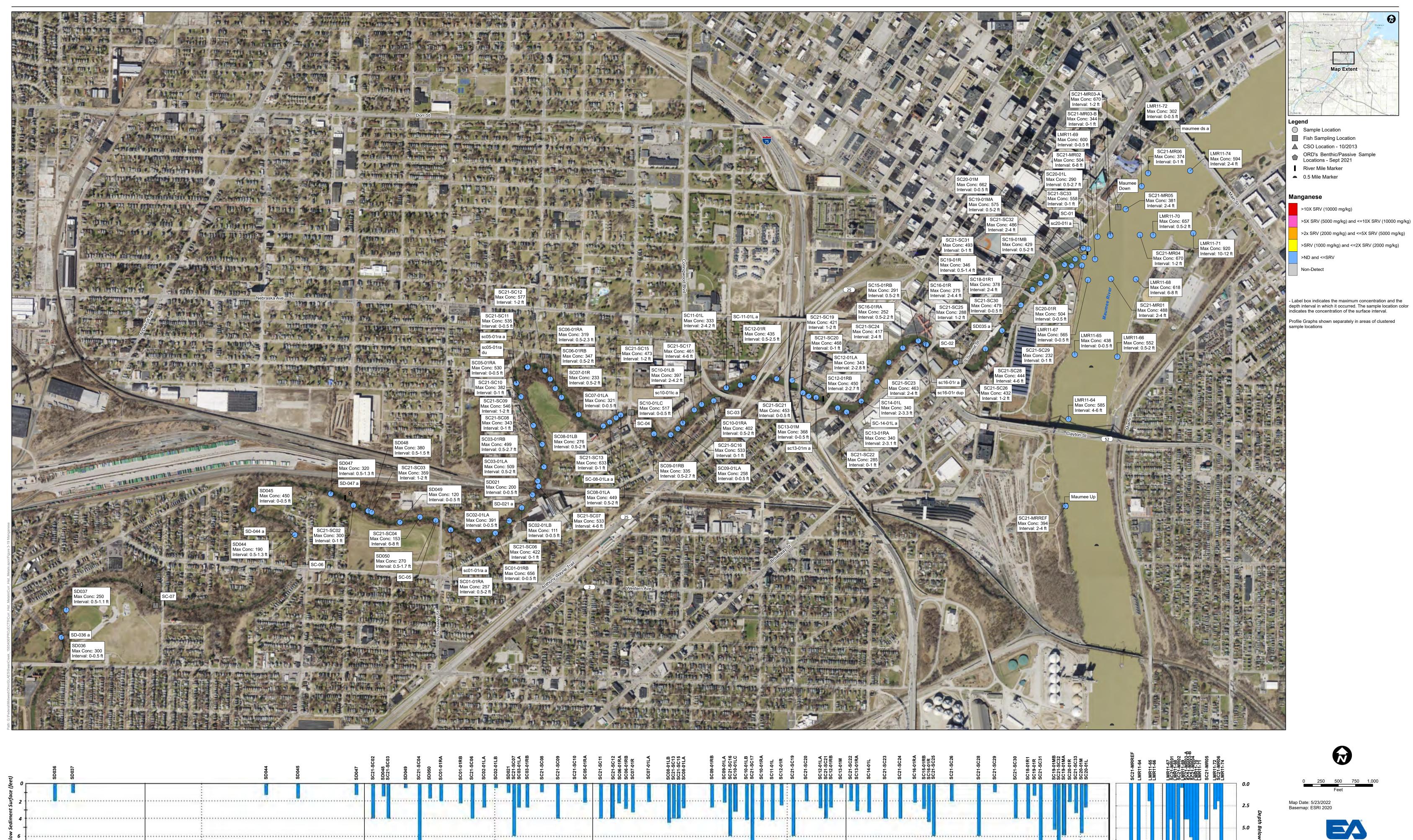


FIGURE 3-18
Magnesium Concentrations (mg/kg)
in Swan Creek in the Maumee Area of Concern
Swan Creek, Maumee Area of Concern
Toledo, Ohio

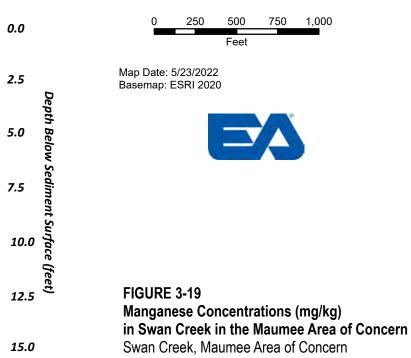


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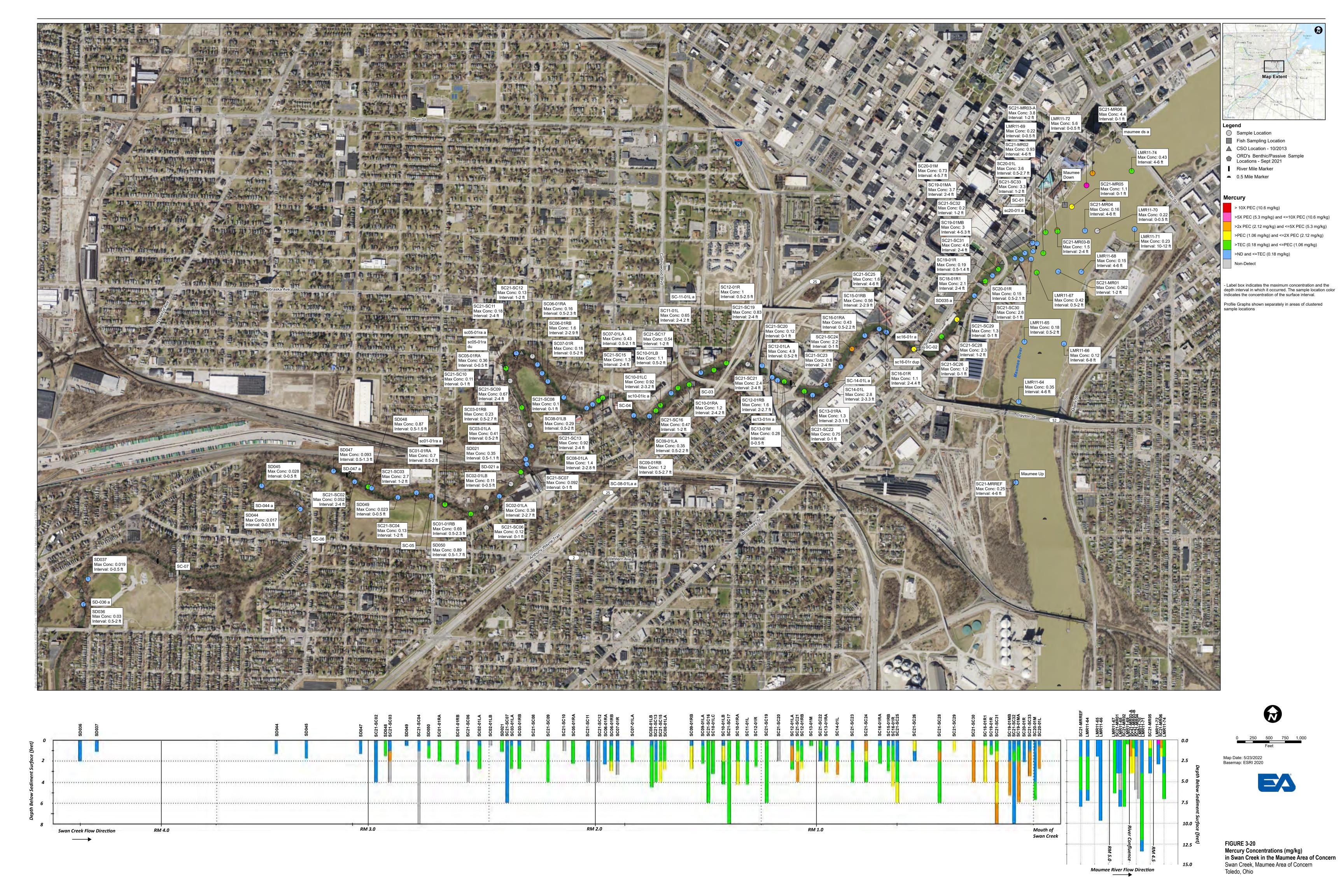
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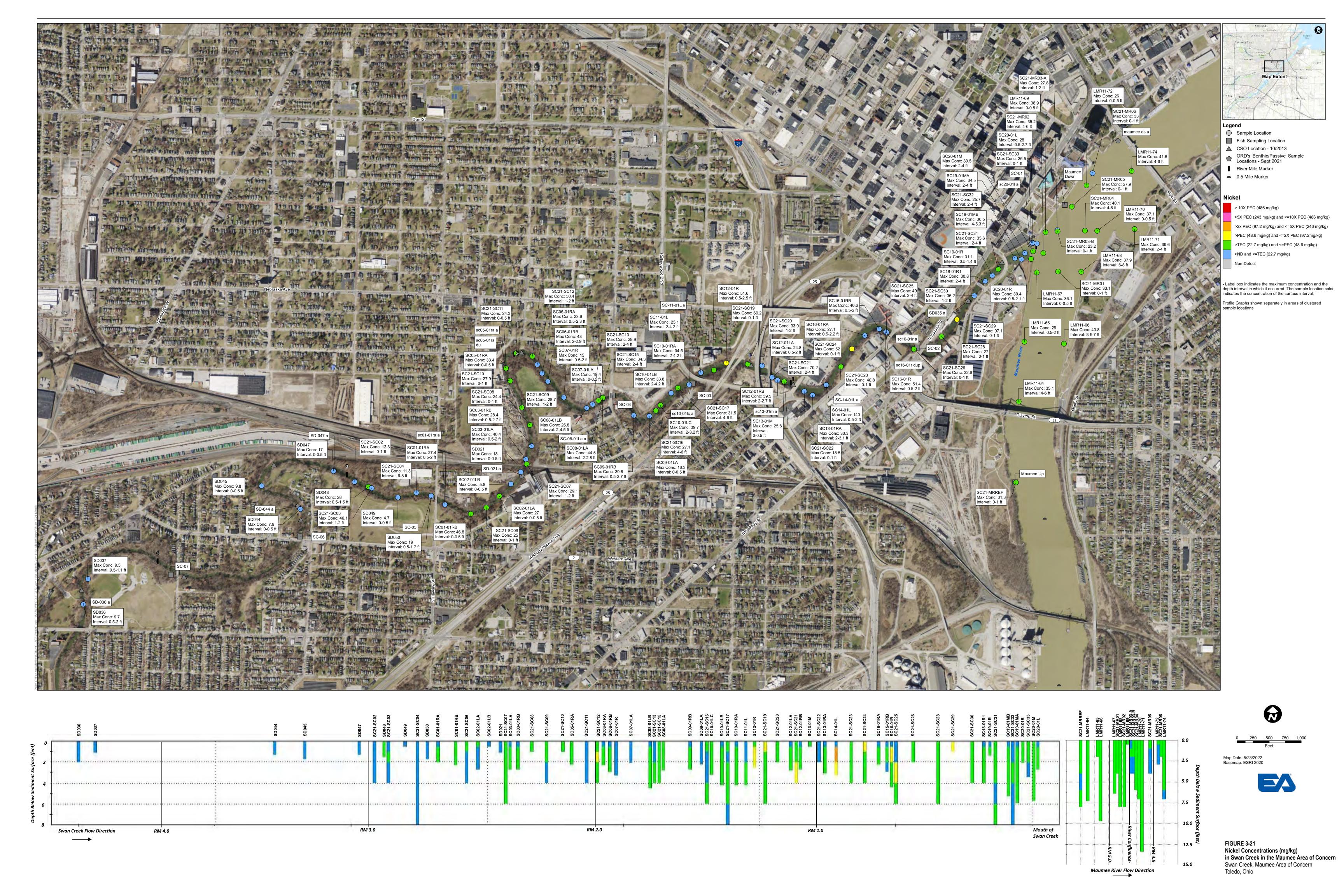
RM 4.0



Toledo, Ohio

Mouth of





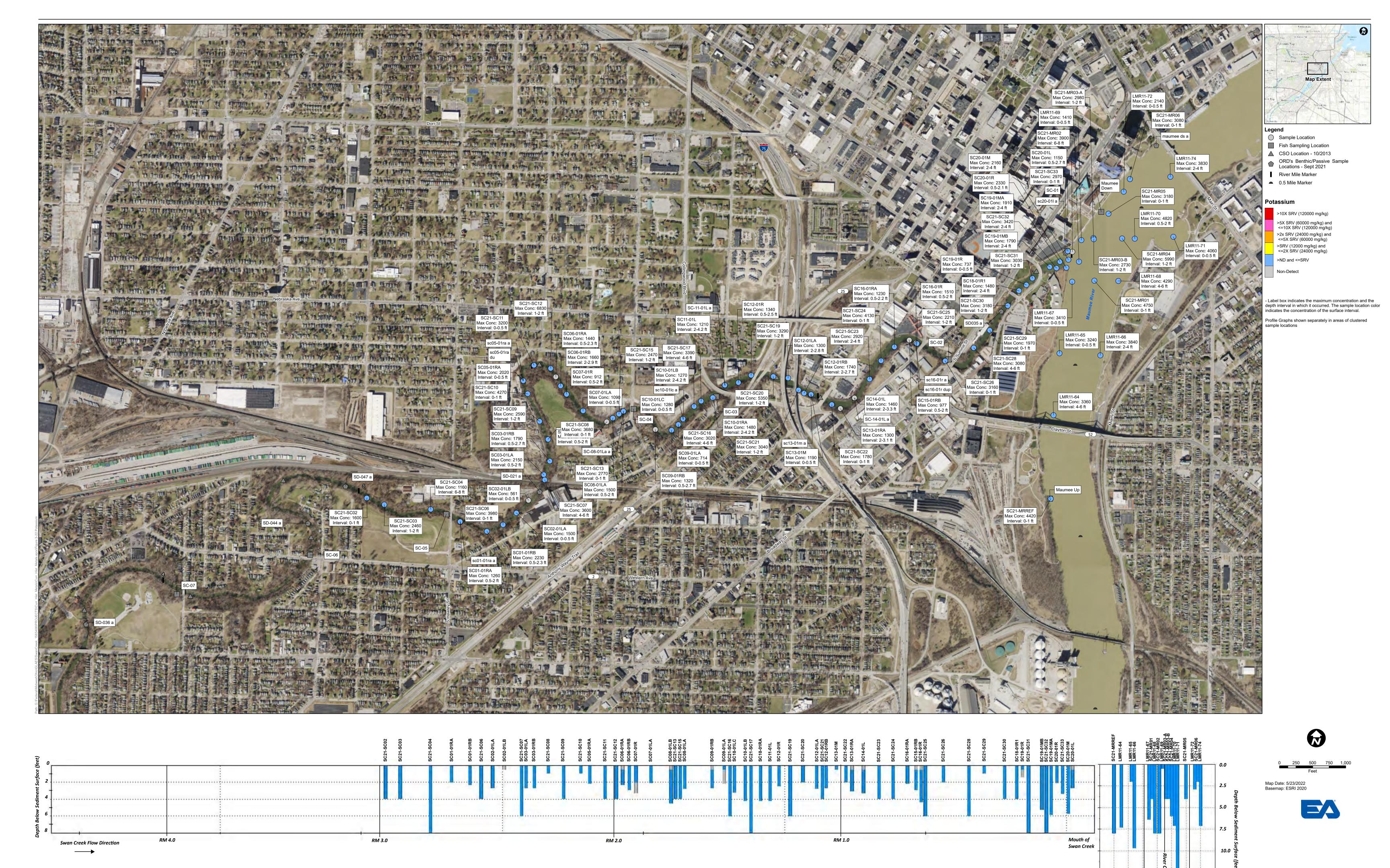
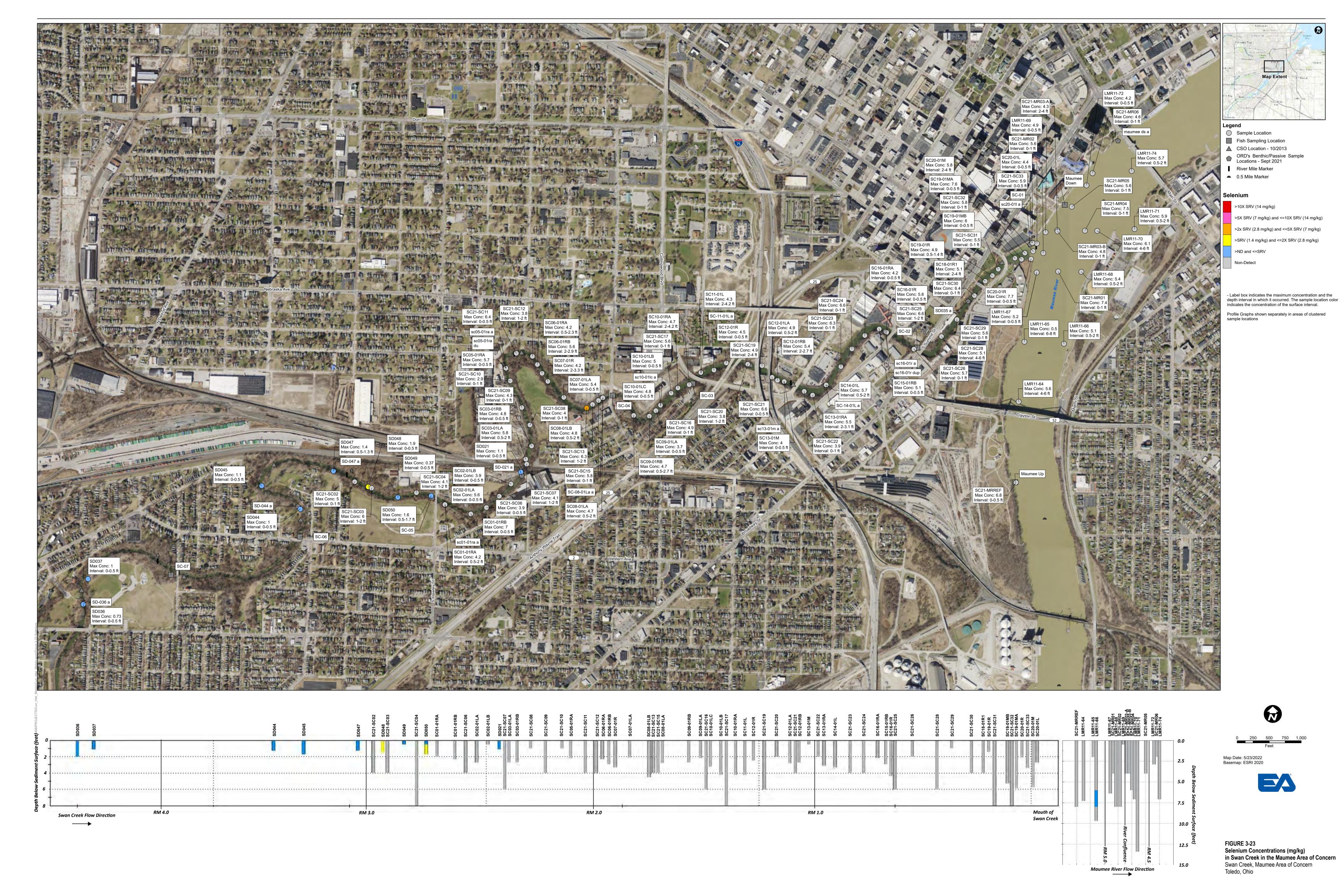
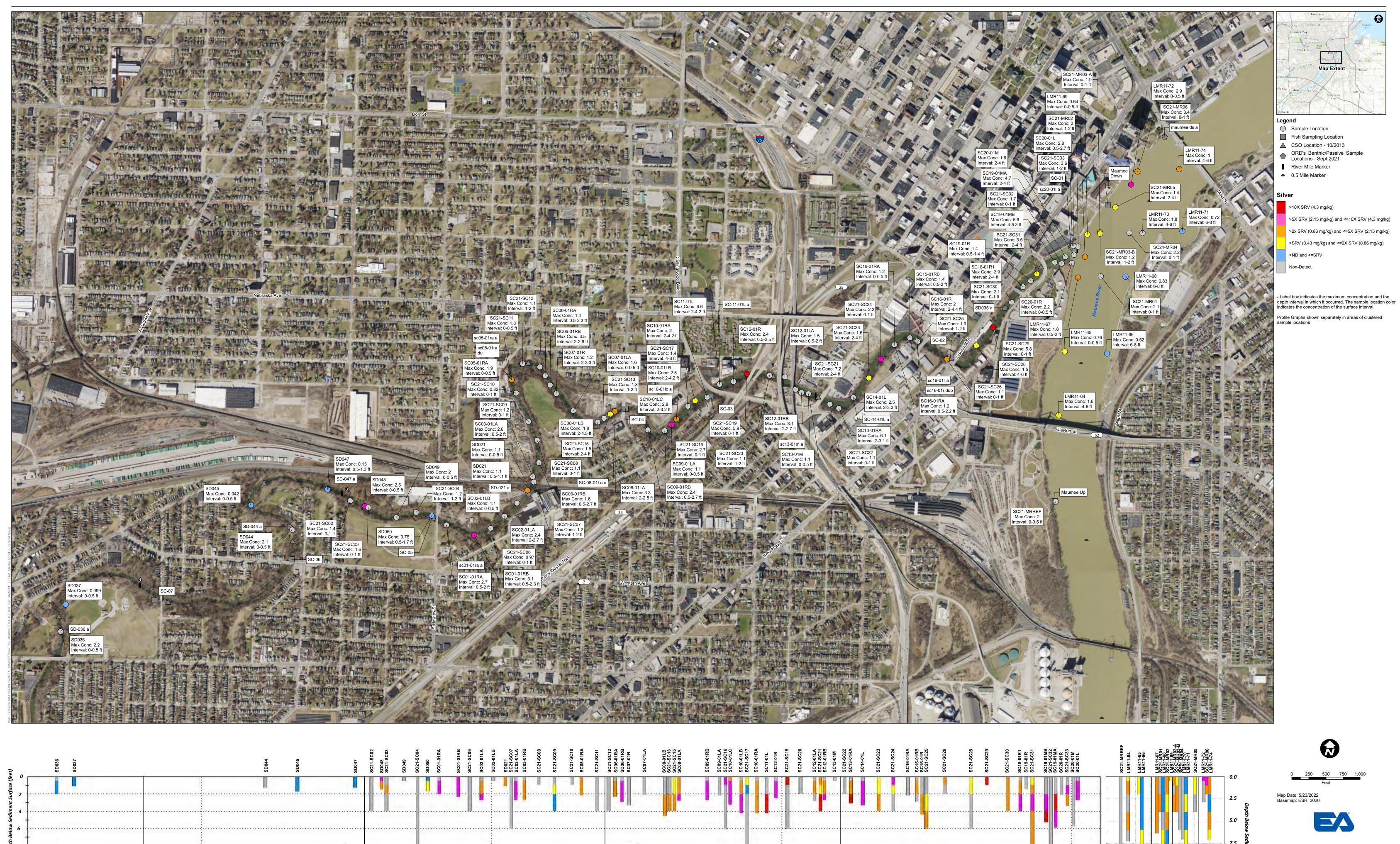


FIGURE 3-22
Potassium Concentrations (mg/kg)
in Swan Creek in the Maumee Area of Concern
Swan Creek, Maumee Area of Concern
Toledo, Ohio





RM 3.0

Swan Creek Flow Direction

FIGURE 3-24
Silver Concentrations (mg/kg)
in Swan Creek in the Maumee Area of Concern
Swan Creek, Maumee Area of Concern
Toledo, Ohio

Mouth of

Swan Creek

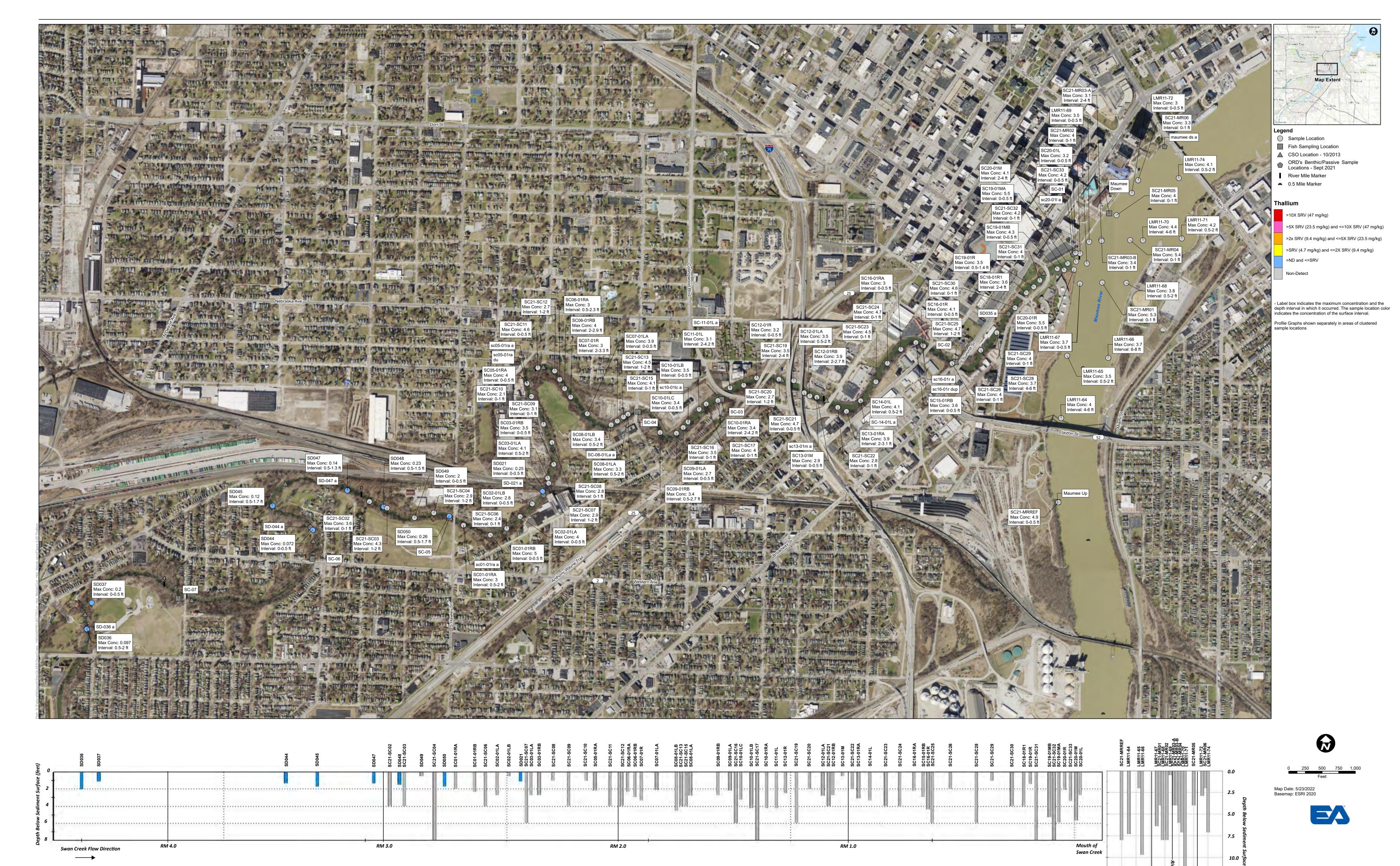


FIGURE 3-25
Thallium Concentrations (mg/kg)
in Swan Creek in the Maumee Area of Concern
Swan Creek, Maumee Area of Concern
Toledo, Ohio

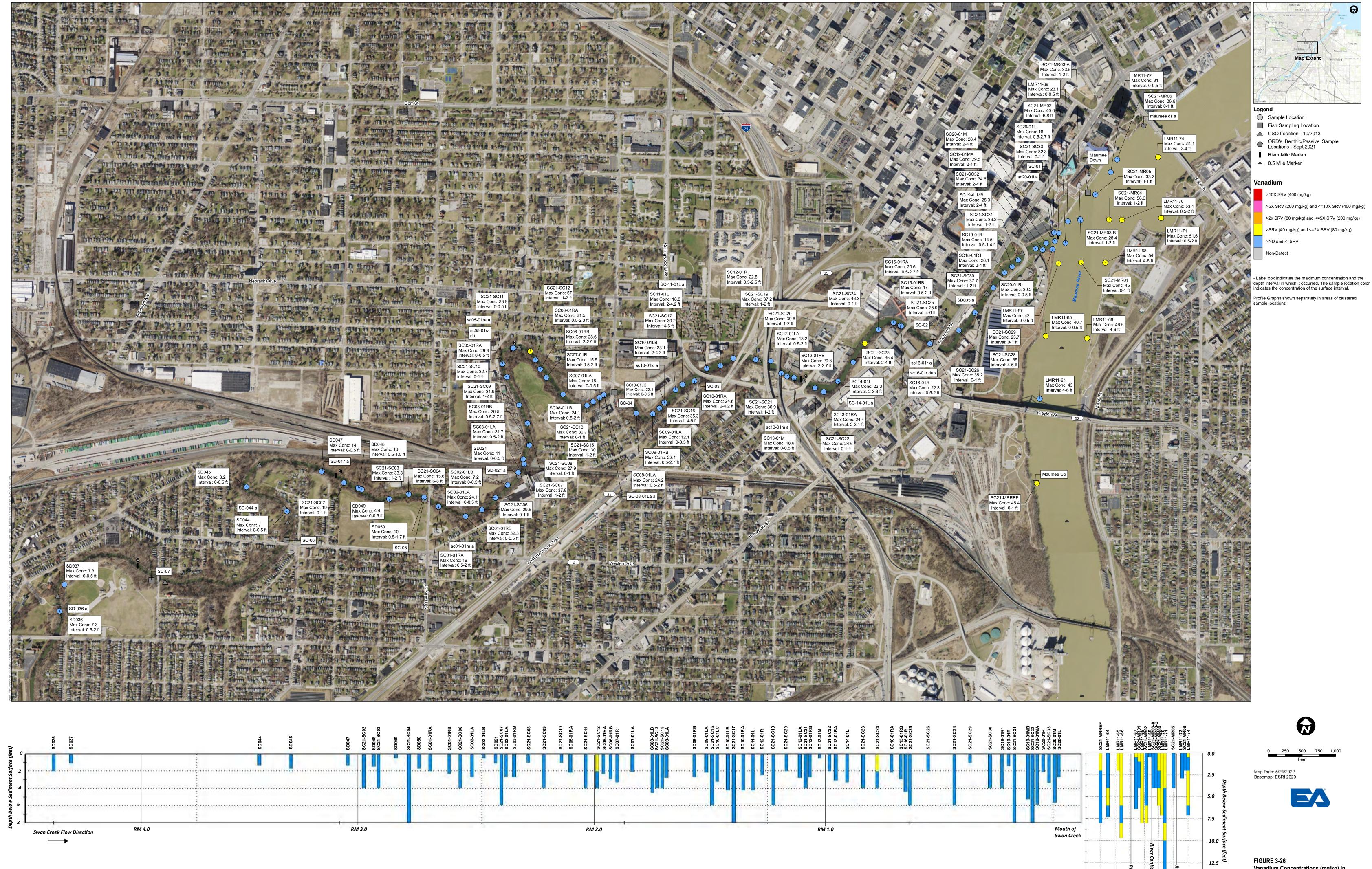
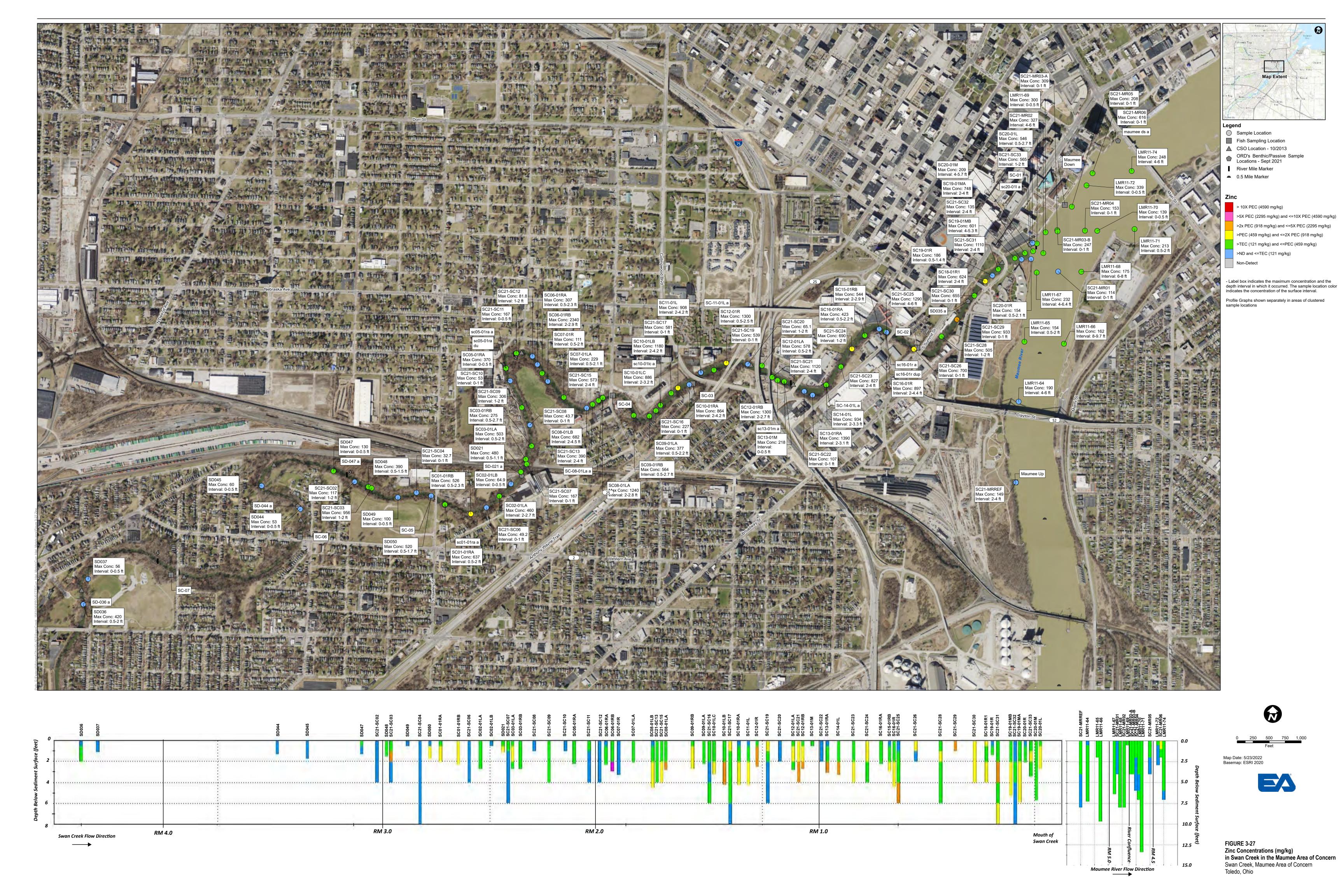
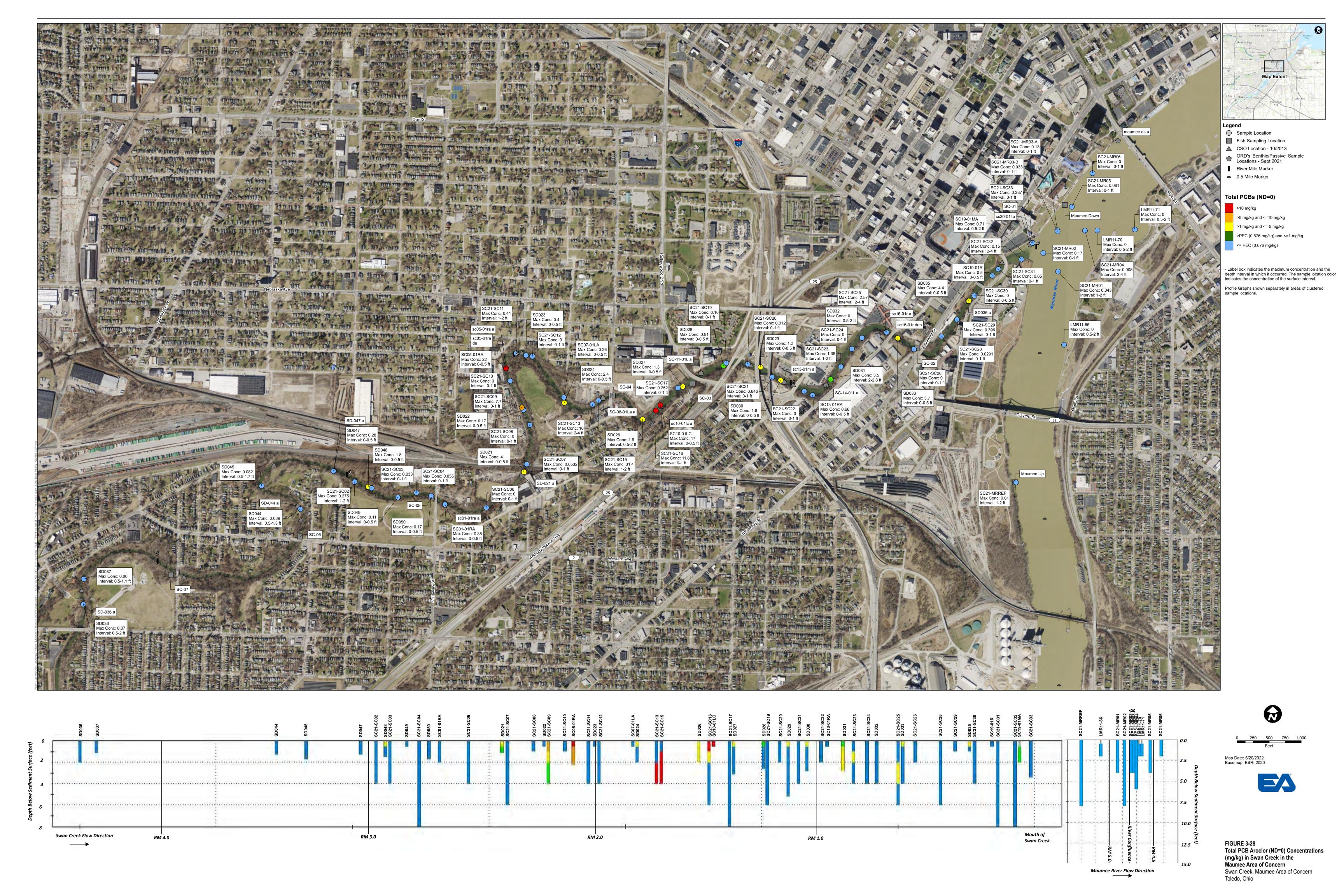
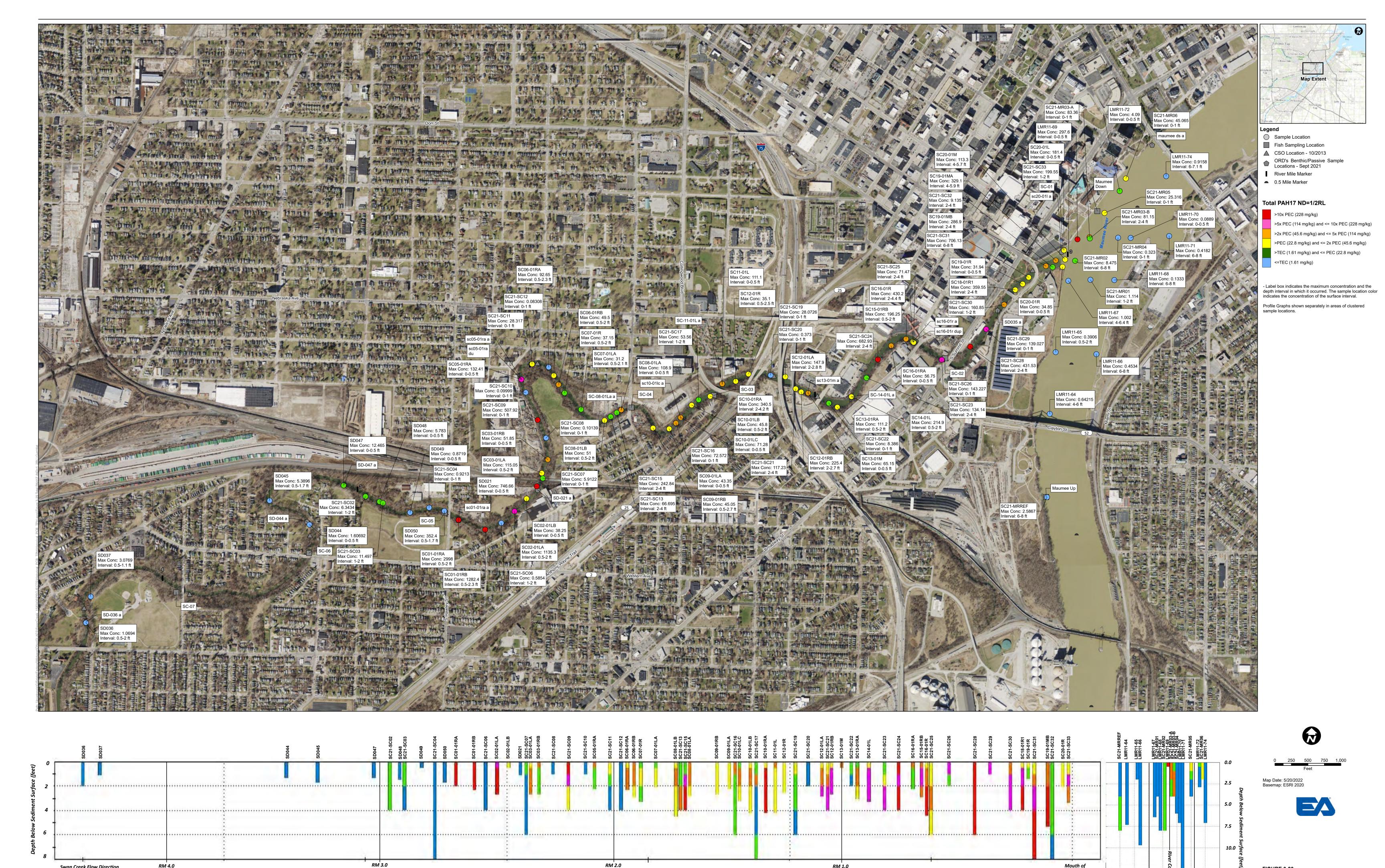


FIGURE 3-26
Vanadium Concentrations (mg/kg) in
Swan Creek in the Maumee Area of Concern
Swan Creek, Maumee Area of Concern
Toledo, Ohio

Maumee River Flow Direction







RM 2.0

Swan Creek Flow Direction

RM 1.0

FIGURE 3-29 Total 17 PAHs (ND=1/2RL) Concentrations (mg/kg) in Swan Creek in the Maumee Area of Concern Swan Creek, Maumee Area of Concern Toledo, Ohio

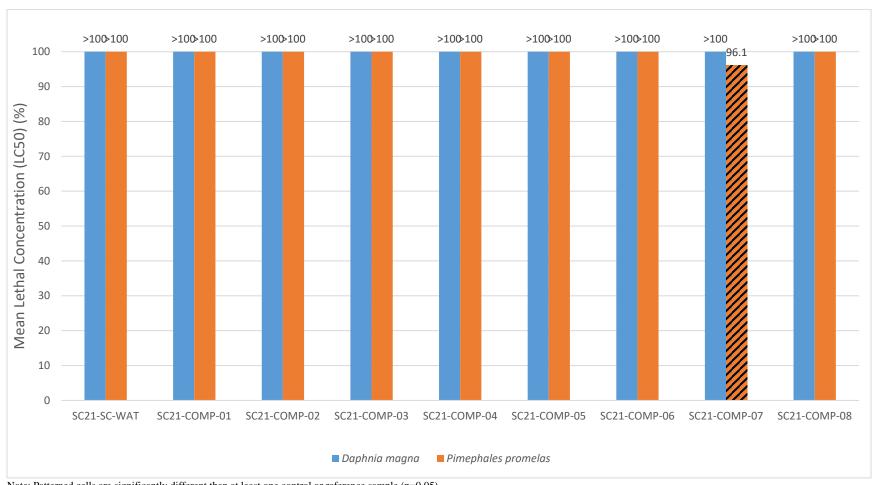
12.5 `

Maumee River Flow Direction

Mouth of

Swan Creek

Figure 4-1: Elutriate Toxicity Testing Mean Lethal Concentration (LC50) (%) Survival Results Swan Creek, Maumee Area of Concern, Toledo, Ohio



Note: Patterned cells are significantly different than at least one control or reference sample (p=0.05)

Figure 4-2: Elutriate Toxicity Testing Survival Results (100% Elutriate Mean Survival)
Swan Creek, Maumee Area of Concern,
Toledo, Ohio

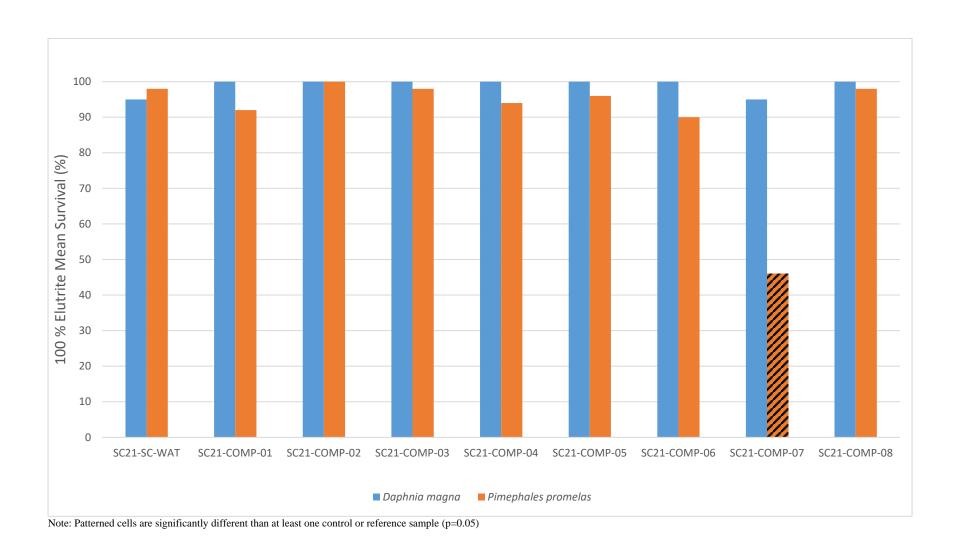
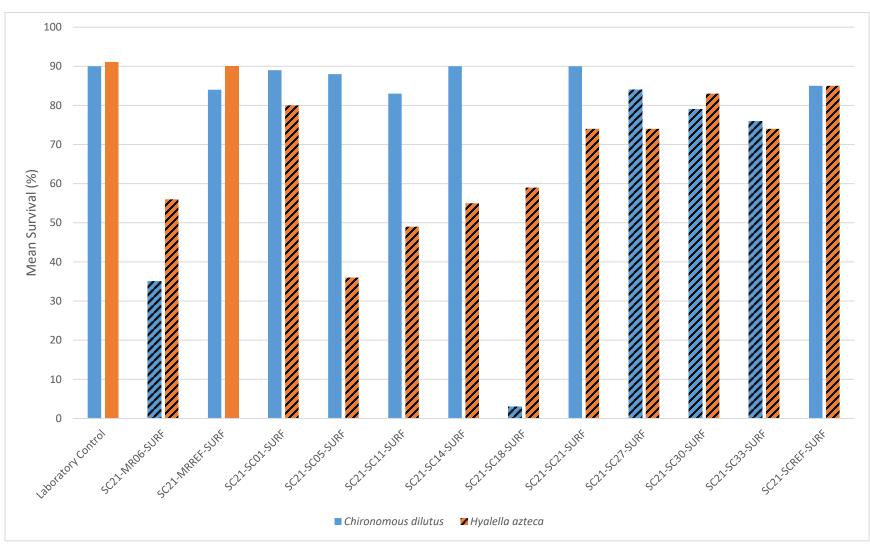
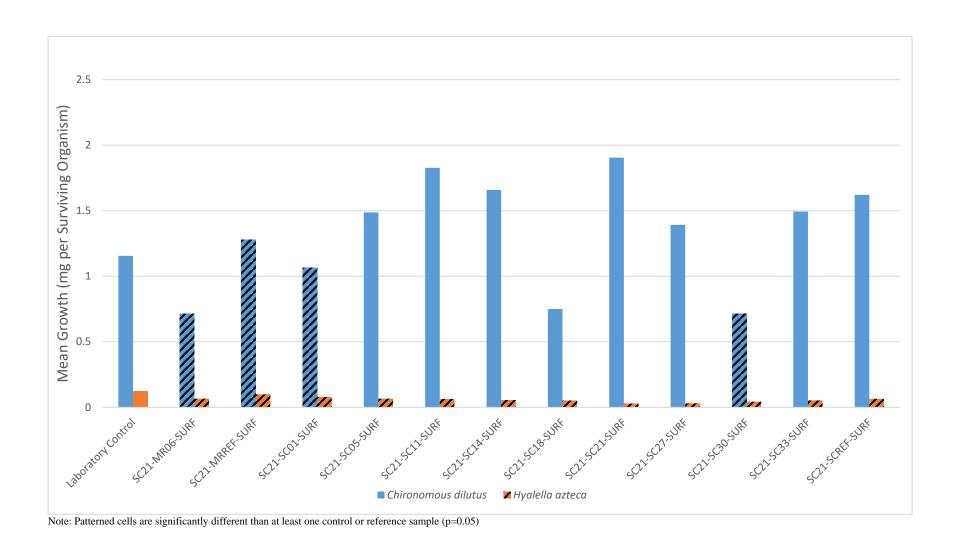


Figure 4-3: Sediment Toxicity Testing Survival Results Swan Creek, Maumee Area of Concern, Toledo, Ohio

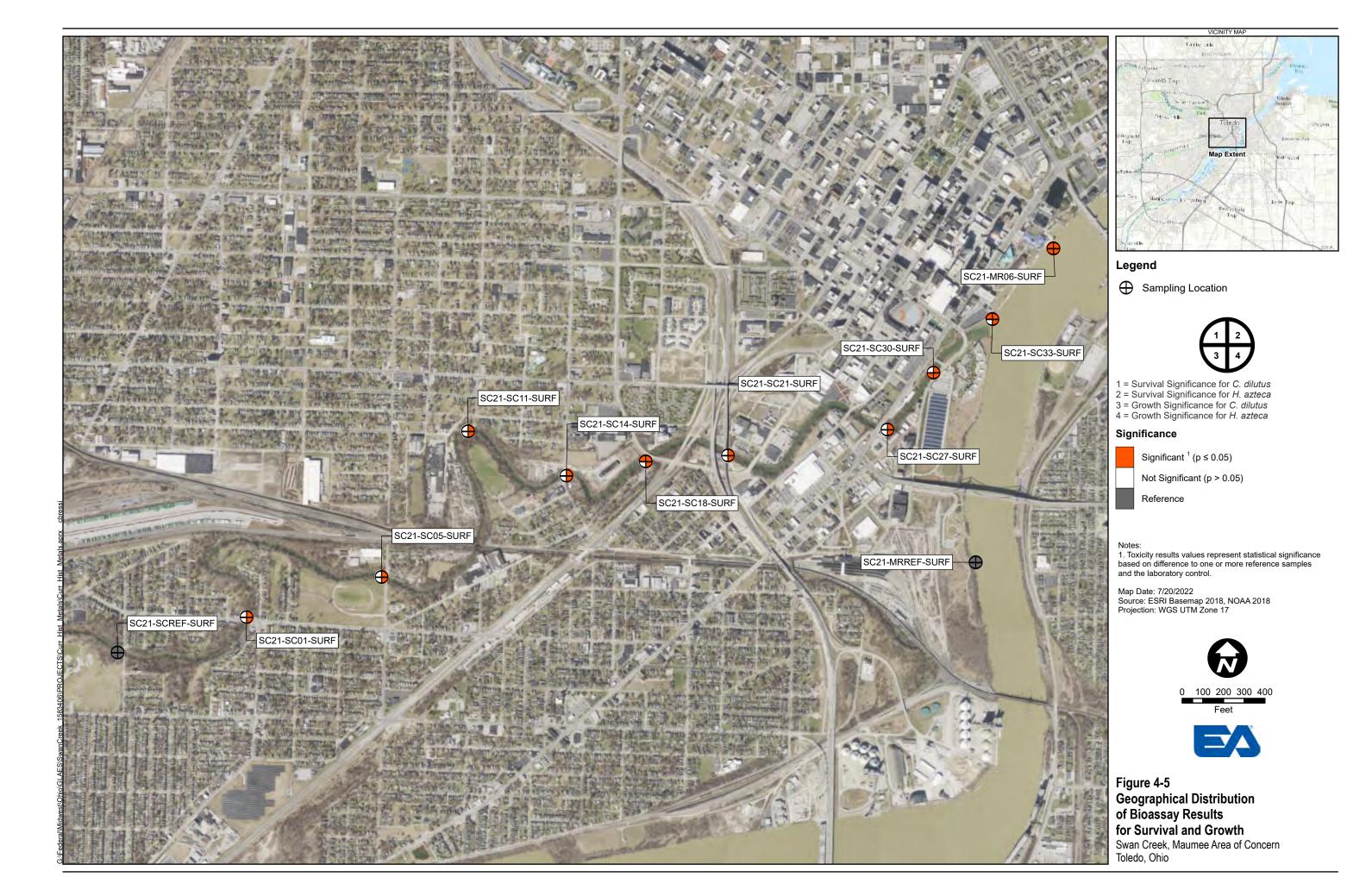


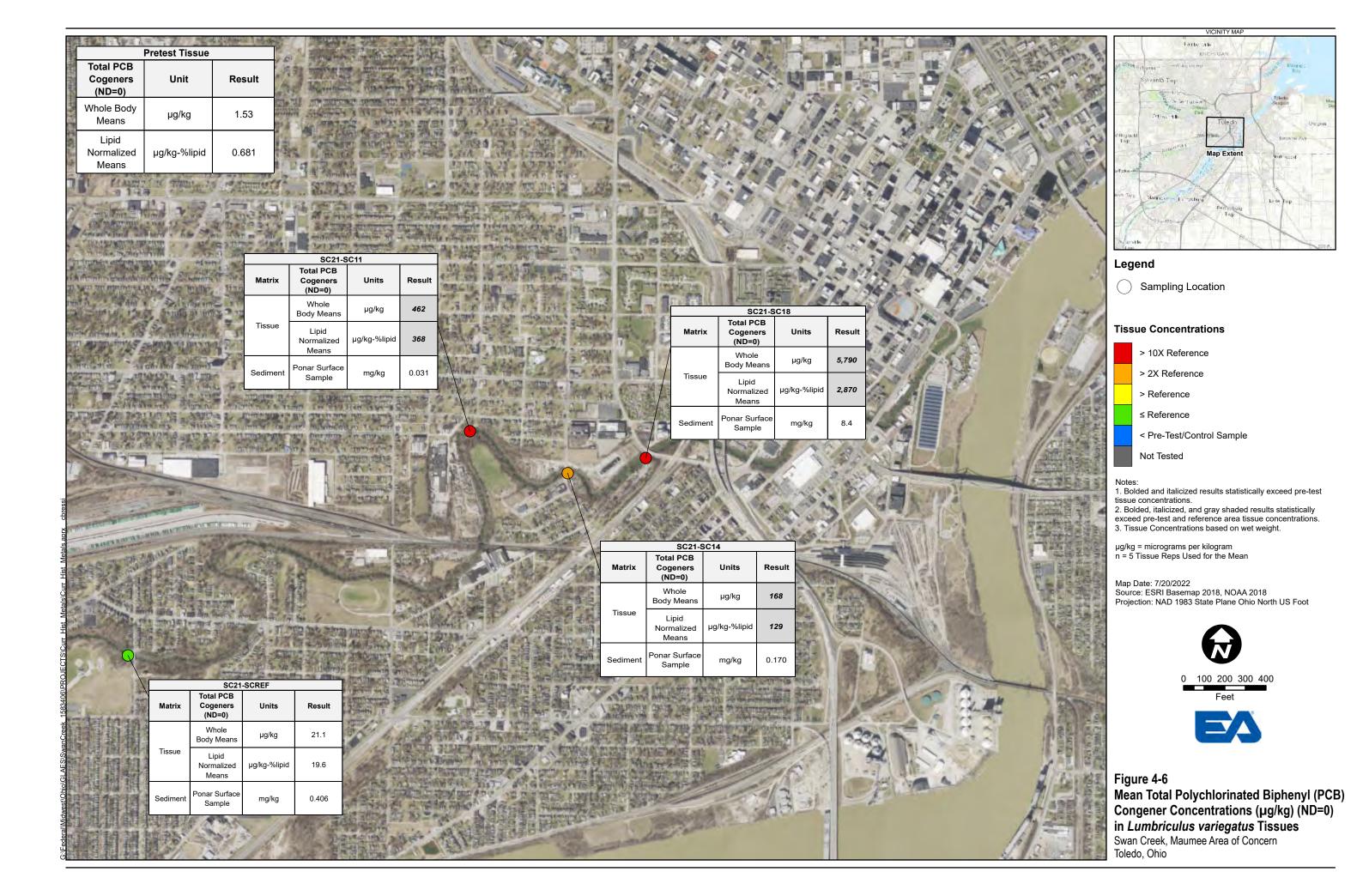
Note: Patterned cells are significantly different than at least one control or reference sample (p=0.05)

Figure 4-4: Sediment Toxicity Testing Growth Results Swan Creek, Maumee Area of Concern, Toledo, Ohio



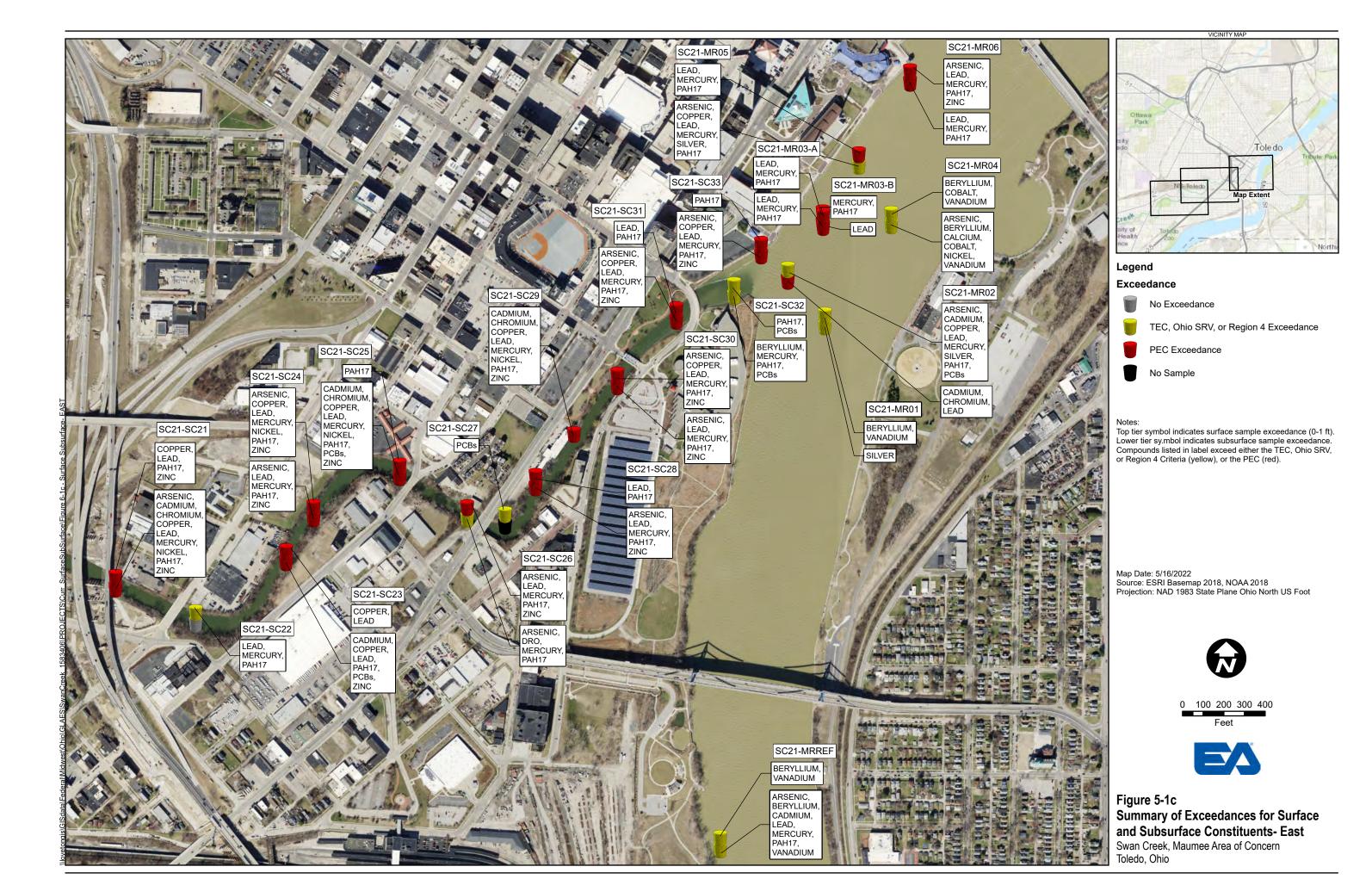
Swan Creek, Maumee Area of Concern Toledo, Ohio



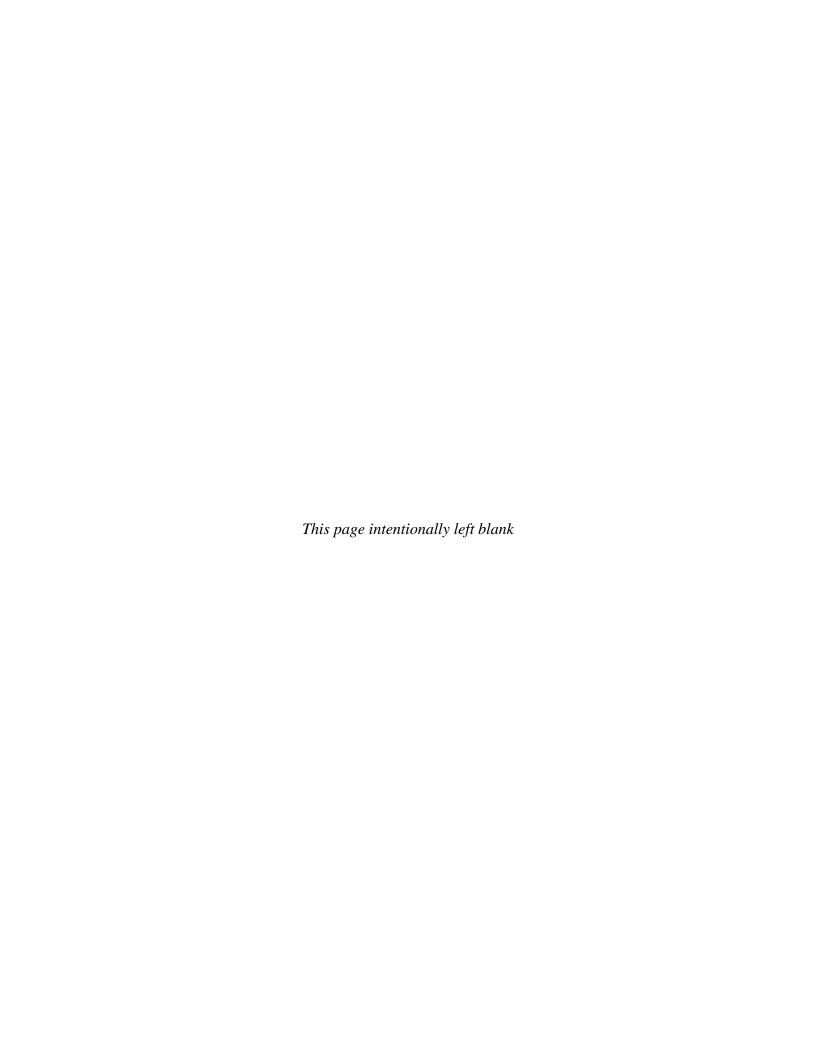












EA Engineering, Science, and Technology, Inc., PBC

EA Project No.: 15834.06

Version: Revision 01

Table 2-1. Core Sample Coordinates, Swan Creek Assessment of Contaminated Sediments, Maumee Area of Concern, Toledo, Ohio (November 2021)

			Target C	oordinates	Actual Co	ordinates	Distance from
Location ID	Date Collected	Time Collected	Y	X	Y	X	Target
Location ID	Date Collected	(local)	NAD 1983 StatePla	ne Ohio North FIPS	NAD83 State Pla	ane Ohio North	Coordinates
			3401	Feet	(US I	Feet)	(feet)
SC21-SC02	11/5/2021	1215	719869.35	1675433.89	719809.19	1675482.76	78
SC21-SC03	11/7/2021	1220	719582.72	1675906.11	719714.34	1675748.99	205
SC21-SC04	11/5/2021	1455	719647.71	1676448.08	719655.78	1676450.93	9
SC21-SC06	11/7/2021	1130	719444.29	1677549.25	719442.16	1677548.22	2
SC21-SC07	11/7/2021	1340	720008.97	1678125.09	720131.49	1678165.81	129
SC21-SC08	11/2/2021	1040	720753.05	1678204.00	720744.11	1678204.84	9
SC21-SC09	11/8/2021	955	721083.01	1678037.61	721014.10	1678072.25	77
SC21-SC10	11/4/2021	1140	721424.63	1677871.02	721428.00	1677885.16	15
SC21-SC11*	11/8/21	1120	721731.56	1677804.10	721860.22	1677972.68	212
SC21-SC12	11/8/21	1155	721815.12	1678212.38	721816.97	1678225.39	13
SC21-SC13	11/8/21	1255	721024.67	1679086.33	721082.56	1679177.17	108
SC21-SC15	11/6/21	1610	721207.51	1679641.39	721145.65	1679268.86	378
SC21-SC16	11/5/21	1635	720975.82	1680167.30	721002.86	1680168.36	27
SC21-SC17	11/4/21	1310	721362.95	1680504.24	721362.85	1680506.72	2
SC21-SC19	11/4/21	1035	721767.25	1681255.06	721765.85	1681254.50	2
SC21-SC20	11/4/21	1220	721760.85	1681555.92	721753.27	1681590.08	35
SC21-SC21*	11/4/21	1130	721592.75	1681985.66	721555.62	1681974.31	39
SC21-SC22	11/3/21	1615	721356.59	1682479.88	721344.64	1682480.60	12
SC21-SC23	11/3/21	1540	721739.55	1683004.59	721739.82	1683045.23	41
SC21-SC24	11/3/21	1355	722026.23	1683201.04	722020.47	1683213.16	13
SC21-SC25	11/3/21	1330	722298.29	1683736.86	722289.68	1683750.17	16
SC21-SC26	11/2/21	1215	722072.17	1684155.06	722034.14	1684181.61	46
SC21-SC28	11/3/21	1130	722132.66	1684580.03	722239.91	1684609.38	111
SC21-SC29	11/3/21	950	722523.45	1684835.49	722508,77	1684846.40	18
SC21-SC30*	11/3/21	915	722903.39	1685098.23	722886.33	1685112.31	22
SC21-SC31	11/2/21	1610	723309.00	1685479.46	723305.64	1685477.31	4
SC21-SC32	11/2/21	1520	723472.93	1685838.52	723466.94	1685837.30	6
SC21-SC33*	11/3/21	850	723725.49	1685989.72	723725.98	1686004.48	15
SC21-MRREF*	11/6/21	1355	719981.58	1685800.46	719979.62	1685812.69	12
SC21-MR01	11/6/21	1425	723283.48	1686408.97	723285.66	1686413.55	5
SC21-MR02	11/4/21	1700	723575.22	1686172.42	723569.90	1686175.97	6
SC21-MR03-A	11/4/21	1610	723941.78	1686384.05	723930.96	1686388.62	12
SC21-MR03-B	11/6/21	1325	723941.78	1686384.05	723912.86	1686393.05	30
SC21-MR04	11/6/21	1500	723941.78	1686807.32	723931.09	1686821.05	17
SC21-MR05	11/4/21	1545	724308.34	1686595.69	724302.04	1686609.01	15
SC21-MR06*	11/4/21	1515	724834.55	1686916.25	724830.78	1686923.44	8

Note:

NAD83 = North American Datum of 1983

^{*} Co-located Ponar and core sample

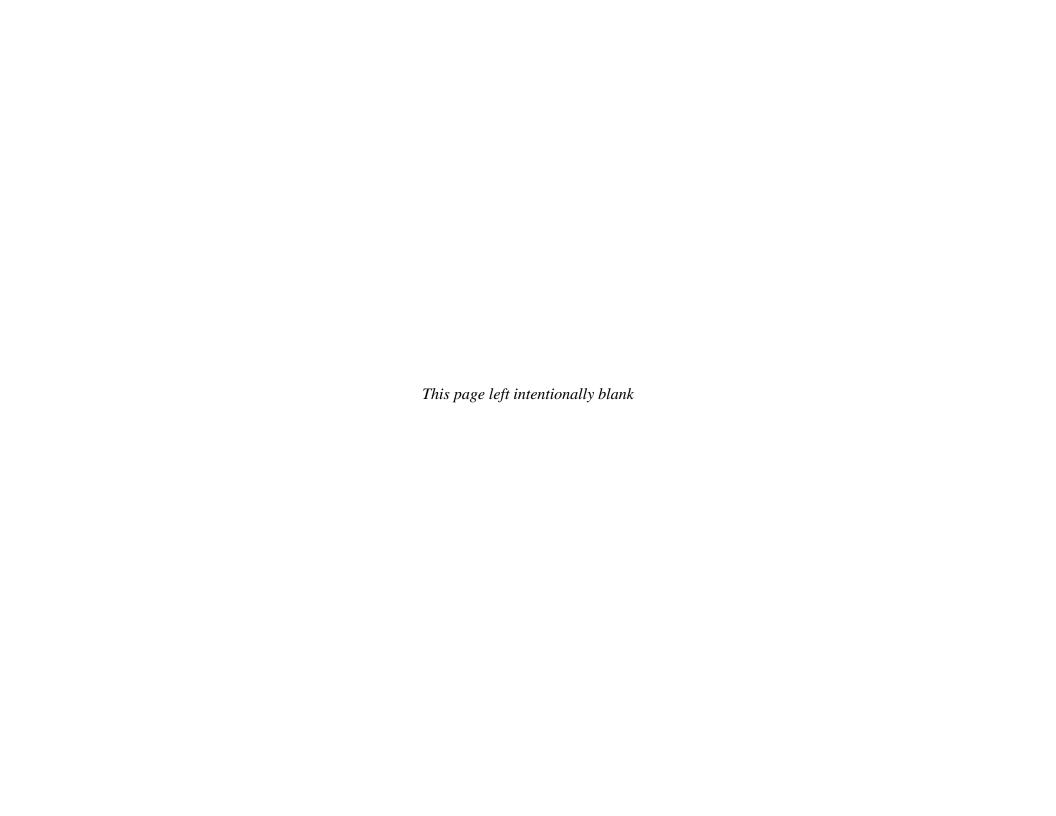
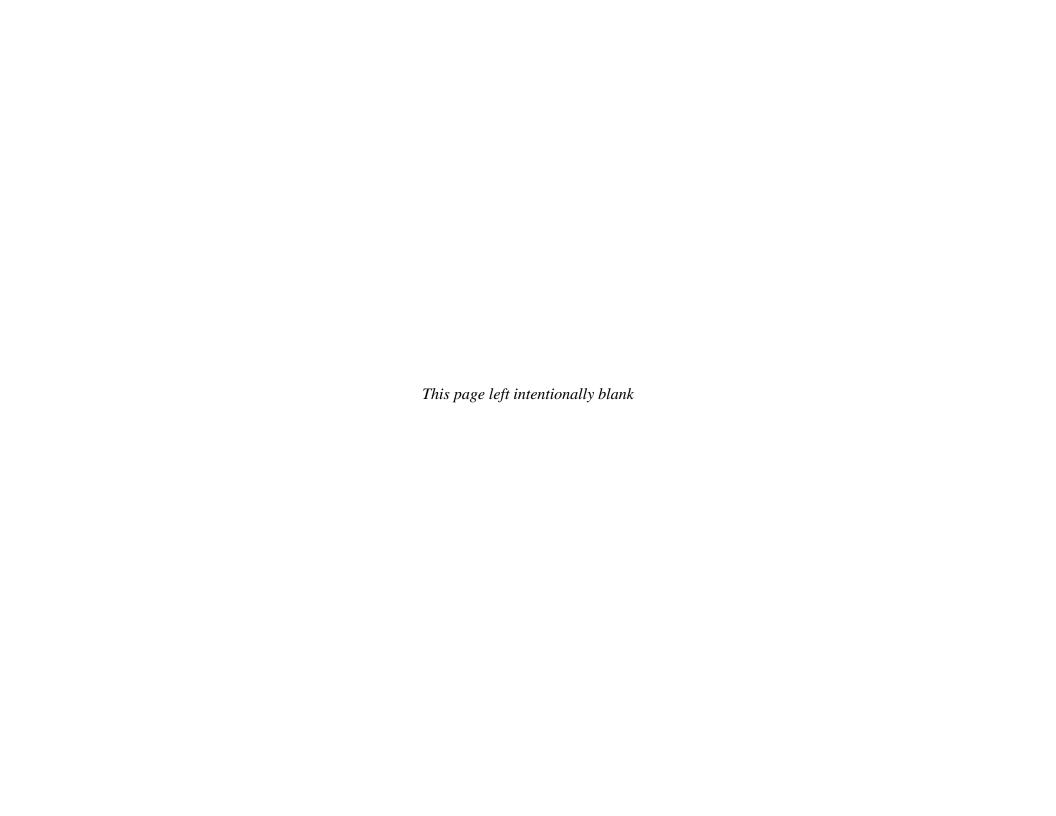


Table 2-2. Surface Sample Coordinates and Description, Swan Creek Assessment of Contaminated Sediments, Maumee Area of Concern, Toledo, Ohio (November 2021)

			Sediment Surface	Actual Co	ordinates	
Location ID	Date Sampled	Time Sampled	Elevation NAVD88	Y	X	Surface Sample Description
Location 1D	Date Sampleu	(local)	(ft)	(ft) NAD83 State Plane Ohio North (US		Surface Sample Description
				Fee	et)	
SC21-SCREF	11/9/21	1000	570.31	718366.67	1672643.90	Mostly sandy with leaf litter and woody debris. Some larger rocks and clay.
SC21-SC01	11/9/21	1030	571.35	718945.11	1674617.56	Darker brown small gravel, some clam shells and small- med sized rocks. Some sand.
SC21-SC05	11/8/21	1130	570.65	719598.52	1676681.20	Darker silty clay with leaf litter and woody debris. Shifted to other side of boat for additional sample volume, encountered sandy gravel. Sheen and odor observed.
SC21-SC11	11/9/21	1220	566.16	721860.86	1677958.40	Silty sand mixed with leaf litter and woody debris. Sheen on surface.
SC21-SC14	11/8/21	1300	569.81	721206.55	1679495.64	Brown silty clay.
SC21-SC18	11/9/21	1345	569.8	721442.82	1680711.77	Dark black clay with silt. Some rocks and woody debris. Odor and sheen.
SC21-SC21	11/9/21	1420	568.49	721550.77	1681975.34	Brown silt w/some clay. Leaf litter and woody debris.
SC21-SC27	11/9/21	1500	563.31	721996.24	1684420.73	Brown silt with clay, some woody debris.
SC21-SC30	11/9/21	1525	570.08	722966.07	1685104.14	Brown silty clay, some black clay. Odor and sheen on water surface.
SC21-SC33	11/8/21	1600	565.07	723730.72	1686002.09	Brown silt with clay, leaf litter and woody debris.
SC21-MRREF	11/8/21	1535	565.62	719970.27	1685802.53	Brown clay with some silt. Some leaves with woody debris.
SC21-MR06	11/8/21	1445	554.43	724831.20	1686928.53	Dark black clay. Some woody debris. Slight sheen on water.

Note:

NAD83 = North American Datum of 1983



EA Project No.: 15834.06 Version: Revision 01

Table 2-3. Surface Water Sample Coordinates, Swan Creek Assessment of Contaminated Sediments, Maumee Area of Concern, Toledo, Ohio (November 2021)

			Actual Coordinates				
Location ID	Date Sampled	Time Sampled	Y	X			
	Date Sampled	(local)	NAD83 State Plane Ohio North (
			Fee	et)			
SC21-CDF-WAT	11/10/21	1110	740812.15	1713415.29			
SC21-MR-WAT	11/10/21	1230	727935.17	1693118.95			
SC21-SC-WAT*	11/10/21	1355	721167.16	1680349.97			

Note:

NAD83 = North American Datum of 1983

^{*} Water collected from this location for elutriate preparation



EA Project No.: 15834.06 Version: Revision 01

Table 2-4. Core Data, Swan Creek Assessment of Contaminated Sediments, Maumee Area of Concern, Toledo, Ohio (November 2021)

				Sediment	Surface			Sediment	Core	
Location ID	Sample Processing Date	Processing Time (Local)	Depth of Water NAVD88 (feet)	Surface Elevation NAVD88 (feet)	(Ponar) Sample (Y/N)	Penetration Depth (feet)	Sediment Recovery (feet)	Percent Recovery	Collection Method	Collected to Refusal (Y/N)
SC21-SC02	11/9/2021	14:10	1.5	571.8	N	5.7	4.2	74	Vibracore	Y
SC21-SC03	11/8/2021	8:50	2.2	571.0	N	5.0	4.6	92	Vibracore	Y
SC21-SC04	11/8/2021	10:10	4.8	568.2	N	8.0	7.4	93	Vibracore	N
SC21-SC06	11/8/2021	11:50	6.0	567.1	N	4.4	4.6	100	Vibracore	Y
SC21-SC07	11/10/2021	9:30	6.7	566.3	N	6.0	5.9	99	Vibracore	Y
SC21-SC08	11/3/2021	16:15	6.7	2.9	N	2.0	1.7	85	Vibracore	Y
SC21-SC09	11/9/2021	16:10	4.3	568.7	N	6.0	4.3	72	Vibracore	Y
SC21-SC10	11/5/2021	11:40	7.3	563.8	N	1.2	1.7	100	Vibracore	Y
SC21-SC11	11/10/2021	10:45	3.3	669.9	Y	5.0	3.7	74	Vibracore	Y
SC21-SC12	11/11/2021	8:00	7.9	565.3	N	4.0	3.4	85	Vibracore	Y
SC21-SC13	11/9/2021	11:50	1.6	571.4	N	6.0	3.9	65	Vibracore	Y
SC21-SC15	11/7/2021	11:40	3.3	569.7	N	6.0	4.2	70	Vibracore	Y
SC21-SC16	11/7/2021	13:45	8.7	564.3	N	8.0	6.4	84	Vibracore	N
SC21-SC17	11/10/2021	13:20	7.8	565.1	N	8.0	7.4	93	Vibracore	N
SC21-SC19	11/5/2021	13:45	9.2	563.8	N	7.2	5.2	72	Vibracore	Y
SC21-SC20	11/5/2021	10:30	18.5	554.5	N	1.9	2.1	100	Vibracore	Y
SC21-SC21	11/5/2021	8:45	5.0	568.0	Y	5.4	4.3	80	Vibracore	Y
SC21-SC22	11/4/2021	10:35	10.0	563.0	N	3.6	2.9	81	Vibracore	Y
SC21-SC23	11/5/2021	15:50	5.0	568.0	N	4.7	3.7	79	Vibracore	Y
SC21-SC24	11/5/2021	14:50	9.5	563.7	N	6.5	4.3	66	Vibracore	Y
SC21-SC25	11/4/2021	8:25	1.1	572.2	N	8.0	5.6	70	Vibracore	N
SC21-SC26	11/3/2021	15:10	7.6	565.7	N	3.1	2.7	87	Vibracore	Y
SC21-SC28	11/4/2021	14:15	6.4	566.8	N	5.5	5.3	96	Vibracore	Y
SC21-SC29	11/3/2021	14:25	12.6	560.6	N	2.8	1.7	60	Vibracore	Y
SC21-SC30	11/4/2021	12:00	10.1	562.9	Y	4.1	3.4	83	Vibracore	Y
SC21-SC31	11/2/2021	9:20	7.9	564.6	N	8.0	7.7	96	Vibracore	N
SC21-SC32	11/2/2021	9:20	3.0	569.3	N	8.0	7.8	98	Vibracore	N
SC21-SC33	11/4/2021	16:20	10.5	562.5	Y	4.2	3.3	79	Vibracore	Y

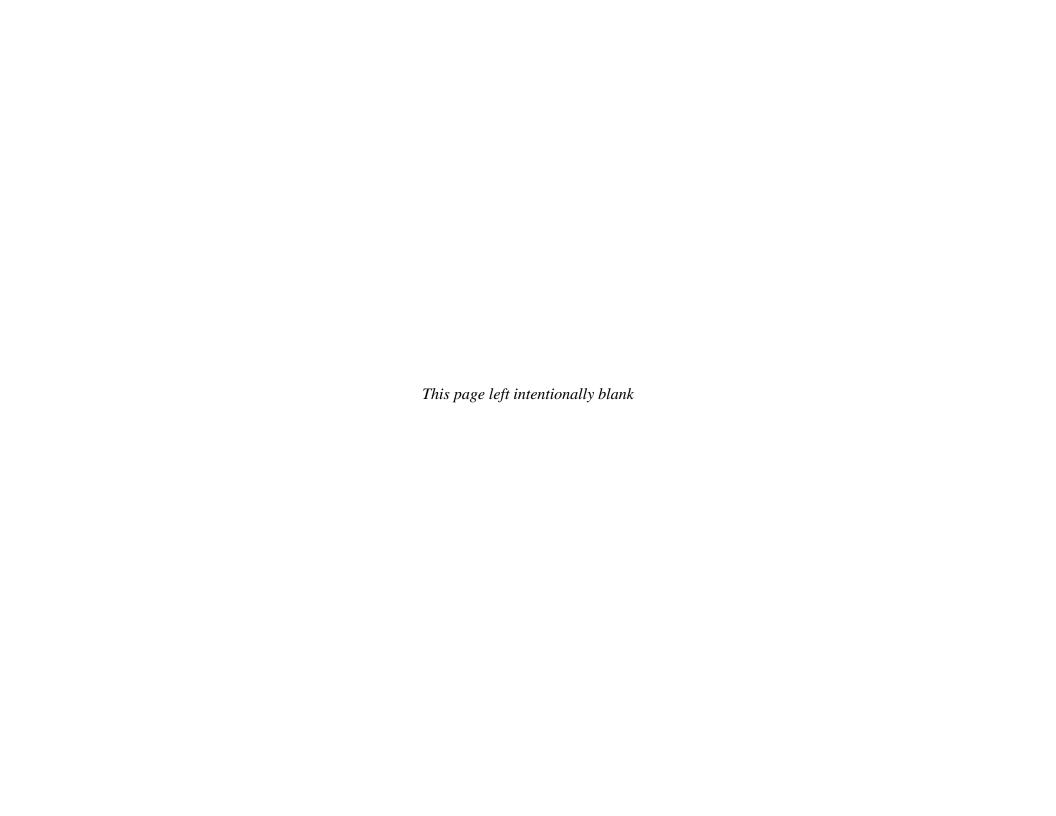


Table 2-4. Core Data, Swan Creek Assessment of Contaminated Sediments, Maumee Area of Concern, Toledo, Ohio (November 2021)

	g ,	ъ .		Sediment	Surface			Sediment	Core	
Location ID	Sample Processing Date	Processing Time (Local)	Depth of Water NAVD88 (feet)	Surface Elevation NAVD88 (feet)	(Ponar) Sample (Y/N)	Penetration Depth (feet)	Sediment Recovery (feet)	Percent Recovery	Collection Method	Collected to Refusal (Y/N)
SC21-MRREF	11/9/2021	9:30	10.0	563.3	Y	8.0	7.1	89	Vibracore	N
SC21-MR01	11/7/2021	8:45	31.5	541.8	N	4.1	3.4	83	Vibracore	Y
SC21-MR02	11/7/2021	9:50	19.6	553.8	N	8.0	7.6	95	Vibracore	N
SC21-MR03-A	11/8/2021	14:15	22.3	551.1	N	7.5	4.9	65	Vibracore	Y
SC21-MR03-B	11/8/2021	15:45	23.7	549.6	N	6.0	4.3	72	Vibracore	Y
SC21-MR04	11/10/2021	8:20	29.4	543.8	N	8.0	5.6	70	Vibracore	N
SC21-MR05	11/5/2021	16:45	22.0	551.3	N	5.2	4.1	79	Vibracore	Y
SC21-MR06	11/7/2021	15:35	20.2	553.1	Y	2.2	2.2	100	Vibracore	Y

Note:

NAVD88 = North American Vertical Datum of 1988.

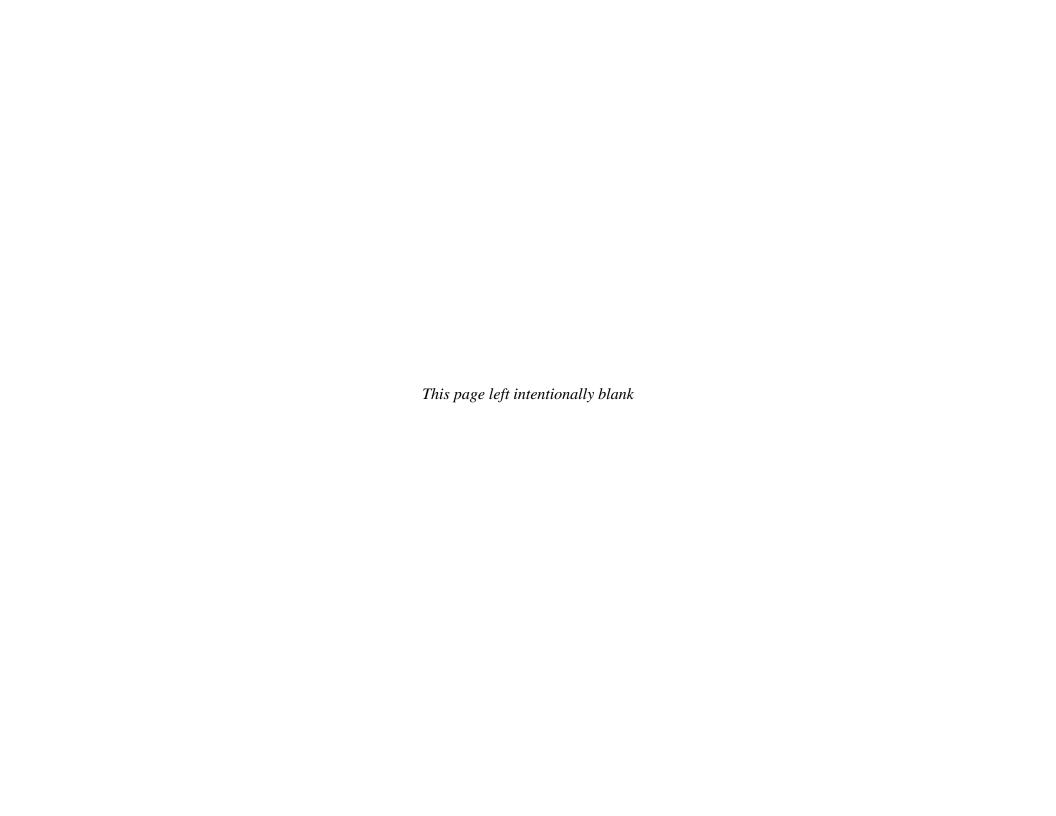


Table 2-5. In Situ Water Quality Measurements, Swan Creek Assessment of Contaminated Sediments, Maumee Area of Concern, Toledo, Ohio (November 2021)

Sampling Location	Date, Local Time	Water Depth (ft)	Water Depth (ft)	Water Temperature (°C)	Turbidity (NTU)	pН	Dissolved Oxygen (mg/L)
			SWAN CREE	EK			
SC21 CDE WAT	11/10/2021, 1110	4.2	SURF	15.7	34.32	7.73	9.63
SC21-CDF-WAT	11/10/2021, 1110	4.2	BOT	13.9	38.72	7.82	9.91
	11/10/2021, 1230	8.3	SURF	9.5	38.06	7.77	10.65
SC21-MR-WAT			MID	9.5	30.36	7.79	10.57
			BOT	9.5	30.75	7.85	10.56
			SURF	9.8	2.67	7.79	10.4
SC21-SC-WAT	11/10/2021, 1355	7.9	MID	9.8	2.48	7.8	10.43
			BOT	9.8	2.63	7.83	10.57

Notes:

°C = Degrees Celsius

ft = Feet

NTU = Nephelometric Turbidity Unit

mg/L = Milligram(s) per liter

ppt = Part per thousand

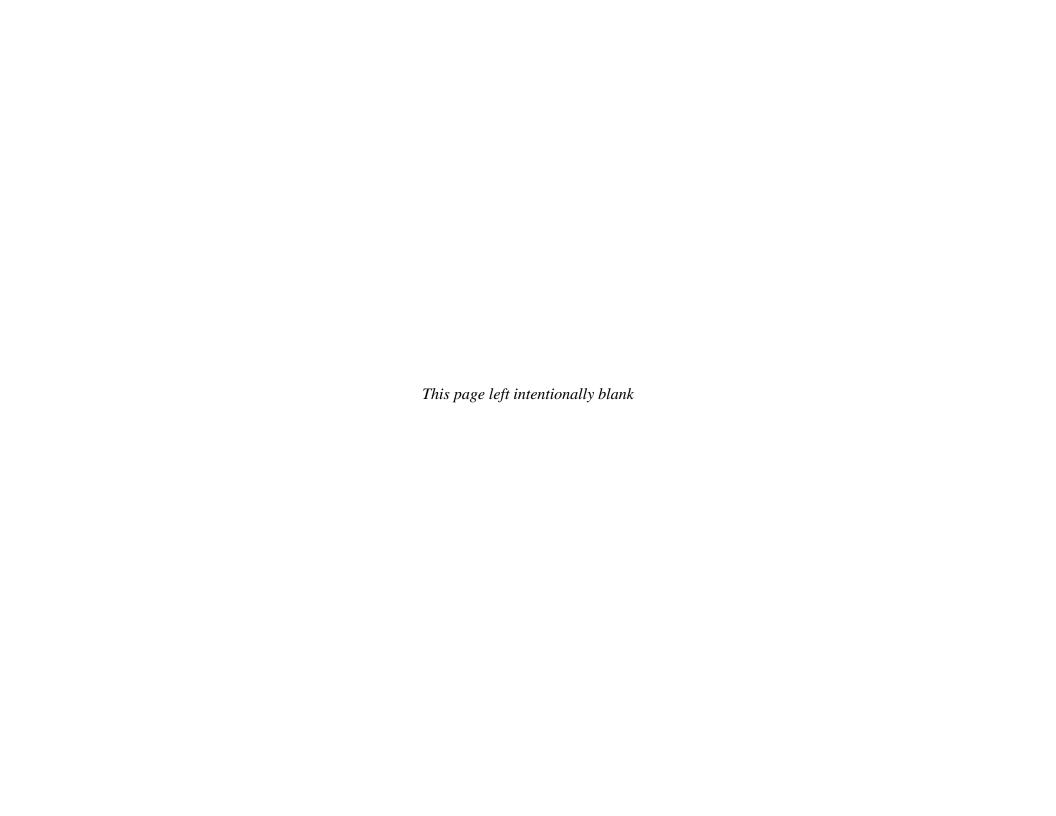


Table 2-6a, Actual Analytical Sampling Program - Core Sediment Samples, Swan Creek Assessment of Contaminated Sediments, Manunce Area of Concern Toledo, Ohio (November 2021

	Sw	an Creek As	Table 2-6a. Act					Concern	Toledo,			021)		
Sampling Unit	Sample Location	Sample Type	Sample Depth Interval (feet)	TPH (DRO/ORO) SW846 8015D	TAL Metak ^(a) EPA CLP ISM02.4	PCB Aroclors EPA CLP SOM02.4	Moisture Content ASTM D2216	TOC Lloyd Kahn	PAHs (34) ^(h)	PAHs (17) ^(c) EPA CLP SOM024/SV SIM	PCB Congeners EPA 1668A	Oil and Grease SW846 907 IB	Grain Size with Hydrometer ASTM D422	SEMAYS (Cd. Cu. Pb. Ni, Zn) EPA 821-R-91-100, SW846 6010C/9030
	Swan Creek Sediment Samples SC21-SCREF	Ponar	SURF	1	1	1	1	1	1	0	1	1	1	1
	SC21-SC01	Ponar	SURF	1	1	0	1	1	1	0	0	1	1	1
1		_	0.0-1.0	1	1	1	1	1	0	1	0	1	1	1
	SC21-SC02	Core	1.0-2.0 2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
			0.0-1.0	1	1	1	1	1	0	1	0	1	1	1
	SC21-SC03	Core	1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
			2.0-4.0 0.0-1.0	1	1	1	1	1	0	1	0	1	1	0
2			1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
_	SC21-SC04	Core	2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
			4.0-6.0 4.0-6.0FD	1	1	1	1	1	0	1	0	1	1	0
			6.0-8.0	1	1	1	1	1	0	1	0	1	1	0
	SC21-SC05	Ponar	SURF	1	1	1	1	1	1	0	0	1	1	1
	SC21-SC06	Core	0.0-1.0 1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
			2.0-4.0	1	1	1	1	1	0	- 1	0	1	1	0
3			0.0-1.0 1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
	SC21-SC07	Core	2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
		1	2.0-4.0FD	1	1	1	1	1	0	1	0	1	1	0
—	SC21-SC08	Core	4.0-6.0	1	1	1	1	1	0	1	0	1	1	0
	GC21-GC00	Core	0.0-1.0 0.0-1.0	1	1	1	1	1	0	1	0	1	1	1
	SC21-SC09	Core	1.0-2.0	1	1	1	1	- 1	0	1	0	1	1	0
	SC21-SC10	C	2.0-4.0 0.0-1.0	1	1	1	1	1	0	1	0	1	1	0
	SC21-SC10	Core Ponar	SURF	1	1	1	1	1	1	0	1	1	1	1
			0.0-1.0	1	1	1	1	- 1	0	1	0	1	1	1
	SC21-SC11	Core	0.0-1.0FD 1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
4			2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
			0.0-1.0	1	1	1	1	1	0	1	0	1	1	1
	SC21-SC12	Core	1.0-2.0 1.0-2.0MS/MSD	1	1	1	0	1	0	1	0	1	0	0
			2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
			0.0-1.0 1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
	SC21-SC13	Core	2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
	0044 0044		2.0-4.0MS/MSD	1	1	1	0	1	0	0	0	1	0	0
_	SC21-SC14	Ponar	SURF 0.0-1.0	1	1	1	1	1	0	1	0	1	1	1
5	SC21-SC15	Core	1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
			2.0-4.0 0.0-1.0	1	1	1	1	1	0	1	0	1	1	0
	0021.0016		1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
	SC21-SC16	Core	2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
		+	4.0-6.0 0.0-1.0	1	1	1	1	1	0	1	0	1	1	0
			1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
	SC21-SC17	Core	2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
			2.0-4.0MS/MSD 4.0-6.0	1	1	1	0	1	0	1	0	1	0	0
			6.0-8.0	1	1	1	1	1	0	1	0	1	1	0
	SC21-SC18	D	SURF	1	1	1	1	1	1	0	1	1	1	1
	3C21-3C16	Ponar	SURFFD SURFMS/MSD	0	0	0	0	0	0	0	1	0	0	0
6			0.0-1.0	1	1	1	1	1	0	1	0	1	0	1
	SC21-SC19	Core	1.0-2.0 2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
			4.0-6.0	1	1	1	1	1	0	1	0	1	1	0
	SC21-SC20	Core	0.0-1.0	1	1	1	1	1	0	1	0	1	1	1
		Ponar	1.0-2.0 SURF	1	1	1	1	1	0	0	0	1	1	0
		Tomi	0.0-1.0	1	1	1	1	1	0	1	0	1	1	1
	SC21-SC21	Core	1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
			2.0-4.0 2.0-4.0MS/MSD	1	1	1	0	1	0	1	0	1	0	0
	SC21-SC22	Core	0.0-1.0	1	1	1	1	1	0	1	0	1	1	1
		Corc	1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
	SC21-SC23	Core	0.0-1.0 1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
			2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
	SC21-SC24	Core	0.0-1.0 1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
		Core	2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
7			0.0-1.0	1	1	1	1	1	0	1	0	1	1	1
	SC21-SC25	Core	1.0-2.0 2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
		5510	2.0-4.0FD	1	1	1	1	1	0	1	0	1	1	0
		-	4.0-6.0	1	1	1	1	1	0	1	0	1	1	0
	SC21-SC26	Core	0.0-1.0 1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
	SC21-SC27	Ponar	SURF	1	1	1	1	1	1	0	0	1	1	1



Table 2-6a. Actual Analytical Sampling Program - Core Sediment Samples,

	Swa	an Creek As	ssessment of Conta	minated	Sediment	s, Maume	e Area of	Concern	lytical Gro	Ohio (No up and Met	vember 20 hod	021)		
Sampling Unit	Sample Location	Sample Type	Sample Depth Interval (feet)	TPH (DRO/ORO) SW846 8015D	TAL Metals ^(a) EPA CLP ISM02.4	PCB Aroclors EPA CLP SOM02.4	Moisture Content ASTM D2216	TOC Lloyd Kahn	PAHs (34) ^(h)	PAHS (17) ⁽⁶⁾ EPA CLP SOM02.4/SV SIM	PCB Congeners EPA 1668A	Oil and Grease SW846 9071B	Grain Size with Hydrometer ASTM D422	SEM/AVS (Cd, Cu, Pb, Ni, Zn) EPA 821-R-91-100, SW846 6010C/9030
			0.0-1.0 0.0-1.0FD	1	1	1	1	1	0	1	0	1	1	1
			1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
	SC21-SC28	Core	2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
			2.0-4.0MS/MSD	1	1	1	0	1	0	1	0	1	0	0
			4.0-6.0	1	1	1	1	1	0	1	0	1	1	0
	SC21-SC29	Core	0.0-1.0	1	1	1	1	1	0	1	0	1	1	1
		Ponar	SURF	1	1	1	1	1	1	0	0	1	1	1
	SC21-SC30	Core	0.0-1.0 1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
		Core	2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
			0.0-1.0	1	1	1	1	1	0	1	0	1	1	1
8			1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
	SC21-SC31	Core	2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
			4.0-6.0	1	1	1	1	1	0	1	0	1	1	0
		1	6.0-8.0	1	1	1	1	1	0	1	0	1	1	0
			0.0-1.0	1	1	1	1	1	0	1	0	1	1	1
	SC21-SC32	Core	1.0-2.0 2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
	SC21-SC32	Core	4.0-6.0	1	1	1	1	1	0	1	0	1	1	0
			6.0-8.0	1	1	1	1	1	0	1	0	1	1	0
		Ponar	SURF	1	1	0	1	1	1	0	0	1	1	1
			0.0-1.0	1	1	1	1	1	0	1	0	1	1	1
	SC21-SC33	Core	1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
			2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
	Maumee River Sediment Sample													
	SC21-MRREF-SURF	Ponar	SURF	1	1	0	1	1	1	0	0	1	1	1
			0.0-1.0	1	1	1	1	1	0	1	0	1	1	1
	CCAL LEDDER		1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
	SC21-MRREF	Core	2.0-4.0 4.0-6.0	1	1	1	1	1	0	1	0	1	1	0
			6.0-8.0	1	1	1	1	1	0	1	0	1	1	0
			0.0-1.0	1	1	1	1	1	0	1	0	1	1	1
	SC21-MR01	Core	1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
			2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
			0.0-1.0	1	1	1	1	1	0	1	0	1	1	1
			1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
	SC21-MR02	Core	2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
			4.0-6.0 6.0-8.0	1	1	1	1	1	0	1	0	1	1	0
		1	0.0-1.0	1	1	1	1	1	0	1	0	1	1	1
			1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
	SC21-MR03-A	Core	1.0-2.0MS/MSD	1	1	1	0	1	0	1	0	1	0	0
			2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
			0.0-1.0	1	1	1	1	1	0	1	0	1	1	1
	SC21-MR03-B	Core	1.0-2.0 1.0-2.0FD	1	1	1	1	1	0	1	0	1	1	0
			1.0-2.0FD 2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
			0.0-1.0	1	1	1	1	1	0	1	0	1	1	1
			1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
	SC21-MR04	Core	2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
			4.0-6.0	1	1	1	1	1	0	1	0	1	1	0
			0.0-1.0	1	1	1	1	1	0	1	0	1	1	1
	SC21-MR05	Core	1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
			2.0-4.0	1	1	1	1	1	0	1	0	1	1	0
		D	SURF SURFFD	1	1	0	1	1	1	0	0	1	1	1
	SC21-MR06	Ponar	SURFFD SURFMS/MSD	1	1	0	0	1	1	0	0	1	0	0
	JC21-MINOO	—	0.0-1.0	1	1	1	1	1	0	1	0	1	1	1
		Core	1.0-2.0	1	1	1	1	1	0	1	0	1	1	0
	al Field Samples			1.10	142	136	135	142	14	128	6	142	134	51
otal Field	Samples			142	142	130	133	142	17	120	· ·	142	134	31
eld Dupli				7	7	6	7	7	1	6	1	7	7	3
ield Dupli IS/MSD														

(a) Total metals include: aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc.

(b) 34 PAHs include: acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(e)pyrene, benzo(g)h.i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, perylene, phenanthrene, pyrene, C1 naphthalenes, C2 naphthalenes, C3 naphthalenes, C4 fluorenes, C4 naphthalenes, C4 fluorenes, C4 phenanthrenes, C2 fluorenes, C2 phenanthrenes, C3 fluorenes, C3 fluoranthenes, C3 phenanthrenes, C4 phenanthrenes, C6 chrysenes, C3 chrysenes, and C4 chrysenes.

(c) 17 PAHS include: 2-methylnaphthalene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,b)amthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, and pyrene.

ASTM = ASTM International

AVS = Acid Volatile Sulfide

PCB = Polychlorinated Biphenyl ASTM = ASTM international
AVS = Acid Volatile Sulfide
CLP = Contract Laboratory Program
EPA = U.S. Environmental Protection Agency SEM = Simultaneously Extracted Metals TAL = Target Analyte List FD = Field duplicate MS/MSD = Matrix spike/matrix spike duplicate TOC = Total Organic Carbon TPH = Total Petroleum Hydrocarbons



EA Project No.: 15834.06 EA Engineering, Science, and Technology, Inc., PBC Version: Revision 01

Table 2-6b. Actual Analytical Sampling Program - Composite Sediment Samples,

Swan Creek Assessment of Contaminated Sediments, Maumee Area of Concern, Toledo, Ohio (November 2021) **Analytical Group and Method** SIM

Sample Location/Sample ID	TPH (DRO/ORO) SW846 8015D	TAL Metals ^(a) EPA CLP ISM02.4	PCB Aroclors EPA CLP SOM02.4	Moisture Content ASTM D2216	TOC Lloyd Kahn	PAHs (17) ^(b) EPA CLP SOM02.4/SV	Oil and Grease SW846 9071B	Grain Size with Hydroi ASTM D422	Nitrogen (Total Kjeldal EPA 351.2	Nitrogen (Ammonia) EPA 350.1	Total Cyanide SW846 9012B	Total Phosphorus EPA 365.1	TCLP Full Suite ^(c)
Composite Sediment Samples For Elut	riate Testin	g											
SC21-COMP-01	1	1	1	1	1	1	1	1	1	1	1	1	1
SC21-COMP-02	1	1	1	1	1	1	1	1	1	1	1	1	1
SC21-COMP-03	1	1	1	1	1	1	1	1	1	1	1	1	1
SC21-COMP-04	1	1	1	1	1	1	1	1	1	1	1	1	1
SC21-COMP-05	1	1	1	1	1	1	1	1	1	1	1	1	1
SC21-COMP-05FD	1	1	1	1	1	1	1	1	1	1	1	1	0
SC21-COMP-05MS/MSD	1	1	1	0	1	1	1	0	1	1	1	1	0
SC21-COMP-06	1	1	1	1	1	1	1	1	1	1	1	1	1
SC21-COMP-07	1	1	1	1	1	1	1	1	1	1	1	1	1
SC21-COMP-08	1	1	1	1	1	1	1	1	1	1	1	1	1
Total Field Samples	10	10	10	9	10	10	10	9	10	10	10	10	8
Field Duplicates	1	1	1	1	1	1	1	1	1	1	1	1	0
MS/MSD	1	1	1	0	1	1	1	0	1	1	1	1	0
Total Parent Samples	8	8	8	8	8	8	8	8	8	8	8	8	8
Notes:													

(a) Total metals include: aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc.

(b) 17 PAHs include: 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, and pyrene.

(c) TCLP Full Suite (includes Herbicides, Metals, Pesticides, SVOCs, VOCs, Cyanide, Ignitability, pH, Flashpoint, Paint Filter Test, and Percent solids/moisture content) EPA SW846 1311 (8151A, 6010D, 8081B, 8270E, and 8260D); SW846 9012B, SW846 1020, SW846 9040C, SW846 9095B, and ASTM D2216. Additional sample collected and analyzed from IDW drum.

ASTM = ASTM International PAH = Polycyclic Aromatic Hydrocarbon

CLP = Contract Laboratory Program PCB = Polychlorinated Biphenyl EPA = U.S. Environmental Protection Agency TAL = Target Analyte List FD = Field Duplicate TOC = Total Organic Carbon

MS/MSD = Matrix spike/matrix spike duplicate TPH = Total Petroleum Hydrocarbons



Table 2-6c. Actual Analytical Sampling Program - Site Water and Elutriates, Swan Creek Assessment of Contaminated Sediments, Maumee Area of Concern, Toledo, Ohio (November 2021)

Swan Creek Assessment of Co.	Analytical Group and Method												
				7 Filmiy ticu	Chemistry	u Methou							
				7	Chemistry								
Sample Location/Sample ID	TPH (DRO/ORO) SW846 8015D	TAL Metals ^(a) EPA CLP ISM02.4	PCB Aroclors EPA CLP SOM02.4	PAHS (17) ^(b) EPA CLP SOM02.4/SV SIM	Oil and Grease EPA 1664B	Nitrogen (Total Kjeldahl) EPA 351.2	Nitrogen (Ammonia) EPA 350.1	Total Cyanide SW846 9012B	Total Phosphorus EPA 365.1				
Site Water Samples													
SC21-CDF-WAT	1	1	1	1	1	1	1	1	1				
SC21-SC-WAT	1	1	1	1	1	1	1	1	1				
SC21-SC-WATFD	1	1	1	1	1	1	1	1	1				
SC21-SC-WATMS/MSD	1	1	1	1	1	1	1	1	1				
SC21-MR-WAT	1	1	1	1	1	1	1	1	1				
Laboratory Generated Samples													
Elutriate Samples (Elutriate Water Ger	nerated in I	ab)											
SC21-COMP-01-SET	1	1	1	1	1	1	1	1	1				
SC21-COMP-01-SETFD	1	1	1	1	1	1	1	1	1				
SC21-COMP-01-SETFDMS/MSD	1	1	1	1	1	1	1	1	1				
SC21-COMP-02-SET	1	1	1	1	1	1	1	1	1				
SC21-COMP-03-SET	1	1	1	1	1	1	1	1	1				
SC21-COMP-04-SET	1	1	1	1	1	1	1	1	1				
SC21-COMP-05-SET	1	1	1	1	1	1	1	1	1				
SC21-COMP-06-SET	1	1	1	1	1	1	1	1	1				
SC21-COMP-07-SET	1	1	1	1	1	1	1	1	1				
SC21-COMP-08-SET	1	1	1	1	1	1	1	1	1				
Total Field Samples	15	15	15	15	15	15	15	15	15				
Field Duplicates	2	2	2	2	2	2	2	2	2				
MS/MSD	2	2	2	2	2	2	2	2	2				
Total Parent Samples	11	11	11	11	11	11	11	11	11				

Notes:

 $ASTM = ASTM \ International \\ CLP = Contract \ Laboratory \ Program \\ PCB = Polychlorinated \ Biphenyl$

EPA = U.S. Environmental Protection Agency TAL = Target Analyte List

 $FD = Field \ Duplicate \qquad \qquad TOC = Total \ Organic \ Carbon$

 $MS/MSD = Matrix \ spike/matrix \ spike \ duplicate \\ TPH = Total \ Petroleum \ Hydrocarbons$

⁽a) Total metals include: aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc.

⁽b) 17 PAHs include: 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, and pyrene.



Table 2-6d. Actual Analytical Sampling Program - Bioassay Testing and Tissue, Swan Creek Assessment of Contaminated Sediments, Maumee Area of Concern, Toledo, Ohio (November 2021)

			(210702	HDC1 2021)		Analytical G	roup and	Method
Sample Location/Sample ID	Toxicity - Hyalella azteca (10 Day) EPA 100.1	Toxicity - Chironomus dilutus (10 Day) EPA 100.2	Toxicity - Daphnia magna (48 Hours) EPA 2021.0	Toxicity - Pimephales promelas (96 Hours) EPA 2000.0	Bioaccumulation- Lumbriculus variegatus (28 Day) EPA 100.3	% Lipids (Lumbriculus tissue) Gravimetric	% Moisture (Lumbriculus tissue)	PCB Congeners (Lumbriculus tissue) EPA 1668A
Sediment Bioassay a	nd Tissue	Samples						
SCREF	1	1			1	5	5	5
SC21-SC01	1	1						
SC21-SC05	1	1						
SC21-SC11	1	1			1	5	5	5
SC21-SC14	1	1			1	5	5	5
SC21-SC18	1	1			1	5	5	5
SC21-SC21	1	1						
SC21-SC27	1	1						
SC21-SC30	1	1						
SC21-SC33	1	1						
SC21-MRREF	1	1						
SC21-MR06	1	1						
Pre-Test					1	5	5	5
Control	1	1			1	5	5	5
Aquatic Bioassay Sar	mples							
SC21-COMP-01			1	1				
SC21-COMP-02			1	1				
SC21-COMP-03			1	1				
SC21-COMP-04			1	1				
SC21-COMP-05			1	1				
SC21-COMP-06			1	1				
SC21-COMP-07			1	1				
SC21-COMP-08			1	1				
Control			1	1				
Total Samples	13	13	9	9	6	30	30	30

EPA = U.S. Environmental Protection Agency

 $PCB = Polychlorinated \ Biphenyls$



	Location ID	SC21-MR01	SC21-MR01	SC21-MR01	SC21-MR02	SC21-MR02	SC21-MR02	SC21-MR02	SC21-MR02	SC21-MR03	SC21-MR03	SC21-MR03	SC21-MR03
	Sample Name	SC21-MR01-0010	SC21-MR01-1020	SC21-MR01-2040	SC21-MR02-0010	SC21-MR02-1020	SC21-MR02-2040	SC21-MR02-4060	SC21-MR02-6080	SC21-MR03-A-0010	SC21-MR03-A-1020	SC21-MR03-A-2040	SC21-MR03-B-0010
	Sample Date	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021
	Depth Interval (feet)	0-1	1-2	2-4	0-1	1-2	2-4	4-6	6-8	0-1	1-2	2-4	0-1
Grain Size	Unit												
Gravel	%	1.2	0.9	0.6	0	0	0	0	0	1	2.2	2.7	1.4
Sand	%	22.3	53.4	17.1	18.6	9.8	12.4	19.3	15.7	43.9	55.5	54	70.5
Silt	%	50.5	33	60	65.2	59.5	65.6	50.3	58.7	46.5	35.8	29.2	23.1
Clay	%	26	12.7	22.3	16.2	30.7	22.0	30.4	25.6	8.6	6.5	14.1	5
Silt + Clay	%	76.5	45.7	82.3	81.4	90.2	87.6	80.7	84.3	55.1	42.3	43.3	28.1
Sieve Analysis													
Sieve Size #4 - Percent Finer	% retained	1.2	0.9	0.6	0	0	0	0	0	1	2.2	2.7	1.4
Sieve Size #200 - Percent Finer	r % passed	76.5	45.7	82.3	81.4	90.2	87.6	80.7	84.3	55.1	42.3	43.3	28.1
Clifti		SILT WITH SAND (ML),	SILTY SAND (SM),	SILT WITH SAND (ML),	SILT WITH SAND (ML),			SILT WITH SAND (ML),	SILT WITH SAND (ML),				SILTY SAND (SM),
Classification		grayish brown	grayish brown	grayish brown	gray	SILT (ML), gray	SILT (ML), brown	brown	gray	SANDY SILT (ML), gray	SILTY SAND (SM), gray	SILTY SAND (SM), gray	brown
Moisture Content	%	106.6	60.8	28.9	80.9	79.2	76.9	66.7	60.9	66.5	52.7	37.2	46.6



	Location ID:	SC21-MR03	SC21-MR03	SC21-MR03	SC21-MR04	SC21-MR04	SC21-MR04	SC21-MR04	SC21-MR05	SC21-MR05	SC21-MR05	SC21-MR06	SC21-MR06
	Sample Name:	SC21-MR03-B-1020	SC21-MR03-B-1020FD	SC21-MR03-B-2040	SC21-MR04-0010	SC21-MR04-1020	SC21-MR04-2040	SC21-MR04-4060	SC21-MR05-0010	SC21-MR05-1020	SC21-MR05-2040	SC21-MR06-SURF	SC21-MR06-SURFFD
	Sample Date:	11/8/2021	11/8/2021	11/8/2021	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/5/2021	11/5/2021	11/5/2021	11/8/2021	11/8/2021
	Depth Interval (feet):	1-2	1-2	2-4	0-1	1-2	2-4	4-6	0-1	1-2	2-4	0-0.5	0-0.5
Grain Size	Unit												
Gravel	%	1.4	1.1	1.9	0	0	0.3	0	1.3	0.7	2.7	0.1	0.3
Sand	%	50.3	50.4	55.5	17.6	6.8	2.7	2.5	45.5	56.4	35.7	18.1	13.9
Silt	%	40.6	30.6	26.5	50.9	68.4	49.4	55.8	33.1	27.1	48.7	72.5	63.7
Clay	%	7.7	17.9	16.1	31.5	24.8	47.6	41.7	20.1	15.8	12.9	9.3	22.1
Silt + Clay	%	48.3	48.5	42.6	82.4	93.2	97.0	97.5	53.2	42.9	61.6	81.8	85.8
Sieve Analysis													
Sieve Size #4 - Percent Finer	% retained	1.4	1.1	1.9	0	0	0.3	0	1.3	0.7	2.7	0.1	0.3
Sieve Size #200 - Percent Finer	r % passed	48.3	48.5	42.6	82.4	93.2	97	97.5	53.2	42.9	61.6	81.8	85.8
Classification			SILTY SAND (SM),		SILT WITH SAND (ML),		SILTY CLAY (CL-ML),			SILTY SAND (SM),	grayish brown grayish	SILT WITH SAND (ML),	
Classification		SILTY SAND (SM), gray	grayish brown	SILTY SAND (SM), gray	gray	SILT (ML), grayish brown	grayish brown	SILT (ML), gray	SANDY SILT (ML), gray	grayish brown	brown	dark brown	SILT (ML), dark brown
Moisture Content	%	60.0	86.9	42.3	175.7	134.7	48.5	58.3	70.4	49.5	69.3	84.1	74.1



	Location ID:	SC21-MR06	SC21-MR06	SC21-MRRE	SC21-MRRE	SC21-MRRE	SC21-MRRE	SC21-MRRE	SC21-MRRE	SC21-SC01	SC21-SC02	SC21-SC02	SC21-SC02
	Sample Name:	SC21-MR06-0010	SC21-MR06-1020	SC21-MRREF-SURF	SC21-MRREF-0010	SC21-MRREF-1020	SC21-MRREF-2040	SC21-MRREF-4060	SC21-MRREF-6080	SC21-SC01-SURF	SC21-SC02-0010	SC21-SC02-1020	SC21-SC02-2040
	Sample Date:	11/7/2021	11/7/2021	11/8/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021
	Depth Interval (feet)	0-1	1-2	0-0.5	0-1	1-2	2-4	4-6	6-8	0-0.5	0-1	1-2	2-4
Grain Size	Unit												
Gravel	%	1.7	3.2	0.1	0	0	0	0.5	1.9	5.7	0	0	8.5
Sand	%	23.6	48.7	10.9	3.3	6.5	19.6	26.5	36.1	93.4	57.7	75.9	76.8
Silt	%	66.8	40.1	78.0	54.1	69.0	56.6	52.7	49.5	0.6	37.6	23.0	13.7
Clay	%	7.9	8	11.0	42.6	24.5	23.8	20.3	12.5	0.3	4.7	1.1	1.0
Silt + Clay	%	74.7	48.1	89.0	96.7	93.5	80.4	73.0	62.0	0.9	42.3	24.1	14.7
Sieve Analysis													
Sieve Size #4 - Percent Finer	% retained	1.7	3.2	0.1	0	0	0	0.5	1.9	5.7	0	0	8.5
Sieve Size #200 - Percent Finer	r % passed	74.7	48.1	89	96.7	93.5	80.4	73	62	0.9	42.3	24.1	14.7
Classification		SILT WITH SAND (ML),	SILTY SAND (SM),				SILT WITH SAND (ML),	SILT WITH SAND (ML),	SANDY SILT (ML), dark	SAND (SP), trace gravel,	SILTY SAND (SM), dark	SILTY SAND (SM), dark	SILTY SAND (SM), trace
Classification		dark brown	brown	SILT (ML), gray	SILT (ML), gray	SILT (ML), gray	dark brown	dark brown	brown	brown	brown	brown	gravel, dark brown
Moisture Content	%	80.3	62.6	115.8	77.6	83.1	68.8	52.8	67.5	15.6	59.7	43.8	35.5



	Location ID:	SC21-SC03	SC21-SC03	SC21-SC03	SC21-SC04	SC21-SC04	SC21-SC04	SC21-SC04	SC21-SC04	SC21-SC04	SC21-SC05	SC21-SC06	SC21-SC06
	Sample Name:	SC21-SC03-0010	SC21-SC03-1020	SC21-SC03-2040	SC21-SC04-4060FD	SC21-SC04-0010	SC21-SC04-1020	SC21-SC04-2040	SC21-SC04-4060	SC21-SC04-6080	SC21-SC05-SURF	SC21-SC06-0010	SC21-SC06-1020
	Sample Date:	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/9/2021	11/8/2021	11/8/2021
	Depth Interval (feet):	0-1	1-2	2-4	4-6	0-1	1-2	2-4	4-6	6-8	0-0.5	0-1	1-2
Grain Size	Unit												
Gravel	%	0	1.1	1.8	0	1.5	0.7	0	0	1.1	0.6	1.7	0.8
Sand	%	37.9	32.6	38.3	77.3	64.4	69.1	70.1	76	63.2	93.1	24	26
Silt	%	61.1	64.4	55.4	13	23.2	23.2	23.1	17.2	28.3	5.2	38	38.7
Clay	%	1	1.9	4.5	9.7	10.9	7.0	6.8	6.8	7.4	1.1	36.3	34.5
Silt + Clay	%	62.1	66.3	59.9	22.7	34.1	30.2	29.9	24.0	35.7	6.3	74.3	73.2
Sieve Analysis													
Sieve Size #4 - Percent Finer	% retained	0	1.1	1.8	0	1.5	0.7	0	0	1.1	0.6	1.7	0.8
Sieve Size #200 - Percent Finer	r % passed	62.1	66.3	59.9	22.7	34.1	30.2	29.9	24	35.7	6.3	74.3	73.2
Classification		SANDY SILT (ML), dark	SANDY SILT (ML), dark	SANDY SILT (ML), dark	SILTY SAND (SM), dark	SILTY SAND (SM),	SILTY SAND (SM),	SILTY SAND (SM),	SILTY SAND (SM), dark	SILTY SAND (SM), dark	SAND WITH SILT (SP-	SILT WITH SAND (ML),	SILT WITH SAND (ML),
Classification		gray	gray	gray	gray	grayish brown	grayish brown	grayish brown	gray	gray	SM), black	brown	brown
Moisture Content	%	104.2	66.5	44.8	32.3	38.0	34.5	45.9	20.9	24.1	33.0	29.4	17.0



	Location ID:	SC21-SC06	SC21-SC07	SC21-SC07	SC21-SC07	SC21-SC07	SC21-SC07	SC21-SC08	SC21-SC09	SC21-SC09	SC21-SC09	SC21-SC10	SC21-SC11
	Sample Name:	SC21-SC06-2040	SC21-SC07-0010	SC21-SC07-1020	SC21-SC07-2040	SC21-SC07-2040FD	SC21-SC07-4060	SC21-SC08-0010	SC21-SC09-0010	SC21-SC09-1020	SC21-SC09-2040	SC21-SC10-0010	SC21-SC11-SURF
	Sample Date:	11/8/2021	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/3/2021	11/10/2021	11/10/2021	11/10/2021	11/5/2021	11/9/2021
	Depth Interval (feet):	2-4	0-1	1-2	2-4	2-4	4-6	0-1	0-1	1-2	2-4	0-1	0-0.5
Grain Size	Unit												
Gravel	%	5.3	0.8	0.4	0	0	0	3.8	2.9	0	49.6	2.7	2.9
Sand	%	24.4	22.2	9.1	36.4	12	26.9	25.1	26.5	16.9	37.3	19.7	91.8
Silt	%	48.0	52.1	66	43.8	65.8	54.1	43.7	62.0	72.0	12.7	48.1	1.9
Clay	%	22.3	24.9	24.5	19.8	22.2	19	27.4	8.6	11.1	0.4	29.5	3.4
Silt + Clay	%	70.3	77.0	90.5	63.6	88.0	73.1	71.1	70.6	83.1	13.1	77.6	5.3
Sieve Analysis													
Sieve Size #4 - Percent Finer	% retained	5.3	0.8	0.4	0	0	0	3.8	2.9	0	49.6	2.7	2.9
Sieve Size #200 - Percent Fine	er % passed	70.3	77	90.5	63.6	88	73.1	71.1	70.6	83.1	13.1	77.6	5.3
Classification		SILT WITH SAND (ML),	SILT WITH SAND (ML),		SANDY SILT (ML),		SILT WITH SAND (ML),	SILTY GRAVEL WITH	SILT WITH SAND (ML),	SAND WITH SILTY			
Ciassification		brown	gray	SILT (ML), gray	grayish brown	SILT (ML), dark brown	dark brown	dark gray	grayish brown	dark brown	SAND (GM), blackish gray	gray	CLAY (SP-SC), blackish
Moisture Content	%	18.9	30.3	30.3	21.8	25.8	25.0	30.7	70.7	70.3	40.6	23.0	78.2



	Location ID:	SC21-SC11	SC21-SC11	SC21-SC11	SC21-SC11	SC21-SC12	SC21-SC12	SC21-SC12	SC21-SC13	SC21-SC13	SC21-SC13	SC21-SC14	SC21-SC15
	Sample Name:	SC21-SC11-0010	SC21-SC11-0010FD	SC21-SC11-1020	SC21-SC11-2040	SC21-SC12-0010	SC21-SC12-1020	SC21-SC12-2040	SC21-SC13-0010	SC21-SC13-1020	SC21-SC13-2040	SC21-SC14-SURF	SC21-SC15-0010
	Sample Date:	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/11/2021	11/11/2021	11/11/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/7/2021
	Depth Interval (feet):	0-1	0-1	1-2	2-4	0-1	1-2	2-4	0-1	1-2	2-4	0-0.5	0-1
Grain Size	Unit												
Gravel	%	10.4	18.5	8.9	0.2	0.6	0.9	1.3	0	0	0	0	1.3
Sand	%	66.9	61.8	80.1	61.9	4.7	11.8	13.8	13.3	37.9	34.8	38.3	37.7
Silt	%	21.2	12.0	10.0	35.3	44.7	43.7	44.9	70.2	46.1	49.3	46.9	57.6
Clay	%	1.5	7.7	1.0	2.6	50	43.6	40	16.5	16.0	15.9	14.8	3.4
Silt + Clay	%	22.7	19.7	11.0	37.9	94.7	87.3	84.9	86.7	62.1	65.2	61.7	61.0
Sieve Analysis													
Sieve Size #4 - Percent Finer	% retained	10.4	18.5	8.9	0.2	0.6	0.9	1.3	0	0	0	0	1.3
Sieve Size #200 - Percent Finer	r % passed	22.7	19.7	11	37.9	94.7	87.3	84.9	86.7	62.1	65.2	61.7	61
Classification		SILTY SAND (SM), trace	WITH GRAVEL (SC-SM),	SAND WITH SILT (SP-	SILTY SAND (SM), dark			SILT WITH SAND (ML),		SANDY SILT (ML), dark			
Ciassification		gravel, dark brown	brown	SM), trace gravel, dark	brown	SILT (ML), gray	SILT (ML), gray	gray	SILT (ML), dark brown	brown	brown	brown	brown
Moisture Content	%	63.5	41.8	28.9	39.5	27.4	27.1	22.2	117.7	81.9	78.3	62.6	29.8



	Location ID:	SC21-SC15	SC21-SC15	SC21-SC16	SC21-SC16	SC21-SC16	SC21-SC16	SC21-SC17	SC21-SC17	SC21-SC17	SC21-SC17	SC21-SC17	SC21-SC18
	Sample Name:	SC21-SC15-1020	SC21-SC15-2040	SC21-SC16-0010	SC21-SC16-1020	SC21-SC16-2040	SC21-SC16-4060	SC21-SC17-0010	SC21-SC17-1020	SC21-SC17-2040	SC21-SC17-4060	SC21-SC17-6080	SC21-SC18-SURF
	Sample Date:	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/9/2021
	Depth Interval (feet):	1-2	2-4	0-1	1-2	2-4	4-6	0-1	1-2	2-4	4-6	6-8	0-0.5
Grain Size	Unit												
Gravel	%	0	0.5	14.4	9.5	5.1	0.3	2.1	15.5	2.6	0	0	0
Sand	%	25.5	47.2	37.4	60.1	52.5	37.4	49.9	58.7	35.7	24.9	52.9	14.8
Silt	%	72.4	51.3	45.4	28.8	38.4	54.7	33.7	18.7	40.6	60.1	41.2	75.3
Clay	%	2.1	1	2.8	1.6	4.0	7.6	14.3	7.1	21.1	15	5.9	9.9
Silt + Clay	%	74.5	52.3	48.2	30.4	42.4	62.3	48.0	25.8	61.7	75.1	47.1	85.2
Sieve Analysis													
Sieve Size #4 - Percent Finer	% retained	0	0.5	14.4	9.5	5.1	0.3	2.1	15.5	2.6	0	0	0
Sieve Size #200 - Percent Finer	r % passed	74.5	52.3	48.2	30.4	42.4	62.3	48	25.8	61.7	75.1	47.1	85.2
Clifiti		SILT WITH SAND (ML),	SANDY SILT (ML), dark	SILTY SAND (SM), trace	SILTY SAND (SM), trace	SILTY SAND (SM), trace	SANDY SILT (ML), dark				SILT WITH SAND (ML),	SILTY SAND (SM), dark	
Classification		dark brown	brown	gravel, dark brown	gravel, dark brown	gravel, dark brown	brown	SILTY SAND (SM), black	SILTY SAND (SM), black	SANDY SILT (ML), gray	dark brown	brown	SILT (ML), black
Moisture Content	%	61.9	108.7	58.9	40.0	35.1	37.5	51.1	38.3	44.2	45.9	32.9	70.7



	_												
	Location ID:	SC21-SC19	SC21-SC19	SC21-SC19	SC21-SC19	SC21-SC20	SC21-SC20	SC21-SC21	SC21-SC21	SC21-SC21	SC21-SC21	SC21-SC22	SC21-SC22
	Sample Name:	SC21-SC19-0010	SC21-SC19-1020	SC21-SC19-2040	SC21-SC19-4060	SC21-SC20-0010	SC21-SC20-1020	SC21-SC21-SURF	SC21-SC21-0010	SC21-SC21-1020	SC21-SC21-2040	SC21-SC22-0010	SC21-SC22-1020
	Sample Date:	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/9/2021	11/5/2021	11/5/2021	11/5/2021	11/4/2021	11/4/2021
	Depth Interval (feet):	0-1	1-2	2-4	4-6	0-1	1-2	0-0.5	0-1	1-2	2-4	0-1	1-2
Grain Size	Unit												
Gravel	%		0.3	2.7	1.1	1.6	0.1	0	2	0.6	0.4	20.3	12.2
Sand	%		37.6	31.2	19.4	17.6	14.6	33.6	21.2	35	44.6	31.6	52.6
Silt	%		44.9	53.3	53.3	51.4	49.9	63.6	76.3	61.8	54.2	17.3	11.4
Clay	%		17.2	12.8	26.2	29.4	35.4	2.8	0.5	2.6	0.8	30.8	23.8
Silt + Clay	%		62.1	66.1	79.5	80.8	85.3	66.4	76.8	64.4	55.0	48.1	35.2
Sieve Analysis													
Sieve Size #4 - Percent Finer	% retained		0.3	2.7	1.1	1.6	0.1	0	2	0.6	0.4	20.3	12.2
Sieve Size #200 - Percent Fine	r % passed		62.1	66.1	79.5	80.8	85.3	66.4	76.8	64.4	55	48.1	35.2
Classification			SANDY SILT (ML),	SANDY SILT (ML),	SILT WITH SAND (ML),	SILT WITH SAND (ML),			SILT WITH SAND (ML),			GRAVEL (SC), dark	CLAYEY SAND (SC),
Ciassification			grayish brown	grayish brown	grayish black	gray	SILT (ML), gray	SANDY SILT (ML), black	brown	SANDY SILT (ML), black	SANDY SILT (ML), black	brown	dark brown
Moisture Content	%	45.3	55.3	41.6	41.7	18.3	31.2	123.1	42.0	49.8	55.7	44.0	28.8



	Location ID:	SC21-SC23	SC21-SC23	SC21-SC23	SC21-SC24	SC21-SC24	SC21-SC24	SC21-SC25	SC21-SC25	SC21-SC25	SC21-SC25	SC21-SC25	SC21-SC26
	Sample Name:	SC21-SC23-0010	SC21-SC23-1020	SC21-SC23-2040	SC21-SC24-0010	SC21-SC24-1020	SC21-SC24-2040	SC21-SC25-0010	SC21-SC25-1020	SC21-SC25-2040	SC21-SC25-2040FD	SC21-SC25-4060	SC21-SC26-0010
	Sample Date:	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/4/2021	11/4/2021	11/4/2021	11/4/2021	11/4/2021	11/3/2021
D	epth Interval (feet):	0-1	1-2	2-4	0-1	1-2	2-4	0-1	1-2	2-4	2-4	4-6	0-1
Grain Size	Unit												
Gravel	%	1.9	0.4	0	0	0	0.5			0	0.2	0	1.3
Sand	%	45.2	27.7	44.3	0	4.8	34.7			57.2	49	64.6	21.6
Silt	%	51.2	65.6	50.9	0	79.4	54.7			41.6	13.1	34.6	29.8
Clay	%	1.7	6.3	4.8	100	15.8	10.1			1.2	37.7	0.8	47.3
Silt + Clay	%	52.9	71.9	55.7	100	95.2	64.8			42.8	50.8	35.4	77.1
Sieve Analysis													
Sieve Size #4 - Percent Finer	% retained	1.9	0.4	0		0	0.5			0	0.2	0	1.3
Sieve Size #200 - Percent Finer	% passed	52.9	71.9	55.7		95.2	64.8			42.8	50.8	35.4	77.1
Classification			SILT WITH SAND (ML),		Limited amount of soil-					SILTY SAND (SM),	SANDY LEAN CLAY	SILTY SAND (SM),	LEAN CLAY WITH
Ciassification		SANDY SILT (ML), black	black	SANDY SILT (ML), gray	mostly liquid	SILT (ML), gray	SANDY SILT (ML), gray	Organic Soil, blackish gray	Organic Soil, blackish gray	brown	(CL), blackish gray	blackish gray	SAND (CL), dark gray
Moisture Content	%	107.2	60.0	69.6	83.1	85.2	52.8	110.4	88.3	67.5	78.5	68.2	52.8



	Location ID:	SC21-SC26	SC21-SC27	SC21-SC28	SC21-SC28	SC21-SC28	SC21-SC28	SC21-SC28	SC21-SC29	SC21-SC30	SC21-SC30	SC21-SC30	SC21-SC30
	Sample Name:	SC21-SC26-1020	SC21-SC27-SURF	SC21-SC28-0010	SC21-SC28-0010FD	SC21-SC28-1020	SC21-SC28-2040	SC21-SC28-4060	SC21-SC29-0010	SC21-SC30-SURF	SC21-SC30-0010	SC21-SC30-1020	SC21-SC30-2040
	Sample Date:	11/3/2021	11/9/2021	11/4/2021	11/4/2021	11/4/2021	11/4/2021	11/4/2021	11/3/2021	11/9/2021	11/4/2021	11/4/2021	11/4/2021
	Depth Interval (feet):	1-2	0-0.5	0-1	0-1	1-2	2-4	4-6	0-1	0-0.5	0-1	1-2	2-4
Grain Size	Unit												
Gravel	%	9.3	13.4	13.8	13	0.6	1.9	7.3	44.9	0.2	0	25.2	0.4
Sand	%	24.1	28.3	37.6	48.4	22.7	28.7	32	25.7	13.6	17.5	49	16.6
Silt	%	47	52.7	37.4	8.2	72.0	63.9	23.1	24.8	70.4	78.8	6.6	79.2
Clay	%	19.6	5.6	11.2	30.4	4.7	5.5	37.6	4.6	15.8	3.7	19.2	3.8
Silt + Clay	%	66.6	58.3	48.6	38.6	76.7	69.4	60.7	29.4	86.2	82.5	25.8	83.0
Sieve Analysis													
Sieve Size #4 - Percent Finer	% retained	9.3	13.4	13.8	13	0.6	1.9	7.3	44.9	0.2	0	25.2	0.4
Sieve Size #200 - Percent Finer	r % passed	66.6	58.3	48.6	38.6	76.7	69.4	60.7	29.4	86.2	82.5	25.8	83
Classification		SANDY SILT (ML), trace	SANDY SILT (ML), trace	SILTY SAND (SM), trace	CLAYEY SAND (SC),	SILT WITH SAND (ML),		(CL), trace gravel, blackish	SILTY GRAVEL WITH		SILT WITH SAND (ML),	CLAYEY SAND WITH	SILT WITH SAND (ML),
Ciassification		gravel, brown	gravel, dark gray	gravel, brown	trace gravel, blackish gray	grayish black	SANDYSILT (ML), gray	gray	SAND (GM), grayish black	SILT (ML), gray	dark brown	GRAVEL (SC), black	gray
Moisture Content	%	37.1	115.4	37.9	39.1	52.4	54.0	45.7	68.1	97.1	93.8	70.8	77.4



	Location ID:	SC21-SC31	SC21-SC31	SC21-SC31	SC21-SC31	SC21-SC31	SC21-SC32	SC21-SC32	SC21-SC32	SC21-SC32	SC21-SC32	SC21-SC33	SC21-SC33
	Sample Name:	SC21-SC31-0010	SC21-SC31-1020	SC21-SC31-2040	SC21-SC31-4060	SC21-SC31-6080	SC21-SC32-0010	SC21-SC32-1020	SC21-SC32-2040	SC21-SC32-4060	SC21-SC32-6080	SC21-SC33-SURF	SC21-SC33-0010
	Sample Date:	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/8/2021	11/4/2021
	Depth Interval (feet):	0-1	1-2	2-4	4-6	6-8	0-1	1-2	2-4	4-6	6-8	0-0.5	0-1
Grain Size	Unit												
Gravel	%	0	0	0	0.1	0.6	0	0	0	0	0	0	0.2
Sand	%	35.5	7.5	7.1	50.5	46.3	3.9	10.4	10	30.5	72.3	33.3	13
Silt	%	52.3	56.1	56.7	40.7	40.5	44.5	41.3	37.6	56.7	22.3	49.1	74.8
Clay	%	12.2	36.4	36.2	8.7	12.6	51.6	48.3	52.4	12.8	5.4	17.6	12
Silt + Clay	%	64.5	92.5	92.9	49.4	53.1	96.1	89.6	90.0	69.5	27.7	66.7	86.8
Sieve Analysis													
Sieve Size #4 - Percent Finer	% retained	0	0	0	0.1	0.6	0	0	0	0	0	0	0.2
Sieve Size #200 - Percent Finer	r % passed	64.5	92.5	92.9	49.4	53.1	96.1	89.6	90	69.5	27.7	66.7	86.8
Clifii		SANDY SILT (ML),					SILTY CLAY (CL-ML),	SILTY CLAY (CL-ML),	SILTY CLAY (CL-ML),			SANDY SILT (ML),	
Classification		grayish brown	SILT (ML), gray	SILT (ML), grayish black	SILTY SAND (SM), black	SANDY SILT (ML), black	gray	gray	gray	SANDY SILT (ML), gray	SILTY SAND (SM), gray	brown	SILT (ML), brown
Moisture Content	%	84.2	75.0	74.7	63.1	53.6	112.8	95.6	77.6	67.2	50.6	96.6	61.6



	Location ID:	SC21-SC33	SC21-SC33	SC21-SCREF
:	Sample Name:	SC21-SC33-1020	SC21-SC33-2040	SC21-SCREF-SURF
	Sample Date:	11/4/2021	11/4/2021	11/9/2021
Depth	Interval (feet):	1-2	2-3.4	0-0.5
Grain Size	Unit			
Gravel	%	24.2	23.3	0
Sand	%	41.7	52.5	71.4
Silt	%	32.9	23.1	24.8
Clay	%	1.2	1.1	3.8
Silt + Clay	%	34.1	24.2	28.6
Sieve Analysis				
Sieve Size #4 - Percent Finer	% retained	24.2	23.3	0
Sieve Size #200 - Percent Finer	% passed	34.1	24.2	28.6
Cl'C''				SILTY SAND (SM),
Classification		SILTY SAND (SM), gray	SILTY SAND (SM), gray	brown
Moisture Content	%	55.0	50.1	31.4



Locs	ation ID:	SC21-COMP	SC21-COMP	SC21-COMP	SC21-COMP	SC21-COMP	SC21-COMP	SC21-COMP	SC21-COMP	SC21-COMP
	ole Name:	SC21-COMP-01	SC21-COMP-02	SC21-COMP-03	SC21-COMP-04	SC21-COMP-05	SC21-COMP-05FD	SC21-COMP-06	SC21-COMP-07	SC21-COMP-08
	ple Date:	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/10/2021	11/11/2021	11/11/2021
Depth Interv	val (feet):	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
Grain Size	Unit									•
Gravel	%	6.4	2.2	4.4	4.3	5.2	4.7	3.8	0.7	7.7
Sand	%	65.6	56.9	31	55.9	45.5	49.8	45.4	41.3	38.8
Silt	%	21.3	33.8	38.1	30.2	42.0	39.0	33.2	44.9	40.7
Clay	%	6.7	7.1	26.5	9.6	7.3	6.5	17.6	13.1	12.8
Silt + Clay	%	28.0	40.9	64.6	39.8	49.3	45.5	50.8	58.0	53.5
Sieve Analysis										
Sieve Size #4 - Percent Finer %	retained	6.4	2.2	4.4	4.3	5.2	4.7	3.8	0.7	7.7
Sieve Size #200 - Percent Finer %	6 passed	28	40.9	64.6	39.8	49.3	45.5	50.8	58	53.5
Glifiti		SILTY SAND (SM), trace		SANDY SILT (ML),	SILTY SAND (SM),	SILTY SAND (SM),		SANDY SILT (ML),	SANDY SILT (ML),	SANDY SILT (ML), trace
Classification		gravel, black	SILTY SAND (SM), black	blackish brown	brown	grayish brown	SILTY SAND (SM), black	brown	grayish brown	gravel, brown
Moisture Content	%	29.2	24.6	17.8	60.9	57.7	60.1	20.9	44.7	44.9



	Location ID:		SC21-MR01	SC21-MR01	SC21-MR02	SC21-MR02	SC21-MR02	SC21-MR02	SC21-MR02	SC21-MR03-A	SC21-MR03-A	SC21-MR03-A	SC21-MR03-B
	Sample Name:		SC21-MR01-1020	SC21-MR01-2040	SC21-MR02-0010	SC21-MR02-1020	SC21-MR02-2040	SC21-MR02-4060	SC21-MR02-6080	SC21-MR03-A-0010	SC21-MR03-A-1020	SC21-MR03-A-2040	SC21-MR03-B-0010
	Sample Date	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021
	Depth Interval (ft)	0-1	1-2	2-4	0-1	1-2	2-4	4-6	6-8	0-1	1-2	2-4	0-1
Analyte	Region 4 ESV Unit												
Diesel Range Organics (C10-C28)	340 mg/kg	21	64 J	47	79	200	91	100	91	<u>380</u>	230 J	43	80
Oil Range Organics (C28-C40)	NSL mg/kg	28	30 J	30	30	77	37	36	35	150	90	13 J	36
Σ ΤΡΗ	NSL mg/kg	49	94	77	109	277	128	136	126	530	320	56	116
Oil and Grease	NSL mg/kg	420 U	320 U	270 U	450	500	160 J	570	340	590	450	420	480

Underlined values exceed the Region 4 ESV

FD = Field duplicate

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

 $\label{eq:J+=Compound} J+= Compound \ was \ detected, \ but \ result \ is \ below \ the \ reporting \ limit \ and \ greater \ than \ or \ equal \ to \ the \ method \ detection \ limit \ (value \ is \ estimated \ and \ potentially \ biased \ high).$

J- = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).

U = Compound was analyzed but not detected.

 $UJ = Compound \ was \ analyzed \ but \ not \ detected. \ The \ reported \ quantitation \ limit \ is \ approximate.$

mg/kg = Milligrams per kilogram

MR = Maumee River

SC = Swan Creek

TPH = Total Petroleum Hydrocarbons

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).

 Σ TPH = Sum of Total Petroleum Hydrocarbons



	Location II	D: SC21-MR03-B	SC21-MR03-B	SC21-MR03-B	SC21-MR04	SC21-MR04	SC21-MR04	SC21-MR04	SC21-MR05	SC21-MR05	SC21-MR05	SC21-MR06	SC21-MR06	SC21-MR06
	Sample Nam	e: SC21-MR03-B-1020	SC21-MR03-B-1020FD	SC21-MR03-B-2040	SC21-MR04-0010	SC21-MR04-1020	SC21-MR04-2040	SC21-MR04-4060	SC21-MR05-0010	SC21-MR05-1020	SC21-MR05-2040	SC21-MR06-0010	SC21-MR06-1020	SC21-MR06-SURF
	Sample Dat	e: 11/8/2021	11/8/2021	11/8/2021	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/5/2021	11/5/2021	11/5/2021	11/7/2021	11/7/2021	11/8/2021
	Depth Interval (f	1-2	1-2	2-4	0-1	1-2	2-4	4-6	0-1	1-2	2-4	0-1	0-1	0-0.5
Analyte	Region 4 ESV Unit													
Diesel Range Organics (C10-C28)	340 mg/kg	330	340	210	37	18 J+	22 J+	36	<u>490 J</u>	90	35 J	2100 J	730 J	180 J
Oil Range Organics (C28-C40)	NSL mg/kg	160	160	96	34 U	30 U	19 U	21 U	150 J	55	17 J	660 J	300 J	90 J
Σ ΤΡΗ	NSL mg/kg	g 490	500	306	54	33	31.5	46.5	640	145	52	2760	1030	270
Oil and Grease	NSL mg/kg	760	620	1900	270 J	460 U	290 U	320 U	210 J	450	310 U	760	510	190 J

 $\frac{\mbox{Underlined values exceed the Region 4 ESV}}{\mbox{FD} = \mbox{Field duplicate}}$

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

J+ = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased high).

J- = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).

 $U = Compound \ was \ analyzed \ but \ not \ detected.$

 $UJ = Compound \ was \ analyzed \ but \ not \ detected. \ The \ reported \ quantitation \ limit \ is \ approxim$ mg/kg = Milligrams per kilogram

MR = Maumee River

SC = Swan Creek

TPH = Total Petroleum Hydrocarbons

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).

 Σ TPH = Sum of Total Petroleum Hydrocarbons



	Location ID:		SC21-MR06	SC21-MRREF	SC21-MRREF	SC21-MRREF	SC21-MRREF	SC21-MRREF	SC21-MRREF	SC21-SC01	SC21-SC02	SC21-SC02	SC21-SC02	SC21-SC03
	Sample Name:		SC21-MR06-SURFFD	SC21-MRREF-0010	SC21-MRREF-1020	SC21-MRREF-2040	SC21-MRREF-4060	SC21-MRREF-6080	SC21-MRREF-SURF	SC21-SC01-SURF	SC21-SC02-0010	SC21-SC02-1020	SC21-SC02-2040	SC21-SC03-0010
	Samp	le Date:	11/8/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/8/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/8/2021
	Depth Inter	rval (ft):	0-0.5	0-1	1-2	2-4	4-6	6-8	0-0.5	0-0.5	0-1	1-2	2-4	0-1
Analyte	Region 4 ESV	Unit												
Diesel Range Organics (C10-C28)	340	mg/kg	<u>560 J</u>	110 J	13	210 J	44	170 J	86 J	48	47	220 J	230 J	<u>350 J</u>
Oil Range Organics (C28-C40)	NSL	mg/kg	270 J	86 J	23 U	86 J	20	76 J	79 J	29	49	140 J	150 J	320 J
Σ ΤΡΗ	NSL	mg/kg	830	196	24.5	296	64	246	165	77	96	360	380	670
Oil and Grease	NSL	mg/kg	600 J	360 U	350 U	210 J	270 J	330 U	420 U	220 J	2500 J	1400 J	1500 J	1400

 $\underline{\text{Underlined values exceed the Region 4 ESV}}$

FD = Field duplicate

- J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).
- $$\label{eq:Josephi} \begin{split} J_+ = & \text{Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased high).} \end{split}$$
- J- = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).
- U = Compound was analyzed but not detected.
- $\label{eq:UJ} UJ = Compound \ was \ analyzed \ but \ not \ detected. \ The \ reported \ quantitation \ limit \ is \ approxim \ mg/kg = Milligrams \ per \ kilogram$

MR = Maumee River

SC = Swan Creek

TPH = Total Petroleum Hydrocarbons

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).

 Σ TPH = Sum of Total Petroleum Hydrocarbons



	Location ID:	SC21-SC03	SC21-SC03	SC21-SC04	SC21-SC04	SC21-SC04	SC21-SC04	SC21-SC04	SC21-SC04	SC21-SC05	SC21-SC06	SC21-SC06	SC21-SC06	SC21-SC07	SC21-SC07
	Sample Name:	SC21-SC03-1020	SC21-SC03-2040	SC21-SC04-0010	SC21-SC04-1020	SC21-SC04-2040	SC21-SC04-4060	SC21-SC04-4060FD	SC21-SC04-6080	SC21-SC05-SURF	SC21-SC06-0010	SC21-SC06-1020	SC21-SC06-2040	SC21-SC07-0010	SC21-SC07-1020
	Sample Date:	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/9/2021	11/8/2021	11/8/2021	11/8/2021	11/10/2021	11/10/2021
	Depth Interval (ft):	1-2	2-4	0-1	1-2	2-4	4-6	4-6	6-8	0-0.5	0-1	1-2	2-4	0-1	1-2
Analyte	Region 4 ESV Unit														
Diesel Range Organics (C10-C28)	340 mg/kg	260	<u>460 J</u>	130 J	17	47 J	14	12	22	29	14	72 J	150 J	220	15 J+
Oil Range Organics (C28-C40)	NSL mg/kg	81	140 J	54 J	17 U	21 J	42	20	11 J	26	17 U	17 J	24 J	59	16 U
Σ ΤΡΗ	NSL mg/kg	341	600	184	34	68	56	32	33	55	31	89	174	279	31
Oil and Grease	NSL mg/kg	2400	270 U	500	150 J	300 U	260 U	250 U	260 U	350 J	250 U	250 U	110 J	260 U	260 U

 $\underline{\text{Underlined values exceed the Region 4 ESV}}$

FD = Field duplicate

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

J+ = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased high).

J- = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).

U = Compound was analyzed but not detected.

UJ = Compound was analyzed but not detected. The reported quantitation limit is approxim mg/kg = Milligrams per kilogram

MR = Maumee River

SC = Swan Creek

TPH = Total Petroleum Hydrocarbons

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).

 Σ TPH = Sum of Total Petroleum Hydrocarbons



	Loca	ation ID:	SC21-SC07	SC21-SC07	SC21-SC07	SC21-SC08	SC21-SC09	SC21-SC09	SC21-SC09	SC21-SC10	SC21-SC11	SC21-SC11	SC21-SC11	SC21-SC11	SC21-SC11
	Sampl	e Name:	SC21-SC07-2040	SC21-SC07-2040FD	SC21-SC07-4060	SC21-SC08-0010	SC21-SC09-0010	SC21-SC09-1020	SC21-SC09-2040	SC21-SC10-0010	SC21-SC11-0010	SC21-SC11-0010FD	SC21-SC11-1020	SC21-SC11-2040	SC21-SC11-SURF
	Samp	ole Date:	11/10/2021	11/10/2021	11/10/2021	11/3/2021	11/9/2021	11/9/2021	11/9/2021	11/5/2021	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/9/2021
	Depth Inte	rval (ft):	2-4	2-4	4-6	0-1	0-1	1-2	2-4	0-1	0-1	0-1	1-2	2-4	0-0.5
Analyte	Region 4 ESV	Unit													
Diesel Range Organics (C10-C28)	340	mg/kg	8.9 J+	8.6 U	8.5 J+	68	<u>1300</u>	<u>2000</u>	<u>540</u>	50 J	120	140	180	230	210 J
Oil Range Organics (C28-C40)	NSL	mg/kg	16 U	17 U	15 U	21 J+	470	810	240	10 J	79	93	52	56	150 J
Σ ΤΡΗ	NSL	mg/kg	24.9	25.6	23.5	89	1770	2810	780	60	199	233	232	286	360
Oil and Grease	NSL	mg/kg	250 U	250 U	250 U	230 U	4000	5800	2600	240 U	1100	1600	1100	440	300 J

Underlined values exceed the Region 4 ESV

FD = Field duplicate

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

 $\label{eq:J+=Compound} J+=Compound \ was \ detected, \ but \ result is \ below \ the \ reporting \ limit \ and \ greater \ than \ or \ equal \ to \ the \ method \ detection \ limit \ (value \ is \ estimated \ and \ potentially \ biased \ high).$

J-= Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).

U = Compound was analyzed but not detected.

 $\label{eq:UJ} UJ = Compound \ was \ analyzed \ but \ not \ detected. \ The \ reported \ quantitation \ limit \ is \ approxim \ mg/kg = Milligrams \ per \ kilogram$

MR = Maumee River

SC = Swan Creek

TPH = Total Petroleum Hydrocarbons

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).

 Σ TPH = Sum of Total Petroleum Hydrocarbons



	Location II	SC21-SC12	SC21-SC12	SC21-SC12	SC21-SC13	SC21-SC13	SC21-SC13	SC21-SC14	SC21-SC15	SC21-SC15	SC21-SC15	SC21-SC16	SC21-SC16	SC21-SC16	SC21-SC16
	Sample Name	SC21-SC12-0010	SC21-SC12-1020	SC21-SC12-2040	SC21-SC13-0010	SC21-SC13-1020	SC21-SC13-2040	SC21-SC14-SURF	SC21-SC15-0010	SC21-SC15-1020	SC21-SC15-2040	SC21-SC16-0010	SC21-SC16-1020	SC21-SC16-2040	SC21-SC16-4060
	Sample Date	11/11/2021	11/11/2021	11/11/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021
	Depth Interval (ft	0-1	1-2	2-4	0-1	1-2	2-4	0-0.5	0-1	1-2	2-4	0-1	1-2	2-4	4-6
Analyte	Region 4 ESV Unit														
Diesel Range Organics (C10-C28)	340 mg/kg	45	60	39	270 J	290 J	340 J	310 J	43	830	2300	<u>570</u>	88	75	34
Oil Range Organics (C28-C40)	NSL mg/kg	16 U	16 U	16 U	280 J	270 J	180 J-	300 J	22 J	250	750	190	31	26	14 J
Σ TPH	NSL mg/kg	61	76	55	550	560	520	610	65	1080	3050	760	119	101	48
Oil and Grease	NSL mg/kg	160 J	160 J	240 UJ	730 J	930 J	4400 J	790 J	610	3400	8500	1500	510	290	170 J

Underlined values exceed the Region 4 ESV

FD = Field duplicate

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

 $\label{eq:J+=Compound} J+= Compound \ was \ detected, \ but \ result \ is \ below \ the \ reporting \ limit \ and \ greater \ than \ or \ equal \ to \ the \ method \ detection \ limit \ (value \ is \ estimated \ and \ potentially \ biased \ high).$

J-= Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).

U = Compound was analyzed but not detected.

 $\label{eq:UJ} UJ = Compound \ was \ analyzed \ but \ not \ detected. \ The \ reported \ quantitation \ limit \ is \ approxim \ mg/kg = Milligrams \ per \ kilogram$

MR = Maumee River

SC = Swan Creek

TPH = Total Petroleum Hydrocarbons

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).

 Σ TPH = Sum of Total Petroleum Hydrocarbons



	Location	ID: SC21-SC17	SC21-SC17	SC21-SC17	SC21-SC17	SC21-SC17	SC21-SC18	SC21-SC19	SC21-SC19	SC21-SC19	SC21-SC19	SC21-SC20	SC21-SC20	SC21-SC21	SC21-SC21
	Sample Nar	ne: SC21-SC17-0010	SC21-SC17-1020) SC21-SC17-2040	SC21-SC17-4060	SC21-SC17-6080	SC21-SC18-SURF	SC21-SC19-0010	SC21-SC19-1020	SC21-SC19-2040	SC21-SC19-4060) SC21-SC20-0010	SC21-SC20-1020	SC21-SC21-0010	SC21-SC21-1020
	Sample Da	nte: 11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/9/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021
	Depth Interval (ft): 0-1	1-2	2-4	4-6	6-8	0-0.5	0-1	1-2	2-4	4-6	0-1	1-2	0-1	1-2
Analyte	Region 4 ESV Uni	it													
Diesel Range Organics (C10-C28)	340 mg/l	kg <u>700</u>	<u>1400</u>	300 J	46	65	<u>490 J</u>	<u>890</u>	2200	98	52	56 J	29	<u>720</u>	<u>3200</u>
Oil Range Organics (C28-C40)	NSL mg/l	kg 230	300	130	20	29 J+	210 J	640	200	54	34	12 J	15	390	1300
Σ ΤΡΗ	NSL mg/l	kg 930	1700	430	66	94	700	1530	2400	152	86	68	44	1110	4500
Oil and Grease	NSL mg/	kg 1200	2000	160 J	150 J	11000	3600	2200	440	350	150 J	150 J	240 U	810	820

Underlined values exceed the Region 4 ESV

FD = Field duplicate

- J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).
- $\label{eq:J+=Compound} J+= Compound \ was \ detected, \ but \ result \ is \ below \ the \ reporting \ limit \ and \ greater \ than \ or \ equal \ to \ the \ method \ detection \ limit \ (value \ is \ estimated \ and \ potentially \ biased \ high).$
- J-= Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).
- U = Compound was analyzed but not detected.
- $\label{eq:UJ} UJ = Compound \ was \ analyzed \ but \ not \ detected. \ The \ reported \ quantitation \ limit \ is \ approxim \ mg/kg = Milligrams \ per \ kilogram$

MR = Maumee River

SC = Swan Creek

TPH = Total Petroleum Hydrocarbons

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).

 Σ TPH = Sum of Total Petroleum Hydrocarbons



	Loca	ation ID:	SC21-SC21	SC21-SC21	SC21-SC22	SC21-SC22	SC21-SC23	SC21-SC23	SC21-SC23	SC21-SC24	SC21-SC24	SC21-SC24	SC21-SC25	SC21-SC25	SC21-SC25	SC21-SC25
	Sampl	le Name:	SC21-SC21-2040	SC21-SC21-SURF	SC21-SC22-0010	SC21-SC22-1020	SC21-SC23-0010	SC21-SC23-1020	SC21-SC23-2040	SC21-SC24-0010	SC21-SC24-1020	SC21-SC24-2040	SC21-SC25-0010	SC21-SC25-1020	SC21-SC25-2040	SC21-SC25-2040FD
	Samı	ple Date:	11/5/2021	11/9/2021	11/4/2021	11/4/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/4/2021	11/4/2021	11/4/2021	11/4/2021
	Depth Inte	erval (ft):	2-4	0-0.5	0-1	1-2	0-1	1-2	2-4	0-1	1-2	2-4	0-1	1-2	2-4	2-4
Analyte	Region 4 ESV	Unit														
Diesel Range Organics (C10-C28)	340	mg/kg	<u>1700</u>	230 J	120	42 J+	<u>1600 J</u>	<u>400</u>	<u>790</u>	<u>650</u>	<u>460</u>	<u>1200</u>	220	200	<u>1100</u>	<u>1700</u>
Oil Range Organics (C28-C40)	NSL	mg/kg	750	250 J	84	21 J+	710 J	140	370	260	210	280	250	150	560	800
ΣΤΡΗ	NSL	mg/kg	2450	480	204	63	2310	540	1160	910	670	1480	470	350	1660	2500
Oil and Grease	NSL	mg/kg	2300	460 U	300 U	260 U	960	1100	1800	850	640	1600	700	420 U	380 U	270 J

Underlined values exceed the Region 4 ESV

FD = Field duplicate

 $\label{eq:J-def} J = Compound \ was \ detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).$

 $\label{eq:J+} J+= Compound \ was \ detected, \ but \ result \ is \ below \ the \ reporting \ limit \ and \ greater \ than \ or \ equal \ to \ the \ method \ detection \ limit \ (value \ is \ estimated \ and \ potentially \ biased \ high).$

J- = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).

U = Compound was analyzed but not detected.

 $\label{eq:UJ} UJ = Compound \ was \ analyzed \ but \ not \ detected. \ The \ reported \ quantitation \ limit \ is \ approxim \ mg/kg = Milligrams \ per \ kilogram$

MR = Maumee River

SC = Swan Creek

TPH = Total Petroleum Hydrocarbons

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).

 Σ TPH = Sum of Total Petroleum Hydrocarbons

 $\Sigma \text{ TPH} = \text{DRO (C10-C28)} + \text{ORO (C28-C40)}$



	Loc	cation ID:	SC21-SC25	SC21-SC26	SC21-SC26	SC21-SC27	SC21-SC28	SC21-SC28	SC21-SC28	SC21-SC28	SC21-SC28	SC21-SC29	SC21-SC30	SC21-SC30
	Samı	ple Name:	SC21-SC25-4060	SC21-SC26-0010	SC21-SC26-1020	SC21-SC27-SURF	SC21-SC28-0010	SC21-SC28-0010FD	SC21-SC28-1020	SC21-SC28-2040	SC21-SC28-4060	SC21-SC29-0010	SC21-SC30-0010	SC21-SC30-1020
	San	nple Date:	11/4/2021	11/3/2021	11/3/2021	11/9/2021	11/4/2021	11/4/2021	11/4/2021	11/4/2021	11/4/2021	11/3/2021	11/4/2021	11/4/2021
	Depth Int	terval (ft):	4-6	0-1	1-2	0-0.5	0-1	0-1	1-2	2-4	4-6	0-1	0-1	1-2
Analyte	Region 4 ESV	Unit												
Diesel Range Organics (C10-C28)	340	mg/kg	<u>1700</u>	<u>870</u>	<u>380</u>	300 J	<u>2000</u>	<u>2300</u>	<u>1800</u>	<u>1900</u>	<u>1800</u>	<u>2200</u>	<u>2300</u>	<u>2900</u>
Oil Range Organics (C28-C40)	NSL	mg/kg	580	290	110	300 J	470	640	570	560	540	630	610	890
Σ ΤΡΗ	NSL	mg/kg	2280	1160	490	600	2470	2940	2370	2460	2340	2830	2910	3790
Oil and Grease	NSL	mg/kg	650	350	260 U	280 J	250 J	310 U	620	570 J	330 U	340	380 U	300 J
Notes:														

Underlined values exceed the Region 4 ESV

FD = Field duplicate

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

J+ = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased high).

J- = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).

U = Compound was analyzed but not detected.

 $UJ = Compound \ was \ analyzed \ but \ not \ detected. \ The \ reported \ quantitation \ limit \ is \ approxim$

mg/kg = Milligrams per kilogram

MR = Maumee River

SC = Swan Creek

TPH = Total Petroleum Hydrocarbons

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).

 Σ TPH = Sum of Total Petroleum Hydrocarbons



	Loc	cation ID:	SC21-SC30	SC21-SC30	SC21-SC31	SC21-SC31	SC21-SC31	SC21-SC31	SC21-SC31	SC21-SC32	SC21-SC32	SC21-SC32	SC21-SC32	SC21-SC32
				SC21-SC30-SURF										
	Sam	nple Date:	11/4/2021	11/9/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021
	Depth Int	terval (ft):	2-4	0-0.5	0-1	1-2	2-4	4-6	6-8	0-1	1-2	2-4	4-6	6-8
Analyte	Region 4 ESV	Unit												
Diesel Range Organics (C10-C28)	340	mg/kg	1900	230 J	980	<u>3700</u>	<u>2600</u>	<u>2900</u>	2300	110	110	200	83	24
Oil Range Organics (C28-C40)	NSL	mg/kg	560	200 J	430	650	930	670	620	130	110	170	77	24 J+
Σ ΤΡΗ	NSL	mg/kg	2460	430	1410	4350	3530	3570	2920	240	220	370	160	48
Oil and Grease	NSL	mg/kg	680	1500	290 J	350	280 J	710	1400	390 U	370 U	350 U	310 U	290 U

Underlined values exceed the Region 4 ESV

FD = Field duplicate

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

 $\label{eq:J+=Compound} J+=Compound \ was \ detected, \ but \ result is \ below \ the \ reporting \ limit \ and \ greater \ than \ or \ equal \ to \ the \ method \ detection \ limit \ (value \ is \ estimated \ and \ potentially \ biased \ high).$

J- = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).

U = Compound was analyzed but not detected.

 $\label{eq:UJ} UJ = Compound \ was \ analyzed \ but \ not \ detected. \ The \ reported \ quantitation \ limit \ is \ approxim \ mg/kg = Milligrams \ per \ kilogram$

MR = Maumee River

SC = Swan Creek

TPH = Total Petroleum Hydrocarbons

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).

 Σ TPH = Sum of Total Petroleum Hydrocarbons



_					
Location ID:	SC21-SC33	SC21-SC33	SC21-SC33	SC21-SC33	SC21-SCREF

Sample Name: SC21-SC33-0010 SC21-SC33-1020 SC21-SC33-2040 SC21-SC33-SURF SC21-SCREF-SURF

	Sam	pie Date:	11/4/2021	11/4/2021	11/4/2021	11/8/2021	11/9/2021
	Depth Inte	erval (ft):	0-1	1-2	2-3.4	0-0.5	0-0.5
Analyte	Region 4 ESV	Unit					
Diesel Range Organics (C10-C28)	340	mg/kg	<u>500</u>	<u>2200</u>	<u>2000</u>	270 J	140 J
Oil Range Organics (C28-C40)	NSL	mg/kg	290	700	690	290 J	140 J
ΣTPH	NSL	mg/kg	790	2900	2690	560	280
Oil and Grease	NSL	mg/kg	360	980	1400	280 J	260 J

Notes:

Underlined values exceed the Region 4 ESV

FD = Field duplicate

- J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).
- J+= Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased high).
- J- = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).
- U = Compound was analyzed but not detected.
- $UJ = Compound \ was \ analyzed \ but \ not \ detected. \ The \ reported \ quantitation \ limit \ is \ approxim$

mg/kg = Milligrams per kilogram

MR = Maumee River

SC = Swan Creek

TPH = Total Petroleum Hydrocarbons

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).

 Σ TPH = Sum of Total Petroleum Hydrocarbons



	Loc	cation ID:	SC21-COMP-01	SC21-COMP-02	SC21-COMP-03	SC21-COMP-04	SC21-COMP-05	SC21-COMP-05	SC21-COMP-06	SC21-COMP-07	SC21-COMP-08
	Sam	ple Name:	SC21-COMP-01	SC21-COMP-02	SC21-COMP-03	SC21-COMP-04	SC21-COMP-05	SC21-COMP-05FD	SC21-COMP-06	SC21-COMP-07	SC21-COMP-08
	San	nple Date:	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/10/2021	11/11/2021	11/11/2021
Analyte	Region 4 ESV	Unit									
Diesel Range Organics (C10-C28)	340	mg/kg	230	<u>880</u>	220	<u>510</u>	<u>540 J</u>	<u>3100 J</u>	100	1400	330
Oil Range Organics (C28-C40)	NSL	mg/kg	140	280	64	140	120 J	780 J	29 J+	170	98
Σ ΤΡΗ	NSL	mg/kg	370	1160	284	650	660	3880	129	1570	428
Oil and Grease	NSL	mg/kg	500	1300	280	980	2000 J	2000	620	1000	540

Underlined values exceed the Region 4 ESV

FD = Field duplicate

 $\label{eq:J-Compound} J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).$

J+ = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased high).

mg/kg = Milligrams per kilogram

SC = Swan Creek

TPH = Total Petroleum Hydrocarbons

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).

 Σ TPH = Sum of Total Petroleum Hydrocarbons



				Location ID:	SC21-MR01	SC21-MR01	SC21-MR01	SC21-MR02	SC21-MR02	SC21-MR02	SC21-MR02	SC21-MR02	SC21-MR03-A	SC21-MR03-A	SC21-MR03-A	SC21-MR03-B	SC21-MR03-B	SC21-MR03-B
			S	ample Name:	SC21-MR01-0010	SC21-MR01-1020	SC21-MR01-2040	SC21-MR02-0010	SC21-MR02-1020	SC21-MR02-2040	SC21-MR02-4060	SC21-MR02-6080	SC21-MR03-A-0010	SC21-MR03-A-1020	SC21-MR03-A-2040	SC21-MR03-B-0010	SC21-MR03-B-1020	SC21-MR03-B-1020FD
				Sample Date:	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021
			Depth	Interval (ft):	0-1	1-2	2-4	0-1	1-2	2-4	4-6	6-8	0-1	1-2	2-4	0-1	1-2	1-2
Analyte	TEC	PEC	Ohio SRV	Unit														
Aluminum	NSL	NSL	42000	mg/kg	22400	14800	13100	14800	18200	18800	17500	19900	9750 J	16100	8870 J	12600 J	13400 J	12500 J
Antimony	NSL	NSL	0.84	mg/kg	12.7 U	9.6 U	7.6 U	9.6 U	8.1 U	7.7 U	9.6 U	9.5 U	6.5 U	7.1 U	7.4 U	8.2 U	7.5 U	9.2 U
Arsenic	9.79	33	11	mg/kg	7.9	6.5	9	<u>16</u>	<u>15.7</u>	<u>16.8</u>	<u>27.6</u>	<u>19.9</u>	<u>15.5 J</u>	11 J	8.8 J	<u>24.7 J</u>	<u>25 J</u>	<u>25.8 J</u>
Barium	NSL	NSL	210	mg/kg	131	89.8	95.8	122	149	147	161	144	108	124	80	115	119	128
Beryllium	NSL	NSL	0.8	mg/kg	<u>0.93 J</u>	0.62 J	0.68	0.65 J	0.8	0.84	0.82	0.84	0.56	0.72	0.45 J	0.6 J	0.61 J	0.67 J
Cadmium	0.99	4.98	0.96	mg/kg	0.56 J	0.9	0.33 J	<u>2.9</u>	<u>3.3</u>	<u>5</u>	<u>4.4</u>	<u>2.4</u>	0.92	0.8	0.59 J	<u>1.3</u>	<u>1.5</u>	<u>1.6</u>
Calcium	NSL	NSL	110000	mg/kg	29800	29800	74100	43700	40300	36100	42800	43700	31600	34200	42000	39100	32900	35500
Chromium	43.4	111	51	mg/kg	48.8 J	24.4 J	22.6 J	49.1 J	47 J	36.3 J	<u>124 J</u>	37.2 J	18.9	27.2	16.4	26	27.5	28.3
Cobalt	NSL	NSL	12	mg/kg	10.5 J	7.8 J	10.4	9.4	9.7	10.4	10.9	10.6	7.2	9.5	6.7	8	7.2	8
Copper	31.6	149	42	mg/kg	29.1	21.7	21.8	<u>63.1</u>	<u>57.5</u>	<u>64.7</u>	<u>112</u>	<u>50.2</u>	<u>75 J</u>	34.9 J	<u>45.4 J</u>	<u>55.7 J</u>	<u>59.3 J</u>	<u>67.4 J</u>
Iron	NSL	NSL	44000	mg/kg	28900	19600	23100	22500	25700	27800	27500	27500	18800	26000	16300	20700	19800	21000
Lead	35.8	128	47	mg/kg	18.2	18.2	10.4	<u>80</u>	<u>83.4</u>	<u>125</u>	<u>193</u>	<u>91.2</u>	<u>181 J</u>	<u>51.5 J</u>	<u>94.7 J</u>	<u>166 J</u>	<u>130 J</u>	<u>169 J</u>
Magnesium	NSL	NSL	29000	mg/kg	10800	9440	16100	11400	11900	10300	11900	11200	8910	10200	10400	11600	8580	9370
Manganese	NSL	NSL	1000	mg/kg	445	303	488	435	386	437	452	504	276 J	670 J	286 J	344 J	313 J	350 J
Mercury	0.18	1.06	0.12	mg/kg	0.027 J	0.062 J	0.019 J	<u>0.35</u>	<u>0.55</u>	<u>0.51</u>	<u>0.93</u>	<u>0.84</u>	<u>2.2</u>	<u>3.8</u>	<u>1.7</u>	<u>0.66</u>	<u>1.4</u>	<u>1.9</u>
Nickel	22.7	48.6	36	mg/kg	33.1	24.4	28.4	29.8	33	32	35.2	32.3	20.7	27.8	18.7	23.2	23.1	24.7
Potassium	NSL	NSL	12000	mg/kg	4750	2960	3840	3150	3760	3750	3570	3900	1950	2980	1930	2590	2730	2570
Selenium	NSL	NSL	1.4	mg/kg	7.4 U	5.6 U	4.4 U	5.6 U	4.7 U	4.5 U	5.6 U	5.5 U	3.8 U	4.1 U	4.3 U	4.8 U	4.4 U	5.3 U
Silver	NSL	NSL	0.43	mg/kg	2.1 U	1.6 U	<u>1.6</u>	<u>1 J</u>	<u>2</u>	<u>0.86 J</u>	2	0.33 J	<u>1.9</u>	1.2 U	<u>1 J</u>	<u>0.51 J</u>	<u>1.2 J</u>	<u>1.5</u>
Sodium	NSL	NSL	NSL	mg/kg	162 J	140 J	215 J	173 J	184 J	187 J	211 J	218 J	142 J	157 J	159 J	168 J	146 J	160 J
Thallium	NSL	NSL	4.7	mg/kg	5.3 U	4 U	3.2 U	4 U	3.4 U	3.2 U	4 U	4 U	2.7 U	3 U	3.1 U	3.4 U	3.1 U	3.8 U
Vanadium	NSL	NSL	40	mg/kg	<u>45</u>	31	29.6	33.3	38.6	39.9	38.3	<u>40.6</u>	23.2	33.5	21.7	27.7	28.4	28.8
Zinc	121	459	190	mg/kg	114	87.5	56	155	<u>261</u>	<u>226</u>	<u>327</u>	190	<u>309 J</u>	154 J	178 J	<u>247 J</u>	<u>219 J</u>	<u>287 J</u>
Total Organic Carbon	NSL	NSL	NSL	%	2.32	1.45	1.07	3.15	3.12	3	3.87	2.75	5.36	3.29	1.42	2.3	7.87	2.99

Bolded and shaded values exceed the PEC Underlined values exceed the Ohio SRV

FD = Field Duplicate

FID = Fried Duplicate
J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

J+= Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased high).

J= Compound was detected, but result is below the reporting limit and greater than or equal to the method

detection limit (value is estimated and potentially biased low).

mg/kg = milligrams per kilogram

MR = Maumee River

NSL = No Screening Level

SC = Swan Creek

U = Compound was analyzed but not detected.

UJ = Compound was analyzed but not detected. The reported quantitation limit is approximate.
PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality

Guidelines for Freshwater Ecosystems (MacDonald et al. 2000).

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality

Guidelines for Freshwater Ecosystems (MacDonald et al. 2000). TOC = Total Organic Carbon



				Location ID:	SC21-MR03-B	SC21-MR04	SC21-MR04	SC21-MR04	SC21-MR04	SC21-MR05	SC21-MR05	SC21-MR05	SC21-MR06	SC21-MR06	SC21-MR06	SC21-MR06	SC21-MRREF	SC21-MRREF
			-	Sample Name:	SC21-MR03-B-2040			0 SC21-MR04-2040	SC21-MR04-4060	SC21-MR05-0010	SC21-MR05-1020		SC21-MR06-0010	SC21-MR06-1020	SC21-MR06-SURF	SC21-MR06-SURFFD	SC21-MRREF-0010	SC21-MRREF-1020
				Sample Date:	11/8/2021	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/5/2021	11/5/2021	11/5/2021	11/7/2021	11/7/2021	11/8/2021	11/8/2021	11/9/2021	11/9/2021
		1		h Interval (ft):	2-4	0-1	1-2	2-4	4-6	0-1	1-2	2-4	0-1	1-2	0-0.5	0-0.5	0-1	1-2
Analyte	TEC	PEC	Ohio SRV	Unit														
Aluminum	NSL	NSL	42000	mg/kg	9450 J	26900	27800	16600	15900	14400	10500	9640	16500	14600	9440 J	18900 J	22100	19800
Antimony	NSL	NSL	0.84	mg/kg	6.4 U	12.9 UJ	11.2 UJ	6.1 UJ	9.4 UJ	9.6 UJ	7.7 UJ	8.4 UJ	7.9 U	6.3 U	5 U	10.8 U	10.7 U	8 U
Arsenic	9.79	33	11	mg/kg	<u>22.6 J</u>	10.5	<u>12.5</u>	6.8	<u>13.7</u>	<u>26.9</u>	<u>20.4</u>	5.8	<u>65.2</u>	<u>16.1</u>	<u>28</u>	<u>45.9</u>	8.9	8.3
Barium	NSL	NSL	210	mg/kg	96.4	159	162	106	110	124	85.7	63.3	183	116	93.5	168	129	120
Beryllium	NSL	NSL	0.8	mg/kg	0.45 J	<u>1.1</u>	<u>1.2</u>	0.76	0.69 J	0.7 J	0.48 J	0.44 J	0.84	0.68	0.46	<u>0.89 J</u>	<u>0.93</u>	<u>0.86</u>
Cadmium	0.99	4.98	0.96	mg/kg	0.75	0.76 J	0.7 J	0.24 J	0.39 J	<u>1.4</u>	0.63 J	0.31 J	<u>1.8</u>	0.71	0.59	0.94	0.76 J	0.75
Calcium	NSL	NSL	110000	mg/kg	56800	40800	44700	59100	110000	40100	46600	40200	38200	46000	17400 J	35600 J	33700	29700
Chromium	43.4	111	51	mg/kg	17.1	36.7	37.7	25	25.7	44 J	17.7 J	14.7 J	27.7	25.2 J	15.5 J	29 J	31.2	29.2
Cobalt	NSL	NSL	12	mg/kg	6.6	12.5	13.5	11.1	14.9	9.2	7.6	7.5	10	8.6	5.5	10.6	10.7	10
Copper	31.6	149	42	mg/kg	60.5 J	39.6	37.6	22.9	31.2	68.7 J	54.1 J	16.4 J	132	57.2	46.2	69.9	32.1	30.1
Iron	NSL	NSL	44000	mg/kg	17700	32900	33600	23500	30200	21300	17200	18200	27200	22400	15000 J	27400 J	28600	26100
Lead	35.8	128	47	mg/kg	139 J	26.6	22.5	10.6	13.9	147	98.2	8.7	315	143	116 J	338 J	21.3	22.5
Magnesium	NSL	NSL	29000	mg/kg	20000	12300	13000	13900	23800	10900	13000	12200	11300	11100	5350 J	11200 J	11300	9870
Manganese	NSL	NSL	1000	mg/kg	310 J	643	670	414	640	348 J	315 J	381 J	374	344	250 J	457 J	388	356
Mercury	0.18	1.06	0.12	mg/kg	1.5	0.045 J	0.042 J	0.14 U	0.16 U	<u>1.1</u>	0.8	0.038 J	4.4	1.1	4.3 J	2.5 J	0.07 J	0.074 J
Nickel	22.7	48.6	36	mg/kg	18.7	35.6	37.1	30.9	40.1	27.9	19.1	18.6	33	25.4	16.3	30.7	31.3	30
Potassium	NSL	NSL	12000	mg/kg	1900	5970	5990	4990	5080	3180	2360	2330	3080	2750	1780	3620	4420	3760
Selenium	NSL	NSL	1.4	mg/kg	3.8 U	7.5 U	6.5 U	3.6 U	5.5 U	5.6 U	4.5 U	4.9 U	4.6 U	3.7 U	2.9 U	6.3 U	6.2 U	4.7 U
Silver	NSL	NSL	0.43	mg/kg	0.97 J	2.2 U	1.9 U	1 U	1.6 U	0.44 J	0.6 J	1.4 U	3.4	0.91 J	1.5	1.2 J	1.8 UJ	1.3 UJ
Sodium	NSL	NSL	NSL	mg/kg	161 J	227 J	256 J	241 J	359 J	179 J	182 J	153 J	198 J	204 J	94.1 J	175 J	157 J	140 J
Thallium	NSL	NSL	4.7	mg/kg	2.7 U	5.4 U	4.7 U	2.5 U	3.9 U	4 U	3.2 U	3.5 U	3.3 U	2.6 U	2.1 U	4.5 U	4.5 U	3.3 U
Vanadium	NSL	NSL	40	mg/kg	22.3	53.1	56.6	37.4	40.2	33.2	26.4	23.8	36.6	32.3	20.4	41.1	45.4	40.3
Zinc	121	459	190	mg/kg	219 J	153	150	60.9	71.9	208	170	49.2	616	217	234	327	124	123
Total Organic Carbon	NSL.	NSL	NSL	%	2.58	2.49	2.48	1.46	1.15	2.81	2.63	1.93	3.44	2.94	3.49	1.51	2.41	2.12
Total Olfaine Caroon	1.00	1.00	TIDE	70	2.50	2.77	2.70	2.40	1.13	2.01	2.03	1.75	3.11	2.77	5.47	1.51	2.71	2.12

Bolded and shaded values exceed the PEC

Underlined values exceed the Ohio SRV

FD = Field Duplicate

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J= Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

J+= Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased high).

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detection limit (value is estimated and potentially biased low).

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				Location ID:	SC21-MRREF	SC21-MRREF	SC21-MRREF	SC21-MRREF	SC21-SC01	SC21-SC02	SC21-SC02	SC21-SC02	SC21-SC03	SC21-SC03	SC21-SC03	SC21-SC04	SC21-SC04	SC21-SC04	SC21-SC04
			~	Sample Name:		SC21-MRREF-4060		SC21-MRREF-SURF	SC21-SC01-SURF	SC21-SC02-0010	SC21-SC02-1020	SC21-SC02-2040		SC21-SC03-1020		SC21-SC04-0010		SC21-SC04-2040	
				Sample Date:	11/9/2021	11/9/2021	11/9/2021	11/8/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021
				n Interval (ft):	2-4	4-6	6-8	0-0.5	0-0.5	0-1	1-2	2-4	0-1	1-2	2-4	0-1	1-2	2-4	4-6
Analyte	TEC	PEC	Ohio SRV	Unit															
Aluminum	NSL	NSL	42000	mg/kg	15300	12300	13400	20300	5160	7350	4440	4320	8900	13600	8330	4200 J	4280 J	4130 J	2860 J
Antimony	NSL	NSL	0.84	mg/kg	7.2 U	6.1 U	6.7 U	11.7 U	6.7 U	8.5 U	7.7 U	6 U	9.5 U	10.3 U	7.5 U	5.8 U	7 U	6.4 U	5.9 U
Arsenic	9.79	33	11	mg/kg	<u>25.6</u>	10.8	11	7.1	<u>13.1</u>	4.7	3.1	3.8	7.5	<u>169</u>	4	3 J	3.1 J	2.9 J	1.5
Barium	NSL	NSL	210	mg/kg	110	80.9	92.1	118	50.4	58.7	42.3	45	84.1	162	49.3	26.8	22.6 J	22.1	15 J
Beryllium	NSL	NSL	0.8	mg/kg	0.73	0.59	0.7	<u>0.86 J</u>	0.42 J	0.35 J	0.22 J	0.23 J	0.42 J	0.72 J	0.34 J	0.2 J	0.19 J	0.19 J	0.13 J
Cadmium	0.99	4.98	0.96	mg/kg	<u>1.1</u>	0.42 J	0.41 J	0.57 J	0.16 J	0.36 J	0.44 J	0.92	<u>1.1</u>	3.1	0.22 J	0.2 J	0.58 U	0.53 U	0.49 U
Calcium	NSL	NSL	110000	mg/kg	38900	32700	36100	32100	64500	22600	15900	25300	27000	36700	46000	26700	29100	24700	17200
Chromium	43.4	111	51	mg/kg	25.2	19	20.6	27.9	9.4	14.6	9.6	10.3	18.4 J	27.6 J	13.4 J	9.2	7.7	7.2	5.3
Cobalt	NSL	NSL	12	mg/kg	9	7.9	9.2	9.9	6.3	5.1 J	3.4 J	4.9 J	6.6 J	10.1	6.8	4.3 J	4.6 J	4.5 J	3.4 J
Copper	31.6	149	42	mg/kg	35.1	27.8	29.7	27.9	25.6	29.5	39.1	50.3	43.4	190	15.4	42.7 J	19.2 J	7.9 J	5.4
Iron	NSL	NSL	44000	mg/kg	22300	17900	21800	25300	17000	11900	7840	8790	15100	28900	14700	7990	8070	7450	4880
Lead	35.8	128	47	mg/kg	48.3	35.7	42.4	18	20.8	23.5	40.5	32.4	58.3	718	9.2	15.2 J	5.8 J	4.6 J	3.6
Magnesium	NSL	NSL	29000	mg/kg	10700	10100	12200	9710	18200	7430	4970	7130	9220	10800	9800	6480	6890	5710	4360
Manganese	NSL	NSL	1000	mg/kg	394	310	360	331	332 J	300 J	175 J	191 J	280	359	324	124 J	133 J	118 J	84.3
Mercury	0.18	1.06	0.12	mg/kg	0.23 J	0.25 J	0.18 J	0.041 J	0.12 U	0.023 J	0.035 J	0.052 J	0.072 J	2.7	0.13 U	0.029 J	0.13 U	0.13 U	0.11 U
Nickel	22.7	48.6	36	mg/kg	25.6	20.7	24.1	28.1	15.6	12.3	8.1	10.9	16.3	46.1	16.2	9.6	9.8	8.9	6.5
Potassium	NSL	NSL	12000	mg/kg	3090	2380	2550	4270	1460	1600	995	966	1870	2460	1790	986	1020	979	630
Selenium	NSL	NSL	1.4	mg/kg	4.2 U	3.6 U	3.9 U	6.8 U	3.9 U	5 U	4.5 U	3.5 U	5.6 U	6 U	4.4 U	3.4 U	4.1 U	3.7 U	3.4 U
Silver	NSL	NSL	0.43	mg/kg	1.2 UJ	1 UJ	1.1 UJ	2 UJ	1.1 U	1.4 U	1.3 U	0.99 U	1.6 U	1.4 J	1.2 U	0.97 U	1.2 U	1.1 U	0.98 U
Sodium	NSL	NSL	NSL	mg/kg	148 J	123 J	138 J	977 U	169 J	202 J	144 J	186 J	990	1520	516 J	158 J	171 J	138 J	82.1 J
Thallium	NSL	NSL	4.7	mg/kg	3 U	2.6 U	2.8 U	4.9 U	2.8 U	3.6 U	3.2 U	2.5 U	4 U	4.3 U	3.1 U	2.4 U	2.9 U	2.7 U	2.4 U
Vanadium	NSL	NSL	40	mg/kg	33.9	27.6	32	41.4	14.1	19	11.4	11.3	22	33.3	20.4	12.2	13.4	12.6	8.9
Zinc	121	459	190	mg/kg	149	101	96.8	105	65.2	99.9	117	73.8	141	<u>956</u>	47.9	32.7 J	23.4 J	24.5 J	15.3
Total Organic Carbon	NSL	NSL	NSL	%	2.47	2.15	2.93	2.58	2.87	2.9	2.35	1.39	3.42	4.01	1.67	0.976	0.851	1.11	0.564

NOTES: Bolded values exceed the TEC Bolded and shaded values exceed the PEC

Underlined values exceed the Ohio SRV

FD = Field Duplicate

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method

J= Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

J+= Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased high).

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detection limit (value is estimated and potentially biased low).

mg/kg = milligrams per kilogram

MR = Maumee River

NSL = No Screening Level

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U = Compound was analyzed but not detected.

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PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality

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TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality

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$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$																				
Second Process Sec					Location ID:															SC21-SC09
Name NSL NSL All NSL All NSL All NSL All					pro-															
Analyte TEC PEC Ohio SRV Unit																			1	
Aluminum	·					4-6	6-8	0-0.5	0-1	1-2	2-4	0-1	1-2	2-4	2-4	4-6	0-1	0-1	1-2	2-4
Antimony NSL NSL 0.84 mg/kg 5.6 U 6.7 U 6.7 U 5.8 U 5.2 U 4.9 U 6.4 UJ 7 UJ 5.9 UJ 5.4 UJ 6.1 UJ 6.8 U 7.3 U 7.3 U 6.4 U Arsenic 9.79 33 11 mg/kg 1.9 J 3.6 J 4.7 4.7 4.7 4.5 J 6.1 11.3 10.3 10.2 11 9.3 6.4 9.1 11.1 9.7 6.1 11.1 9.7 6.1 11.1 9.7 6.1 11.2 9.7 11.2 9.9 1.2 9.2 11.2 9.2 9.2 9.2 9.2 9.2 9.2 9.2 9.2 9.2 9	Analyte				/ Unit															
Abeneix 9.79 33	Aluminum		NSL	42000	mg/kg												11800			
Barium	Antimony			0.84	mg/kg	5.6 U					4.9 U		7 UJ				6.8 U	7.3 U	7.3 U	
Beryllium NSL NSL 0.8 mg/kg 0.17J 0.24J 0.19J 0.61 0.44 0.42 0.62 0.7 0.65 0.69 0.68 0.49J 0.67 0.73 0.35J	Arsenic	9.79	33	11	mg/kg		3.6 J		4.7 J		6 J	<u>11.3</u>	10.3	10.2				9.1	<u>11.1</u>	9.7
Cadmium	Barium	NSL	NSL	210	mg/kg	20.2	28.8	34.1	68	58.2	72.3	84.2	95.6	83.3	89.5	83.7	76.8	105	127	61.1
Calcium NSL NSL 110000 mg/kg 18300 29500 30900 58800 66500 63000 44300 39600 48800 49600 51400 68400 23200 21800 57500	Beryllium	NSL	NSL	0.8	mg/kg	0.17 J	0.24 J	0.19 J	0.61	0.44	0.42	0.62	0.7	0.65	0.69	0.68	0.49 J	0.67	0.73	0.35 J
Chromium	Cadmium	0.99	4.98	0.96	mg/kg	0.12 J	0.15 J	0.2 J	0.48 U	0.13 J	0.23 J	0.64	0.32 J	0.22 J	0.27 J	0.26 J	0.16 J	<u>1.4</u>	<u>2.5</u>	<u>1.8</u>
Cobalt NSL NSL 12 mg/kg 4.2 J 5.4 J 3.5 J 10.7 8.2 8 10.6 11.3 11.2 11.6 11.4 8.8 8.5 9.5 7.4	Calcium	NSL	NSL	110000	mg/kg	18300	29500	30900	58800	66500	63000	44300	39600	48800	49600	51400	68400	23200	21800	57500
Copper 31.6 149 42 mg/kg 6.4 J 9.5 J 34.1 20.8 J 20.4 J 25.6 J 156 48.5 24.5 25.9 28.1 19.2 85.5 126 469	Chromium	43.4	111	51	mg/kg	6.6	9.5	7.7	21.2	16.4	15.4	21.5	22.7	22.7	22.7	21.6	17.9	29.1	37.2	16.5
From NSL NSL 44000 mg/kg 6260 8710 7910 22300 17300 18200 23200 24100 24000 24700 23600 18800 21700 24400 1480	Cobalt	NSL	NSL	12	mg/kg	4.2 J	5.4 J	3.5 J	10.7	8.2	8	10.6	11.3	11.2	11.6	11.4	8.8	8.5	9.5	7.4
Lead 35.8 128 47 mg/kg 5.6 J 5.5 J 32.8 9.1 J 9.3 J 7.8 J 154 41.6 17.9 19.6 22.6 8.8 114 179 312 Magnesium NSL NSL 29000 mg/kg 4870 8010 7020 12700 12400 13500 15100 14300 15700 17300 14700 15000 9100 8590 11300 Magnesium NSL NSL 1000 mg/kg 4870 8010 7020 12700 12400 13500 15100 14300 15700 17300 14700 15000 9100 8590 11300 Magnese NSL NSL 1100 mg/kg 94.8 J 153 J 206 J 422 J 379 J 331 J 526 442 495 537 533 343 444 546 343 Miccury 0.18 1.06 0.12 mg/kg 8.5 11.3 7.5 25 20.6 22.4 22.6 29.6 28.6 29.6 28.8	Copper	31.6	149	42	mg/kg	6.4 J	9.5 J	34.1	20.8 J	20.4 J	25.6 J	<u>156</u>	48.5	24.5	25.9	28.1	19.2	<u>85.5</u>	126	<u>469</u>
Magnesium NSL NSL 2900 mg/kg 4870 8010 7020 12700 12400 13500 15100 14300 15700 17300 14700 15000 9100 8590 11300 Magnesium NSL NSL 1000 mg/kg 94.8 J 153 J 206 J 422 J 379 J 331 J 526 442 495 537 533 343 444 546 343 Mercury 0.18 1.06 0.12 mg/kg 0.11 U 0.021 J 0.12 U 0.035 J 0.11 U 0.092 J 0.057 J 0.016 J 0.022 J 0.02 J 0.1 U 0.21 U 0.51 U 0.67 Nickel 22.7 48.6 36 mg/kg 8.5 11.3 7.5 25 20.6 22.4 26.8 29.1 28.6 29.6 28.8 24.4 23.6 28.7 19.4 Potassium NSL NSL 1.4 mg/kg 3.3 U 3.9 U 3.4 U 3.0 U	Iron	NSL	NSL	44000	mg/kg	6260	8710	7910	22300	17300	18200	23200	24100	24000	24700	23600	18800	21700	24400	14800
Manganese NSL NSL 1000 mg/kg 94.8 J 153 J 206 J 422 J 379 J 331 J 526 442 495 537 533 343 444 546 343 Mercury 0.18 1.06 0.12 mg/kg 0.11 U 0.021 J 0.12 U 0.035 J 0.11 U 0.092 J 0.057 J 0.016 J 0.022 J 0.02 J 0.1 U 0.21 U 0.51 U 0.67 Nickel 22.7 48.6 36 mg/kg 8.5 11.3 7.5 25 U 20.6 22.4 26.8 29.1 28.6 29.6 28.8 24.4 23.6 28.7 19.4 Potassium NSL NSL 12000 mg/kg 777 1160 916 3980 2780 2940 2940 3430 3500 3600 3680 2370 2590 1480 Selenium NSL NSL 1.4 mg/kg 3.3 U 3.9 U 3.4 U 3.0 U 3.7 U 4.1 U	Lead	35.8	128	47	mg/kg	5.6 J	5.5 J	32.8	9.1 J	9.3 J	7.8 J	<u>154</u>	41.6	17.9	19.6	22.6	8.8	114	<u>179</u>	312
Mercury 0.18 1.06 0.12 mg/kg 0.11 U 0.021 J 0.021 J 0.092 J 0.057 J 0.016 J 0.022 J 0.02 J<	Magnesium	NSL	NSL	29000	mg/kg	4870	8010	7020	12700	12400	13500	15100	14300	15700	17300	14700	15000	9100	8590	11300
Nickel 22.7 48.6 36 mg/kg 8.5 11.3 7.5 25 20.6 22.4 26.8 29.1 28.6 29.6 28.8 24.4 23.6 28.7 19.4 Potassium NSL NSL 12000 mg/kg 777 1160 916 3980 2780 2940 2940 3450 3430 3500 3600 3680 2370 2590 1480 Selenium NSL NSL 1.4 mg/kg 3.3 U 3.9 U 3.4 U 3 U 2.9 U 3.7 U 4.1 U 3.4 U 3.1 U 3.6 U 4 U 4.3 U 4.3 U 3.7 U Silver NSL NSL 0.43 mg/kg 0.93 U 1.1 U 0.97 U 0.86 U 0.81 U 1.1 U 1.2 U 0.98 U 0.9 U 1 U 1.1 U 1.2 U 0.76 J 0.21 J	Manganese	NSL	NSL	1000	mg/kg	94.8 J	153 J	206 J	422 J	379 J	331 J	526	442	495	537	533	343	444	546	343
Potassium NSL NSL 12000 mg/kg 777 1160 916 3980 2780 2940 2940 3450 3430 3500 3600 3680 2370 2590 1480 Selenium NSL NSL 1.4 mg/kg 3.3 U 3.9 U 3.4 U 3 U 2.9 U 3.7 U 4.1 U 3.4 U 3.1 U 3.6 U 4 U 4.3 U 4.3 U 3.7 U Silver NSL 0.43 mg/kg 0.93 U 1.1 U 1.1 U 0.97 U 0.86 U 0.81 U 1.1 U 1.2 U 0.98 U 0.9 U 1 U 1.1 U 1.2 U 0.76 J 0.21 J	Mercury	0.18	1.06	0.12	mg/kg	0.11 U	0.12 U	0.021 J	0.12 U	0.035 J	0.11 U	0.092 J	0.057 J	0.016 J	0.022 J	0.02 J	0.1 U	0.21	0.51	0.67
Selenium NSL NSL 1.4 mg/kg 3.3 U 3.9 U 3.9 U 3.4 U 3 U 3.7 U 4.1 U 3.4 U 3.1 U 3.6 U 4 U 4.3 U 4.3 U 4.3 U 3.7 U Silver NSL NSL 0.43 mg/kg 0.93 U 1.1 U 1.1 U 0.97 U 0.86 U 0.81 U 1.1 U 1.2 U 0.98 U 0.9 U 1 U 1.1 U 1.2 U 0.76 J 0.21 J	Nickel	22.7	48.6	36	mg/kg	8.5	11.3	7.5	25	20.6	22.4	26.8	29.1	28.6	29.6	28.8	24.4	23.6	28.7	19.4
Silver NSL NSL 0.43 mg/kg 0.93 U 1.1 U 1.1 U 0.97 U 0.86 U 0.81 U 1.1 U 1.2 U 0.98 U 0.9 U 1 U 1.1 U 1.2 U 0.76 J 0.21 J	Potassium	NSL	NSL	12000	mg/kg	777	1160	916	3980	2780	2940	2940	3450	3430	3500	3600	3680	2370	2590	1480
	Selenium	NSL	NSL	1.4	mg/kg	3.3 U	3.9 U	3.9 U	3.4 U	3 U	2.9 U	3.7 U	4.1 U	3.4 U	3.1 U	3.6 U	4 U	4.3 U	4.3 U	3.7 U
C. J	Silver	NSL	NSL	0.43	mg/kg	0.93 U	1.1 U	1.1 U	0.97 U	0.86 U	0.81 U	1.1 U	1.2 U	0.98 U	0.9 U	1 U	1.1 U	1.2 U	0.76 J	0.21 J
SOULUIN NOE NO	Sodium	NSL	NSL	NSL	mg/kg	92.2 J	98.8 J	104 J	205 J	167 J	175 J	230 J	241 J	242 J	259 J	266 J	230 J	190 J	184 J	173 J
Thallium NSL NSL 4.7 mg/kg 2.3U 2.8U 2.8U 2.4U 2.2U 2.0 2.7U 2.9U 2.5U 2.2U 2.5U 3.1U 3.0 3.1U 3.0 3.7U	Thallium	NSL	NSL	4.7	mg/kg	2.3 U	2.8 U	2.8 U	2.4 U	2.2 U	2 U	2.7 U	2.9 U	2.5 U	2.2 U	2.5 U	2.8 U	3.1 U	3 U	2.7 U
Vanadium NSL NSL 40 mg/kg 11 15.6 9.6 29.6 23.9 22.8 33.4 37.9 35.7 37.5 34.8 27.9 30.3 31.9 19.3	Vanadium	NSL	NSL	40	mg/kg	11	15.6	9.6	29.6	23.9	22.8	33.4	37.9	35.7	37.5	34.8	27.9	30.3	31.9	19.3
Zinc 121 459 190 mg/kg 18.8 J 29 J 75.3 49.2 J 43.5 J 48.6 J 167 85 64 68.1 69.2 43.7 201 306 303	Zinc	121	459	190	mg/kg	18.8 J	29 J	75.3	49.2 J	43.5 J	48.6 J	167	85	64	68.1	69.2	43.7	201	306	303
Total Organic Carbon NSL NSL NSL NSL NSL % 0.459 0.819 0.772 0.621 0.854 0.882 1.19 0.738 0.727 0.706 1.43 0.918 2.78 3.63 1.94	Total Organic Carbon	NSL	NSL	NSL	%	0.459	0.819	0.772	0.621	0.854	0.882	1.19	0.738	0.727	0.706	1.43	0.918	2.78		1.94

Bolded and shaded values exceed the PEC

Underlined values exceed the Ohio SRV

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detection limit (value is estimated and potentially biased low).

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TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality

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				Location ID:	SC21-SC10	SC21-SC11	SC21-SC11	SC21-SC11	SC21-SC11	SC21-SC11	SC21-SC12	SC21-SC12	SC21-SC12	SC21-SC13	SC21-SC13	SC21-SC13	SC21-SC14	SC21-SC15	SC21-SC15
			-	ample Name:	SC21-SC10-0010			SC21-SC11-1020			SC21-SC12-0010	SC21-SC12-1020					SC21-SC14-SURF		SC21-SC15-1020
				Sample Date:	11/5/2021	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/9/2021	11/11/2021	11/11/2021	11/11/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/7/2021	11/7/2021
				Interval (ft):	0-1	0-1	0-1	1-2	2-4	0-0.5	0-1	1-2	2-4	0-1	1-2	2-4	0-0.5	0-1	1-2
Analyte	TEC	PEC	Ohio SRV	Unit	12000	0.050	#2 00	#110	0.100	4,5500	4.5.00 T	22500 1	15100 7	12200	14000	12100	12000	40,000	12500
Aluminum	NSL	NSL	42000	mg/kg	13000	8070	7380	5110	8480	15500	17600 J+	22700 J+	15400 J+	13300	11900	13400	12800	10700	12700
Antimony	NSL	NSL	0.84	mg/kg	4.9 UJ	6.6 U	8.2 U	7.1 U	9.8 U	11 U	5.4 UJ	6.5 UJ	6.1 UJ	10.3 U	10.9 U	8 U	11.1 U	9.9 U	9.4 U
Arsenic	9.79	33	11	mg/kg	8.3	9.5	8.7	10.2	8.4	9	8.8 J	<u>11.3 J+</u>	9.9 J	9	7.6	<u>11.4</u>	8	<u>17.7</u>	9.9
Barium	NSL	NSL	210	mg/kg	85.6	74.8	59.4	43.6	68.3	110	101	137	101	104	107	154	92.2	139	137
Beryllium	NSL	NSL	0.8	mg/kg	0.57	0.57	0.35 J	0.29 J	0.38 J	0.69 J	0.87 J+	<u>1.1 J+</u>	0.76 J+	0.63 J	0.58 J	0.7	0.56 J	0.59 J	0.65 J
Cadmium	0.99	4.98	0.96	mg/kg	0.23 J	0.74	0.67 J	0.82	0.52 J	0.59 J	0.47 J+	0.6 J+	0.55 J+	0.68 J	0.64 J	<u>3.1</u>	0.51 J	<u>2.1</u>	<u>2.2</u>
Calcium	NSL	NSL	110000	mg/kg	92100	44600	49800	41600	72600	29400	81900	96900	79300	29800	36400	26700	31500	30000	33100
Chromium	43.4	111	51	mg/kg	20.6	15.6	13.4	14.3	13.9	25.7	27.3 J+	34.9 J+	24.1 J+	23.3	22.7	39.3	21.1	36.2 J	36 J
Cobalt	NSL	NSL	12	mg/kg	10	6.4	6.3 J	5.7 J	7.8 J	8.8 J	13.9 J+	<u>17.4 J+</u>	<u>12.4 J+</u>	8.5 J	8.8 J	8.9	7.8 J	8.5	8.8
Copper	31.6	149	42	mg/kg	23.3	<u>316 J</u>	<u>63.3 J</u>	<u>93.3</u>	<u>110</u>	<u>44.1</u>	26	30.5	25.8	<u>47.7</u>	<u>88.1</u>	<u>168</u>	<u>45.4</u>	<u>292</u>	<u>173</u>
Iron	NSL	NSL	44000	mg/kg	21100	19100	13400	12200	14000	20800	25400 J+	32100 J+	24000 J+	22100	22100	24200	19300	20000	22700
Lead	35.8	128	47	mg/kg	9.5	<u>85.1 J</u>	40.5 J	<u>121</u>	24.5	40.8	12.7 J+	13.8 J+	10.7 J+	37.8	<u>53.3</u>	<u>302</u>	<u>49.4</u>	<u>313</u>	<u>287</u>
Magnesium	NSL	NSL	29000	mg/kg	17200	12800	12600	8860	13400	11800	17300	21900	17800	11300	12800	10900	11000	10900	12600
Manganese	NSL	NSL	1000	mg/kg	382 J	371	362	230	484	535 J	470 J	577 J+	435 J	633	530	444	479 J	394	473
Mercury	0.18	1.06	0.12	mg/kg	0.11 U	0.049 J	0.069 J	<u>0.13</u>	0.18 U	0.055 J	0.12 UJ	0.13 UJ	0.11 UJ	0.067 J	0.079 J	<u>0.92 J</u>	0.049 J	0.27	<u>0.36</u>
Nickel	22.7	48.6	36	mg/kg	27.9	17	15	17.7	18.4	24.3	40.4 J+	50.4 J+	36.6 J+	21.6	21.9	29.9	19	31.3	29.4
Potassium	NSL	NSL	12000	mg/kg	4270	1710	1680	1170	2160	3200	5970	6830	5200	2770	2490	2660	2630	2100	2470
Selenium	NSL	NSL	1.4	mg/kg	2.9 U	3.9 U	4.8 U	4.2 U	5.7 U	6.4 U	3.2 U	3.8 U	3.6 U	6 U	6.3 U	4.7 U	6.5 U	5.8 U	5.5 U
Silver	NSL	NSL	0.43	mg/kg	0.82 U	1.1 U	1.4 U	1.2 U	1.6 U	1.8 U	0.9 U	1.1 U	1 U	1.7 UJ	1.8 UJ	<u>1 J</u>	1.9 U	0.66 J	0.47 J
Sodium	NSL	NSL	NSL	mg/kg	247 J	222 J	197 J	149 J	258 J	243 J	338 J	381 J	309 J	277 J	229 J	214 J	236 J	190 J	203 J
Thallium	NSL	NSL	4.7	mg/kg	2.1 U	2.8 U	3.4 U	3 U	4.1 U	4.6 U	2.3 U	2.7 U	2.6 U	4.3 U	4.5 U	3.3 U	4.6 U	4.1 U	3.9 U
Vanadium	NSL	NSL	40	mg/kg	32.7	19.3	18.2	17.5	23	33.9	44.5	<u>57</u>	40	30.7	28.3	30.4	30.2	26.5	30
Zinc	121	459	190	mg/kg	53	144	107	106	57.7	167	69.9 J+	81.8 J+	62.9 J+	166	167	390	153	405	386
Total Organic Carbon	NSL	NSL	NSL	%	1.13	2.34	1.78	1.92	3.21	4.11	1.12	1.05	0.948	5.05	2.78	4.3	2.97	3.04	4.99

Bolded and shaded values exceed the PEC Underlined values exceed the Ohio SRV

FD = Field Duplicate

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J= Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

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mg/kg = milligrams per kilogram

MR = Maumee River NSL = No Screening Level

SC = Swan Creek

U = Compound was analyzed but not detected.

UI = Compound was analyzed but not detected. The reported quantitation limit is approximate.
PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000).

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000).

TOC = Total Organic Carbon



EA Project No.: 15834.06 EA Engineering, Science, and Technology, Inc., PBC Version: Revision 01 Table 3-3a. Core and Surface Grab Sediment Results for Metals and TOC

				Location ID:	SC21-SC15	SC21-SC16	SC21-SC16	SC21-SC16	SC21-SC16	SC21-SC17	SC21-SC17	SC21-SC17	SC21-SC17	SC21-SC17	SC21-SC18	SC21-SC19	SC21 SC10	SC21-SC19	SC21-SC19	SC21-SC20
				. Location ID: Sample Name:		SC21-SC16-0010						SC21-SC17-2040			SC21-SC18-SURF		SC21-SC19-1020	SC21-SC19-2040	SC21-SC19-4060	
			-	Sample Date:		11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/9/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021
				h Interval (ft):	2-4	0-1	1-2	2-4	4-6	0-1	1-2	2-4	4-6	6-8	0-0.5	0-1	1-2	2-4	4-6	0-1
Analyte	TEC	PEC	Ohio SRV	Unit																•
Aluminum	NSL	NSL	42000	mg/kg	11300	12400	7660	8750	16100	12800	10800	12800	16700	9380	13600	11000	15800	13700	13200	12500
Antimony	NSL	NSL	0.84	mg/kg	<u>4.2 J</u>	8.5 U	6.2 U	5.9 U	6.7 U	9.6 U	6.5 U	7.9 U	8.5 U	5.8 U	8.8 U	8.8 J	7.7 UJ	8.4 UJ	6.6 UJ	5.2 UJ
Arsenic	9.79	33	11	mg/kg	<u>35.6</u>	9.6	7.7	6.3	8	<u>16.1</u>	<u>21</u>	11.8	<u>11.3</u>	6.2	10	14.9	10.1	7.2	6.9	11
Barium	NSL	NSL	210	mg/kg	<u>245</u>	107	58.7	61.7	104	142	90.6	88.2	108	60.3	127	125	121	106	94	83.8
Beryllium	NSL	NSL	0.8	mg/kg	0.66 J	0.62 J	0.39 J	0.46 J	0.76	0.69 J	0.57	0.64 J	0.85	0.48 J	0.68 J	0.72	0.88	0.74	0.61	0.51
Cadmium	0.99	4.98	0.96	mg/kg	<u>5.6</u>	<u>1.7</u>	0.59	0.34 J	0.43 J	<u>2.9</u>	<u>1.6</u>	0.81	0.79	0.35 J	<u>2.5</u>	<u>3.3</u>	0.65	0.36 J	0.27 J	0.15 J
Calcium	NSL	NSL	110000	mg/kg	29500	34900	62300	34100	30400	34200	42000	43100	36300	30700	23900	49100	36600	37300	51400	<u>132000</u>
Chromium	43.4	111	51	mg/kg	50.2 J	32.4 J	16.2 J	14.1 J	24.2 J	29.3	20.6	<u>430</u>	24.4	14.3	33.1	<u>1820 J</u>	63.5 J	28.6 J	38.1 J	20.5 J
Cobalt	NSL	NSL	12	mg/kg	8.7	8.9	6.9	6.4	9.4	10.2	7.6	10.5	11.3	7.1	9.3	10.2	10.8	9.2	9.1	11.1
Copper	31.6	149	42	mg/kg	<u>275</u>	90.1	<u>57.4</u>	30.4	38.5	<u>256</u>	<u>96.8</u>	<u>57.7</u>	<u>47.6</u>	20.7	<u>110</u>	<u>1210 J</u>	82.7 J	<u>45.1 J</u>	40.7 J	31.5 J
Iron	NSL	NSL	44000	mg/kg	23800	21700	15500	16000	26300	20300	18200	21200	23400	15200	22900	19400	26700	20800	20200	23200
Lead	35.8	128	47	mg/kg	<u>639</u>	<u>158</u>	<u>77</u>	<u>63.1</u>	<u>59.1</u>	<u>537</u>	<u>191</u>	<u>92.7</u>	<u>87.1</u>	35.5	<u>211</u>	<u>401</u>	<u>129</u>	<u>127</u>	40.6	10.5
Magnesium	NSL	NSL	29000	mg/kg	10200	9890	15700	10300	10000	10700	15800	11800	11000	8230	9930	12100	11300	11600	13300	17700
Manganese	NSL	NSL	1000	mg/kg	347	533	360	287	471	449	435	447	461	350	306	380 J	421 J	339 J	367 J	468 J
Mercury	0.18	1.06	0.12	mg/kg	<u>1.3</u>	<u>0.44</u>	<u>0.47</u>	0.38	0.38	<u>0.44</u>	<u>0.54</u>	<u>0.4</u>	<u>0.47</u>	0.23	<u>0.44</u>	<u>0.64</u>	<u>0.79</u>	<u>0.83</u>	0.29	0.12 U
Nickel	22.7	48.6	36	mg/kg	34.3	24.6	17.3	16.9	27.1	27	21.6	26.3	31.5	17.2	28.4	<u>60.2</u>	29.7	23	23.9	28.8
Potassium	NSL	NSL	12000	mg/kg	2190	2270	1610	1740	3020	2480	2030	2360	3390	1870	2600	2240	3290	2830	3050	4130
Selenium	NSL	NSL	1.4	mg/kg	5.6 U	4.9 U	3.6 U	3.4 U	3.9 U	5.6 U	3.8 U	4.6 U	5 U	3.4 U	5.1 U	4.4 U	4.5 U	4.9 U	3.8 U	3 U
Silver	NSL	NSL	0.43	mg/kg	<u>1.5 J</u>	<u>2.7</u>	1 U	0.98 U	1.1 U	<u>0.78 J</u>	0.26 J	1.3 U	1.4 U	0.97 U	0.35 J	<u>5.9</u>	1.3 U	1.4 U	1.1 U	0.86 U
Sodium	NSL	NSL	NSL	mg/kg	239 J	285 J	248 J	192 J	188 J	350 J	309 J	324 J	253 J	171 J	176 J	368 J	345 J	252 J	221 J	284 J
Thallium	NSL	NSL	4.7	mg/kg	4 U	3.5 U	2.6 U	2.4 U	2.8 U	4 U	2.7 U	3.3 U	3.6 U	2.4 U	3.7 U	3.2 U	3.2 U	3.5 U	2.7 U	2.2 U
Vanadium	NSL	NSL	40	mg/kg	27.2	28.7	19.9	21.6	35.3	30.5	25.5	31.4	39.2	23	30.7	30.5	37.2	32.9	31.6	30.5
Zinc	121	459	190	mg/kg	<u>573</u>	<u>227</u>	125	93.3	132	<u>581</u>	<u>265</u>	147	173	62.2	<u>289</u>	<u>539</u>	<u>217</u>	119	80.9	53.9
Total Organic Carbon	NSL	NSL	NSL	%	4.85	3.15	3.31	3.43	2.71	3.16	1.97	1.82	1.86	1.33	3.4	2.93	2.16	1.63	1.57	1.49

NOTES:
Bolded values exceed the TEC

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EA Project No.: 15834.06 EA Engineering, Science, and Technology, Inc., PBC Version: Revision 01 Table 3-3a. Core and Surface Grab Sediment Results for Metals and TOC

					6621 6620	6621 6621	6621 6621	6621 6621	6621 6621	L 6621 6622	0.021.0022	6621 6622	L 6621 6622	0021 0022	0.021.0024	0.021 0.024	6621 6624	0001 0005	0021 0025	6621 6625
				Location ID:	SC21-SC20	SC21-SC21	SC21-SC21	SC21-SC21	SC21-SC21	SC21-SC22	SC21-SC22	SC21-SC23	SC21-SC23	SC21-SC23	SC21-SC24	SC21-SC24	SC21-SC24	SC21-SC25	SC21-SC25	SC21-SC25
				ample Name: Sample Date:	11/5/2021	SC21-SC21-0010 11/5/2021	SC21-SC21-1020 11/5/2021	SC21-SC21-2040 11/5/2021	SC21-SC21-SURF 11/9/2021	SC21-SC22-0010 11/4/2021	SC21-SC22-1020 11/4/2021	0 SC21-SC23-0010 11/5/2021	SC21-SC23-1020 11/5/2021	SC21-SC23-2040 11/5/2021	SC21-SC24-0010 11/5/2021	SC21-SC24-1020 11/5/2021	SC21-SC24-2040 11/5/2021	SC21-SC25-0010 11/4/2021	SC21-SC25-1020 11/4/2021	SC21-SC25-2040 11/4/2021
				Sample Date: Interval (ft):	11/3/2021	0-1	1-2	2-4	0-0.5	0-1	11/4/2021	0-1	1-2	2-4	0-1	1-2	2-4	0-1	1-2	2-4
Analyte	TEC	PEC	Ohio SRV	Unit	1-2	0-1	1-2	2-4	0-0.5	0-1	1-2	0-1	1-2	2-4	0-1	1-2	2-4	0-1	1-2	2-4
Aluminum	NSL	NSL	42000	mg/kg	16300	13200	15900	9530	9590	10100	9460	13700	12400	15100	21000	20200	14100	21200	10800	10800
Antimony	NSL	NSL	0.84	mg/kg	6.6 UJ	9.6 UJ	2.2 J	8.7	11.4 U	6.8 U	6.2 U	10.9 U	8 UJ	2.3 J	3.8 J	9.1 UJ	7.7 UJ	10.8 U	11.3 U	8.9 U
Arsenic	9.79	33	11	mg/kg	10.2	15.8	14	46.5	7	8.3	5.1	10.7	8.3	16	55.4	78.3	14.2	1.2 J	7.2	11.1
Barium	NSL	NSL	210	mg/kg	110	184	185	298	80	95.9	53.9	134	120	201	259	186	127	33.6 J	103	160
Beryllium	NSL	NSL	0.8	mg/kg	0.75	0.75 J	0.79	0.75	0.46 J	0.7	0.45 J	0.66 J	0.58 J	0.82	1.1	0.98	0.74	0.17 J	0.53 J	0.58 J
Cadmium	0.99	4.98	0.96	mg/kg	0.27 J	3.9	3.9	<u>11.5</u>	0.49 J	0.35 J	0.14 J	1.6	<u>1.9</u>	6.2	4.8	<u>2</u>	0.53 J	0.9 U	<u>1.6</u>	2.4
Calcium	NSL	NSL	110000	mg/kg	81600	31000	30200	28600	28900	29400 J	28600 J	38300	27900	32300	35800	38400	43400	394 J	28500 J	25700 J
Chromium	43.4	111	51	mg/kg	25.2 J	34.4 J	39.8 J	<u>440 J</u>	18.5	18.5	13.9	39.9	29.6 J	<u>104 J</u>	<u>105 J</u>	40.9 J	27.7 J	12.6	23.7	43.4
Cobalt	NSL	NSL	12	mg/kg	<u>12.1</u>	10.7	12.3	13.8	6.6 J	7.4	7	10.2	7.8	12	12.4	11.6	9.6	9 U	6.8 J	7.5
Copper	31.6	149	42	mg/kg	26.8 J	<u>368 J</u>	245 J	<u>520 J</u>	42.1	32.6	17.4	<u>183</u>	<u>118 J</u>	<u>313 J</u>	<u>205 J</u>	<u>128 J</u>	47.8 J	3.7 J	<u>75.7</u>	<u>325</u>
Iron	NSL	NSL	44000	mg/kg	26100	21600	23800	19600	16900	16300	14400	24000	18900	25100	31400	31800	25800	2490	15900	17500
Lead	35.8	128	47	mg/kg	11.1	<u>758</u>	<u>662</u>	<u>1290</u>	43	<u>111</u>	21.9	<u>259</u>	<u>158</u>	<u>1180</u>	<u>488</u>	<u>279</u>	<u>116</u>	12	<u>81.7</u>	<u>334</u>
Magnesium	NSL	NSL	29000	mg/kg	17000	11000	10500	8870	11000	8670	9370	14300	10900	10200	12100	11300	10900	270 J	11400	9510
Manganese	NSL	NSL	1000	mg/kg	429 J	358 J	356 J	226	453	285	232	442	329 J	463 J	398 J	377 J	417 J	9.7	288	245
Mercury	0.18	1.06	0.12	mg/kg	0.12 U	<u>0.77</u>	<u>1.3</u>	<u>2.4</u>	0.043 J	<u>0.75</u>	0.05 J	<u>0.18 J</u>	<u>0.46</u>	<u>0.8</u>	<u>2.2</u>	<u>1.9</u>	<u>0.7</u>	0.035 J	<u>0.15 J</u>	<u>0.86</u>
Nickel	22.7	48.6	36	mg/kg	33.9	28.9	32.2	<u>70.2</u>	17	18.5	16.9	<u>40.8</u>	27.7	34.1	<u>52</u>	<u>37.4</u>	24.6	5.9 J	19.6	<u>49</u>
Potassium	NSL	NSL	12000	mg/kg	5350	2530	3040	1930	2070	1780	1740	2900	2470	2920	4130	4110	3010	255 J	2210	2080
Selenium	NSL	NSL	1.4	mg/kg	3.8 U	5.6 U	5.2 U	4.7 U	6.6 U	3.9 U	3.6 U	6.3 U	4.7 U	4.7 U	6.6 U	5.3 U	4.5 U	6.3 U	6.6 U	5.2 U
Silver	NSL	NSL	0.43	mg/kg	1.1 U	<u>1.2 J</u>	<u>0.65 J</u>	<u>7.2</u>	1.9 U	1.1 U	1 U	<u>0.55 J</u>	<u>0.46 J</u>	1.6	2.2	0.85 J	1.3 U	1.8 U	1.9 U	<u>0.85 J</u>
Sodium	NSL	NSL	NSL	mg/kg	289 J	453 J	523 J	675	349 J	242 J	283 J	353 J	241 J	298 J	291 J	227 J	209 J	902 U	689 J	814
Thallium	NSL	NSL	4.7	mg/kg	2.7 U	4 U	3.7 U	3.4 U	4.7 U	2.8 U	2.6 U	4.5 U	3.3 U	3.3 U	4.7 U	3.8 U	3.2 U	4.5 U	4.7 U	3.7 U
Vanadium	NSL	NSL	40	mg/kg	39.6	31.8	36.9	25.9	22.9	24.6	22.9	33.8	27.9	35.4	<u>46.3</u>	<u>45.4</u>	33.3	10.3	25.1	25.2
Zinc	121	459	190	mg/kg	65.1	<u>759</u>	<u>534</u>	<u>1120</u>	139	107	44.2	<u>332</u>	<u>253</u>	<u>827</u>	<u>640</u>	<u>690</u>	169	6 J	<u>202</u>	<u>417</u>
Total Organic Carbon	NSL	NSL	NSL	%	0.851	5.96	6.42	9.43	3.73	2.73	1.16	4.12	3.74	4.31	5.28	4.78	3.73	6.13	4.36	5.14

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				I 4 ID.	SC21-SC25	SC21-SC25	SC21-SC26	5021 5026	SC21-SC27	SC21-SC28	SC21-SC28	SC21-SC28	SC21-SC28	SC21-SC28	SC21-SC29	SC21-SC30
				Location ID: Sample Name:		SC21-SC25 SC21-SC25-4060	1	SC21-SC26 SC21-SC26-1020	SC21-SC27		SC21-SC28-0010FD		SC21-SC28-2040			SC21-SC30-0010
			~	Sample Name:	11/4/2021	11/4/2021	11/3/2021	11/3/2021	11/9/2021	11/4/2021	11/4/2021	11/4/2021	11/4/2021	11/4/2021	11/3/2021	11/4/2021
				Interval (ft):	2-4	4-6	0-1	1-2	0-0.5	0-1	0-1	1-2	2-4	4-6	0-1	0-1
Analyte	TEC	PEC	Ohio SRV	Unit			-			-					1	
Aluminum	NSL	NSL	42000	mg/kg	8100	11200	16100	11400	10700	11900	9350	9890	13500	15800	10000	16200
Antimony	NSL	NSL	0.84	mg/kg	7.7 U	2.7 J	9.7 U	6.5 U	12 U	7.8 U	2.2 J	7.2 U	8.4 U	8.8 U	9.2 J	11 U
Arsenic	9.79	33	11	mg/kg	10	19.4	235	<u>17.4</u>	6	24.8	<u>37.8</u>	<u>150</u>	29.3	13.5	24.8	133
Barium	NSL	NSL	210	mg/kg	101	<u>237</u>	201	89.7	79.4	133	136	137	124	125	163	204
Beryllium	NSL	NSL	0.8	mg/kg	0.46 J	0.73	0.81	0.49 J	0.49 J	0.61 J	0.54 J	0.64	0.67 J	0.83	0.61 J	0.82 J
Cadmium	0.99	4.98	0.96	mg/kg	3.1	8.3	1.9	0.26 J	0.5 J	<u>1.4</u>	<u>4</u>	1.2	0.65 J	0.57 J	<u>8.2</u>	3
Calcium	NSL	NSL	110000	mg/kg	19900 J	25300 J	34700	71800	23300	42500 J	56400 J	28000 J	57100 J	40600 J	33300	41200 J
Chromium	43.4	111	51	mg/kg	38.5	<u>170</u>	26.6	17.4	19.2	46.8	63.1	18.9	25.9	28.2	<u>1570</u>	35.2
Cobalt	NSL	NSL	12	mg/kg	6.3 J	10.3	9.5	8.6	6.5 J	8.8	6.4	7.9	9.2	11.2	10.2	9.7
Copper	31.6	149	42	mg/kg	<u>238</u>	<u>652</u>	142	25.1	28.8	<u>99.1</u>	<u>120</u>	<u>135</u>	<u>59.3</u>	<u>58.3</u>	742	<u>186</u>
Iron	NSL	NSL	44000	mg/kg	17100	20000	28300	20100	16500	21700	19100	20200	24000	26800	17500	27300
Lead	35.8	128	47	mg/kg	300	<u>1280</u>	<u>541</u>	35.8	30.8	<u>194</u>	<u>320</u>	<u>378</u>	<u>139</u>	<u>179</u>	<u>631</u>	<u>437</u>
Magnesium	NSL	NSL	29000	mg/kg	7250	7610	10700	13000	9110	10400	7640	7790	10700	11800	7500	10700
Manganese	NSL	NSL	1000	mg/kg	193	266	373	432	410	322	229	250	359	444	232	459
Mercury	0.18	1.06	0.12	mg/kg	<u>0.49</u>	<u>1.6</u>	1.2	0.13	0.049 J	<u>0.56</u>	<u>1.3</u>	<u>2.3</u>	<u>1</u>	0.88	<u>1.3</u>	<u>2.6</u>
Nickel	22.7	48.6	36	mg/kg	25.4	32	32.9	23	16.6	27	30.7	24.5	24.5	26.4	<u>97.1</u>	35.2
Potassium	NSL	NSL	12000	mg/kg	1530	1850	3160	3000	2190	2600	1950	1910	2880	3080	1970	3160
Selenium	NSL	NSL	1.4	mg/kg	4.5 U	4.8 U	5.7 U	3.8 U	7 U	4.6 U	4.5 U	4.2 U	4.9 U	5.1 U	5.6 U	6.4 U
Silver	NSL	NSL	0.43	mg/kg	<u>0.63 J</u>	1.6	<u>1.1 J</u>	1.1 U	2 U	<u>0.53 J</u>	<u>2</u>	0.68 J	1.4 U	1.5 U	<u>5.8</u>	<u>2.1</u>
Sodium	NSL	NSL	NSL	mg/kg	784	658 J	359 J	503 J	186 J	259 J	262 J	263 J	277 J	273 J	257 J	247 J
Thallium	NSL	NSL	4.7	mg/kg	3.2 U	3.4 U	4 U	2.7 U	5 U	3.3 U	3.2 U	3 U	3.5 U	3.7 U	4 U	4.6 U
Vanadium	NSL	NSL	40	mg/kg	20	25.9	35.2	27	23.8	27.7	23.5	24.8	31.1	35	23.7	36.1
Zinc	121	459	190	mg/kg	<u>341</u>	<u>1290</u>	<u>700</u>	78.7	134	<u>276</u>	<u>399</u>	<u>505</u>	<u>248</u>	<u>196</u>	<u>933</u>	<u>655</u>
Total Organic Carbon	NSL	NSL	NSL	%	5.11	8.39	2.82	1.57	4.06	5.43	3.28	4.36	3.52	3.14	8.37	5.27

Bolded and shaded values exceed the PEC

Underlined values exceed the Ohio SRV

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mg/kg = milligrams per kilogram

MR = Maumee River

NSL = No Screening Level

SC = Swan Creek

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PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality

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TOC = Total Organic Carbon



				Location ID:	SC21-SC30	SC21-SC30	SC21-SC30	SC21-SC31	SC21-SC31	SC21-SC31	SC21-SC31	SC21-SC31	SC21-SC32	SC21-SC32	SC21-SC32	SC21-SC32	SC21-SC32
				Location 1D: Sample Name:		SC21-SC30-2040	SC21-SC30-SURF	SC21-SC31-0010		SC21-SC31-2040			SC21-SC32-0010	SC21-SC32-1020		SC21-SC32-4060	
				Sample Date:	11/4/2021	11/4/2021	11/9/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021
				Interval (ft):	1-2	2-4	0-0.5	0-1	1-2	2-4	4-6	6-8	0-1	1-2	2-4	4-6	6-8
Analyte	TEC	PEC	Ohio SRV	Unit		•		•		•	•	•		•	•	•	•
Aluminum	NSL	NSL	42000	mg/kg	17400	16800	14700	13900	17000	13500	8840	12700	12500	14000	18400	9430	11900
Antimony	NSL	NSL	0.84	mg/kg	10 U	8 U	9.8 U	2.4 J	9.4 U	7.8 U	7.8 U	8.9 U	10 U	9.8 U	8.9 U	8.1 U	7.2 U
Arsenic	9.79	33	11	mg/kg	<u>155</u>	335	8.7	<u>19.4</u>	<u>50.8</u>	<u>394</u>	102	<u>116</u>	5.6	6.8	8.1	4.8	3.8
Barium	NSL	NSL	210	mg/kg	186	182	104	146	173	<u>247</u>	136	140	78.1	89.9	131	62.2	74
Beryllium	NSL	NSL	0.8	mg/kg	0.88	0.81	0.66 J	0.67 J	0.82	0.69	0.52 J	0.76	0.5 J	0.56 J	0.85	0.4 J	0.5 J
Cadmium	0.99	4.98	0.96	mg/kg	<u>1.6</u>	<u>1.9</u>	0.58 J	<u>4</u>	<u>2</u>	<u>3</u>	<u>1</u>	<u>1.7</u>	0.4 J	0.59 J	0.75	0.43 J	0.41 J
Calcium	NSL	NSL	110000	mg/kg	43900 J	42400 J	29900	35900	38300	35600	33000	36700	21400	29700	37500	41200	46100
Chromium	43.4	111	51	mg/kg	27.8	26.8	24.9	40	27.6	25.1	15.9	26.3	17.5	21.2	26.5	14.7	16.7
Cobalt	NSL	NSL	12	mg/kg	10.5	9.8	8.3	8.8	9.5	8.5	6.7	8.7	6 J	7.3 J	9	6.9	7.7
Copper	31.6	149	42	mg/kg	<u>142</u>	<u>115</u>	34.8	<u>123</u>	<u>118</u>	<u>204</u>	<u>99.9</u>	<u>159</u>	21.8	30.8	34.1	20.1	19.1
Iron	NSL	NSL	44000	mg/kg	29200	30000	22300	22200	24500	29200	16600	22800	17300	19400	25900	13700	16900
Lead	35.8	128	47	mg/kg	<u>455</u>	<u>707</u>	32.6	<u>295</u>	<u>328</u>	<u>742</u>	<u>312</u>	<u>394</u>	16.9	25.8	40.3	16.6	8.6
Magnesium	NSL	NSL	29000	mg/kg	11000	9830	11400	12300	10600	9120	7320	9740	7850	10700	11400	12800	13600
Manganese	NSL	NSL	1000	mg/kg	424	399	479	493	366	298	230	306	311	399	486	252	285
Mercury	0.18	1.06	0.12	mg/kg	<u>2.3</u>	<u>2.3</u>	0.082 J	<u>0.41</u>	<u>2.1</u>	<u>4.6</u>	<u>1.9</u>	<u>2.5</u>	0.054 J	0.2	0.11 J	0.034 J	0.022 J
Nickel	22.7	48.6	36	mg/kg	<u>36.2</u>	34.1	22.3	27.6	35	35.6	20	28.7	16.9	20.2	25.7	17	21.3
Potassium	NSL	NSL	12000	mg/kg	3180	3100	3000	2770	3030	2560	1760	2510	2360	2730	3420	2090	2620
Selenium	NSL	NSL	1.4	mg/kg	5.9 U	4.6 U	5.7 U	5.5 U	5.5 U	4.5 U	4.5 U	5.2 U	5.8 U	5.7 U	5.2 U	4.7 U	4.2 U
Silver	NSL	NSL	0.43	mg/kg	<u>1.6 J</u>	1.8	1.6 U	<u>0.71 J</u>	<u>1 J</u>	3.6	<u>1.2 J</u>	<u>1.2 J</u>	1.7 U	1.6 U	1.5 U	1.3 U	1.2 U
Sodium	NSL	NSL	NSL	mg/kg	235 J	220 J	210 J	251 J	203 J	186 J	155 J	190 J	141 J	169 J	207 J	194 J	243 J
Thallium	NSL	NSL	4.7	mg/kg	4.2 U	3.3 U	4.1 U	4 U	3.9 U	3.2 U	3.2 U	3.7 U	4.2 U	4.1 U	3.7 U	3.4 U	3 U
Vanadium	NSL	NSL	40	mg/kg	37.7	36	32.5	31.9	36.2	30.5	22.6	33	24.2	28.2	34.6	22.3	25.7
Zinc	121	459	190	mg/kg	<u>575</u>	<u>631</u>	157	<u>320</u>	<u>364</u>	<u>1110</u>	<u>437</u>	<u>674</u>	85.4	104	135	62.7	56.9
Total Organic Carbon	NSL	NSL	NSL	%	4.53	3.9	5.33	4.27	7.68	5.13	5.08	4.7	2.8	2.71	2.48	1.99	2.42

Bolded and shaded values exceed the PEC Underlined values exceed the Ohio SRV

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TOC = Total Organic Carbon



				Location ID:	SC21-SC33	SC21-SC33	SC21-SC33	SC21-SC33	SC21-SCREF
			S	ample Name:		SC21-SC33-1020	SC21-SC33-2040	SC21-SC33-SURF	SC21-SCREF-SURF
				Sample Date:	11/4/2021	11/4/2021	11/4/2021	11/8/2021	11/9/2021
			Depth	Interval (ft):	0-1	1-2	2-4	0-0.5	0-0.5
Analyte	TEC	PEC	Ohio SRV	Unit					
Aluminum	NSL	NSL	42000	mg/kg	15200	13000	9900	9530	4310
Antimony	NSL	NSL	0.84	mg/kg	9.1 U	10 U	8.5 U	10.1 U	8 U
Arsenic	9.79	33	11	mg/kg	9.4	<u>56</u>	<u>62.8</u>	6.4	4.3
Barium	NSL	NSL	210	mg/kg	106	205	125	74.5	37.5
Beryllium	NSL	NSL	0.8	mg/kg	0.66 J	0.72 J	0.61 J	0.45 J	0.19 J
Cadmium	0.99	4.98	0.96	mg/kg	0.62 J	<u>1.3</u>	<u>1.2</u>	0.45 J	0.16 J
Calcium	NSL	NSL	110000	mg/kg	34200 J	39300 J	29400 J	26700	17600
Chromium	43.4	111	51	mg/kg	25.1	22.7	17.5	17.4	8
Cobalt	NSL	NSL	12	mg/kg	9.1	8.2 J	6.6 J	6.4 J	3.2 J
Copper	31.6	149	42	mg/kg	<u>57.2</u>	<u>156</u>	<u>104</u>	31	10.9
Iron	NSL	NSL	44000	mg/kg	23400	23100	17700	16000	7060
Lead	35.8	128	47	mg/kg	<u>59.1</u>	<u>642</u>	<u>269</u>	30.6	11.2
Magnesium	NSL	NSL	29000	mg/kg	12000	9810	8100	8560	5160
Manganese	NSL	NSL	1000	mg/kg	558	340	286	391	133 J
Mercury	0.18	1.06	0.12	mg/kg	<u>0.15 J</u>	<u>3.3</u>	<u>2.9</u>	0.061 J	0.14 U
Nickel	22.7	48.6	36	mg/kg	26.5	26.1	20.5	15.4	7.3
Potassium	NSL	NSL	12000	mg/kg	2970	2500	1890	2100	967
Selenium	NSL	NSL	1.4	mg/kg	5.3 U	5.8 U	4.9 U	5.9 U	4.7 U
Silver	NSL	NSL	0.43	mg/kg	1.5 U	3.6	<u>1.9</u>	1.7 UJ	1.3 U
Sodium	NSL	NSL	NSL	mg/kg	229 J	258 J	196 J	177 J	103 J
Thallium	NSL	NSL	4.7	mg/kg	3.8 U	4.1 U	3.5 U	4.2 U	3.3 U
Vanadium	NSL	NSL	40	mg/kg	32.3	30.2	24.5	23.1	11.5
Zinc	121	459	190	mg/kg	160	<u>565</u>	<u>439</u>	117	50.5
Total Organic Carbon	NSL	NSL	NSL	%	2.82	5.91	6.64	4.14	2.18

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					GG21 GG24D 01	I 6621 661 FD 62	6621 60140 02	6621 60147 04	GG21 GOMP 05	I 6021 001 0 05 I	GG21 GOMB 04	0021 001 m oz	GG21 GG34D 00
				Location ID:		SC21-COMP-02	SC21-COMP-03	SC21-COMP-04	SC21-COMP-05	SC21-COMP-05	SC21-COMP-06	SC21-COMP-07	SC21-COMP-08
				ample Name:	SC21-COMP-01	SC21-COMP-02	SC21-COMP-03	SC21-COMP-04	SC21-COMP-05	SC21-COMP-05FD	SC21-COMP-06	SC21-COMP-07	SC21-COMP-08
				Sample Date:	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/10/2021	11/11/2021	11/11/2021
Analyte	TEC	PEC	Ohio SRV	Unit		1			1	1			1
Aluminum	NSL	NSL	42000	mg/kg	7380 J+	5640 J+	14200 J+	9040 J+	11300 J+	8900 J+	7960	18200 J+	14400 J+
Antimony	NSL	NSL	0.84	mg/kg	8.7 U	6.6 UJ	7.7 UJ	7.5 UJ	6.4 U	6.5 UJ	6.8 U	7.6 U	9.3 UJ
Arsenic	9.79	33	11	mg/kg	6.5 J+	<u>13.9 J</u>	<u>11.8 J</u>	10.2 J	<u>34.3 J</u>	<u>20.4 J</u>	8.4	<u>60.7 J+</u>	<u>32.2 J</u>
Barium	NSL	NSL	210	mg/kg	62.7	53.2	76.8	70.8	99.8	77.6	58.4	191	149
Beryllium	NSL	NSL	0.8	mg/kg	0.33 J+	0.31 J+	0.61 J+	0.47 J+	0.56 J+	0.45 J+	0.44 J	<u>0.94 J+</u>	0.8 J+
Cadmium	0.99	4.98	0.96	mg/kg	0.63 J+	1.5 J+	0.75 J+	<u>1.5 J+</u>	2.6 J+	<u>2 J+</u>	0.5 J	4.8 J+	<u>4 J+</u>
Calcium	NSL	NSL	110000	mg/kg	53400	40600	84900	55700	37300	26300	41500	43600	45900
Chromium	43.4	111	51	mg/kg	15.3 J+	13.6 J+	21.4 J+	26.8 J+	29.4 J+	21.7 J+	15.8	53.5 J+	415 J+
Cobalt	NSL	NSL	12	mg/kg	6.4 J+	5.8 J+	11.3 J+	8 J+	8.7 J+	6.7 J+	7.1	13.4 J+	11.9 J+
Copper	31.6	149	42	mg/kg	<u>54.4</u>	39	<u>46.3</u>	<u>345</u>	122	<u>93.9</u>	<u>53</u>	<u>188</u>	<u>281</u>
Iron	NSL	NSL	44000	mg/kg	13800 J+	10800 J+	23500 J+	15400 J+	19600 J+	14700 J+	14800	29100 J+	24200 J+
Lead	35.8	128	47	mg/kg	43.7 J+	98.4 J+	<u>68.6 J+</u>	<u>147 J+</u>	<u>171 J+</u>	<u>141 J+</u>	<u>75.1</u>	<u>570 J+</u>	<u>371 J+</u>
Magnesium	NSL	NSL	29000	mg/kg	10700	9710	21600	11300	11100	8160	11800	13400	12800
Manganese	NSL	NSL	1000	mg/kg	411 J	201 J	546 J	347 J	396 J+	321 J	315	461 J+	421 J
Mercury	0.18	1.06	0.12	mg/kg	0.075 J-	0.18 J-	0.094 J-	0.14 J-	0.39 J-	0.32 J-	0.26	<u>1.2 J-</u>	<u>0.92 J-</u>
Nickel	22.7	48.6	36	mg/kg	15.3 J+	14.2 J+	28.5 J+	21 J+	26.2 J+	20.3 J+	17.1	<u>40 J+</u>	47.8 J+
Potassium	NSL	NSL	12000	mg/kg	1550	1250	4050	2200	2210	1710	1630	3670	2810
Selenium	NSL	NSL	1.4	mg/kg	5.1 U	3.8 U	4.5 U	4.4 U	3.7 U	3.8 U	3.9 U	4.4 U	5.4 U
Silver	NSL	NSL	0.43	mg/kg	1.4 U	1.1 U	1.3 U	1.2 U	<u>0.47 J</u>	1.1 U	1.1 U	<u>0.9 J</u>	<u>2.1</u>
Sodium	NSL	NSL	NSL	mg/kg	231 J	330 J	291 J	221 J	239 J	187 J	203 J	450 J	284 J
Thallium	NSL	NSL	4.7	mg/kg	3.6 U	2.7 U	3.2 U	3.1 U	2.7 U	2.7 U	2.8 U	3.2 U	3.9 U
Vanadium	NSL	NSL	40	mg/kg	18.3	15.7	32.4	21.7	27.2	21.2	19.6	<u>41.8</u>	33.5
Zinc	121	459	190	mg/kg	118 J+	129 J+	108 J+	<u>336 J+</u>	359 J+	<u>260 J+</u>	112	<u>680 J+</u>	<u>574 J+</u>
Total Organic Carbon	NSL	NSL	NSL	%	1.99	1.68	1.32	3.14	2.96	3.25	2.48	5.26	2.87

Bolded values exceed the TEC

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Underlined values exceed the Ohio SRV FD = Field Duplicate

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TOC = Total Organic Carbon

Ohio SRV = Ecological Risk Assessment Guidance Document (Ohio EPA 2018)



	Location ID:	SC21-MR01	SC21-MR02	SC21-MR03-A	SC21-MR03-B	SC21-MR04	SC21-MR05	SC21-MR06	SC21-MR06	SC21-MR06	SC21-MRREF	SC21-MRREF
	Sample Name:	SC21-MR01-0010	SC21-MR02-0010	SC21-MR03-A-0010	SC21-MR03-B-0010	SC21-MR04-0010	SC21-MR05-0010	SC21-MR06-0010	SC21-MR06-SURF	SC21-MR06-SURFFD	SC21-MRREF-0010	SC21-MRREF-SURF
	Sample Date:	11/7/2021	11/7/2021	11/8/2021	11/8/2021	11/10/2021	11/5/2021	11/7/2021	11/8/2021	11/8/2021	11/9/2021	11/8/2021
	Depth Interval (ft):	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-0.5	0-0.5	0-1	0-0.5
Analyte	Unit											
Cadmium	μmole/g	0.0075	0.025	0.012	0.01	0.0067	0.015	0.012	0.012	0.011	0.0075	0.0074
Copper	μmole/g	0.21	0.33	1.3	0.81	0.28	0.24	0.38	1	1	0.23	0.37
Lead	μmole/g	0.078	0.4	1.2 J	0.25 J	0.074	0.61	1	1.2	0.96	0.086	0.093
Nickel	μmole/g	0.16	0.21	0.27	0.21	0.16	0.19	0.23	0.31	0.35	0.21	0.28
Zinc	μmole/g	0.88	1.9	6	1.5	1.2	3	5	5.1	4.5	0.99	1.1
Acid Volatile Sulfides (AVS)	μmole/g	6.1	9 J	41.6	6 J	2.5	19.7	37	27.4	30.8	19.9	24.8
SEM/AVS Ratio	none	0.219	0.318	0.211	0.463	0.688	0.206	0.179	0.278	0.221	0.077	0.075
ΣSEM	μmole/g	1.34	2.865	8.782	2.78	1.7207	4.055	6.622	7.622	6.821	1.5235	1.8504
AVS	μmole/g	6.1	9 J	41.6	6 J	2.5	19.7	37	27.4	30.8	19.9	24.8
foc	fraction	0.023	0.0315	0.0536	0.023	0.0249	0.0281	0.0344	0.0349	0.0151	0.0241	0.0258
$(\Sigma SEM - AVS) / foc$	μmole/g	-205	-195	-612	-140	-31.3	-557	-883	-567	-1588	-763	-890

Bolded values exceed 1 SEM/AVS ratio

Bolded and shaded values exceed 130 µmole/g_{oc.}

AVS = Acid volatile sulfides

FD = Field duplicate

foc = fraction organic carbon

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

MR = Maumee River

NC = SEM/AVS not calculated because AVS was not detected.

SC = Swan Creek

 $SEM = Simultaneously \ extracted \ metals$

 $\mu mole/g = micromole \ per \ gram$

U = Compound was analyzed but not detected.



	Location ID:	SC21-SC01	SC21-SC02	SC21-SC03	SC21-SC04	SC21-SC05	SC21-SC06	SC21-SC07	SC21-SC08	SC21-SC09	SC21-SC10	SC21-SC11	SC21-SC11	SC21-SC11	SC21-SC12
	Sample Name:	SC21-SC01-SURF	SC21-SC02-0010	SC21-SC03-0010	SC21-SC04-0010	SC21-SC05-SURF	SC21-SC06-0010	SC21-SC07-0010	SC21-SC08-0010	SC21-SC09-0010	SC21-SC10-0010	SC21-SC11-0010	SC21-SC11-0010FD	SC21-SC11-SURF	SC21-SC12-0010
	Sample Date:	11/9/2021	11/9/2021	11/8/2021	11/8/2021	11/9/2021	11/8/2021	11/10/2021	11/3/2021	11/9/2021	11/5/2021	11/10/2021	11/10/2021	11/9/2021	11/11/2021
	Depth Interval (ft):	0-0.5	0-1	0-1	0-1	0-0.5	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-0.5	0-1
Analyte	Unit														
Cadmium	μmole/g	0.0013	0.004	0.0091	0.0043	0.0014 J	0.0012	0.0046	0.00047	0.02	0.00047	0.0067	0.006	0.0026 J	0.00089
Copper	μmole/g	0.16	0.17	0.55	0.48	0.36	0.12	0.36	0.036	0.72	0.031	0.38	0.33	0.36	0.06
Lead	μmole/g	0.06	0.11	0.26	0.24 J	0.12	0.019 J	0.29	0.0075	0.9	0.0085	0.17	0.16	0.16	0.015
Nickel	μmole/g	0.034	0.11	0.17	0.16	0.036	0.1	0.19	0.024	0.23	0.024	0.17	0.16	0.075	0.06
Zinc	μmole/g	0.59	1.3	1.9	1.5	0.48	0.17	0.89	0.042	3.4	0.043	2.1	1.7	0.97	0.081
Acid Volatile Sulfides (AVS)	μmole/g	0.1	19.6	32.7	5	1.9	0.021 U	2.3	0.018 U	16.2	0.018 U	27	24.3	5.3	0.019 U
SEM/AVS Ratio	none	6.04	0.086	0.088	0.477	0.525	NC	0.754	NC	0.325	NC	0.105	0.097	0.296	NC
ΣSEM	μmole/g	0.8453	1.694	2.8891	2.3843	0.9974	0.4102	1.7346	0.10997	5.27	0.10697	2.8267	2.356	1.5676	0.21689
AVS	μmole/g	0.14	19.6	32.7	5	1.9	0.021 U	2.3	0.018 U	16.2	0.018 U	27	24.3	5.3	0.019 U
foc	fraction	0.0287	0.029	0.0342	0.00976	0.00772	0.00621	0.0119	0.00918	0.0278	0.0113	0.0234	0.0178	0.0411	0.0112
$(\Sigma SEM - AVS) / foc$	μmole/g	24.6	-617	-872	-268	-117	66.1	-47.5	12.0	-393	9.5	-1033	-1233	-90.8	19.4

Bolded values exceed 1 SEM/AVS ratio

Bolded and shaded values exceed 130 µmole/g_{oc.}

AVS = Acid volatile sulfides

FD = Field duplicate

foc = fraction organic carbon

 $\label{eq:J-compound} J = Compound \ was \ detected, \ but \ result \ is \ below \ the \ reporting \ limit \ and \ greater \ than \ or \ equal \ to \ the \ method \ detection \ limit \ (value \ is \ estimated).$

MR = Maumee River

NC = SEM/AVS not calculated because AVS was not detected.

SC = Swan Creek

 $SEM = Simultaneously \ extracted \ metals$

 $\mu mole/g = micromole \ per \ gram$

U = Compound was analyzed but not detected.



	Location ID:	SC21-SC13	SC21-SC14	SC21-SC15	SC21-SC16	SC21-SC17	SC21-SC18	SC21-SC19	SC21-SC20	SC21-SC21	SC21-SC21	SC21-SC22	SC21-SC23
	Sample Name:	SC21-SC13-0010	SC21-SC14-SURF	SC21-SC15-0010	SC21-SC16-0010	SC21-SC17-0010	SC21-SC18-SURF	SC21-SC19-0010	SC21-SC20-0010	SC21-SC21-0010	SC21-SC21-SURF	SC21-SC22-0010	SC21-SC23-0010
	Sample Date:	11/9/2021	11/9/2021	11/7/2021	11/7/2021	11/10/2021	11/9/2021	11/5/2021	11/5/2021	11/5/2021	11/9/2021	11/4/2021	11/5/2021
	Depth Interval (ft):	0-1	0-0.5	0-1	0-1	0-1	0-0.5	0-1	0-1	0-1	0-0.5	0-1	0-1
Analyte	Unit												
Cadmium	μmole/g	0.005	0.0065	0.0067	0.017	0.017	0.026	0.019	0.00072	0.026	0.0067	0.0048	0.0096
Copper	μmole/g	0.35	0.37	0.25	0.59	0.96	0.17	3.8	0.04	0.52	0.51	0.18	0.25
Lead	μmole/g	0.2	0.17	0.22	0.86	2.3	0.99	1.3	0.011	3.5	0.2	0.33	0.38
Nickel	μmole/g	0.1	0.16	0.13	0.24	0.19	0.28	0.47	0.031	0.22	0.17	0.14	0.23
Zinc	μmole/g	1.6	1.8	1.9	3.7	7.5	4.3	5.8	0.054	10.9	2.3	1.1	2.5
Acid Volatile Sulfides (AVS)	μmole/g	19.4	12.7	26	22	21.1	143	5.9 J	0.018 U	38.3	14.9	8.3	72
SEM/AVS Ratio	none	0.116	0.197	0.096	0.246	0.52	0.04	1.93	NC	0.396	0.214	0.211	0.047
Σ SEM	μmole/g	2.255	2.5065	2.5067	5.407	10.967	5.766	11.389	0.13672	15.166	3.1867	1.7548	3.3696
AVS	μmole/g	19.4	12.7	26	22	21.1	143	5.9 J	0.018 U	38.3	14.9	8.3	72
foc	fraction	0.0505	0.0297	0.0304	0.0315	0.0316	0.034	0.0293	0.0149	0.0596	0.0373	0.0273	0.0412
$(\Sigma \text{ SEM - AVS}) / \text{ foc}$	μmole/g	-340	-343	-773	-527	-321	-4036	187	9.2	-388	-314	-240	-1666
NOTES:		-			-		_				_		

Bolded values exceed 1 SEM/AVS ratio

Bolded and shaded values exceed 130 µmole/g_{oc.}

AVS = Acid volatile sulfides

FD = Field duplicate

foc = fraction organic carbon

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

MR = Maumee River

NC = SEM/AVS not calculated because AVS was not detected.

SC = Swan Creek

SEM = Simultaneously extracted metals

 $\mu mole/g = micromole \ per \ gram$

U = Compound was analyzed but not detected.



							-								
	Location ID:	SC21-SC24	SC21-SC25	SC21-SC26	SC21-SC27	SC21-SC28	SC21-SC28	SC21-SC29	SC21-SC30	SC21-SC30	SC21-SC31	SC21-SC32	SC21-SC33	SC21-SC33	SC21-SCREF
	Sample Name:	SC21-SC24-0010	SC21-SC25-0010	SC21-SC26-0010	SC21-SC27-SURF	SC21-SC28-0010	SC21-SC28-0010FD	SC21-SC29-0010	SC21-SC30-0010	SC21-SC30-SURF	SC21-SC31-0010	SC21-SC32-0010	SC21-SC33-0010	SC21-SC33-SURF	SC21-SCREF-SURF
	Sample Date:	11/5/2021	11/4/2021	11/3/2021	11/9/2021	11/4/2021	11/4/2021	11/3/2021	11/4/2021	11/9/2021	11/3/2021	11/3/2021	11/4/2021	11/8/2021	11/9/2021
	Depth Interval (ft):	0-1	0-1	0-1	0-0.5	0-1	0-1	0-1	0-1	0-0.5	0-1	0-1	0-1	0-0.5	0-0.5
Analyte	Unit														
Cadmium	μmole/g	0.072	0.0079	0.012	0.0066	0.028 J	0.049 J	0.081	0.016	0.013	0.0077	0.0064	0.0074	0.0055	0.0027 J
Copper	μmole/g	1.4	0.2	0.068	0.31	0.049	1.4	0.025 J	0.43	0.48	0.19	0.12	0.24	0.27	0.073
Lead	μmole/g	3.8	0.16	0.79	0.15	1.5 J	2.5 J	3.3	1.2	0.54	0.21	0.094	0.16	0.15	0.065
Nickel	μmole/g	0.62	0.14	0.2	0.17	0.28 J	0.48 J	1.7	0.25	0.26	0.11	0.11	0.15	0.15	0.085
Zinc	μmole/g	10.7	1.9	5.7	1.7	5.8	8.3	23.2	5.6	5.8	2	1	1.9	1.5	0.91
Acid Volatile Sulfides (AVS)	μmole/g	148	16.5	44.4	12.2	55.6	77	50.8	76	80.5	4	5.1	23	5	39.5
SEM/AVS Ratio	none	0.112	0.146	0.152	0.192	0.138	0.165	0.557	0.099	0.088	0.629	0.261	0.107	0.415	0.029
Σ SEM	μmole/g	16.592	2.4079	6.77	2.3366	7.657	12.729	28.306	7.496	7.093	2.5177	1.3304	2.4574	2.0755	1.1357
AVS	μmole/g	148	16.5	44.4	12.2	55.6	77	50.8	76	80.5	4	5.1	23	5	39.5
foc	fraction	0.0528	0.0613	0.0282	0.0406	0.0543	0.0328	0.0837	0.0527	0.0533	0.0427	0.028	0.0282	0.0414	0.0218
(Σ SEM - AVS) / foc	μmole/g	-2489	-230	-1334	-243	-883	-1959	-269	-1300	-1377	-34.7	-135	-728	-70.6	-1760

Bolded values exceed 1 SEM/AVS ratio

Bolded and shaded values exceed 130 µmole/g_{oc.}

AVS = Acid volatile sulfides

FD = Field duplicate

foc = fraction organic carbon

 $\label{eq:J-compound} J = Compound \ was \ detected, \ but \ result \ is \ below \ the \ reporting \ limit \ and \ greater \ than \ or \ equal \ to \ the \ method \ detection \ limit \ (value \ is \ estimated).$

MR = Maumee River

NC = SEM/AVS not calculated because AVS was not detected.

SC = Swan Creek

 $SEM = Simultaneously \ extracted \ metals$

 $\mu mole/g = micromole \ per \ gram$

 $U = Compound \ was \ analyzed \ but \ not \ detected.$



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				Location ID:	SC21-MR01	SC21-MR01	SC21-MR01	SC21-MR02	SC21-MR02	SC21-MR02	SC21-MR02	SC21-MR02	SC21-MR03-A	SC21-MR03-A	SC21-MR03-A	SC21-MR03-B	SC21-MR03-B
			S	ample Name:	SC21-MR01-0010	SC21-MR01-1020	SC21-MR01-2040	SC21-MR02-0010	SC21-MR02-1020	SC21-MR02-2040	SC21-MR02-4060	SC21-MR02-6080	SC21-MR03-A-0010	SC21-MR03-A-1020	SC21-MR03-A-2040	SC21-MR03-B-0010	SC21-MR03-B-1020
			:	Sample Date:	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021
			Depth	Interval (ft):	0-1	1-2	2-4	0-1	1-2	2-4	4-6	6-8	0-1	1-2	2-4	0-1	1-2
Analyte	TEC	PEC	Region 4 ESV	Unit													
Aroclor-1016	NSL	NSL	NSL	ug/kg	71 U	54 U	45 U	55 U	57 U	53 U	53 U	56 U	50 U	49 U	46 U	51 U	53 U
Aroclor-1221	NSL	NSL	NSL	ug/kg	71 U	54 U	45 U	55 U	57 U	53 U	53 U	56 U	50 U	49 U	46 U	51 U	53 U
Aroclor-1232	NSL	NSL	NSL	ug/kg	71 U	54 U	45 U	55 U	57 U	53 U	53 U	56 U	50 U	49 U	46 U	51 U	53 U
Aroclor-1242	NSL	NSL	NSL	ug/kg	71 U	22 J	19 J	55 U	57 U	53 U	53 U	56 U	130 J	32 J	46 U	33 J	53 U
Aroclor-1248	NSL	NSL	NSL	ug/kg	8.2 J	54 U	45 U	55 U	57 U	53 U	53 U	56 U	50 U	49 U	46 U	51 U	53 U
Aroclor-1254	NSL	NSL	NSL	ug/kg	71 U	21 J	13 J	170	130	53 U	53 U	56 U	50 U	49 U	46 U	51 U	53 U
Aroclor-1260	NSL	NSL	NSL	ug/kg	71 U	54 U	45 U	55 U	57 U	18 J	17 J	56 U	50 U	49 U	46 U	51 U	53 U
Aroclor-1262	NSL	NSL	NSL	ug/kg	71 U	54 U	45 U	55 U	57 U	53 U	53 U	56 U	50 U	49 U	46 U	51 U	53 U
Aroclor-1268	NSL	NSL	NSL	ug/kg	71 U	54 U	45 U	55 U	57 U	53 U	53 U	56 U	50 U	49 U	46 U	51 U	53 U
Total PCBs ND=0	59.8	676	59.8	ug/kg	8.2	43	32	<u>170</u>	<u>130</u>	18	17	0	<u>130</u>	32	0	33	0

Bolded and shaded values exceed the PEC

Underlined values exceed the Region 4 ESV FD = Field Duplicate

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

J- = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).

ND = Non-detect

NSL = No Screening Level

PCB = Polychlorinated bipheny

SC = Swan Creek

U = Compound was analyzed but not detected.

UJ = Compound was analyzed but not detected. The reported quantitation limit is approximate.

ug/kg = microgram per kilogram

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment

Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000). Region 4 ESV = Ecological Screening Value (EPA Region 4 2018)



				Location ID:	SC21-MR03-B	SC21-MR03-B	SC21-MR04	SC21-MR04	SC21-MR04	SC21-MR04	SC21-MR05	SC21-MR05	SC21-MR05	SC21-MR06	SC21-MR06	SC21-MRREF	SC21-MRREF
				ample Name:					SC21-MR04-2040			SC21-MR05-1020		SC21-MR06-0010	SC21-MR06-1020		
				Sample Date:	11/8/2021	11/8/2021	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/5/2021	11/5/2021	11/5/2021	11/7/2021	11/7/2021	11/9/2021	11/9/2021
			Depth	Interval (ft):	1-2	2-4	0-1	1-2	2-4	4-6	0-1	1-2	2-4	0-1	1-2	0-1	1-2
Analyte	TEC	PEC	Region 4 ESV	Unit													
Aroclor-1016	NSL	NSL	NSL	ug/kg	53 U	48 U	89 U	77 U	48 U	54 U	61 U	52 U	51 U	57 U	49 U	61 U	59 U
Aroclor-1221	NSL	NSL	NSL	ug/kg	53 U	48 U	89 U	77 U	48 U	54 U	61 U	52 U	51 U	57 U	49 U	61 U	59 U
Aroclor-1232	NSL	NSL	NSL	ug/kg	53 U	48 U	89 U	77 U	48 U	54 U	61 U	52 U	51 U	57 U	49 U	61 U	59 U
Aroclor-1242	NSL	NSL	NSL	ug/kg	53 U	48 U	89 U	77 U	48 U	54 U	81 J	52 U	51 U	57 U	49 U	61 U	59 U
Aroclor-1248	NSL	NSL	NSL	ug/kg	53 U	48 U	89 U	77 U	5 J	54 U	61 U	52 U	51 U	57 U	49 U	61 U	59 U
Aroclor-1254	NSL	NSL	NSL	ug/kg	53 U	48 U	89 U	77 U	48 U	54 U	61 U	52 U	51 U	57 U	49 U	61 U	10 J
Aroclor-1260	NSL	NSL	NSL	ug/kg	53 U	48 U	89 U	77 U	48 U	54 U	61 U	52 U	51 U	57 U	49 U	61 U	59 U
Aroclor-1262	NSL	NSL	NSL	ug/kg	53 U	48 U	89 U	77 U	48 U	54 U	61 U	52 U	51 U	57 U	49 U	61 U	59 U
Aroclor-1268	NSL	NSL	NSL	ug/kg	53 U	48 U	89 U	77 U	48 U	54 U	61 U	52 U	51 U	57 U	49 U	61 U	59 U
Total PCBs ND=0	59.8	676	59.8	ug/kg	0	0	0	0	5	0	<u>81</u>	0	0	0	0	0	10

Bolded detected values exceed the TEC

Bolded and shaded values exceed the PEC Underlined values exceed the Region 4 ESV

FD = Field Duplicate

 $\label{eq:J-def} J = \text{Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).}$

J- = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).

ND = Non-detect

NSL = No Screening Level

PCB = Polychlorinated biphenyl

SC = Swan Creek

 $U = Compound \ was \ analyzed \ but \ not \ detected.$

 $UJ = Compound \ was \ analyzed \ but \ not \ detected. \ The \ reported \ quantitation \ limit \ is \ approximate.$

ug/kg = microgram per kilogram

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Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000). Region 4 ESV = Ecological Screening Value (EPA Region 4 2018)



				Location ID:	SC21-MRREF	SC21-MRREF	SC21-MRREF	SC21-SC02	SC21-SC02	SC21-SC02	SC21-SC03	SC21-SC03	SC21-SC03	SC21-SC04	SC21-SC04	SC21-SC04	SC21-SC04
			Sa	ample Name:	SC21-MRREF-2040	SC21-MRREF-4060	SC21-MRREF-6080	SC21-SC02-0010	SC21-SC02-1020	SC21-SC02-2040	SC21-SC03-0010	SC21-SC03-1020	SC21-SC03-2040	SC21-SC04-0010	SC21-SC04-1020	SC21-SC04-2040	SC21-SC04-4060
			S	Sample Date:	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021
			Depth	Interval (ft):	2-4	4-6	6-8	0-1	1-2	2-4	0-1	1-2	2-4	0-1	1-2	2-4	4-6
Analyte	TEC	PEC	Region 4 ESV	Unit													
Aroclor-1016	NSL	NSL	NSL	ug/kg	53 U	50 U	53 U	59 U	49 U	44 U	60 U	59 U	46 U	43 U	43 U	51 U	43 U
Aroclor-1221	NSL	NSL	NSL	ug/kg	53 U	50 U	53 U	59 U	49 U	44 U	60 U	59 U	46 U	43 U	43 U	51 U	43 U
Aroclor-1232	NSL	NSL	NSL	ug/kg	53 U	50 U	53 U	59 U	49 U	44 U	60 U	59 U	46 U	43 U	43 U	51 U	43 U
Aroclor-1242	NSL	NSL	NSL	ug/kg	53 U	50 U	53 U	31 J	85 J	93	60 U	59 U	46 U	55	43 U	51 U	43 U
Aroclor-1248	NSL	NSL	NSL	ug/kg	53 U	50 U	53 U	59 U	49 U	44 U	60 U	59 U	46 U	43 U	43 U	51 U	43 U
Aroclor-1254	NSL	NSL	NSL	ug/kg	4.8 J	50 U	53 U	59 U	190 J	180 J	33 J	59 U	46 U	43 U	43 U	51 U	43 U
Aroclor-1260	NSL	NSL	NSL	ug/kg	53 U	50 U	53 U	59 U	49 U	44 U	60 U	59 U	46 U	43 U	43 U	51 U	43 U
Aroclor-1262	NSL	NSL	NSL	ug/kg	53 U	50 U	53 U	59 U	49 U	44 U	60 U	59 U	46 U	43 U	43 U	51 U	43 U
Aroclor-1268	NSL	NSL	NSL	ug/kg	53 U	50 U	53 U	59 U	49 U	44 U	60 U	59 U	46 U	43 U	43 U	51 U	43 U
Total PCBs ND=0	59.8	676	59.8	ug/kg	4.8	0	0	31	<u>275</u>	<u>273</u>	33	0	0	55	0	0	0

Bolded detected values exceed the TEC

Bolded and shaded values exceed the PEC Underlined values exceed the Region 4 ESV

FD = Field Duplicate

 $\label{eq:J} J = Compound \ was \ detected, \ but \ result \ is \ below \ the \ reporting \ limit \ and \ greater \ than \ or \ equal \ to \ the \ method \ detection \ limit \ (value \ is \ estimated).$

J- = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).

ND = Non-detect

NSL = No Screening Level

PCB = Polychlorinated biphenyl

SC = Swan Creek

U = Compound was analyzed but not detected.

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Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000).

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018)



				Location ID:	SC21-SC04	SC21-SC04	SC21-SC05	SC21-SC06	SC21-SC06	SC21-SC06	SC21-SC07	SC21-SC07	SC21-SC07
			Sa	mple Name:	SC21-SC04-4060FD	SC21-SC04-6080	SC21-SC05-SURF	SC21-SC06-0010	SC21-SC06-1020	SC21-SC06-2040	SC21-SC07-0010	SC21-SC07-1020	SC21-SC07-2040
			S	Sample Date:	11/8/2021	11/8/2021	11/9/2021	11/8/2021	11/8/2021	11/8/2021	11/10/2021	11/10/2021	11/10/2021
			Depth	Interval (ft):	4-6	6-8	0-0.5	0-1	1-2	2-4	0-1	1-2	2-4
Analyte	TEC	PEC	Region 4 ESV	Unit									
Aroclor-1016	NSL	NSL	NSL	ug/kg	42 U	43 U	40 U	43 U	41 U	37 U	43 U	44 U	42 U
Aroclor-1221	NSL	NSL	NSL	ug/kg	42 U	43 U	40 U	43 U	41 U	37 U	43 U	44 U	42 U
Aroclor-1232	NSL	NSL	NSL	ug/kg	42 U	43 U	40 U	43 U	41 U	37 U	43 U	44 U	42 U
Aroclor-1242	NSL	NSL	NSL	ug/kg	42 U	43 U	70	43 U	41 U	37 U	43 U	44 U	42 U
Aroclor-1248	NSL	NSL	NSL	ug/kg	42 U	43 U	40 U	43 U	41 U	37 U	9.2 J	44 U	42 U
Aroclor-1254	NSL	NSL	NSL	ug/kg	42 U	43 U	40 U	43 U	41 U	37 U	44 J	44 U	42 U
Aroclor-1260	NSL	NSL	NSL	ug/kg	42 U	43 U	40 U	43 U	41 U	37 U	43 U	44 U	42 U
Aroclor-1262	NSL	NSL	NSL	ug/kg	42 U	43 U	40 U	43 U	41 U	37 U	43 U	44 U	42 U
Aroclor-1268	NSL	NSL	NSL	ug/kg	42 U	43 U	40 U	43 U	41 U	37 U	43 U	44 U	42 U
Γotal PCBs ND=0	59.8	676	59.8	ug/kg	0	0	<u>70</u>	0	0	0	53.2	0	0

Bolded and shaded values exceed the PEC

Underlined values exceed the Region 4 ESV

FD = Field Duplicate

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

J-= Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).

ND = Non-detect

NSL = No Screening Level

PCB = Polychlorinated biphenyl

SC = Swan Creek

U = Compound was analyzed but not detected.

UJ = Compound was analyzed but not detected. The reported quantitation limit is approximate.

ug/kg = microgram per kilogram

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000).

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018)



							T		1	T		1			1	T
				Location ID:	SC21-SC07	SC21-SC07	SC21-SC08	SC21-SC09	SC21-SC09	SC21-SC09	SC21-SC10	SC21-SC11	SC21-SC11	SC21-SC11	SC21-SC11	SC21-SC11
			S	Sample Name:	SC21-SC07-2040FD	SC21-SC07-4060	SC21-SC08-0010	SC21-SC09-0010	SC21-SC09-1020	SC21-SC09-2040	SC21-SC10-0010	SC21-SC11-0010	SC21-SC11-0010FD	SC21-SC11-1020	SC21-SC11-2040	SC21-SC11-SURF
				Sample Date:	11/10/2021	11/10/2021	11/3/2021	11/9/2021	11/9/2021	11/9/2021	11/5/2021	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/9/2021
			Depth	n Interval (ft):	2-4	4-6	0-1	0-1	1-2	2-4	0-1	0-1	0-1	1-2	2-4	0-0.5
Analyte	TEC	PEC	Region 4 ESV	Unit												
Aroclor-1016	NSL	NSL	NSL	ug/kg	42 U	41 U	39 U	110 U	52 U	52 U	39 U	53 U	51 U	44 U	63 U	68 U
Aroclor-1221	NSL	NSL	NSL	ug/kg	42 U	41 U	39 U	110 U	52 U	52 U	39 U	53 U	51 U	44 U	63 U	68 U
Aroclor-1232	NSL	NSL	NSL	ug/kg	42 U	41 U	39 U	110 U	52 U	52 U	39 U	53 U	51 U	44 U	63 U	68 U
Aroclor-1242	NSL	NSL	NSL	ug/kg	42 U	41 U	39 U	5500	760	250	39 U	250 J	670 J	280 J	63 U	160
Aroclor-1248	NSL	NSL	NSL	ug/kg	42 U	41 U	39 U	110 U	52 U	52 U	39 U	53 U	51 U	44 U	63 U	68 U
Aroclor-1254	NSL	NSL	NSL	ug/kg	42 U	41 U	39 U	2200	1700	380 J	39 U	53 U	51 U	130 J	63 U	64 J
Aroclor-1260	NSL	NSL	NSL	ug/kg	42 U	41 U	39 U	110 U	600	140	39 U	53 U	51 U	44 U	63 U	68 U
Aroclor-1262	NSL	NSL	NSL	ug/kg	42 U	41 U	39 U	110 U	52 U	52 U	39 U	53 U	51 U	44 U	63 U	68 U
Aroclor-1268	NSL	NSL	NSL	ug/kg	42 U	41 U	39 U	110 U	52 U	52 U	39 U	53 U	51 U	44 U	63 U	68 U
Total PCBs ND=0	59.8	676	59.8	ug/kg	0	0	0	<u>7700</u>	3060	<u>770</u>	0	<u>250</u>	<u>670</u>	<u>410</u>	0	224
NOTES:		•					•					•	•	•	•	-

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Underlined values exceed the Region 4 ESV

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U = Compound was analyzed but not detected.

 $UJ = Compound \ was \ analyzed \ but \ not \ detected. \ The \ reported \ quantitation \ limit \ is \ approximate.$

ug/kg = microgram per kilogram

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment

Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000).

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018)



				Location ID:	SC21-SC12	SC21-SC12	SC21-SC12	SC21-SC13	SC21-SC13	SC21-SC13	SC21-SC14	SC21-SC15	SC21-SC15	SC21-SC15	SC21-SC16	SC21-SC16	SC21-SC16	SC21-SC16
			Sa	ample Name:	SC21-SC12-0010	SC21-SC12-1020	SC21-SC12-2040	SC21-SC13-0010	SC21-SC13-1020	SC21-SC13-2040	SC21-SC14-SURF	SC21-SC15-0010	SC21-SC15-1020	SC21-SC15-2040	SC21-SC16-0010	SC21-SC16-1020	SC21-SC16-2040	SC21-SC16-4060
				Sample Date:	11/11/2021	11/11/2021	11/11/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021
			Depth	Interval (ft):	0-1	1-2	2-4	0-1	1-2	2-4	0-0.5	0-1	1-2	2-4	0-1	1-2	2-4	4-6
Analyte	TEC	PEC	Region 4 ESV	Unit														
Aroclor-1016	NSL	NSL	NSL	ug/kg	42 U	42 U	40 U	69 U	69 U	520 U	64 U	59 U	280 U	280 U	290 U	47 U	47 U	47 U
Aroclor-1221	NSL	NSL	NSL	ug/kg	42 U	42 U	40 U	69 U	69 U	520 U	64 U	59 U	280 U	280 U	290 U	47 U	47 U	47 U
Aroclor-1232	NSL	NSL	NSL	ug/kg	42 U	42 U	40 U	69 U	69 U	520 U	64 U	59 U	280 U	280 U	290 U	47 U	47 U	47 U
Aroclor-1242	NSL	NSL	NSL	ug/kg	42 U	42 U	40 U	170	210	16000	68	270	29000	11000 J	10000	1500 J	68 J	47 U
Aroclor-1248	NSL	NSL	NSL	ug/kg	42 U	42 U	40 U	69 U	69 U	520 U	64 U	59 U	280 U	280 U	290 U	47 U	47 U	47 U
Aroclor-1254	NSL	NSL	NSL	ug/kg	42 U	42 U	40 U	60 J	81	520 U	59 J	59 U	2400 J	670 J	1800 J	250 J	47 U	47 U
Aroclor-1260	NSL	NSL	NSL	ug/kg	42 U	42 U	40 U	69 U	69 U	520 U	64 U	59 U	280 U	280 U	290 U	47 U	47 U	47 U
Aroclor-1262	NSL	NSL	NSL	ug/kg	42 U	42 U	40 U	69 U	69 U	520 U	64 U	59 U	280 U	280 U	290 U	47 U	47 U	47 U
Aroclor-1268	NSL	NSL	NSL	ug/kg	42 U	42 U	40 U	69 U	69 U	520 U	64 U	59 U	280 U	280 U	290 U	47 U	47 U	47 U
Total PCBs ND=0	59.8	676	59.8	ug/kg	0	0	0	230	<u>291</u>	<u>16000</u>	<u>127</u>	<u>270</u>	<u>31400</u>	<u>11670</u>	<u>11800</u>	<u>1750</u>	<u>68</u>	0

Bolded detected values exceed the TEC

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Underlined values exceed the Region 4 ESV

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method detection limit (value is estimated).

J- = Compound was detected, but result is below the reporting limit and greater than or equal to the

method detection limit (value is estimated and potentially biased low).

ND = Non-detect

NSL = No Screening Level

PCB = Polychlorinated biphenyl

SC = Swan Creek
U = Compound was analyzed but not detected.

UJ = Compound was analyzed but not detected. The reported quantitation limit is approximate.

ug/kg = microgram per kilogram

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment

Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000). Region 4 ESV = Ecological Screening Value (EPA Region 4 2018)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment

Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000).



				Location ID:	SC21-SC17	SC21-SC17	SC21-SC17	SC21-SC17	SC21-SC17	SC21-SC18	SC21-SC19	SC21-SC19	SC21-SC19	SC21-SC19	SC21-SC20	SC21-SC20	SC21-SC21	SC21-SC21
			Sa	ample Name:	SC21-SC17-0010	SC21-SC17-1020	SC21-SC17-2040	SC21-SC17-4060	SC21-SC17-6080	SC21-SC18-SURF	SC21-SC19-0010	SC21-SC19-1020	SC21-SC19-2040	SC21-SC19-4060	SC21-SC20-0010	SC21-SC20-1020	SC21-SC21-0010	SC21-SC21-1020
			S	Sample Date:	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/9/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021
			Depth	Interval (ft):	0-1	1-2	2-4	4-6	6-8	0-0.5	0-1	1-2	2-4	4-6	0-1	1-2	0-1	1-2
Analyte	TEC	PEC	Region 4 ESV	Unit														
Aroclor-1016	NSL	NSL	NSL	ug/kg	57 U	48 U	46 U	48 U	43 U	270 U	50 U	54 U	50 U	48 U	41 U	39 U	55 U	53 U
Aroclor-1221	NSL	NSL	NSL	ug/kg	57 U	48 U	46 U	48 U	43 U	270 U	50 U	54 U	50 U	48 U	41 U	39 U	55 U	53 U
Aroclor-1232	NSL	NSL	NSL	ug/kg	57 U	48 U	46 U	48 U	43 U	270 U	50 U	54 U	50 U	48 U	41 U	39 U	55 U	53 U
Aroclor-1242	NSL	NSL	NSL	ug/kg	170 J	66	46 U	48 U	43 U	17000 J	100 J	54 U	50 U	48 U	12 J	39 U	55 U	53 U
Aroclor-1248	NSL	NSL	NSL	ug/kg	57 U	48 U	46 U	48 U	43 U	270 U	50 U	54 U	50 U	48 U	41 U	39 U	86 J	53 U
Aroclor-1254	NSL	NSL	NSL	ug/kg	57 U	74 J	46 U	48 U	43 U	270 U	30 J	54 U	50 U	48 U	41 U	39 U	420	92 J
Aroclor-1260	NSL	NSL	NSL	ug/kg	82	48 U	46 U	48 U	43 U	270 U	30 J	54 U	50 U	48 U	41 U	39 U	140	53 U
Aroclor-1262	NSL	NSL	NSL	ug/kg	57 U	48 U	46 U	48 U	43 U	270 U	50 U	54 U	50 U	48 U	41 U	39 U	55 U	53 U
Aroclor-1268	NSL	NSL	NSL	ug/kg	57 U	48 U	46 U	48 U	43 U	270 U	50 U	54 U	50 U	48 U	41 U	39 U	55 U	80
Total PCBs ND=0	59.8	676	59.8	ug/kg	<u>252</u>	<u>140</u>	0	0	0	<u>17000</u>	<u>160</u>	0	0	0	12	0	<u>646</u>	<u>172</u>

Bolded detected values exceed the TEC

Bolded and shaded values exceed the PEC Underlined values exceed the Region 4 ESV

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J- = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).

ND = Non-detect

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PCB = Polychlorinated biphenyl

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ug/kg = microgram per kilogram

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment

Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000). Region 4 ESV = Ecological Screening Value (EPA Region 4 2018)



				Location ID:	SC21-SC21	SC21-SC21	SC21-SC22	SC21-SC22	SC21-SC23	SC21-SC23	SC21-SC23	SC21-SC24	SC21-SC24	SC21-SC24	SC21-SC25
			Sa	ample Name:	SC21-SC21-2040	SC21-SC21-SURF	SC21-SC22-0010	SC21-SC22-1020	SC21-SC23-0010	SC21-SC23-1020	SC21-SC23-2040	SC21-SC24-0010	SC21-SC24-1020	SC21-SC24-2040	SC21-SC25-0010
			8	Sample Date:	11/5/2021	11/9/2021	11/4/2021	11/4/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/4/2021
			Depth	Interval (ft):	2-4	0-0.5	0-1	1-2	0-1	1-2	2-4	0-1	1-2	2-4	0-1
Analyte	TEC	PEC	Region 4 ESV	Unit											
Aroclor-1016	NSL	NSL	NSL	ug/kg	53 U	76 U	48 U	42 U	83 U	54 U	55 U	67 U	60 U	50 U	75 UJ
Aroclor-1221	NSL	NSL	NSL	ug/kg	53 U	76 U	48 U	42 U	83 U	54 U	55 U	67 U	60 U	50 U	75 UJ
Aroclor-1232	NSL	NSL	NSL	ug/kg	53 U	76 U	48 U	42 U	83 U	54 U	55 U	67 U	60 U	50 U	75 UJ
Aroclor-1242	NSL	NSL	NSL	ug/kg	53 U	400	48 U	42 U	230 J	920 J	55 U	67 U	60 U	50 U	86 J-
Aroclor-1248	NSL	NSL	NSL	ug/kg	53 U	76 U	48 U	42 U	83 U	54 U	55 U	67 U	60 U	50 U	75 UJ
Aroclor-1254	NSL	NSL	NSL	ug/kg	53 U	200	48 U	42 U	71 J	340 J	55 U	67 U	60 U	50 U	23 J
Aroclor-1260	NSL	NSL	NSL	ug/kg	53 U	76 U	48 U	42 U	83 U	100	55 U	67 U	60 U	50 U	75 UJ
Aroclor-1262	NSL	NSL	NSL	ug/kg	53 U	76 U	48 U	42 U	83 U	54 U	55 U	67 U	60 U	50 U	75 UJ
Aroclor-1268	NSL	NSL	NSL	ug/kg	13 J	76 U	48 U	42 U	83 U	54 U	25 J	67 U	60 U	50 U	75 UJ
Total PCBs ND=0	59.8	676	59.8	ug/kg	13	<u>600</u>	0	0	<u>301</u>	<u>1360</u>	25	0	0	0	<u>109</u>

Bolded detected values exceed the TEC

Bolded and shaded values exceed the PEC

Underlined values exceed the Region 4 ESV

FD = Field Duplicate

 $\label{eq:J-def} J = \text{Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).}$

J- = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).

ND = Non-detect

NSL = No Screening Level

PCB = Polychlorinated biphenyl

SC = Swan Creek

U = Compound was analyzed but not detected.

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ug/kg = microgram per kilogram

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000).

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018)



				Location ID:	SC21-SC25	SC21-SC25	SC21-SC25	SC21-SC25	SC21-SC26	SC21-SC26	SC21-SC27	SC21-SC28	SC21-SC28	SC21-SC28	SC21-SC28	SC21-SC28	SC21-SC29
			S	ample Name:	SC21-SC25-1020	SC21-SC25-2040	SC21-SC25-2040FD	SC21-SC25-4060	SC21-SC26-0010	SC21-SC26-1020	SC21-SC27-SURF	SC21-SC28-0010	SC21-SC28-0010FD	SC21-SC28-1020	SC21-SC28-2040	SC21-SC28-4060	SC21-SC29-0010
				Sample Date:	11/4/2021	11/4/2021	11/4/2021	11/4/2021	11/3/2021	11/3/2021	11/9/2021	11/4/2021	11/4/2021	11/4/2021	11/4/2021	11/4/2021	11/3/2021
			Depth	Interval (ft):	1-2	2-4	2-4	4-6	0-1	1-2	0-0.5	0-1	0-1	1-2	2-4	4-6	0-1
Analyte	TEC	PEC	Region 4 ESV	Unit													
Aroclor-1016	NSL	NSL	NSL	ug/kg	71 U	60 U	58 U	56 U	55 U	45 U	76 U	49 U	50 U	49 U	49 U	53 U	55 U
Aroclor-1221	NSL	NSL	NSL	ug/kg	71 U	60 U	58 U	56 U	55 U	45 U	76 U	49 U	50 U	49 U	49 U	53 U	55 U
Aroclor-1232	NSL	NSL	NSL	ug/kg	71 U	60 U	58 U	56 U	55 U	45 U	76 U	49 U	50 U	49 U	49 U	53 U	55 U
Aroclor-1242	NSL	NSL	NSL	ug/kg	410	2100 J	410 J	56 U	55 U	45 U	180	20 J	50 U	49 U	49 U	53 U	240 J
Aroclor-1248	NSL	NSL	NSL	ug/kg	71 U	60 U	58 U	56 U	55 U	45 U	76 U	49 U	50 U	49 U	49 U	53 U	55 U
Aroclor-1254	NSL	NSL	NSL	ug/kg	160	470 J	120 J	56 U	55 U	45 U	76 U	9.1 J	50 U	49 U	49 U	53 U	89
Aroclor-1260	NSL	NSL	NSL	ug/kg	71 U	60 U	58 U	56 U	55 U	45 U	76 U	49 U	50 U	49 U	49 U	53 U	55 U
Aroclor-1262	NSL	NSL	NSL	ug/kg	71 U	60 U	58 U	56 U	55 U	45 U	76 U	49 U	50 U	49 U	49 U	53 U	55 U
Aroclor-1268	NSL	NSL	NSL	ug/kg	71 U	60 U	58 U	56 U	55 U	45 U	76 U	49 U	50 U	49 U	49 U	53 U	67 J
Total PCBs ND=0	59.8	676	59.8	ug/kg	<u>570</u>	<u>2570</u>	<u>530</u>	0	0	0	<u>180</u>	29.1	0	0	0	0	<u>396</u>

Bolded detected values exceed the TEC

Bolded and shaded values exceed the PEC Underlined values exceed the Region 4 ESV

FD = Field Duplicate

 $\label{eq:J-def} \textbf{J} = \textbf{Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).}$

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ug/kg = microgram per kilogram

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000).

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018)



				Location ID:	SC21-SC30	SC21-SC30	SC21-SC30	SC21-SC30	SC21-SC31	SC21-SC31	SC21-SC31	SC21-SC31	SC21-SC31	SC21-SC32	SC21-SC32	SC21-SC32	SC21-SC32
			Sa	ample Name:	SC21-SC30-0010	SC21-SC30-1020	SC21-SC30-2040	SC21-SC30-SURF	SC21-SC31-0010	SC21-SC31-1020	SC21-SC31-2040	SC21-SC31-4060	SC21-SC31-6080	SC21-SC32-0010	SC21-SC32-1020	SC21-SC32-2040	SC21-SC32-4060
			5	Sample Date:	11/4/2021	11/4/2021	11/4/2021	11/9/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021
			Depth	Interval (ft):	0-1	1-2	2-4	0-0.5	0-1	1-2	2-4	4-6	6-8	0-1	1-2	2-4	4-6
Analyte	TEC	PEC	Region 4 ESV	Unit													
Aroclor-1016	NSL	NSL	NSL	ug/kg	60 U	57 U	54 U	77 U	65 U	58 U	56 U	51 U	58 U	65 U	60 U	58 U	51 U
Aroclor-1221	NSL	NSL	NSL	ug/kg	60 U	57 U	54 U	77 U	65 U	58 U	56 U	51 U	58 U	65 U	60 U	58 U	51 U
Aroclor-1232	NSL	NSL	NSL	ug/kg	60 U	57 U	54 U	77 U	65 U	58 U	56 U	51 U	58 U	65 U	60 U	58 U	51 U
Aroclor-1242	NSL	NSL	NSL	ug/kg	60 U	57 U	54 U	140 J	480 J	58 U	56 U	51 U	58 U	68	81	95	94
Aroclor-1248	NSL	NSL	NSL	ug/kg	60 U	57 U	54 U	77 U	65 U	58 U	56 U	51 U	58 U	65 U	60 U	58 U	51 U
Aroclor-1254	NSL	NSL	NSL	ug/kg	60 U	57 U	54 U	77 U	170 J	58 U	56 U	51 U	58 U	43 J	49 J	55 J	39 J
Aroclor-1260	NSL	NSL	NSL	ug/kg	60 U	57 U	54 U	77 U	65 U	58 U	56 U	51 U	58 U	65 U	60 U	58 U	51 U
Aroclor-1262	NSL	NSL	NSL	ug/kg	60 U	57 U	54 U	77 U	65 U	58 U	56 U	51 U	58 U	65 U	60 U	58 U	51 U
Aroclor-1268	NSL	NSL	NSL	ug/kg	60 U	57 U	54 U	77 U	65 U	58 U	56 U	51 U	58 U	65 U	60 U	58 U	51 U
Total PCBs ND=0	59.8	676	59.8	ug/kg	0	0	0	<u>140</u>	<u>650</u>	0	0	0	0	<u>111</u>	<u>130</u>	<u>150</u>	<u>133</u>

Bolded detected values exceed the TEC

Bolded and shaded values exceed the PEC Underlined values exceed the Region 4 ESV

FD = Field Duplicate

 $\label{eq:J-def} J = \text{Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).}$

J- = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).

ND = Non-detect

NSL = No Screening Level

PCB = Polychlorinated biphenyl

SC = Swan Creek

U = Compound was analyzed but not detected.

 $UJ = Compound \ was \ analyzed \ but \ not \ detected. \ The \ reported \ quantitation \ limit \ is \ approximate.$

ug/kg = microgram per kilogram

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment

Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000). Region 4 ESV = Ecological Screening Value (EPA Region 4 2018)



				Location ID:	SC21-SC32	SC21-SC33	SC21-SC33	SC21-SC33	SC21-SCREF
			Sa	ample Name:	SC21-SC32-6080	SC21-SC33-0010	SC21-SC33-1020	SC21-SC33-2040	SC21-SCREF-SURF
			5	Sample Date:	11/3/2021	11/4/2021	11/4/2021	11/4/2021	11/9/2021
			Depth	Interval (ft):	6-8	0-1	1-2	2-3.4	0-0.5
Analyte	TEC	PEC	Region 4 ESV	Unit					
Aroclor-1016	NSL	NSL	NSL	ug/kg	48 U	59 U	59 U	51 U	50 U
Aroclor-1221	NSL	NSL	NSL	ug/kg	48 U	59 U	59 U	51 U	50 U
Aroclor-1232	NSL	NSL	NSL	ug/kg	48 U	59 U	59 U	51 U	50 U
Aroclor-1242	NSL	NSL	NSL	ug/kg	48 U	280 J	41 J	19 J	25 J
Aroclor-1248	NSL	NSL	NSL	ug/kg	13 J	59 U	59 U	51 U	50 U
Aroclor-1254	NSL	NSL	NSL	ug/kg	5.7 J	57 J	7.6 J	51 U	35 J
Aroclor-1260	NSL	NSL	NSL	ug/kg	48 U	59 U	59 U	51 U	50 U
Aroclor-1262	NSL	NSL	NSL	ug/kg	48 U	59 U	59 U	51 U	50 U
Aroclor-1268	NSL	NSL	NSL	ug/kg	48 U	59 U	59 U	51 U	50 U
Total PCBs ND=0	59.8	676	59.8	ug/kg	18.7	<u>337</u>	48.6	19	<u>60</u>

Bolded and shaded values exceed the PEC

Underlined values exceed the Region 4 ESV

FD = Field Duplicate

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

J- = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).

ND = Non-detect

NSL = No Screening Level

PCB = Polychlorinated bipheny

SC = Swan Creek

U = Compound was analyzed but not detected.

UJ = Compound was analyzed but not detected. The reported quantitation limit is approximate.

ug/kg = microgram per kilogram

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000).

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018)



				Location ID:	SC21-COMP-01	SC21-COMP-02	SC21-COMP-03	SC21-COMP-04	SC21-COMP-05	SC21-COMP-05	SC21-COMP-06	SC21-COMP-07	SC21-COMP-08
			S	ample Name:	SC21-COMP-01	SC21-COMP-02	SC21-COMP-03	SC21-COMP-04	SC21-COMP-05	SC21-COMP-05FD	SC21-COMP-06	SC21-COMP-07	SC21-COMP-08
			\$	Sample Date:	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/10/2021	11/11/2021	11/11/2021
Analyte	TEC	PEC	Region 4 ESV	Unit									
Aroclor-1016	NSL	NSL	NSL	ug/kg	49 U	44 U	43 U	56 U	260 U	260 U	47 U	53 U	59 U
Aroclor-1221	NSL	NSL	NSL	ug/kg	49 U	44 U	43 U	56 U	260 U	260 U	47 U	53 U	59 U
Aroclor-1232	NSL	NSL	NSL	ug/kg	49 U	44 U	43 U	56 U	260 U	260 U	47 U	53 U	59 U
Aroclor-1242	NSL	NSL	NSL	ug/kg	73	22 J	15 J	1100	15000	15000	520	300 J	110 J
Aroclor-1248	NSL	NSL	NSL	ug/kg	49 U	44 U	43 U	56 U	260 U	260 U	47 U	53 U	59 U
Aroclor-1254	NSL	NSL	NSL	ug/kg	49 U	43 J	36 J	190 J	260 U	260 U	64	110 J	99
Aroclor-1260	NSL	NSL	NSL	ug/kg	49 U	44 U	43 U	56 U	260 U	260 U	47 U	53 U	59 U
Aroclor-1262	NSL	NSL	NSL	ug/kg	49 U	44 U	43 U	56 U	260 U	260 U	47 U	53 U	59 U
Aroclor-1268	NSL	NSL	NSL	ug/kg	49 U	44 U	43 U	56 U	260 U	260 U	47 U	53 U	34 J
Total PCBs ND=0	59.8	676	59.8	ug/kg	<u>73</u>	<u>65</u>	51	<u>1290</u>	<u>15000</u>	<u>15000</u>	<u>584</u>	<u>410</u>	<u>243</u>

Bolded detected values exceed the TEC

Bolded and shaded values exceed the PEC

Underlined values exceed the Region 4 ESV

FD = Field Duplicate

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

ND = Non-detect

NSL = No Screening Level

PCB = Polychlorinated biphenyl

SC = Swan Creek

U = Compound was analyzed but not detected.

ug/kg = microgram per kilogram

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment

Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000).

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).

 $\overline{TEC} = \overline{Threshold\ effect\ concentration}.\ \overline{Development\ and\ Evaluation\ of\ Consensus-Based\ Sediment}$

Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000).



			I	ocation ID:	SC21-SC11	SC21-SC14	SC21-SC18	SC21-SC18	SC21-SCREF
				mple Name:	SC21-SC11-SURF	SC21-SC14-SURF	SC21-SC18-SURF	SC21-SC18-SURFFD	SC21-SCREF-SURF
				ample Date:	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021
A =14-	TEC	PEC		nterval (ft): Unit	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
Analyte PCB-1	NSL	NSL	Region 4 ESV NSL	ug/kg	0.082	0.39	6.5 J	15 J	3.6
PCB-2	NSL	NSL	NSL	ug/kg	0.011 J	0.036	1 J	2.7 J	0.076
PCB-3	NSL	NSL	NSL	ug/kg	0.021 J	0.099	2.6	3.7	0.64
PCB-4	NSL	NSL	NSL	ug/kg	0.5	2.7	72 J	140 J	21
PCB-5	NSL	NSL	NSL	ug/kg	0.04 U	0.021 J	2.8 J	6.2 J	0.092
PCB-6 PCB-7	NSL NSL	NSL NSL	NSL NSL	ug/kg ug/kg	0.3 0.032 J	0.13	200 J 7.9 J	610 J 25 J	4.2 0.73
PCB-8	NSL	NSL	NSL	ug/kg ug/kg	0.65	2.4	190 J	510 J	12
PCB-9	NSL	NSL	NSL	ug/kg	0.041	0.1	13 J	39 J	0.37
PCB-10	NSL	NSL	NSL	ug/kg	0.023 J	0.082	3.2 J	8.1 J	0.61
PCB-11	NSL	NSL	NSL	ug/kg	0.04 U	0.47	6.2 J	19 J	0.57
PCB-13/12 PCB-14	NSL NSL	NSL NSL	NSL NSL	ug/kg	0.12 0.04 U	0.49 0.019 U	38 J 0.051 U	120 J 0.033 UJ	0.94 0.037 U
PCB-14 PCB-15	NSL	NSL NSL	NSL NSL	ug/kg ug/kg	0.04 U	1.9	77 J	130 J	6
PCB-16	NSL	NSL	NSL	ug/kg	0.34	0.85	160 J	56 J	2.5
PCB-17	NSL	NSL	NSL	ug/kg	0.43	2.6	190	300	11
PCB-19	NSL	NSL	NSL	ug/kg	0.14	0.9	35	57	5.3
PCB-21/33	NSL	NSL	NSL	ug/kg	0.39	1.5	120 J	220 J	3.6
PCB-22 PCB-23	NSL NSL	NSL NSL	NSL NSL	ug/kg ug/kg	0.5 0.02 U	2 0.0079 J	160 J 0.71 J	280 J 1.2 J	5.2 0.013 J
PCB-24	NSL	NSL	NSL	ug/kg ug/kg	0.0089 J	0.038	2.5	0.033 U	0.013 3
PCB-25	NSL	NSL	NSL	ug/kg	0.3	1.7	140 J	320 J	4.8
PCB-26/29	NSL	NSL	NSL	ug/kg	0.47	2.4	190 J	410 J	6.6
PCB-27	NSL	NSL	NSL	ug/kg	0.11	0.52	23 500 F	36	1.1
PCB-28/20 PCB-30/18	NSL NSL	NSL NSL	NSL NSL	ug/kg ug/kg	0.2	8.8 1.6	580 J 290 J	1100 J 500 J	22 4.3
PCB-31	NSL	NSL	NSL	ug/kg ug/kg	1.5	6.9	480 J	920 J	19
PCB-32	NSL	NSL	NSL	ug/kg	0.39	1.7	60	98	6.7
PCB-34	NSL	NSL	NSL	ug/kg	0.017 J	0.08	7.1 J	15 J	0.21
PCB-35	NSL	NSL	NSL	ug/kg	0.036	0.099	4.4 J	7.8 J	0.2
PCB-36 PCB-37	NSL NSL	NSL NSL	NSL NSL	ug/kg ug/kg	0.02 U 0.55	0.0086 J 1.6	0.098 J 52 J	0.033 U 150 J	0.018 U 2.9
PCB-38	NSL	NSL	NSL	ug/kg ug/kg	0.02 U	0.019 U	0.11	0.033 U	0.018 U
PCB-39	NSL	NSL	NSL	ug/kg	0.0084 J	0.063	2.4 J	5 J	0.12
PCB-41/40/71	NSL	NSL	NSL	ug/kg	0.66	4.4	210 J	520 J	10
PCB-42	NSL	NSL	NSL	ug/kg	0.38	2.4	140 J	330 J	5.5
PCB-44/47/65 PCB-45/51	NSL NSL	NSL NSL	NSL NSL	ug/kg ug/kg	1.2 0.27	8.5 1.7	450 J 120 J	1100 J 250 J	20 4.6
PCB-46	NSL	NSL	NSL	ug/kg ug/kg	0.073	0.49	37 J	82 J	1.3
PCB-48	NSL	NSL	NSL	ug/kg	0.18	1.4	80 J	180 J	3
PCB-50/53	NSL	NSL	NSL	ug/kg	0.2	1.4	87 J	200 J	4
PCB-52	NSL	NSL	NSL	ug/kg	1.4	9.1	520 J	1200 J	20
PCB-54	NSL	NSL	NSL	ug/kg	0.0044 J	0.04 J	1.2 J	2.5 J	0.15
PCB-55 PCB-56	NSL NSL	NSL NSL	NSL NSL	ug/kg ug/kg	0.015 J 0.56	0.093 3.6	1.4 J 120	3.2 J 170	0.18 7.5
PCB-50 PCB-57	NSL NSL	NSL NSL	NSL NSL	ug/kg ug/kg	0.013 J	0.066	1.3 J	4.1 J	0.16
PCB-58	NSL	NSL	NSL	ug/kg ug/kg	0.008 J	0.038 J	1.8 J	5.6 J	0.079
PCB-59/62/75	NSL	NSL	NSL	ug/kg ug/kg	0.15	0.8	43 J	95 J	1.7
PCB-60	NSL	NSL	NSL	ug/kg	0.23	1.8	20 J	56 J	3.6
PCB-61/70/74/76	NSL	NSL	NSL	ug/kg	1.6	13	480 J	1200 J	27
PCB-63	NSL	NSL	NSL	ug/kg	0.061	0.49	17 J	31 J	1.1
PCB-64	NSL	NSL	NSL	ug/kg	0.6	3.7	180 J	440 J	8.1
PCB-66	NSL	NSL	NSL	ug/kg	1.2	8.2	180 J	320 J	16
PCB-67 PCB-68	NSL NSL	NSL NSL	NSL NSL	ug/kg ug/kg	0.041 J 0.013 J	0.25 0.063	12 J 3.2 J	24 J 8.3 J	0.48 0.15
PCB-69/49	NSL	NSL	NSL	ug/kg ug/kg	0.86	5.8	280 J	630 J	13
PCB-72	NSL	NSL	NSL	ug/kg ug/kg	0.018 J	0.098	4.7 J	12 J	0.22
PCB-73/43	NSL	NSL	NSL	ug/kg	0.046 J	0.32	17 J	38 J	0.8
PCB-77	NSL	NSL	NSL	ug/kg	0.19	0.94	28 J	60 J	2
PCB-78	NSL	NSL	NSL	ug/kg	0.02 U	0.019 U	0.036 J	0.033 U	0.018 U
PCB-79	NSL	NSL	NSL	ug/kg	0.009 J	0.062	0.99 J	2.2 J	0.14
PCB-80	NSL	NSL	NSL	ug/kg	0.02 U	0.027 J	0.67 J	1.9 J	0.06
PCB-81	NSL	NSL	NSL	ug/kg	0.0089 J	0.041 J	0.4 J	0.83 J	0.082
PCB-82	NSL	NSL	NSL	ug/kg	0.12	1.2	32 J	70 J	2.3



				Location ID:	SC21-SC11	SC21-SC14	SC21-SC18	SC21-SC18	SC21-SCREF
				mple Name:	SC21-SC11-SURF 11/9/2021	SC21-SC14-SURF	SC21-SC18-SURF 11/9/2021	SC21-SC18-SURFFD	SC21-SCREF-SURF 11/9/2021
				ample Date: Interval (ft):	0-0.5	11/9/2021 0-0.5	0-0.5	11/9/2021 0-0.5	0-0.5
Analyte	TEC	PEC	Region 4 ESV	Unit	0 0.5	0 0.5	0 0.5	0 0.5	0 0.5
PCB-83	NSL	NSL	NSL	ug/kg	0.079	0.58	22 J	44 J	1.2
PCB-84	NSL	NSL	NSL	ug/kg	0.2	1.6	76 J	190 J	3.5
PCB-88/91	NSL	NSL	NSL	ug/kg	0.16	1.4	69	44	2.8
PCB-89	NSL	NSL	NSL	ug/kg	0.02 J	0.16	6.8 J	15 J	0.35
PCB-92	NSL	NSL	NSL	ug/kg	0.18	1.1	52 J	110 J	0.018 U
PCB-94	NSL	NSL	NSL	ug/kg	0.02 U	0.078	3.3 J	7.6 J	0.18
PCB-95	NSL	NSL	NSL	ug/kg	0.6	4.1	240 J	510 J	8.1
PCB-96	NSL	NSL	NSL	ug/kg	0.012 J	0.13	6.5 J	15 J	0.29
PCB-99 PCB-100/93/102/198	NSL NSL	NSL NSL	NSL NSL	ug/kg ug/kg	0.45 0.054 J	3.1 0.5	110 J 19 J	200 J 41 J	6.5
PCB-103	NSL	NSL	NSL	ug/kg ug/kg	0.034 J 0.02 U	0.066	3.4 J	7.1 J	0.14
PCB-104	NSL	NSL	NSL	ug/kg	0.02 U	0.019 U	0.064	0.1 J	0.018 U
PCB-105	NSL	NSL	NSL	ug/kg	0.39	2.7	57 J	120 J	5.9
PCB-106	NSL	NSL	NSL	ug/kg	0.02 U	0.019 U	0.051 U	0.44	0.018 U
PCB-107/124	NSL	NSL	NSL	ug/kg	0.041 J	0.23	4.3 J	9.1 J	0.5
PCB-108/119/86/97/125/87	NSL	NSL	NSL	ug/kg	0.66	4.5	140 J	280 J	9
PCB-109	NSL	NSL	NSL	ug/kg	0.07	0.42	14 J	28 J	0.97
PCB-110/115	NSL	NSL	NSL	ug/kg	1.1	6.6	250 J	480 J	14
PCB-111 PCB-112	NSL NSL	NSL NSL	NSL NSL	ug/kg	0.02 U 0.02 U	0.0052 J 0.019 U	0.14 0.051 U	0.21 0.033 U	0.009 J 0.018 U
PCB-112 PCB-113/90/101	NSL NSL	NSL NSL	NSL NSL	ug/kg ug/kg	0.02 U 0.73	0.019 U 4.9	0.051 U 210 J	0.033 U 420 J	0.018 U 9.8
PCB-114	NSL	NSL	NSL	ug/kg ug/kg	0.023 J	0.2	3.8 J	8.4 J	0.44
PCB-117/116/85	NSL	NSL	NSL	ug/kg	0.25	1.8	44 J	98 J	3.7
PCB-118	NSL	NSL	NSL	ug/kg	0.8	4.9	150 J	310 J	11
PCB-120	NSL	NSL	NSL	ug/kg	0.02 U	0.018 J	0.64	0.41	0.032 J
PCB-121	NSL	NSL	NSL	ug/kg	0.02 U	0.019 U	0.051 U	0.08	0.018 U
PCB-122	NSL	NSL	NSL	ug/kg	0.024 J	0.14	2.3	4.3	0.29
PCB-123	NSL	NSL	NSL	ug/kg	0.024 J	0.15	2.5 J	6.5 J	0.34
PCB-126 PCB-127	NSL	NSL	NSL	ug/kg	0.02 U	0.024 J	0.36 J	0.82 J	0.039 J
PCB-128/166	NSL NSL	NSL NSL	NSL NSL	ug/kg ug/kg	0.02 U 0.15	0.007 J 0.54	0.1 19	0.2 30	0.018 U 0.81
PCB-130	NSL	NSL	NSL	ug/kg ug/kg	0.059	0.22	9.1 J	16 J	0.34
PCB-131	NSL	NSL	NSL	ug/kg	0.01 J	0.051	2.2 J	3.9 J	0.092
PCB-132	NSL	NSL	NSL	ug/kg	0.25	1	47 J	87 J	1.6
PCB-133	NSL	NSL	NSL	ug/kg	0.011 J	0.048 J	2.2 J	4.2 J	0.071
PCB-134/143	NSL	NSL	NSL	ug/kg	0.042 J	0.19	8.9 J	15 J	0.34
PCB-136	NSL	NSL	NSL	ug/kg	0.069	0.33	20 J	38 J	0.55
PCB-137	NSL	NSL	NSL	ug/kg	0.052	0.2	7.6 J	13 J	0.35
PCB-138/163/129 PCB-139/140	NSL NSL	NSL NSL	NSL NSL	ug/kg	0.84 0.019 J	2.9 0.074 J	120 J 2.9 J	210 J 5.2 J	4.5 0.12
PCB-141	NSL	NSL	NSL	ug/kg ug/kg	0.12	0.45	2.9 3	30	0.7
PCB-142	NSL	NSL	NSL	ug/kg ug/kg	0.02 U	0.019 U	0.06	0.067	0.018 U
PCB-144	NSL	NSL	NSL	ug/kg ug/kg	0.028 J	0.13	0.051 U	0.033 U	0.22
PCB-145	NSL	NSL	NSL	ug/kg	0.02 U	0.019 U	0.09	0.17	0.018 U
PCB-146	NSL	NSL	NSL	ug/kg	0.092	0.34	17 J	31 J	0.53
PCB-147/149	NSL	NSL	NSL	ug/kg	0.49	1.9	80 J	140 J	3
PCB-148	NSL	NSL	NSL	ug/kg	0.02 U	0.019 U	0.27 J	0.56 J	0.018 U
PCB-150	NSL NSL	NSL NSL	NSL NSL	ug/kg	0.02 U 0.2	0.0039 J 0.79	0.22 44 J	0.51 78 J	0.01 J
PCB-151/135 PCB-152	NSL NSL	NSL NSL	NSL NSL	ug/kg	0.2 0.02 U	0.79 0.0055 J	0.27 J	0.6 J	1.3 0.014 J
PCB-152/168	NSL	NSL NSL	NSL NSL	ug/kg ug/kg	0.02 0	1.9	91	150	2.9
PCB-154	NSL	NSL	NSL	ug/kg ug/kg	0.0065 J	0.029 J	1.5 J	3.1 J	0.048
PCB-155	NSL	NSL	NSL	ug/kg	0.02 U	0.0015 J	0.051 U	0.033 U	0.018 U
PCB-156/157	NSL	NSL	NSL	ug/kg	0.1	0.39	15 J	29 J	0.61
PCB-158	NSL	NSL	NSL	ug/kg	0.079	0.28	12 J	20 J	0.45
PCB-159	NSL	NSL	NSL	ug/kg	0.02 U	0.019 U	0.061	0.13 J	0.018 U
PCB-160	NSL	NSL	NSL	ug/kg	0.02 U	0.019 U	0.051 U	0.033 U	0.018 U
PCB-161	NSL	NSL	NSL	ug/kg	0.02 U	0.019 U	0.051 U	0.033 U	0.018 U
PCB-162	NSL	NSL	NSL	ug/kg	0.02 U	0.016 J	0.46 J	1.3 J	0.017 J
PCB-164 PCB-165	NSL NSL	NSL NSL	NSL NSL	ug/kg ug/kg	0.054 0.02 U	0.18 0.019 U	7.5 J 0.051 U	13 J 0.033 U	0.28 0.018 U
PCB-167	NSL	NSL	NSL NSL	ug/kg ug/kg	0.02 U 0.036 J	0.019 0	4.4 J	7.4 J	0.018 0
PCB-169	NSL	NSL	NSL	ug/kg ug/kg	0.03 U	0.019 U	0.086 J	0.25 J	0.018 U
. CD 107	1100	TIDE	HOL	ug/ng	0.02 0	0.017 0	0.000 J	0.233	0.010 0



Analyte TEC PCB-170 NSL PCB-171/173 NSL PCB-172 NSL PCB-174 NSL PCB-175 NSL PCB-176 NSL PCB-177 NSL PCB-178 NSL PCB-179 NSL PCB-180/193 NSL PCB-181 NSL PCB-182 NSL PCB-183/185 NSL PCB-184 NSL PCB-186 NSL PCB-187 NSL PCB-188 NSL PCB-189 NSL PCB-190 NSL PCB-191 NSL PCB-192 NSL					SC21-SC14	SC21-SC18	SC21-SC18	SC21-SCREF
PCB-170 NSL PCB-171/173 NSL PCB-172 NSL PCB-174 NSL PCB-175 NSL PCB-176 NSL PCB-177 NSL PCB-178 NSL PCB-179 NSL PCB-180/193 NSL PCB-181 NSL PCB-182 NSL PCB-183/185 NSL PCB-184 NSL PCB-186 NSL PCB-187 NSL PCB-188 NSL PCB-189 NSL PCB-190 NSL PCB-191 NSL		Sa	mple Name:	SC21-SC11-SURF	SC21-SC14-SURF	SC21-SC18-SURF	SC21-SC18-SURFFD	SC21-SCREF-SURF
PCB-170 NSL PCB-171/173 NSL PCB-172 NSL PCB-174 NSL PCB-175 NSL PCB-176 NSL PCB-177 NSL PCB-178 NSL PCB-179 NSL PCB-180/193 NSL PCB-181 NSL PCB-182 NSL PCB-183/185 NSL PCB-184 NSL PCB-186 NSL PCB-187 NSL PCB-188 NSL PCB-189 NSL PCB-190 NSL PCB-191 NSL		S	ample Date:	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021
PCB-170 NSL PCB-171/173 NSL PCB-172 NSL PCB-174 NSL PCB-175 NSL PCB-176 NSL PCB-177 NSL PCB-178 NSL PCB-189 NSL PCB-180/193 NSL PCB-181 NSL PCB-182 NSL PCB-183/185 NSL PCB-184 NSL PCB-186 NSL PCB-187 NSL PCB-188 NSL PCB-189 NSL PCB-190 NSL PCB-191 NSL		Depth 1	nterval (ft):	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
PCB-171/173 NSL PCB-172 NSL PCB-174 NSL PCB-175 NSL PCB-176 NSL PCB-177 NSL PCB-178 NSL PCB-179 NSL PCB-180/193 NSL PCB-181 NSL PCB-182 NSL PCB-183/185 NSL PCB-184 NSL PCB-186 NSL PCB-187 NSL PCB-188 NSL PCB-189 NSL PCB-190 NSL PCB-191 NSL	PEC	Region 4 ESV	Unit					
PCB-172 NSL PCB-174 NSL PCB-175 NSL PCB-176 NSL PCB-177 NSL PCB-178 NSL PCB-179 NSL PCB-180/193 NSL PCB-181 NSL PCB-182 NSL PCB-183/185 NSL PCB-1844 NSL PCB-186 NSL PCB-187 NSL PCB-188 NSL PCB-189 NSL PCB-190 NSL PCB-191 NSL	NSL	NSL	ug/kg	0.13	0.42	15	22 J+	0.6
PCB-174 NSL PCB-175 NSL PCB-176 NSL PCB-177 NSL PCB-178 NSL PCB-179 NSL PCB-180/193 NSL PCB-181 NSL PCB-182 NSL PCB-183/185 NSL PCB-184 NSL PCB-186 NSL PCB-187 NSL PCB-188 NSL PCB-189 NSL PCB-190 NSL PCB-191 NSL	NSL	NSL	ug/kg	0.04 J	0.15	5.6	8.8 J+	0.21
PCB-175 NSL PCB-176 NSL PCB-177 NSL PCB-178 NSL PCB-179 NSL PCB-180/193 NSL PCB-181 NSL PCB-182 NSL PCB-183/185 NSL PCB-184 NSL PCB-186 NSL PCB-187 NSL PCB-188 NSL PCB-189 NSL PCB-190 NSL PCB-191 NSL	NSL	NSL	ug/kg	0.031 J	0.083	2.9	4.5 J+	0.12
PCB-176 NSL PCB-177 NSL PCB-178 NSL PCB-179 NSL PCB-180/193 NSL PCB-181 NSL PCB-182 NSL PCB-183/185 NSL PCB-184 NSL PCB-186 NSL PCB-187 NSL PCB-188 NSL PCB-189 NSL PCB-190 NSL PCB-191 NSL	NSL	NSL	ug/kg	0.13	0.44	18	27 J+	0.63
PCB-177 NSL PCB-178 NSL PCB-179 NSL PCB-180/193 NSL PCB-181 NSL PCB-182 NSL PCB-183/185 NSL PCB-184 NSL PCB-186 NSL PCB-187 NSL PCB-188 NSL PCB-189 NSL PCB-190 NSL PCB-191 NSL	NSL	NSL	ug/kg	0.0074 J	0.021 J	0.99	1.4 J+	0.032 J
PCB-178 NSL PCB-179 NSL PCB-180/193 NSL PCB-181 NSL PCB-182 NSL PCB-183/185 NSL PCB-184 NSL PCB-187 NSL PCB-187 NSL PCB-188 NSL PCB-189 NSL PCB-190 NSL PCB-191 NSL	NSL	NSL	ug/kg	0.0175 J	0.065	2.9	4.5 J+	0.088
PCB-179 NSL PCB-180/193 NSL PCB-181 NSL PCB-182 NSL PCB-183/185 NSL PCB-184 NSL PCB-186 NSL PCB-187 NSL PCB-188 NSL PCB-189 NSL PCB-190 NSL PCB-191 NSL	NSL	NSL	ug/kg	0.077	0.28	11	17 J+	0.4
PCB-180/193 NSL PCB-181 NSL PCB-182 NSL PCB-183/185 NSL PCB-184 NSL PCB-186 NSL PCB-187 NSL PCB-188 NSL PCB-189 NSL PCB-190 NSL PCB-191 NSL	NSL	NSL	ug/kg	0.027 J	0.1	4.5	6.8 J+	0.15
PCB-181 NSL PCB-182 NSL PCB-183/185 NSL PCB-184 NSL PCB-186 NSL PCB-187 NSL PCB-188 NSL PCB-189 NSL PCB-190 NSL PCB-191 NSL	NSL	NSL	ug/kg	0.049 J	0.2	9.6	15 J+	0.27
PCB-182 NSL PCB-183/185 NSL PCB-184 NSL PCB-186 NSL PCB-187 NSL PCB-188 NSL PCB-189 NSL PCB-190 NSL PCB-191 NSL	NSL	NSL	ug/kg	0.27	0.91	34	48 J+	1.3
PCB-183/185 NSL PCB-184 NSL PCB-186 NSL PCB-187 NSL PCB-188 NSL PCB-189 NSL PCB-190 NSL PCB-191 NSL	NSL	NSL	ug/kg	0.02 U	0.019 U	0.2	0.4 J+	0.018 U
PCB-184 NSL PCB-186 NSL PCB-187 NSL PCB-188 NSL PCB-189 NSL PCB-190 NSL PCB-191 NSL	NSL	NSL	ug/kg	0.02 U	0.019 U	0.051 U	0.033 U	0.018 U
PCB-186 NSL PCB-187 NSL PCB-188 NSL PCB-189 NSL PCB-190 NSL PCB-191 NSL	NSL	NSL	ug/kg	0.09 J	0.33	12	17 J+	0.49
PCB-187 NSL PCB-188 NSL PCB-189 NSL PCB-190 NSL PCB-191 NSL	NSL	NSL	ug/kg	0.02 U	0.019 U	0.051 U	0.037 J+	0.018 U
PCB-188 NSL PCB-189 NSL PCB-190 NSL PCB-191 NSL	NSL	NSL	ug/kg	0.02 U	0.019 U	0.051 U	0.033 U	0.018 U
PCB-189 NSL PCB-190 NSL PCB-191 NSL	NSL	NSL	ug/kg	0.15	0.53	18 J	6 J	0.81
PCB-190 NSL PCB-191 NSL	NSL	NSL	ug/kg	0.02 U	0.019 U	0.037 J	0.069 J	0.018 U
PCB-191 NSL	NSL	NSL	ug/kg	0.0053 J	0.02 J	0.65 J	1.2 J	0.027 J
	NSL	NSL	ug/kg	0.028 J	0.085	3	4.4 J+	0.12
PCB-192 NSL	NSL	NSL	ug/kg	0.0036 J	0.016 J	0.61	0.98 J+	0.028 J
	NSL	NSL	ug/kg	0.02 U	0.019 U	0.051 U	0.033 U	0.018 U
PCB-194 NSL	NSL	NSL	ug/kg	0.061 J	0.21	8.6	12	0.29
PCB-195 NSL	NSL	NSL	ug/kg	0.02 J	0.086	3.4	5.1	0.12
PCB-196 NSL	NSL	NSL	ug/kg	0.032 J	0.12	5.3	7.6	0.18
PCB-197/200 NSL	NSL	NSL	ug/kg	0.012 J	0.041 J	2.1	3.2	0.058 J
PCB-198/199 NSL	NSL	NSL	ug/kg	0.085 J	0.29	12	18	0.43
PCB-201 NSL	NSL	NSL	ug/kg	0.01 J	0.036 J	1.5	2.3	0.05 J
PCB-202 NSL	NSL	NSL	ug/kg	0.018 J	0.065 J	2.5	3.9	0.089
PCB-203 NSL	NSL	NSL	ug/kg	0.054 J	0.18	7.7	11	0.26
PCB-204 NSL	NSL	NSL	ug/kg	0.02 U	0.019 U	0.051 U	0.033 U	0.018 U
PCB-205 NSL	NSL	NSL	ug/kg	0.0043 J	0.013 J	0.53	0.75	0.015 J
PCB-206 NSL	NSL	NSL	ug/kg	0.063 J	0.18	5.1	6.8	0.2
PCB-207 NSL	NSL	NSL	ug/kg	0.0058 J	0.023 J	0.78	0.98	0.025 J
PCB-208 NSL	NSL	NSL	ug/kg	0.017 J	0.057 J	1.8	1.8	0.056 J
PCB-209 NSL	NSL	NSL	ug/kg	0.054 J	0.14	3.8 J	1.7 J	0.11
Total PCBs ND=0 59.8	676	59.8	ug/kg	30.6	170	8400	17279	406

Bolded detected values exceed the TEC

Bolded and shaded detected values exceed the PEC

Underlined values exceed the Region 4 ESV

FD = Field Duplicate

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

J+= Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased high).

NSL = No Screening Level PCB = Polychlorinated biphenyl

SC = Swan Creek

U = Compound was analyzed but not detected.

UJ = Compound was analyzed but not detected. The reported quantitation limit is approximate.

ug/kg = microgram per kilogram

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based

Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000).

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000).



Table 3-7a. Core and Surface Grab Sediment Results for 17 PAHs

			T.	ocation ID:	SC21-MR01	SC21-MR01	SC21-MR01	SC21-MR02	SC21-MR02	SC21-MR02	SC21-MR02	SC21-MR02	SC21-MR03-A	SC21-MR03-A	SC21-MR03-A	SC21-MR03-B
				nple Name:	SC21-MR01-0010	SC21-MR01-1020	SC21-MR01-2040	SC21-MR02-0010	SC21-MR02-1020	SC21-MR02-2040		SC21-MR02-6080	SC21-MR03-A-0010	SC21-MR03-A-1020	SC21-MR03-A-2040	SC21-MR03-B-0010
				mple Date:	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021
				nterval (ft):	0-1	1-2	2-4	0-1	1-2	2-4	4-6	6-8	0-1	1-2	2-4	0-1
Analyte	TEC	PEC	Region 4 ESV	Unit		•										
2-Methylnaphthalene ^(a)	NSL	NSL	20.2	ug/kg	35 UJ	4.9 J-	1.8 J-	<u>40</u>	<u>42</u>	<u>44</u>	<u>73</u>	<u>85</u>	<u>730</u>	<u>290</u>	<u>120</u>	<u>120 J-</u>
Acenaphthene ^(a)	NSL	NSL	6.71	ug/kg	9.7 J-	<u>31 J-</u>	<u>7.1 J-</u>	140	<u>150</u>	<u>170</u>	<u>280</u>	270	4900 J-	<u>3600</u>	<u>530 J-</u>	<u>910 J-</u>
Acenaphthylene ^(a)	NSL	NSL	5.9	ug/kg	35 UJ	<u>14 J-</u>	2 J-	<u>120</u>	<u>120</u>	<u>120</u>	<u>200</u>	<u>210</u>	1000	<u>680</u>	<u>190</u>	<u>310 J-</u>
Anthracene ^(a)	57.2	845	57	ug/kg	13 J-	37 J-	6.7 J-	<u>200</u>	<u>180</u>	<u>230</u>	<u>430</u>	<u>430</u>	<u>4100 J-</u>	<u>2600</u>	<u>890 J-</u>	<u>1100 J-</u>
Benzo(a)anthracene ^(a)	108	1,050	108	ug/kg	42 J-	83 J-	16 J-	<u>510 J-</u>	<u>420 J-</u>	<u>420 J-</u>	<u>640 J-</u>	<u>710 J-</u>	<u>7100 J-</u>	<u>3800 J-</u>	<u>1300 J-</u>	<u>1300 J-</u>
Benzo(a)pyrene ^(a)	150	1,450	150	ug/kg	47 J-	72 J-	13 J-	<u>390 J-</u>	<u>370 J-</u>	370 J-	<u>510 J-</u>	<u>550 J-</u>	<u>5200 J-</u>	<u>3200 J-</u>	<u>1100 J-</u>	<u>1000 J-</u>
Benzo(b)fluoranthene ^(a)	NSL	NSL	190	ug/kg	74 J-	83 J-	16 J-	430 J-	380 J-	410 J-	<u>490 J-</u>	540 J-	4300 J-	<u>3400</u>	<u>910 J-</u>	920 J-
Benzo(g,h,i)perylene ^(a)	NSL	NSL	170	ug/kg	31 J-	39 J-	9.4 J-	220	<u>200</u>	<u>220</u>	<u>270</u>	<u>300</u>	<u>2100</u>	<u>1500</u>	<u>410 J-</u>	<u>370 J-</u>
Benzo(k)fluoranthene ^(a)	NSL	NSL	240	ug/kg	22 J-	28 J-	5.9 J-	190	180	170	190	<u>260</u>	<u>1700</u>	<u>1200</u>	<u>350</u>	<u>300 J-</u>
Chrysene ^(a)	166	1,290	166	ug/kg	63 J-	79 J-	22 J-	<u>450 J-</u>	<u>470</u>	<u>360 J-</u>	<u>500 J-</u>	<u>570 J-</u>	<u>5000 J-</u>	<u>4000</u>	<u>1000 J-</u>	<u>1100 J-</u>
Dibenzo(a,h)anthracene ^(a)	33	NSL	33	ug/kg	35 UJ	5.4 UJ	4.4 UJ	28 U	29 U	27 U	27 U	27 U	250 U	250 U	23 U	5.1 U
Fluoranthene ^(a)	423	2,230	423	ug/kg	150 J-	220 J-	37 J-	<u>990 J-</u>	<u>820 J-</u>	<u>1000 J-</u>	<u>1200 J-</u>	<u>1400 J-</u>	<u>11000 J-</u>	<u>7300 J-</u>	<u>2500 J-</u>	<u>3500 J-</u>
Fluorene ^(a)	77.4	536	77	ug/kg	11 J-	35 J-	7.3 J-	<u>170</u>	<u>160</u>	<u>190</u>	<u>340</u>	<u>320</u>	<u>3800</u>	<u>2900</u>	<u>430 J-</u>	<u>890 J-</u>
Indeno(1,2,3-cd)pyrene ^(a)	NSL	NSL	200	ug/kg	34 J-	40 J-	7.1 J-	<u>250</u>	<u>240</u>	<u>250</u>	<u>310</u>	<u>350</u>	<u>2100</u>	<u>1700</u>	<u>420 J-</u>	<u>370 J-</u>
Naphthalene ^(a)	176	561	176	ug/kg	35 UJ	5.4 J-	4.4 UJ	51	48	46	79	66	<u>1200</u>	<u>410</u>	150	130 J-
Phenanthrene ^(a)	204	1,170	204	ug/kg	55 J-	150 J-	34 J-	<u>600 J-</u>	<u>550 J-</u>	<u>690 J-</u>	<u>1100 J-</u>	<u>1200 J-</u>	<u>15000 J-</u>	<u>11000 J-</u>	<u>2200 J-</u>	<u>4100 J-</u>
Pyrene ^(a)	195	1,520	195	ug/kg	99 J-	190 J-	39 J-	<u>850 J-</u>	<u>700 J-</u>	<u>800 J-</u>	<u>1100 J-</u>	<u>1200 J-</u>	<u>14000 J-</u>	<u>8400 J-</u>	<u>2500 J-</u>	<u>3300 J-</u>
Total PAH17 ND=1/2RL	1,610	22,800	1,610	ug/kg	722.7	1114	228.7	<u>5615</u>	<u>5045</u>	<u>5504</u>	<u>7726</u>	<u>8475</u>	<u>83360</u>	<u>56110</u>	<u>15012</u>	<u>19722.6</u>

Bolded detected values exceed the TEC

Bolded and shaded values exceed the PEC

Underlined values exceed the Region 4 ESV

FD = Field Duplicate

 $\label{eq:J-Compound} J = Compound \ was \ detected, \ but \ result \ is \ below \ the \ reporting \ limit \ and \ greater \ than \ or \ equal \ to \ the \ method \ detection \ limit \ (value \ is \ estimated).$

J-= Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).

U = Compound was analyzed but not detected.

ug/kg = Microgram per kilogram

SC = Swan Creek

NA = Not applicable

NSL = No Screening Level

PAH = Polycyclic aromatic hydrocarbon

PEC = Probable effect concentration. Development and Evaluation of Consensus-

Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al.

RL = Reporting limit

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al.

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).



Table 3-7a. Core and Surface Grab Sediment Results for 17 PAHs

			Le	ocation ID:	SC21-MR03-B	SC21-MR03-B	SC21-MR03-B	SC21-MR04	SC21-MR04	SC21-MR04	SC21-MR04	SC21-MR05	SC21-MR05	SC21-MR05	SC21-MR06	SC21-MR06
				iple Name:	SC21-MR03-B-1020	SC21-MR03-B-1020FD	SC21-MR03-B-2040	SC21-MR04-0010						SC21-MR05-2040		
			Sar	mple Date:	11/8/2021	11/8/2021	11/8/2021	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/5/2021	11/5/2021	11/5/2021	11/7/2021	11/7/2021
			Depth In	nterval (ft):	1-2	1-2	2-4	0-1	1-2	2-4	4-6	0-1	1-2	2-4	0-1	1-2
Analyte	TEC	PEC	Region 4 ESV	Unit												
2-Methylnaphthalene ^(a)	NSL	NSL	20.2	ug/kg	<u>380</u>	<u>320</u>	<u>410</u>	2.2 J	1.9 J	1.4 J	3.9 J	<u>110 J-</u>	<u>87 J-</u>	3.4 J-	<u>150</u>	<u>93 J</u>
Acenaphthene ^(a)	NSL	NSL	6.71	ug/kg	<u>2600</u>	<u>3000</u>	<u>2700</u>	2.5 J	2.8 J	2.2 J	4.6 J	920 J-	<u>680 J-</u>	<u>18 J-</u>	1200	<u>680</u>
Acenaphthylene ^(a)	NSL	NSL	5.9	ug/kg	<u>900</u>	<u>910</u>	<u>890</u>	2.7 J	2.2 J	1.1 J	2 J	480 J-	380 J-	<u>8.3 J-</u>	<u>520</u>	<u>210</u>
Anthracene ^(a)	57.2	845	57	ug/kg	<u>2700</u>	<u>2800</u>	<u>6100 J-</u>	3 J	2.7 J	1.6 J	5.7	<u>800 J-</u>	<u>710 J-</u>	20 J-	<u>1400</u>	<u>1100</u>
Benzo(a)anthracene ^(a)	108	1,050	108	ug/kg	4800 J-	4400 J-	<u>6500 J-</u>	21	19	11	4.9 J	2300 J-	2100 J-	43 J-	4200 J-	2100 J-
Benzo(a)pyrene ^(a)	150	1,450	150	ug/kg	<u>4100</u>	3800	<u>4100 J-</u>	26	21	13	3.7 J	<u>1700 J-</u>	1500 J-	27 J-	2900 J-	<u>1600 J-</u>
Benzo(b)fluoranthene ^(a)	NSL	NSL	190	ug/kg	<u>3300</u>	<u>3200</u>	<u>4000 J-</u>	41	30	20	5.5	1600 J-	<u>1400 J-</u>	25 J-	2700 J-	<u>1500</u>
Benzo(g,h,i)perylene ^(a)	NSL	NSL	170	ug/kg	<u>1700</u>	<u>1600</u>	<u>1600</u>	21	17	10	8.7	<u>610 J-</u>	490 J-	14 J-	<u>1100</u>	<u>680</u>
Benzo(k)fluoranthene ^(a)	NSL	NSL	240	ug/kg	<u>1300</u>	<u>1200</u>	<u>1600</u>	15	11	7	5.3 U	480 J-	410 J-	7.7 J-	<u>920</u>	<u>580</u>
Chrysene ^(a)	166	1,290	166	ug/kg	<u>3700</u>	<u>3400</u>	<u>4600 J-</u>	30	25	15	7.3	<u>1800 J-</u>	<u>1500 J-</u>	32 J-	<u>3200 J-</u>	<u>1600</u>
Dibenzo(a,h)anthracene ^(a)	33	NSL	33	ug/kg	270 U	270 U	240 U	8.9 U	7.7 U	4.8 U	5.3 U	31 UJ	26 UJ	5.1 UJ	110 U	97 U
Fluoranthene ^(a)	423	2,230	423	ug/kg	<u>8500 J-</u>	<u>8600 J-</u>	<u>14000 J-</u>	62	47	33	13	<u>4600 J-</u>	3400 J-	71 J-	<u>8800 J-</u>	<u>4200 J-</u>
Fluorene ^(a)	77.4	536	77	ug/kg	2200	<u>2500</u>	<u>3200</u>	2.8 J	3.5 J	2.4 J	4.9 J	930 J-	760 J-	22 J-	<u>1500</u>	<u>610</u>
Indeno(1,2,3-cd)pyrene ^(a)	NSL	NSL	200	ug/kg	<u>1700</u>	<u>1500</u>	1800	19	15	9	2.1 J	640 J-	490 J-	11 J-	1200	<u>710</u>
Naphthalene ^(a)	176	561	176	ug/kg	<u>430</u>	340	<u>530</u>	2.3 J	2.4 J	1.6 J	5.3 U	130 J-	100 J-	3.7 J-	120	86 J
Phenanthrene ^(a)	204	1,170	204	ug/kg	<u>8600 J-</u>	<u>10000 J-</u>	<u>15000 J-</u>	22	20	15	30	<u>3800 J-</u>	<u>3600 J-</u>	78 J-	<u>7700 J-</u>	<u>3900 J-</u>
Pyrene ^(a)	195	1,520	195	ug/kg	<u>8900 J-</u>	9000 J-	<u>14000 J-</u>	46	41	27	15	<u>4400 J-</u>	<u>3300 J-</u>	79 J-	<u>7400 J-</u>	<u>4000 J-</u>
Total PAH17 ND=1/2RL	1,610	22,800	1,610	ug/kg	<u>55950</u>	<u>56710</u>	<u>81150</u>	323	265.4	172.7	119.4	<u>25316</u>	<u>20920</u>	465.7	<u>45065</u>	23698

Bolded detected values exceed the TEC

Bolded and shaded values exceed the PEC

Underlined values exceed the Region 4 ESV

FD = Field Duplicate

 $\label{eq:J-def} J = \text{Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).}$

 $\label{eq:J-problem} J-= Compound \ was \ detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).$

U = Compound was analyzed but not detected.

ug/kg = Microgram per kilogram

SC = Swan Creek

 $NA = Not \ applicable$

NSL = No Screening Level PAH = Polycyclic aromatic hydrocarbon

PEC = Probable effect concentration. Development and Evaluation of Consensus-

Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al.

RL = Reporting limit

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al.

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).



			I	Location ID:	SC21-MRREF	SC21-MRREF	SC21-MRREF	SC21-MRREF	SC21-MRREF	SC21-SC02	SC21-SC02	SC21-SC02	SC21-SC03	SC21-SC03	SC21-SC03	SC21-SC04	SC21-SC04
			Sa	mple Name:	SC21-MRREF-0010		SC21-MRREF-2040			SC21-SC02-0010	SC21-SC02-1020	SC21-SC02-2040	SC21-SC03-0010	SC21-SC03-1020	SC21-SC03-2040		SC21-SC04-1020
			S	ample Date:	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021
			Depth 1	Interval (ft):	0-1	1-2	2-4	4-6	6-8	0-1	1-2	2-4	0-1	1-2	2-4	0-1	1-2
Analyte	TEC	PEC	Region 4 ESV	Unit													
2-Methylnaphthalene ^(a)	NSL	NSL	20.2	ug/kg	2.1 J	2.4 J	<u>61</u>	18	11	5.5 J	<u>23</u>	20	<u>23 J</u>	<u>80</u>	3 J	4.3 U	4.3 U
Acenaphthene ^(a)	NSL	NSL	6.71	ug/kg	5.6 J	4.6 J	<u>26</u>	<u>39</u>	<u>42</u>	<u>16</u>	<u>61</u>	<u>63</u>	<u>37</u>	<u>250</u>	<u>17</u>	9.8	4.3 U
Acenaphthylene ^(a)	NSL	NSL	5.9	ug/kg	2.9 J	2.4 J	<u>16</u>	<u>30</u>	<u>37</u>	<u>7.4</u>	<u>22</u>	<u>26</u>	<u>19 J</u>	<u>160</u>	2.5 J	4.9	4.3 U
Anthracene ^(a)	57.2	845	57	ug/kg	8.1	7	48	<u>75</u>	<u>120 J-</u>	50	<u>150 J-</u>	<u>130 J-</u>	<u>88</u>	<u>400</u>	13	25	4.3 U
Benzo(a)anthracene ^(a)	108	1,050	108	ug/kg	28	22	<u>110 J-</u>	<u>200 J-</u>	<u>240 J-</u>	<u>210 J-</u>	<u>540 J-</u>	<u>350 J-</u>	<u>370</u>	<u>1100 J-</u>	29	72	4.3 U
Benzo(a)pyrene ^(a)	150	1,450	150	ug/kg	24	19	85 J-	<u>160 J-</u>	<u>190 J-</u>	<u>230 J-</u>	<u>520 J-</u>	<u>290 J-</u>	<u>370</u>	<u>650 J-</u>	16	65	4.3 U
Benzo(b)fluoranthene ^(a)	NSL	NSL	190	ug/kg	32	27	98 J-	130 J-	170 J-	320 J-	<u>670 J-</u>	<u>380 J-</u>	<u>290 J-</u>	740 J-	21	87	4.3 U
Benzo(g,h,i)perylene ^(a)	NSL	NSL	170	ug/kg	14	13	52	64 J-	64 J-	130 J-	<u>280 J-</u>	140 J-	<u>240</u>	440	9.6 J+	51	4.3 U
Benzo(k)fluoranthene ^(a)	NSL	NSL	240	ug/kg	10	24	34	50	70	110 J-	220 J-	140 J-	150	<u>390</u>	7	38	4.3 U
Chrysene ^(a)	166	1,290	166	ug/kg	27	24	96 J-	160 J-	<u>170 J-</u>	<u>240 J-</u>	<u>540 J-</u>	330 J-	<u>390</u>	1200 J-	29	82	10
Dibenzo(a,h)anthracene ^(a)	33	NSL	33	ug/kg	6.2 U	5.8 U	5.4 U	4.9 U	5.3 U	5.8 U	4.8 U	4.4 U	30 U	30 U	4.5 U	4.3 U	4.3 U
Fluoranthene ^(a)	423	2,230	423	ug/kg	61	52	240 J-	360 J-	440 J-	580 J-	1300 J-	790 J-	<u>690 J-</u>	2600 J-	67	200	13 J+
Fluorene ^(a)	77.4	536	77	ug/kg	6.9	6	29	39	52	26	56 J-	59 J-	43	230	12	11	4.3 U
Indeno(1,2,3-cd)pyrene ^(a)	NSL	NSL	200	ug/kg	14	12	48	78	64 J-	140 J-	<u>310 J-</u>	150 J-	<u>250</u>	<u>470</u>	9.2	52	4.3 U
Naphthalene ^(a)	176	561	176	ug/kg	2 J	2.2 J	22	20	14	6.5	19	14	17 J	87	2.6 J	4.3 U	4.3 U
Phenanthrene ^(a)	204	1,170	204	ug/kg	32	24	170 J-	230 J-	410 J-	240 J-	<u>670 J-</u>	420 J-	300	580 J-	28	67	7.9 J+
Pyrene ^(a)	195	1,520	195	ug/kg	54	43	220 J-	430 J-	490 J-	440 J-	960 J-	660 J-	460 J-	2100 J-	66	150	14 J+
Total PAH17 ND=1/2RL	1,610	22,800	1,610	ug/kg	326.7	287.5	1357.7	2085.5	2586.7	2754.3	6343.4	3964.2	<u>3757</u>	11497	334.2	921.3	73.5

Bolded detected values exceed the TEC

Bolded and shaded values exceed the PEC

Underlined values exceed the Region 4 ESV

FD = Field Duplicate

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

J- = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).

U = Compound was analyzed but not detected.

 $ug/kg = \ Microgram \ per \ kilogram$

SC = Swan Creek

NA = Not applicable

NSL = No Screening Level

PAH = Polycyclic aromatic hydrocarbon

PEC = Probable effect concentration. Development and Evaluation of Consensus-

Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al.

RL = Reporting limit

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al.

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).



Table 3-7a. Core and Surface Grab Sediment Results for 17 PAHs

				Location ID:	SC21-SC04	SC21-SC04	SC21-SC04	SC21-SC04	SC21-SC06	SC21-SC06	SC21-SC06	SC21-SC07	SC21-SC07	SC21-SC07	SC21-SC07	SC21-SC07	SC21-SC08
						SC21-SC04-4060	SC21-SC04-4060FD	SC21-SC04-6080	SC21-SC06-0010	SC21-SC06-1020	SC21-SC06-2040		SC21-SC07-1020	SC21-SC07-2040		SC21-SC07-4060	
			5	Sample Date:	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/8/2021	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/3/2021
			Depth	Interval (ft):	2-4	4-6	4-6	6-8	0-1	1-2	2-4	0-1	1-2	2-4	2-4	4-6	0-1
Analyte	TEC	PEC	Region 4 ESV	V Unit													
2-Methylnaphthalene ^(a)	NSL	NSL	20.2	ug/kg	5.1 U	1.5 J	1.1 J	4.4 U	4.3 U	4.1 U	3.7 U	<u>58</u>	3.5 J	4.7	0.58 J	2.5 J	9.5
Acenaphthene ^(a)	NSL	NSL	6.71	ug/kg	5.1 U	<u>18</u>	4.2 U	4.4 U	4.3 U	<u>7</u>	3.7 U	<u>190 J-</u>	<u>7</u>	2.9 J	1.9 J	2.2 J	5.1
Acenaphthylene ^(a)	NSL	NSL	5.9	ug/kg	5.1 U	4.3 U	4.2 U	4.4 U	4.3 U	4.1 U	3.7 U	<u>120 J-</u>	4.6	1.3 J	0.91 J	1.7 J	0.95 J
Anthracene ^(a)	57.2	845	57	ug/kg	5.1 U	18	4.2 U	4.4 U	4.3 U	24	3.7 U	<u>130 J-</u>	4 J	1.8 J	1.2 J	2.7 J	5.7
Benzo(a)anthracene(a)	108	1,050	108	ug/kg	5.1 U	9.7	1.2 J	4.4 U	4.3 U	51	3.7 U	<u>670 J-</u>	22	6.8	3.4 J	8	2.6 J
Benzo(a)pyrene ^(a)	150	1,450	150	ug/kg	5.1 U	4.7	4.2 U	4.4 U	4.3 U	56	3.7 U	350 J-	13	3.9 J	1.9 J	4.8	2 J
Benzo(b)fluoranthene ^(a)	NSL	NSL	190	ug/kg	5.1 U	4.8	0.95 J	4.4 U	4.3 U	62	3.7 U	400 J-	17	5	2.3 J	6.2	3.3 J
Benzo(g,h,i)perylene ^(a)	NSL	NSL	170	ug/kg	5.1 U	12 J+	4.2 U	4.4 U	4.3 U	28	3.7 U	120 J-	7.1	2.5 J	1.2 J	2.9 J	5.8
Benzo(k)fluoranthene ^(a)	NSL	NSL	240	ug/kg	5.1 U	1.8 J	4.2 U	4.4 U	4.3 U	18	3.7 U	160 J-	5.2	1.5 J	0.85 J	2.1 J	3.9 U
Chrysene ^(a)	166	1,290	166	ug/kg	5.1 U	9.6	1.9 J	4.4 U	4.3 U	55	3.7 U	<u>520 J-</u>	20	6.4	3.4 J	7.2	7.7
Dibenzo(a,h)anthracene ^(a)	33	NSL	33	ug/kg	2 J	4.3 U	4.2 U	4.4 U	4.3 U	4.1 U	0.44 J	4.3 U	4.4 U	4.2 U	4.2 U	4.1 U	0.76 J
Fluoranthene ^(a)	423	2,230	423	ug/kg	5.1 U	28	4.2 U	4.4 U	4.3 U	98	3.7 U	<u>1400 J-</u>	53	18	7.6	17	4
Fluorene ^(a)	77.4	536	77	ug/kg	5.1 U	21	4.2 U	4.4 U	4.3 U	12	3.7 U	<u>100 J-</u>	3.9 J	2.1 J	1.3 J	2.3 J	5
Indeno(1,2,3-cd)pyrene ^(a)	NSL	NSL	200	ug/kg	5.1 U	1.7 J	4.2 U	4.4 U	4.3 U	28	3.7 U	120 J-	6.3	1.9 J	0.88 J	2.7 J	0.68 J
Naphthalene ^(a)	176	561	176	ug/kg	5.1 U	2.2 J	1.9 J	4.4 U	4.3 U	4.1 U	3.7 U	82 J-	5	7.1	0.83 J	2.9 J	4.7
Phenanthrene ^(a)	204	1,170	204	ug/kg	6.9 J+	48	6.2	4.9 J+	5.1 J+	44	17	190 J-	14	4.6	3.1 J	9.9	32
Pyrene ^(a)	195	1,520	195	ug/kg	5.1 U	25	4.3	4.4 U	4.3 U	94	3.7 U	<u>1300 J-</u>	50	15	8.1	14	9.6
Total PAH17 ND=1/2RL	1,610	22,800	1,610	ug/kg	47.9	210.4	38.55	40.1	40.3	585.4	45.94	<u>5912.2</u>	237.8	87.6	41.55	91.2	101.39

Bolded detected values exceed the TEC

Bolded and shaded values exceed the PEC

Underlined values exceed the Region 4 ESV

FD = Field Duplicate

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

J- = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).

U = Compound was analyzed but not detected.

ug/kg = Microgram per kilogram

SC = Swan Creek

NA = Not applicable

NSL = No Screening Level PAH = Polycyclic aromatic hydrocarbon

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al.

RL = Reporting limit

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al.

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).



Table 3-7a. Core and Surface Grab Sediment Results for 17 PAHs

			ī.	ocation ID:	SC21-SC09	SC21-SC09	SC21-SC09	SC21-SC10	SC21-SC11	SC21-SC11	SC21-SC11	SC21-SC11	SC21-SC12	SC21-SC12	SC21-SC12	SC21-SC13	SC21-SC13
) SC21-SC09-1020			SC21-SC11-0010			SC21-SC11-2040					
			Sa	ample Date:	11/9/2021	11/9/2021	11/9/2021	11/5/2021	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/11/2021	11/11/2021	11/11/2021	11/9/2021	11/9/2021
			Depth I	nterval (ft):	0-1	1-2	2-4	0-1	0-1	0-1	1-2	2-4	0-1	1-2	2-4	0-1	1-2
Analyte	TEC	PEC	Region 4 ESV	Unit													
2-Methylnaphthalene ^(a)	NSL	NSL	20.2	ug/kg	<u>890</u>	<u>890</u>	<u>270</u>	11 J-	<u>50 J</u>	<u>23 J</u>	<u>66</u>	2.4 J	7.5	6.1	5.2	19 J	<u>26 J</u>
Acenaphthene ^(a)	NSL	NSL	6.71	ug/kg	<u>89000</u>	<u>24000</u>	<u>3800</u>	6.2 J-	<u>1600 J-</u>	<u>810 J-</u>	<u>2600 J-</u>	<u>61</u>	4.9	3.5 J	4 U	<u>100</u>	<u>300</u>
Acenaphthylene ^(a)	NSL	NSL	5.9	ug/kg	<u>1200</u>	<u>880</u>	<u>230</u>	1.8 J-	<u>750 J</u>	<u>200 J</u>	<u>180</u>	3.7 J	4.1 U	4.2 U	4 U	<u>28 J</u>	<u>49</u>
Anthracene ^(a)	57.2	845	57	ug/kg	<u>28000</u>	<u>15000</u>	<u>1500</u>	6.1 J-	<u>820 J</u>	<u>350 J</u>	<u>910 J-</u>	17	3.5 J	2.3 J	4 U	<u>100</u>	<u>160</u>
Benzo(a)anthracene ^(a)	108	1,050	108	ug/kg	<u>17000</u>	<u>8100</u>	<u>1500</u>	3 J-	2800 J-	880 J-	<u>1100 J-</u>	22	1.9 J	4.2 U	0.59 J	400	<u>680 J-</u>
Benzo(a)pyrene ^(a)	150	1,450	150	ug/kg	<u>8400 J</u>	3700 J	<u>890</u>	1.8 J-	<u>1900 J-</u>	600 J-	<u>610 J-</u>	9.9	1.7 J	0.61 J	0.51 J	380	<u>670 J-</u>
Benzo(b)fluoranthene ^(a)	NSL	NSL	190	ug/kg	9600 J	4400 J	<u>960</u>	3.1 J-	1800 J-	<u>670 J-</u>	<u>690 J-</u>	10	2.1 J	1.4 J	0.69 J	<u>550</u>	<u>960 J-</u>
Benzo(g,h,i)perylene ^(a)	NSL	NSL	170	ug/kg	<u>2000 J</u>	1400	<u>310</u>	5 J-	<u>710 J</u>	<u>280 J</u>	<u>240</u>	5.7 J	6.8	3.6 J	2.1 J	<u>270</u>	<u>460</u>
Benzo(k)fluoranthene ^(a)	NSL	NSL	240	ug/kg	3200 J	<u>1500 J</u>	<u>350</u>	4 UJ	<u>590 J</u>	<u>260 J</u>	230	4.2 J	4.1 U	4.2 U	4 U	480	<u>310</u>
Chrysene ^(a)	166	1,290	166	ug/kg	<u>14000</u>	<u>6100</u>	<u>1300</u>	4.8 J-	2000 J-	680 J-	850 J-	21	5.6	3.7 J	1.8 J	<u>470</u>	<u>790 J-</u>
Dibenzo(a,h)anthracene ^(a)	33	NSL	33	ug/kg	120 U	100 U	25 U	4 UJ	53 U	25 U	22 U	3.9 J	4.1 U	4.2 U	4 U	34 U	35 U
Fluoranthene ^(a)	423	2,230	423	ug/kg	<u>81000</u>	31000	<u>4600</u>	5 J-	6500 J-	2300 J-	3300 J-	67	3.7 J	0.94 J	0.82 J	<u>1000 J-</u>	1800 J-
Fluorene ^(a)	77.4	536	77	ug/kg	<u>52000</u>	22000	3200	6.1 J-	1200 J-	460 J-	2900 J-	56	3.8 J	2.6 J	1.3 J	88	<u>250</u>
Indeno(1,2,3-cd)pyrene ^(a)	NSL	NSL	200	ug/kg	2300 J	1600	<u>360</u>	0.89 J-	<u>820 J</u>	<u>310 J</u>	<u>270</u>	6.6	0.88 J	4.2 U	4 U	260	450
Naphthalene ^(a)	176	561	176	ug/kg	<u>270</u>	<u>480</u>	150	3.4 J-	110 J	43 J	130	4.6 J	4.1 U	2.7 J	1.5 J	19 J	30 J
Phenanthrene ^(a)	204	1,170	204	ug/kg	<u>140000</u>	<u>57000</u>	<u>6700</u>	30 J-	<u>840 J-</u>	<u>460 J-</u>	<u>2400 J-</u>	46	25	18	11	<u>410</u>	<u>780 J-</u>
Pyrene ^(a)	195	1,520	195	ug/kg	<u>59000</u>	<u>23000</u>	<u>3500</u>	7.8 J-	<u>5800 J-</u>	<u>1900 J-</u>	<u>2800 J-</u>	59	7.3	4.1 J	2.7 J	<u>780 J-</u>	<u>1400 J-</u>
Total PAH17 ND=1/2RL	1,610	22,800	1,610	ug/kg	<u>507920</u>	<u>201100</u>	<u>29633</u>	99.99	<u>28317</u>	10239	<u>19287</u>	400	83.08	60.05	40.21	<u>5371</u>	<u>9133</u>

Bolded detected values exceed the TEC

Bolded and shaded values exceed the PEC

Underlined values exceed the Region 4 ESV

FD = Field Duplicate

 $\label{eq:J-def} J = \text{Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).}$

J- = Compound was detected, but result is below the reporting limit and greater than or equal to the

method detection limit (value is estimated and potentially biased low).

 $U = Compound \ was \ analyzed \ but \ not \ detected.$

ug/kg = Microgram per kilogramSC = Swan Creek

NA = Not applicable

NSL = No Screening Level

PAH = Polycyclic aromatic hydrocarbon

 $\label{eq:PEC} PEC = Probable \ effect \ concentration. \ Development \ and \ Evaluation \ of \ Consensus-$

Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al.

RL = Reporting limit

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al.

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).



					0001 0010	0001 0015	0001 0015	0001 0015	0001 0016	0001 0016	0.001.0016	0001 0016	0001 0017	0001 0017	0001 0017	0001 0017	0001 0017
				Location ID:	SC21-SC13	SC21-SC15	SC21-SC15	SC21-SC15	SC21-SC16	SC21-SC16	SC21-SC16	SC21-SC16	SC21-SC17	SC21-SC17	SC21-SC17	SC21-SC17	SC21-SC17
				mple Name:	SC21-SC13-2040		SC21-SC15-1020	SC21-SC15-2040		SC21-SC16-1020	SC21-SC16-2040	SC21-SC16-4060	SC21-SC17-0010	SC21-SC17-1020	SC21-SC17-2040	SC21-SC17-4060	SC21-SC17-6080
				ample Date:	11/9/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/7/2021	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/10/2021
g		1		Interval (ft):	2-4	0-1	1-2	2-4	0-1	1-2	2-4	4-6	0-1	1-2	2-4	4-6	6-8
Analyte	TEC	PEC	Region 4 ESV	Unit													
2-Methylnaphthalene ^(a)	NSL	NSL	20.2	ug/kg	<u>98</u>	11 J	<u>550</u>	<u>1000</u>	<u>260</u>	<u>92</u>	17 J	13 J	<u>88</u>	<u>310</u>	18	7	12
Acenaphthene ^(a)	NSL	NSL	6.71	ug/kg	<u>6000 J-</u>	<u>270</u>	13000 J-	<u>26000 J-</u>	9700 J-	<u>2100 J-</u>	<u>150</u>	<u>36</u>	<u>1000 J-</u>	<u>2700</u>	<u>58 J</u>	<u>23</u>	<u>56</u>
Acenaphthylene ^(a)	NSL	NSL	5.9	ug/kg	<u>270</u>	<u>22 J</u>	<u>860</u>	<u>2300</u>	<u>400</u>	<u>83</u>	<u>14 J</u>	<u>13 J</u>	<u>310</u>	<u>820</u>	<u>11</u>	<u>7.2</u>	3.9 J
Anthracene ^(a)	57.2	845	57	ug/kg	<u>3600 J-</u>	<u>140</u>	<u>9000 J-</u>	<u>21000 J-</u>	<u>5000 J-</u>	<u>1400 J-</u>	<u>170</u>	<u>81</u>	<u>1100 J-</u>	<u>4300 J-</u>	<u>70 J-</u>	37	<u>92 J-</u>
Benzo(a)anthracene ^(a)	108	1,050	108	ug/kg	3900 J-	340	8300 J-	<u>11000 J-</u>	3400 J-	860 J-	280	<u>150</u>	1400 J-	3200 J-	100 J-	74	<u>130 J-</u>
Benzo(a)pyrene ^(a)	150	1,450	150	ug/kg	<u> 1800 J-</u>	340	4300 J-	<u>5600 J-</u>	1500 J-	<u>440 J-</u>	<u>190</u>	120	900 J-	<u>2700</u>	78 J-	57	100 J-
Benzo(b)fluoranthene ^(a)	NSL	NSL	190	ug/kg	2000 J-	<u>360 J-</u>	4800 J-	5500 J-	1800 J-	470 J-	180	130	900 J-	2400	84 J-	57	100 J-
Benzo(g,h,i)perylene ^(a)	NSL	NSL	170	ug/kg	<u>590</u>	<u>210</u>	<u>1500</u>	<u>2400</u>	<u>770</u>	<u>190</u>	74	57	<u>300 J-</u>	<u>890</u>	50	29	54
Benzo(k)fluoranthene ^(a)	NSL	NSL	240	ug/kg	800	150	2100	<u>3700</u>	820 J-	200	60	40	380 J-	<u>920</u>	34	21	45
Chrysene ^(a)	166	1,290	166	ug/kg	3000 J-	380	<u>6400 J-</u>	8000 J-	2700 J-	<u>670 J-</u>	<u>190</u>	120	1100 J-	<u>2800</u>	83 J-	53	100 J-
Dibenzo(a,h)anthracene ^(a)	33	NSL	33	ug/kg	51 U	30 U	280 U	280 U	58 U	23 U	23 U	24 U	27 U	240 U	4.5 U	4.6 U	4.2 U
Fluoranthene ^(a)	423	2,230	423	ug/kg	<u>13000 J-</u>	<u>700 J-</u>	27000 J-	<u>36000 J-</u>	<u>14000 J-</u>	3600 J-	450 J-	310	3300 J-	8000 J-	250 J-	140 J-	330 J-
Fluorene ^(a)	77.4	536	77	ug/kg	<u>4900 J-</u>	<u>210</u>	<u>11000 J-</u>	22000 J-	6000 J-	1400 J-	<u>150</u>	47	1100 J-	3300 J-	64	27	55
Indeno(1,2,3-cd)pyrene ^(a)	NSL	NSL	200	ug/kg	640	<u>240</u>	<u>2000</u>	3400	<u>930</u>	230	85	63	320 J-	1000	48	28	60
Naphthalene ^(a)	176	561	176	ug/kg	71	8.7 J	<u>190 J</u>	<u>1800</u>	63	25	14 J	12 J	99	<u>900</u>	19	9.3	12
Phenanthrene ^(a)	204	1,170	204	ug/kg	<u>16000 J-</u>	<u>370 J-</u>	34000 J-	<u>67000 J-</u>	<u>16000 J-</u>	4400 J-	450 J-	230	3300 J-	<u>13000 J-</u>	250 J-	130 J-	330 J-
Pyrene ^(a)	195	1,520	195	ug/kg	<u>10000 J-</u>	<u>500 J-</u>	<u>20000 J-</u>	<u>26000 J-</u>	<u>9200 J-</u>	2400 J-	<u>320 J-</u>	<u>290</u>	2800 J-	<u>6200 J-</u>	<u>210 J-</u>	130 J-	<u>270 J-</u>
Total PAH17 ND=1/2RL	1,610	22,800	1,610	ug/kg	<u>66695</u>	<u>4271.7</u>	<u>145140</u>	242840	<u>72572</u>	<u>18572</u>	2806	<u>1724</u>	<u>18411</u>	<u>53560</u>	1429.3	831.8	<u>1752</u>

NOTES:

Bolded detected values exceed the TEC

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Underlined values exceed the Region 4 ESV

FD = Field Duplicate

 $\label{eq:J-def} J = \text{Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).}$

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ug/kg = Microgram per kilogram

SC = Swan Creek

NA = Not applicable

NSL = No Screening Level

PAH = Polycyclic aromatic hydrocarbon

PEC = Probable effect concentration. Development and Evaluation of Consensus-

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RL = Reporting limit

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al.

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).



Table 3-7a. Core and Surface Grab Sediment Results for 17 PAHs

					221 2210	0001 0010	0.021.0010	0001 0010	0.001.0000	0.001.0000	0.001.0001	0.021.0021	0.021.0021	0.001.0000	0.001.0000	0.001 0.000	0.021.0.022
				ocation ID:	SC21-SC19	SC21-SC19	SC21-SC19	SC21-SC19	SC21-SC20	SC21-SC20	SC21-SC21	SC21-SC21	SC21-SC21	SC21-SC22	SC21-SC22	SC21-SC23	SC21-SC23
								SC21-SC19-4060		SC21-SC20-1020		SC21-SC21-1020	SC21-SC21-2040			SC21-SC23-0010	SC21-SC23-1020
				mple Date:	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/4/2021	11/4/2021	11/5/2021	11/5/2021
				nterval (ft):	0-1	1-2	2-4	4-6	0-1	1-2	0-1	1-2	2-4	0-1	1-2	0-1	1-2
Analyte	TEC	PEC	Region 4 ESV	Unit													
2-Methylnaphthalene ^(a)	NSL	NSL	20.2	ug/kg	<u>120 J-</u>	18 J-	9.2 J-	5.5 J-	10 J-	4.8 J-	<u>410 J-</u>	<u>980 J-</u>	<u>3200 J-</u>	<u>61</u>	8.3 J	<u>76 J-</u>	<u>120 J-</u>
Acenaphthene ^(a)	NSL	NSL	6.71	ug/kg	<u>1700 J-</u>	<u>94 J-</u>	<u>48 J-</u>	<u>25 J-</u>	<u>30 J-</u>	5.3 J-	<u>730 J-</u>	<u>3000 J-</u>	<u>7400 J-</u>	<u>120</u>	<u>14 J</u>	<u>430 J-</u>	<u>1800 J-</u>
Acenaphthylene ^(a)	NSL	NSL	5.9	ug/kg	<u>320 J-</u>	<u>25 J-</u>	<u>19 J-</u>	<u>18 J-</u>	2.8 J-	0.91 J-	<u>360 J-</u>	<u>540 J-</u>	<u>2500 J-</u>	<u>210</u>	<u>14 J</u>	<u>110 J-</u>	<u>250 J-</u>
Anthracene ^(a)	57.2	845	57	ug/kg	<u>1700 J-</u>	<u>140 J-</u>	<u>71 J-</u>	53 J-	27 J-	4.2 J-	<u>910 J-</u>	<u>4200 J-</u>	<u>7000 J-</u>	<u>420</u>	42	<u>410 J-</u>	<u>1500 J-</u>
Benzo(a)anthracene ^(a)	108	1,050	108	ug/kg	<u>1800 J-</u>	280 J-	<u>140 J-</u>	<u>120 J-</u>	19 J-	1.1 J-	<u>2000 J-</u>	3100 J-	<u>7600 J-</u>	810 J-	77	<u>1300 J-</u>	<u>2800 J-</u>
Benzo(a)pyrene ^(a)	150	1,450	150	ug/kg	990 J-	<u> 190 J-</u>	110 J-	110 J-	5.9 J-	0.56 J-	1300 J-	<u>1700 J-</u>	<u>5200 J-</u>	680 J-	58	1200 J-	<u>1600 J-</u>
Benzo(b)fluoranthene ^(a)	NSL	NSL	190	ug/kg	980 J-	210 J-	110 J-	110 J-	7.2 J-	1.3 J-	1500 J-	1900 J-	5300 J-	<u>570 J-</u>	51	<u>1600 J-</u>	<u>1800 J-</u>
Benzo(g,h,i)perylene ^(a)	NSL	NSL	170	ug/kg	270 J-	77 J-	61 J-	61 J-	5.4 J-	2.1 J-	<u>500 J-</u>	<u>470 J-</u>	2300 J-	<u>400</u>	24 J+	<u>670 J-</u>	<u>480 J-</u>
Benzo(k)fluoranthene ^(a)	NSL	NSL	240	ug/kg	370 J-	60 J-	45 J-	48 J-	2.4 J-	3.9 UJ	<u>560 J-</u>	530 J-	2600 J-	280	16 J	<u>590 J-</u>	<u>760 J-</u>
Chrysene ^(a)	166	1,290	166	ug/kg	1400 J-	220 J-	110 J-	100 J-	20 J-	2.9 J-	<u>1700 J-</u>	2400 J-	6400 J-	600 J-	60	<u>1400 J-</u>	<u>2200 J-</u>
Dibenzo(a,h)anthracene ^(a)	33	NSL	33	ug/kg	5.1 UJ	5.3 UJ	4.9 UJ	4.7 UJ	4.1 UJ	3.9 UJ	27 UJ	27 UJ	260 UJ	49 U	21 U	81 UJ	55 UJ
Fluoranthene ^(a)	423	2,230	423	ug/kg	4900 J-	620 J-	290 J-	270 J-	73 J-	6.9 J-	4100 J-	7800 J-	<u>19000 J-</u>	1300 J-	120	3700 J-	8400 J-
Fluorene ^(a)	77.4	536	77	ug/kg	2300 J-	<u>100 J-</u>	61 J-	34 J-	27 J-	4.6 J-	<u>1200 J-</u>	4500 J-	<u>10000 J-</u>	<u>160</u>	18 J	390 J-	2400 J-
Indeno(1,2,3-cd)pyrene ^(a)	NSL	NSL	200	ug/kg	310 J-	80 J-	61 J-	62 J-	2.7 J-	3.9 UJ	540 J-	530 J-	2600 J-	420	23	<u>790 J-</u>	<u>650 J-</u>
Naphthalene ^(a)	176	561	176	ug/kg	<u>210 J-</u>	25 J-	11 J-	6.2 J-	4.5 J-	1.6 J-	280 J-	<u>760 J-</u>	4000 J-	120	7.9 J	150 J-	<u>180 J-</u>
Phenanthrene ^(a)	204	1,170	204	ug/kg	6900 J-	570 J-	250 J-	190 J-	64 J-	19 J-	4300 J-	14000 J-	<u>15000 J-</u>	710 J-	120	<u>1200 J-</u>	7300 J-
Pyrene ^(a)	195	1,520	195	ug/kg	3800 J-	<u>510 J-</u>	270 J-	240 J-	70 J	6.7 J-	<u>3600 J-</u>	<u>6400 J-</u>	<u>17000 J-</u>	<u>1500 J-</u>	130	2700 J-	<u>6400 J-</u>
Total PAH17 ND=1/2RL	1,610	22,800	1,610	ug/kg	<u>28072.6</u>	<u>3221.7</u>	<u>1668.7</u>	1455.1	373	67.97	<u>24004</u>	<u>52824</u>	<u>117230</u>	<u>8386</u>	794.2	<u>16757</u>	<u>38668</u>
NOTES:			•		•	•	•	•	•		•	·		·	·	·	

Bolded detected values exceed the TEC

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J-= Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).

U = Compound was analyzed but not detected.

ug/kg = Microgram per kilogram

SC = Swan Creek

NA = Not applicable

NSL = No Screening Level

PAH = Polycyclic aromatic hydrocarbon

PEC = Probable effect concentration. Development and Evaluation of Consensus-

Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al.

RL = Reporting limit

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al.

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).



			-	ID.	SC21-SC23	SC21-SC24	SC21-SC24	SC21-SC24	SC21-SC25	SC21-SC25	SC21-SC25	SC21-SC25	SC21-SC25	SC21-SC26	SC21-SC26	SC21-SC28	SC21-SC28
				ocation ID: nple Name:	SC21-SC23-2040		SC21-SC24 SC21-SC24-1020	SC21-SC24 SC21-SC24-2040	SC21-SC25-0010	SC21-SC25 SC21-SC25-1020	SC21-SC25 SC21-SC25-2040	SC21-SC25 SC21-SC25-2040FD		SC21-SC26 SC21-SC26-0010	SC21-SC26-1020		SC21-SC28-0010FD
				ample Date:	11/5/2021	11/5/2021	11/5/2021	11/5/2021	11/4/2021	11/4/2021	11/4/2021	11/4/2021	11/4/2021	11/3/2021	11/3/2021	11/4/2021	11/4/2021
				nterval (ft):	2-4	0-1	1-2	2-4	0-1	1-2	2-4	2-4	4-6	0-1	1-2	0-1	0-1
Analyte	TEC	PEC	Region 4 ESV	` '	2 .	0.1		2 .	0.1	1.2	2 .		. 0	0.1	1.2	0.1	0.1
2-Methylnaphthalene ^(a)	NSL	NSL	20.2	ug/kg	1900 J-	4500 J-	5700 J-	63000 J-	<u>72 J</u>	<u>64 J</u>	<u>540 J</u>	230 J	700	1100 J-	270 J-	<u>2000</u>	<u>2200</u>
Acenaphthene ^(a)	NSL	NSL	6.71	ug/kg	5400 J-	17000 J-	15000 J-	60000 J-	360 J	<u>910</u>	3600 J-	4200 J-	2000	9200 J-	1300 J-	13000 J-	13000 J-
Acenaphthylene ^(a)	NSL	NSL	5.9	ug/kg	1400 J-	3600 J-	<u>1600 J-</u>	<u>5700 J-</u>	<u>140 J</u>	220 J	<u>1700 J</u>	<u>650 J</u>	<u>580</u>	1300 J-	<u>160 J-</u>	<u>3600</u>	4200 J-
Anthracene ^(a)	57.2	845	57	ug/kg	10000 J-	18000 J-	12000 J-	39000 J-	<u>610</u>	<u>690</u>	2600 J-	<u>2600</u>	<u>1900</u>	12000 J-	<u>1700 J-</u>	20000 J-	20000 J-
Benzo(a)anthracene ^(a)	108	1,050	108	ug/kg	9000 J-	18000 J-	12000 J-	24000 J-	<u>1700</u>	<u>2500</u>	6300 J-	4800 J-	<u>3600</u>	9300 J-	<u>1400 J-</u>	17000 J-	21000 J-
Benzo(a)pyrene ^(a)	150	1,450	150	ug/kg	4800 J-	12000 J-	7700 J-	18000 J-	<u>1800</u>	<u>1900</u>	3500 J-	3500	2400	5700 J-	<u>960 J-</u>	13000 J-	<u>16000 J-</u>
Benzo(b)fluoranthene ^(a)	NSL	NSL	190	ug/kg	5500 J-	11000 J-	7000 J-	14000 J-	<u>2600</u>	2300	4100 J-	<u>4000</u>	<u>2600</u>	5300 J-	<u>830 J-</u>	10000 J-	14000 J-
Benzo(g,h,i)perylene ^(a)	NSL	NSL	170	ug/kg	<u>1600 J-</u>	4700 J-	3400 J-	<u>5300 J-</u>	<u>1100</u>	900	<u>2900 J</u>	<u>1200 J</u>	<u>1000</u>	<u>1800 J-</u>	<u>330 J-</u>	4400 J-	<u>6300 J-</u>
Benzo(k)fluoranthene(a)	NSL	NSL	240	ug/kg	<u>2100 J-</u>	4700 J-	<u>2600 J-</u>	<u>6400 J-</u>	<u>870</u>	<u>870</u>	<u>3700 J</u>	<u>1300 J</u>	<u>860</u>	<u>1700 J-</u>	<u>340 J-</u>	<u>3900</u>	<u>5200 J-</u>
Chrysene ^(a)	166	1,290	166	ug/kg	<u>7000 J-</u>	<u>14000 J-</u>	<u>8000 J-</u>	<u>18000 J-</u>	<u>2300</u>	<u>2300</u>	<u>5400 J-</u>	<u>3800 J-</u>	<u>2800</u>	7000 J-	<u>1100 J-</u>	<u>12000 J-</u>	<u>15000 J-</u>
Dibenzo(a,h)anthracene ^(a)	33	NSL	33	ug/kg	270 UJ	330 UJ	310 UJ	250 UJ	400 U	350 U	310 U	280 U	290 U	54 U	4.5 U	260 U	260 U
Fluoranthene ^(a)	423	2,230	423	ug/kg	21000 J-	<u>44000 J-</u>	<u>25000 J-</u>	<u>54000 J-</u>	<u>5100</u>	<u>4700</u>	<u>14000 J-</u>	<u>14000 J-</u>	7700 J-	<u>22000 J-</u>	<u>3400 J-</u>	<u>35000 J-</u>	<u>43000 J-</u>
Fluorene ^(a)	77.4	536	77	ug/kg	<u>11000 J-</u>	<u>16000 J-</u>	<u>10000 J-</u>	<u>27000 J-</u>	<u>410</u>	<u>380</u>	<u>2800 J-</u>	<u>3300 J-</u>	<u>2200</u>	8900 J-	<u>1400 J-</u>	<u>10000 J-</u>	<u>9800 J-</u>
Indeno(1,2,3-cd)pyrene ^(a)	NSL	NSL	200	ug/kg	<u>1900 J-</u>	4900 J-	3200 J-	<u>5400 J-</u>	1200	1000	<u>3700 J</u>	<u>1400 J</u>	<u>1100</u>	<u>1800 J-</u>	<u>350 J-</u>	<u>3900 J-</u>	<u>5900 J-</u>
Naphthalene ^(a)	176	561	176	ug/kg	<u>1400 J-</u>	<u>4700 J-</u>	<u>4600 J-</u>	<u>170000 J-</u>	67 J	74 J	<u>770 J</u>	<u>360 J</u>	<u>790</u>	<u>1100 J-</u>	<u>240 J-</u>	<u>2400</u>	<u>3600</u>
Phenanthrene ^(a)	204	1,170	204	ug/kg	<u>33000 J-</u>	<u>63000 J-</u>	<u>41000 J-</u>	<u>110000 J-</u>	<u>1800</u>	<u>1300</u>	<u>5700 J-</u>	7200 J-	<u>6600 J-</u>	34000 J-	<u>5000 J-</u>	<u>55000 J-</u>	<u>53000 J-</u>
Pyrene ^(a)	195	1,520	195	ug/kg	<u>17000 J-</u>	<u>42000 J-</u>	<u>30000 J-</u>	<u>63000 J-</u>	<u>3800</u>	<u>3900</u>	<u>10000 J-</u>	9900 J-	<u>5800 J-</u>	<u>21000 J-</u>	<u>3400 J-</u>	<u>39000 J-</u>	43000 J-
Total PAH17 ND=1/2RL	1,610	22,800	1,610	ug/kg	<u>134140</u>	<u>282270</u>	<u>188960</u>	<u>682930</u>	<u>24129</u>	<u>24188</u>	<u>71470</u>	<u>62580</u>	<u>42780</u>	<u>143227</u>	<u>22182.3</u>	<u>244330</u>	<u>275330</u>

NOTES:

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NA = Not applicable

NSL = No Screening Level PAH = Polycyclic aromatic hydrocarbon

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al.

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					0.021.0020	0.021.0020	0.021.0020	0001 0000	0.001.0000	0.021.0020	0.021 0.020	0.001.0001	0001 0001	0.021.0021	0.021.0021	0001 0001	0.021.0.022
				ocation ID:	SC21-SC28	SC21-SC28	SC21-SC28	SC21-SC29	SC21-SC30	SC21-SC30	SC21-SC30	SC21-SC31	SC21-SC31	SC21-SC31	SC21-SC31	SC21-SC31	SC21-SC32
				nple Name:	SC21-SC28-1020		SC21-SC28-4060	SC21-SC29-0010	SC21-SC30-0010	SC21-SC30-1020	SC21-SC30-2040	SC21-SC31-0010	SC21-SC31-1020	SC21-SC31-2040	SC21-SC31-4060	SC21-SC31-6080	SC21-SC32-0010
				ample Date:	11/4/2021	11/4/2021	11/4/2021	11/3/2021	11/4/2021	11/4/2021	11/4/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/3/2021
_				nterval (ft):	1-2	2-4	4-6	0-1	0-1	1-2	2-4	0-1	1-2	2-4	4-6	6-8	0-1
Analyte	TEC	PEC	Region 4 ESV	Unit		•			•	•							
2-Methylnaphthalene ^(a)	NSL	NSL	20.2	ug/kg	7900 J-	<u>11000 J-</u>	<u>12000 J-</u>	<u>1600 J-</u>	<u>1100</u>	<u>1800</u>	<u>1200</u>	<u>280</u>	<u>770 J-</u>	<u>3000 J-</u>	<u>37000</u>	<u>58000 J-</u>	<u>23 J</u>
Acenaphthene ^(a)	NSL	NSL	6.71	ug/kg	21000 J-	22000 J-	<u>18000 J-</u>	9500 J-	<u>4100</u>	<u>7900 J-</u>	<u>6700 J-</u>	<u>1100 J-</u>	3800 J-	<u>7900 J-</u>	<u>42000</u>	49000 J-	<u>85</u>
Acenaphthylene ^(a)	NSL	NSL	5.9	ug/kg	4300 J-	4500 J-	<u>3300 J-</u>	<u>1700 J-</u>	<u>1400</u>	<u>2600</u>	<u>1600</u>	<u>690</u>	<u>1000 J-</u>	<u>1800 J-</u>	<u>5800 J</u>	<u>4500 J-</u>	<u>59</u>
Anthracene ^(a)	57.2	845	57	ug/kg	<u>33000 J-</u>	<u>38000 J-</u>	<u>28000 J-</u>	<u>9500 J-</u>	4400	<u>14000 J-</u>	<u>12000 J-</u>	<u>1700 J-</u>	<u>6100 J-</u>	<u>13000 J-</u>	<u>50000</u>	<u>47000 J-</u>	<u>230</u>
Benzo(a)anthracene(a)	108	1,050	108	ug/kg	<u>26000 J-</u>	<u>28000 J-</u>	22000 J-	<u>9000 J-</u>	<u>5700 J-</u>	<u>10000 J-</u>	7400 J-	<u>3600 J-</u>	<u>6000 J-</u>	<u>12000 J-</u>	<u>38000</u>	<u>31000 J-</u>	<u>590</u>
Benzo(a)pyrene ^(a)	150	1,450	150	ug/kg	<u>21000 J-</u>	<u>22000 J-</u>	<u>17000 J-</u>	<u>5800 J-</u>	4200	<u>6200 J-</u>	4500 J-	2900 J-	<u>3900 J-</u>	7400 J-	<u>25000</u>	<u>20000 J-</u>	<u>690</u>
Benzo(b)fluoranthene ^(a)	NSL	NSL	190	ug/kg	16000 J-	16000 J-	12000 J-	<u>5400 J-</u>	<u>3900</u>	<u>5800 J-</u>	4200 J-	3400 J-	3800 J-	<u>6900 J-</u>	20000	18000 J-	<u>1000</u>
Benzo(g,h,i)perylene ^(a)	NSL	NSL	170	ug/kg	6400 J-	<u>6800 J-</u>	<u>5400 J-</u>	<u>1900 J-</u>	<u>1500</u>	<u>3300</u>	<u>1500</u>	<u>1300 J-</u>	<u>1400 J-</u>	2200 J-	<u>8100 J</u>	<u>6200 J-</u>	<u>400</u>
Benzo(k)fluoranthene ^(a)	NSL	NSL	240	ug/kg	5600 J-	7400 J-	4100 J-	2300 J-	<u>1500</u>	<u>2800</u>	<u>1500</u>	1000 J-	<u>1200 J-</u>	2500 J-	<u>8600 J</u>	<u>5300 J-</u>	<u>280</u>
Chrysene ^(a)	166	1,290	166	ug/kg	<u>19000 J-</u>	<u>21000 J-</u>	<u>16000 J-</u>	<u>7000 J-</u>	<u>4600</u>	7600 J-	<u>5700 J-</u>	<u>3200 J-</u>	<u>4500 J-</u>	<u>8600 J-</u>	<u>28000</u>	23000 J-	<u>820</u>
Dibenzo(a,h)anthracene ^(a)	33	NSL	33	ug/kg	250 U	250 U	270 U	54 U	320 U	290 U	270 U	66 U	57 U	56 U	52 U	59 U	33 U
Fluoranthene ^(a)	423	2,230	423	ug/kg	<u>52000 J-</u>	<u>60000 J-</u>	41000 J-	<u>23000 J-</u>	<u>14000 J-</u>	<u>26000 J-</u>	22000 J-	7300 J-	<u>14000 J-</u>	<u>28000 J-</u>	<u>97000</u>	<u>81000 J-</u>	<u>1800</u>
Fluorene ^(a)	77.4	536	77	ug/kg	<u>16000 J-</u>	<u>20000 J-</u>	<u>14000 J-</u>	<u>9600 J-</u>	4400	<u>8300 J-</u>	<u>9800 J-</u>	<u>1300 J-</u>	4700 J-	<u>9700 J-</u>	<u>42000</u>	43000 J-	<u>120</u>
Indeno(1,2,3-cd)pyrene ^(a)	NSL	NSL	200	ug/kg	6400 J-	7000 J-	4500 J-	<u>2000 J-</u>	<u>1800</u>	<u>3600</u>	<u>1800</u>	<u>1400 J-</u>	<u>1400 J-</u>	2400 J-	<u>8000 J</u>	<u>6100 J-</u>	<u>450</u>
Naphthalene ^(a)	176	561	176	ug/kg	<u>4600 J-</u>	4700 J-	4000 J-	<u>1700 J-</u>	<u>910</u>	<u>1800</u>	<u>1200</u>	220	530 J-	<u>1100 J-</u>	<u>15000</u>	87000 J-	16 J
Phenanthrene ^(a)	204	1,170	204	ug/kg	<u>90000 J-</u>	<u>100000 J-</u>	74000 J-	<u>29000 J-</u>	<u>15000 J-</u>	<u>38000 J-</u>	<u>34000 J-</u>	<u>4900 J-</u>	<u>17000 J-</u>	<u>37000 J-</u>	<u>150000</u>	<u>150000 J-</u>	<u>600</u>
Pyrene ^(a)	195	1,520	195	ug/kg	<u>57000 J-</u>	<u>63000 J-</u>	<u>54000 J-</u>	<u>20000 J-</u>	<u>11000 J-</u>	<u>21000 J-</u>	<u>18000 J-</u>	<u>6300 J-</u>	<u>12000 J-</u>	<u>25000 J-</u>	<u>85000</u>	<u>77000 J-</u>	<u>1200</u>
Total PAH17 ND=1/2RL	1,610	22,800	1,610	ug/kg	<u>386330</u>	431530	329440	<u>139027</u>	<u>79670</u>	<u>160850</u>	<u>133240</u>	40623	<u>82129</u>	<u>168528</u>	<u>659526</u>	<u>706130</u>	<u>8380</u>

NOTES:

Bolded detected values exceed the TEC

Bolded and shaded values exceed the PEC

Underlined values exceed the Region 4 ESV

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 $\label{eq:J-def} J = \text{Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).}$

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PAH = Polycyclic aromatic hydrocarbon

PEC = Probable effect concentration. Development and Evaluation of Consensus-

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RL = Reporting limit

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al.

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).



Table 3-7a. Core and Surface Grab Sediment Results for 17 PAHs

			Le	cation ID:	SC21-SC32	SC21-SC32	SC21-SC32	SC21-SC32	SC21-SC33	SC21-SC33	SC21-SC33
			San	ple Name:	SC21-SC32-1020	SC21-SC32-2040	SC21-SC32-4060	SC21-SC32-6080	SC21-SC33-0010	SC21-SC33-1020	SC21-SC33-2040
			Sa	mple Date:	11/3/2021	11/3/2021	11/3/2021	11/3/2021	11/4/2021	11/4/2021	11/4/2021
			Depth Ir	terval (ft):	1-2	2-4	4-6	6-8	0-1	1-2	2-3.4
Analyte	TEC	PEC	Region 4 ESV	Unit							
2-Methylnaphthalene ^(a)	NSL	NSL	20.2	ug/kg	15 J	17 J	<u>41</u>	<u>22</u>	<u>91 J</u>	<u>1200</u>	<u>950</u>
Acenaphthene ^(a)	NSL	NSL	6.71	ug/kg	<u>74</u>	<u>130</u>	<u>120 J-</u>	<u>19</u>	<u>1200</u>	9500 J-	<u>6000 J-</u>
Acenaphthylene ^(a)	NSL	NSL	5.9	ug/kg	<u>89</u>	<u>100</u>	<u>63</u>	5.3	<u>180 J</u>	<u>2300</u>	<u>1300</u>
Anthracene ^(a)	57.2	845	57	ug/kg	<u>190</u>	<u>270</u>	<u>160 J-</u>	19	<u>1200</u>	<u>13000 J-</u>	<u>6000 J-</u>
Benzo(a)anthracene ^(a)	108	1,050	108	ug/kg	<u>620</u>	<u>770</u>	<u>360 J-</u>	36	<u>2000</u>	<u>14000 J-</u>	7300 J-
Benzo(a)pyrene ^(a)	150	1,450	150	ug/kg	<u>690</u>	<u>700</u>	<u>320 J-</u>	28	<u>1200</u>	<u>8100 J-</u>	<u>5900 J-</u>
Benzo(b)fluoranthene ^(a)	NSL	NSL	190	ug/kg	<u>930</u>	<u>1000</u>	380 J-	32	<u>1500</u>	<u>8300 J-</u>	5000 J-
Benzo(g,h,i)perylene ^(a)	NSL	NSL	170	ug/kg	<u>450</u>	<u>450</u>	160 J-	16	<u>480</u>	<u>3200</u>	<u>2400</u>
Benzo(k)fluoranthene ^(a)	NSL	NSL	240	ug/kg	<u>320</u>	<u>340</u>	120 J-	12	<u>510</u>	<u>3500</u>	<u>2200</u>
Chrysene ^(a)	166	1,290	166	ug/kg	<u>700</u>	<u>790</u>	<u>320 J-</u>	35	<u>1500</u>	<u>10000 J-</u>	<u>5500 J-</u>
Dibenzo(a,h)anthracene(a)	33	NSL	33	ug/kg	31 U	29 U	5 U	4.8 U	300 U	290 U	260 U
Fluoranthene ^(a)	423	2,230	423	ug/kg	<u>1600</u>	<u>1800</u>	<u>800 J-</u>	64	<u>4500</u>	<u>36000 J-</u>	<u>16000 J-</u>
Fluorene ^(a)	77.4	536	77	ug/kg	<u>100</u>	<u>180</u>	<u>130 J-</u>	20	<u>1400</u>	9600 J-	3800 J-
Indeno(1,2,3-cd)pyrene ^(a)	NSL	NSL	200	ug/kg	450	410	150 J-	16	<u>590</u>	<u>4000</u>	2800
Naphthalene ^(a)	176	561	176	ug/kg	16 J	23 J	53	19	130 J	<u>1700</u>	<u>2100</u>
Phenanthrene ^(a)	204	1,170	204	ug/kg	<u>470</u>	<u>740</u>	<u>500 J-</u>	52	<u>3600</u>	<u>46000 J-</u>	<u>21000 J-</u>
Pyrene ^(a)	195	1,520	195	ug/kg	<u>1100</u>	<u>1400</u>	<u>610 J-</u>	66	<u>4300</u>	<u>29000 J-</u>	<u>15000 J-</u>
Total PAH17 ND=1/2RL	1,610	22,800	1,610	ug/kg	<u>7830</u>	<u>9135</u>	<u>4289.5</u>	463.7	<u>24581</u>	<u>199550</u>	<u>103380</u>

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U = Compound was analyzed but not detected.

ug/kg = Microgram per kilogram

SC = Swan Creek

NA = Not applicable

NSL = No Screening Level

PAH = Polycyclic aromatic hydrocarbon

PEC = Probable effect concentration. Development and Evaluation of Consensus-

Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al.

RL = Reporting limit

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al.

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).



Table 3-7b. Composite Sediment Results for 17 PAHs

	<u> </u>				SC21-COMP-01 SC21-COMP-01	SC21-COMP-02 SC21-COMP-02	SC21-COMP-03 SC21-COMP-03	SC21-COMP-04 SC21-COMP-04	SC21-COMP-05 SC21-COMP-05	SC21-COMP-05 SC21-COMP-05FD	SC21-COMP-06 SC21-COMP-06	SC21-COMP-07 SC21-COMP-07	SC21-COMP-08 SC21-COMP-08
Analyte	TEC	PEC	Region 4 ESV	mple Date: Unit	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/10/2021	11/11/2021	11/11/2021
2-Methylnaphthalene ^(a)	NSL	NSL	20.2	ug/kg	17	<u>52</u>	<u>130 J</u>	<u>130</u>	<u>650</u>	<u>860</u>	<u>33</u>	<u>700</u>	<u>4700</u>
Acenaphthene ^(a)	NSL	NSL	6.71	ug/kg	<u>63</u>	<u>190 J</u>	2800	3300	14000	<u>16000</u>	1200	4900	<u>7800</u>
Acenaphthylene ^(a)	NSL	NSL	5.9	ug/kg	<u>45</u>	<u>120 J</u>	<u>110 J</u>	490	<u>1000</u>	<u>1400</u>	<u>63</u>	<u>970</u>	1300
Anthracene ^(a)	57.2	845	57	ug/kg	<u>160</u>	<u>320</u>	<u>1500</u>	<u>2700</u>	<u>12000</u>	<u>15000</u>	<u>1000</u>	<u>4300</u>	<u>7300</u>
Benzo(a)anthracene ^(a)	108	1,050	108	ug/kg	<u>470 J-</u>	<u>570 J-</u>	<u>690 J-</u>	<u>3400</u>	<u>7500 J-</u>	9400 J-	<u>1100</u>	<u>5700 J-</u>	<u>6300 J-</u>
Benzo(a)pyrene ^(a)	150	1,450	150	ug/kg	<u>430</u>	<u>380</u>	840 U	<u>1800</u>	<u>4000 J</u>	<u>5200</u>	<u>640</u>	<u>4300</u>	<u>4400</u>
Benzo(b)fluoranthene ^(a)	NSL	NSL	190	ug/kg	<u>500</u>	<u>380</u>	<u>340 J</u>	<u>2000</u>	<u>4400 J</u>	<u>5600</u>	<u>640</u>	<u>3900</u>	<u>4200</u>
Benzo(g,h,i)perylene ^(a)	NSL	NSL	170	ug/kg	<u>200</u>	150 J	98 J	<u>650</u>	<u>1300 J-</u>	<u>1300 J</u>	<u>210 J</u>	<u>1300 J</u>	<u>1500 J</u>
Benzo(k)fluoranthene(a)	NSL	NSL	240	ug/kg	180	190 J	110 J	<u>830</u>	<u>1500 J-</u>	<u>2400 J</u>	<u>260 J</u>	1500 J-	<u>1500 J-</u>
Chrysene ^(a)	166	1,290	166	ug/kg	<u>440 J-</u>	<u>500 J-</u>	<u>490 J-</u>	<u>3000</u>	<u>5900 J-</u>	<u>7400 J-</u>	<u>800</u>	<u>4600 J-</u>	<u>5100 J-</u>
Dibenzo(a,h)anthracene(a)	33	NSL	33	ug/kg	4.9 U	4.4 U	4.2 U	56 U	100 U	100 U	4.6 U	110 U	110 U
Fluoranthene ^(a)	423	2,230	423	ug/kg	<u>1100</u>	<u>1400</u>	<u>2100</u>	<u>6600</u>	<u>23000</u>	<u>30000</u>	<u>2900</u>	<u>12000</u>	<u>16000</u>
Fluorene ^(a)	77.4	536	77	ug/kg	77	<u>200 J</u>	<u>2300</u>	<u>2500</u>	<u>15000</u>	<u>16000</u>	<u>980</u>	<u>3600</u>	<u>4300</u>
Indeno(1,2,3-cd)pyrene ^(a)	NSL	NSL	200	ug/kg	<u>230</u>	160 J	110 J	<u>820</u>	<u>1500 J-</u>	<u>1700 J</u>	<u>230 J</u>	<u>1400 J</u>	<u>1500 J</u>
Naphthalene ^(a)	176	561	176	ug/kg	26	45	<u>180 J</u>	100	<u>620</u>	<u>850</u>	23	<u>950</u>	<u>8100</u>
Phenanthrene ^(a)	204	1,170	204	ug/kg	<u>570</u>	<u>1300</u>	<u>4700</u>	<u>5200</u>	<u>40000</u>	<u>49000</u>	<u>3500</u>	<u>15000</u>	<u>21000</u>
Pyrene ^(a)	195	1,520	195	ug/kg	<u>930</u>	<u>1300</u>	<u>1800</u>	<u>5300</u>	<u>19000</u>	<u>23000</u>	<u>2500</u>	<u>12000</u>	<u>15000</u>
Total PAH17 ND=1/2RL	1,610	22,800	1,610	ug/kg	<u>5441</u>	<u>7259</u>	<u>17880</u>	<u>38848</u>	<u>151420</u>	<u>185160</u>	<u>16081</u>	<u>77175</u>	<u>110055</u>

VOTES

Bolded detected values exceed the TEC

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Underlined values exceed the Region 4 ESV

FD = Field Duplicate

 $\label{eq:J-def} J = Compound \ was \ detected, \ but \ result \ is \ below \ the \ reporting \ limit \ and \ greater \ than \ or \ equal \ to \ the \ method \ detection \ limit \ (value \ is \ estimated).$

 $\label{eq:J-section} J-= Compound \ was \ detected, \ but \ result \ is \ below \ the \ reporting \ limit \ and \ greater \ than \ or \ equal \ to \ the \ method \ detection \ limit \ (value \ is \ estimated \ and \ potentially \ biased \ low).$

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Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000).

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				TD	GCOL MDOC	GC21 MD06	CC21 MDDEE	0001 0001	0001 0007	0001 0011	0001 0014	0021 0010	0021 0021	0001 0007	0.021 0.020	0021 0022	CCOL CODE
				Location ID: mple Name:	SC21-MR06 SC21-MR06-SURF	SC21-MR06 SC21-MR06-SURFFD	SC21-MRREF SC21-MRREF-SURF	SC21-SC01 SC21-SC01-SURF	SC21-SC05 SC21-SC05-SURF	SC21-SC11 SC21-SC11-SURF	SC21-SC14 SC21-SC14-SURF	SC21-SC18 SC21-SC18-SURF	SC21-SC21 SC21-SC21-SURF	SC21-SC27 SC21-SC27-SURF	SC21-SC30 SC21-SC30-SURF	SC21-SC33 SC21-SC33-SURF	SC21-SCREF SC21-SCREF-SURF
				ample Date:	11/8/2021	11/8/2021	11/8/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/9/2021	11/8/2021	11/9/2021
				interval (ft):	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
Analyte	TEC	PEC	Region 4 ESV	Unit	0-0.3	0-0.3	0-0.3	0-0.5	0-0.5	0-0.3	0-0.5	0-0.5	0-0.3	0-0.5	0-0.5	0-0.5	0-0.3
Acenaphthene*	NSL	NSL	6.7	ug/kg	2157.65	1932.63	6.88	35.49	20.36	370.03	108.05	13251.94	102.08	116.95	451.68	108.77	16.39
Acenaphthylene*	NSL	NSL	5.9	ug/kg ug/kg	391.53	414.9	3.39	4.56	11.52	17.5	23.84	503.63	50.45	26.87	50.54	44.05	7.1
Anthracene*	57.2	845	57	ug/kg ug/kg	2565.97	2821.8	19.32	46.15	63.11	208.06	179.92	8921.98	213,39	216.04	483.05	262.15	63.39
Benzo(a)anthracene*	108	1.050	108	ug/kg ug/kg	8030.88	7874.54	77.18	86.04	316.9	653.3	1018.25	11391.02	1142.85	1199.65	1479.24	1312.21	510.17
Benzo(a)pyrene*	150	1,450	150	ug/kg	7155.67	6016.81	90.15	54.71	337.78	730.24	1273.71	6520.23	1454.25	1647.47	1647.14	1593.42	677
Benzo(b)fluoranthene*	NSL	NSL	190	ug/kg	5671.88	4988.3	118.01	105.02	422.1	1116.42	1511.14	5337.84	1435.34	2087.5	2266.43	1849.14	994.67
Benzo(e)pyrene*	NSL	NSL	NSL	ug/kg	4627.63	3904.66	87.07	74.01	295.19	606.64	1150.02	4269.63	1317.28	1610.03	1528.63	1435.31	638.06
Benzo(g,h,i)pervlene*	NSL	NSL	170	ug/kg ug/kg	4597.21	3676.8	92.51	71.3	325.52	683.24	1455.01	3400.01	1502.68	1877.56	1971.93	1645.53	734.39
Benzo(k)fluoranthene*	NSL	NSL	240	ug/kg ug/kg	6230.87	5613.62	107.67	82.25	432.26	649	1258.93	7978.79	1478.23	1874.37	1656.19	1624.15	773.69
C1-Chrysenes*	NSL	NSL	NSL	ug/kg ug/kg	2881.42 J	3132.6 J	42.25 J	56.99 J	101.3 J	206.96 J	313.52 J	3042.08 J	377.42 J	404.14 J	586.14 J	431.88 J	165.37 J
C1-Fluoranthenes/Pyrenes*	NSL	NSL	NSL	ug/kg	7967.76 J	10318.81 J	84.87 J	153.08 J	299.97 J	587.52 J	890.64 J	11998.93 J	975.44 J	1129.27 J	1813.77 J	1156.16 J	421.32 J
C1-Fluorenes*	NSL	NSL	NSL	ug/kg	853.84 J	1476.6 J	7.96 J	50.09 J	19.29 J	44.14 J	26.75 J	1591.51 J	29.87 J	34.88 J	186.37 J	40.63 J	9.84 J
C1-Naphthalenes*	NSL	NSL	NSL	ug/kg	667.11 J	612.46 J	12.3 J	123.53 J	32.23 J	63.08 J	43.73 J	400.1 J	69.99 J	42.58 J	118.96 J	46.76 J	12.39 J
C1-Phenanthrenes/Anthracenes*	NSL	NSL	NSL	ug/kg	7851.63 J	10435.77 J	64.44 J	290.34 J	169.43 J	332.34 J	393.37 J	8049.29 J	454.26 J	492.56 J	1536.27 J	546.85 J	182.9 J
C2-Chrysenes*	NSL	NSL	NSL	ug/kg	1291.91 J	1492.98 J	28.37 J	70.78 J	54.49 J	89.68 J	138.6 J	1582.53 J	171.94 J	177.73 J	255.4 J	189.04 J	69.53 J
C2-Fluoranthenes/Pyrenes	NSL	NSL	NSL	ug/kg	3143.83 J	3593.97 J	67.03 J	130.39 J	190.55 J	305 J	568.55 J	3886.23 J	667.55 J	772.55 J	935.06 J	766.87 J	315.78 J
C2-Fluorenes*	NSL	NSL	NSL	ug/kg	1015.47 J	1562.64 J	14.29 J	92.23 J	43.94 J	48.68 J	38.2 J	1434.39 J	42.38 J	45.4 J	225.61 J	52.92 J	19.19 J
C2-Naphthalenes*	NSL	NSL	NSL	ug/kg	1065.98 J	1299.51 J	23.69 J	321.22 J	54.84 J	86.18 J	47.94 J	1085.66 J	66.29 J	53.99 J	415.63 J	57.82 J	19.97 J
C2-Phenanthrenes/Anthracenes*	NSL	NSL	NSL	ug/kg	5536.33 J	6916.63 J	67.21 J	319.49 J	171.12 J	212.15 J	252.98 J	6115.3 J	305.57 J	305.79 J	996.01 J	353.68 J	122.88 J
C3-Chrysenes*	NSL	NSL	NSL	ug/kg	942.73 J	1274.82 J	26.21 J	64.05 J	50.12 J	92.01 J	144.36 J	1548.85 J	176.33 J	187.71 J	233.67 J	189.87 J	70.78 J
C3-Fluoranthenes/Pyrenes	NSL	NSL	NSL	ug/kg	1472.54 J	1820.95 J	34.85 J	97.13 J	90.01 J	134.93 J	220.94 J	2420.4 J	262.47 J	293.86 J	366.87 J	284.95 J	113.65 J
C3-Fluorenes*	NSL	NSL	NSL	ug/kg	885.56 J	1098.81 J	17.76 J	128.11 J	74.96 J	99.19 J	153.86 J	1590.67 J	150.75 J	202.21 J	272.75 J	209.36 J	87.73 J
C3-Naphthalenes*	NSL	NSL	NSL	ug/kg	1823.18 J	3042.73 J	36.83 J	482.49 J	103.28 J	93.66 J	53.41 J	2536.7 J	77.86 J	66.78 J	458.31 J	77.55 J	37.5 J
C3-Phenanthrenes/Anthracenes*	NSL	NSL	NSL	ug/kg	2867.57 J	3567.88 J	57.72 J	302.31 J	125.48 J	118.79 J	149.65 J	4786.06 J	178.44 J	174.31 J	400.15 J	195.9 J	73.78 J
C4-Chrysenes*	NSL	NSL	NSL	ug/kg	1029.3 J	1062.77 J	26.96 J	69 J	72.94 J	136.77 J	257.2 J	1202.77 J	277.08 J	349.05 J	342.78 J	319.27 J	120.36 J
C4-Naphthalenes*	NSL	NSL	NSL	ug/kg	1031.38 J	1849.97 J	39.77 J	429.92 J	110.82 J	79.34 J	51.07 J	1804.45 J	66.13 J	60.72 J	274.8 J	66.67 J	39.49 J
C4-Phenanthrenes/Anthracenes*	NSL	NSL	NSL	ug/kg	1441.08 J	1778.59 J	55.76 J	128.77 J	55.66 J	71.32 J	81.37 J	2924.36 J	102.17 J	95.12 J	196.81 J	97.53 J	36.45 J
Chrysene*	166	1,290	166	ug/kg	7287.94	6639.52	105.95	151.44	391.42	768.04	1494.17	9865.99	<u>1511.52</u>	<u>1817.41</u>	2159.3	1679.15	732.27
Dibenzo(a,h)anthracene*	33.0	NSL	33	ug/kg	937.11	918.1	15.94	11.16	54.89	123.36	244.82	875.12	260.18	320.55	322.49	297.07	129.52
Fluoranthene*	423	2,230	423	ug/kg	<u>15503.18</u>	<u>18327.57</u>	221.05	484.94 J	<u>865.15</u>	2481.78	3769.92	41538.04	<u>3539.07</u>	4696.1	4945.79	4450.51	1928.55
Fluorene*	77	536	77	ug/kg	<u>1900.01</u>	<u>2687.01</u>	12.26	58.94	31.6	<u>253.3</u>	<u>107.39</u>	<u>11759.72</u>	<u>114.67</u>	<u>130.52</u>	446.69	<u>127.34</u>	26.81
Indeno(1,2,3-cd)pyrene*	NSL	NSL	200	ug/kg	4172.38	<u>3283.02</u>	100.99	48.82	314.21	771.67	<u>1630.87</u>	3011.31	<u>1681.9</u>	<u>1850.51</u>	1735.44	<u>1680.86</u>	757.85
Naphthalene*	176	561 NGI	176	ug/kg	741.32	611.36	7.3	15.57	23.23	40.49	40.75	449.65 2135.87	133.61	45.74	163.93	51.65	9.97
Perylene*	NSL 204	NSL 1170	NSL 204	ug/kg	2043.69	1721.74	542.04 90.26	49.12	110.86	252.99	428.12		479.71	543.72	562.09	538.36	232.91
Phenanthrene*	204 195	1170	204 195	ug/kg	14188.54	<u>15117.36</u>	90.26 177.98	295.48 J	308.68	1024.02	1104.85 2576.25	20478.37	1204.82 2728.6	<u>1526.74</u>	<u>2502.6</u>	1374.13 3381.7	<u>566.61</u>
Pyrene*	170		-7.0	ug/kg	14611.04	16313.77		361.16 J	645.81	1674.79 14786.68		28580.16 221062.05		<u>3512.88</u>	3844.86	<u>3381.7</u> 27487.39	1177.63
Total PAH34 ND=1/2RL	1,610	22,800	1,610	ug/kg	<u>141966.75</u>	<u>153787.08</u>	<u>2482.34</u>	<u>5118.56</u>	<u>6510.46</u>	14/80.08	<u>22412.66</u>	<u>231962.95</u>	<u>23872.55</u>	<u>28922.85</u>	<u>36531.45</u>	<u>27487.39</u>	<u>11466.46</u>

Bolded detected values exceed the TEC
Bolded and shaded values exceed the PEC

Underlined values exceed the Region 4 ESV

B = Compound was found in the blank and sample

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D = Sample was analyzed at a higher dilution factor

E = Quantitation of compound exceeded the calibration range.

FD = Field Duplicate

equal to the method detection limit (value is estimated).

U = Indicates the analyte was analyzed but not detected

ug/kg = Microgram per kilogram

SC = Swan Creek

NA = Not applicableNSL = No Screening Level

PAH = Polycyclic aromatic hydrocarbon

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)
RL = Reporting limit

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000).

Region 4 ESV = Ecological Screening Value (EPA Region 4 2018).

* Analytes included in Total 34 PAH calculations



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Table 3-9. Composite Sediment Results for Nutrients

	Location ID:	SC21-COMP-01	SC21-COMP-02	SC21-COMP-03	SC21-COMP-04	SC21-COMP-05	SC21-COMP-05	SC21-COMP-06	SC21-COMP-07	SC21-COMP-08
	Sample Name:	SC21-COMP-01	SC21-COMP-02	SC21-COMP-03	SC21-COMP-04	SC21-COMP-05	SC21-COMP-05FD	SC21-COMP-06	SC21-COMP-07	SC21-COMP-08
	Sample Date:	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/10/2021	11/11/2021	11/11/2021
Analyte	Unit									
Ammonia	mg/kg	82	16	14	73	110	120	180	200	230
Total Kjeldahl Nitrogen	mg/kg	940	820	600	1400	1500	1800	1200	1700	1800
Total Phosphorus	mg/kg	370	450	610	700	950	1100 J-	740	710	880

NOTES:

FD = Field Duplicate

J-= Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).

mg/kg = milligrams per kilogram



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		Location ID:	SC21-COMP-01	SC21-COMP-02	SC21-COMP-03	SC21-COMP-04	SC21-COMP-05	SC21-COMP-05	SC21-COMP-06	SC21-COMP-07	SC21-COMP-08
	SC21-COMP-01	SC21-COMP-02	SC21-COMP-03	SC21-COMP-04	SC21-COMP-05	SC21-COMP-05FD	SC21-COMP-06	SC21-COMP-07	SC21-COMP-08		
		Sample Date:	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/10/2021	11/11/2021	11/11/2021
Analyte	EPA Region 5 Eco *	Unit									
Cyanide, Total	0.0001	mg/kg	0.74 U	0.67 U	0.65 U	0.85 U	0.79 U	0.8 U	0.72 U	0.43 J	10

NOTES:

Source: * EPA Region 5 Resource Conservation and Recovery Act (EPA 2003).

Bolded values exceed the Region 5 Ecological Screening Value

FD = Field Duplicate

J = Compound was detected, but result is below the reporting limit and greater

than or equal to the method detection limit (value is estimated).

SC = Swan Creek

mg/kg = milligrams per kilogram

U = Indicates the analyte was analyzed but not detected.



			Location ID	SC21-COMP-01	SC21-COMP-02	SC21-COMP-03	SC21-COMP-04	SC21-COMP-05	SC21-COMP-06	SC21-COMP-07	SC21-COMP-08
			Sample Name	SC21-COMP-01	SC21-COMP-02	SC21-COMP-03	SC21-COMP-04	SC21-COMP-05	SC21-COMP-06	SC21-COMP-07	SC21-COMP-08
			Sample Date	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/10/2021	11/11/2021	11/11/2021
Analyte	Units	Reporting Limit	TCLP Regulatory ^(a) Levels								
TCLP HERBICIDES											
2,4-D	mg/L	0.02	10.0	0.02 U							
SILVEX (2,4,5-TP)	mg/L	0.005	1.0	0.005 U							
TCLP METALS	_										
ARSENIC	mg/L	0.15	5.0	0.15 U	0.072 J	0.15 U	0.15 U	0.052 J	0.055 J	0.049	0.065 J
BARIUM	mg/L	0.25	100	0.37	0.63	0.81	0.5	0.66	0.59	0.82	0.7
CADMIUM	mg/L	0.05	1.0	0.05 U							
CHROMIUM	mg/L	0.10	5.0	0.1 U							
LEAD	mg/L	0.10	5.0	0.1 U	0.061	0.1 U					
MERCURY	mg/L	0.002	0.2	0.002 U							
SELENIUM	mg/L	0.20	1.0	0.2 U							
SILVER	mg/L	0.10	5.0	0.1 U							
TCLP PESTICIDES											
CHLORDANE (TECHNICAL)	mg/L	0.004	0.03	0.004 U							
ENDRIN	mg/L	0.0004	0.02	0.0004 U							
GAMMA-BHC (LINDANE)	mg/L	0.0004	0.4	0.0004 U							
HEPTACHLOR	mg/L	0.0004	0.008	0.0004 U							
HEPTACHLOR EPOXIDE	mg/L	0.0004	0.008	0.0004 U							
METHOXYCHLOR	mg/L	0.0016	10	0.0016 U							
TOXAPHENE	mg/L	0.008	0.5	0.008 U							
TCLP SVOC's	_										
1,4-DICHLOROBENZENE	mg/L	0.04	7.5	0.04 U							
2,4,5-TRICHLOROPHENOL	mg/L	0.04	400	0.04 U							
2,4,6-TRICHLOROPHENOL	mg/L	0.04	2.0	0.04 U							
2,4-DINITROTOLUENE	mg/L	0.08	0.13	0.08 U							
2-METHYLPHENOL (O-CRESOL)	mg/L	0.04	200	0.04 U							
4-METHYLPHENOL (P-CRESOL)	mg/L	0.04	200	0.04 U							
HEXACHLOROBENZENE	mg/L	0.04	0.13	0.04 U							
HEXACHLOROBUTADIENE	mg/L	0.04	0.5	0.04 U							
HEXACHLOROETHANE	mg/L	0.04	3.0	0.04 U							
NITROBENZENE	mg/L	0.04	2.0	0.04 U							
PENTACHLOROPHENOL	mg/L	0.20	100	0.2 U							
PYRIDINE	mg/L	0.04	5.0	0.04 U							
TCLP VOC's	_										
1,1-DICHLOROETHENE	mg/L	0.05	0.7	0.05 U							
1,2-DICHLOROETHANE	mg/L	0.05	0.5	0.05 U							
2-BUTANONE (MEK)	mg/L	0.10	200	0.1 U							
BENZENE	mg/L	0.05	0.5	0.05 U	0.019	0.05 U					
CARBON TETRACHLORIDE	mg/L	0.05	0.5	0.05 U							
CHLOROBENZENE	mg/L	0.05	100	0.05 U							
CHLOROFORM	mg/L	0.05	6.0	0.05 U							
TETRACHLOROETHENE	mg/L	0.05	0.7	0.05 U							
TRICHLOROETHENE	mg/L	0.05	0.5	0.05 U							
VINYL CHLORIDE	mg/L	0.01	0.2	0.01 U							
OTHER											
IGNITABILITY	deg F	140		140 >	140 >	140 >	140 >	140 >	140 >	140 >	140 >
PH	su			7.5	7.5	8.1	7.5	7.4	7.8	7.4	7.7
PAINT FILTER	none			Fail	Pass						
(a) Source: 40 CFR 261.24 (June 2018).		1		<u> </u>	<u> </u>					I	

-- = No value available.

 $\mathbf{F} = Fahrenheit$

 $\mathbf{J}=$ Compound was detected, but below the reporting limit (value is estimated).

U = Compound was analyzed, but not detected.

mg/L = Milligram(s) per liter.

 $\mathbf{su} = Standard units$

TCLP = Toxicity Characteristic Leaching Procedure



				Surface Water				Standard Elutriates									
		Location:	SC21-CDF-WAT	SC21-MR-WAT	SC21-SC-WAT	SC21-SC-WAT	SC21-COMP-01	SC21-COMP-01	SC21-COMP-02	SC21-COMP-03	SC21-COMP-04	SC21-COMP-05	SC21-COMP-06	SC21-COMP-07	SC21-COMP-08		
	Sa	mple Name:	SC21-CDF-WAT	SC21-MR-WAT	SC21-SC-WAT	SC21-SC-WATFD	SC21-COMP-01-SET	SC21-COMP-01-SETFD	SC21-COMP-02-SET	SC21-COMP-03-SET	SC21-COMP-04-SET	SC21-COMP-05-SET	SC21-COMP-06-SET	SC21-COMP-07-SET	SC21-COMP-08-SET		
	S	Sample Date:	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021		
	Aquatic																
Analyte	Criteria ^(a)	Unit															
Diesel Range Organics (C10-C28)	NSL	mg/L	0.31	0.24	0.22	0.25	0.34	0.22	0.33	0.24	0.56	0.67	0.27	0.88	0.58		
Oil Range Organics (C28-C40)	NSL	mg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		

Notes:

(a) Source = Ohio Lake Erie Drainage Basin aquatic life water quality criteria (OMZA). OAC 3745-1-35. Ohio EPA 2021

Bolded values exceed the screening criteria

mg/L = Milligram(s) per liter

CDF = Confined Disposal Facility

FD = Field Duplicate

MR = Maumee River

NSL = No Screening Level

SC = Swan Creek

U = Compound was analyzed but not detected.



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Table 3-13. Surface Water and Standard Elutriate Results for Oil and Grease

Version: Revision 01

				Surfac	e Water						Standard Elutriates				
		Location:	SC21-CDF-WAT	SC21-MR-WAT	SC21-SC-WAT	SC21-SC-WAT	SC21-COMP-01	SC21-COMP-01	SC21-COMP-02	SC21-COMP-03	SC21-COMP-04	SC21-COMP-05	SC21-COMP-06	SC21-COMP-07	SC21-COMP-08
	S	ample Name:	SC21-CDF-WAT	SC21-MR-WAT	SC21-SC-WAT	SC21-SC-WATFD	SC21-COMP-01-SET	SC21-COMP-01-SETFD	SC21-COMP-02-SET	SC21-COMP-03-SET	SC21-COMP-04-SET	SC21-COMP-05-SET	SC21-COMP-06-SET	SC21-COMP-07-SET	SC21-COMP-08-SET
		Sample Date:	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021
	Aquatic														
Analyte	Criteria ^(a)	Unit													
HEM (OIL & GREASE)	NSL	mg/L	4.1 J	3.6 J	2.6 J	11	5.6 U	4.6 J	3 J	3.6 J	4.9 J	3.8 J	5.7 U	4.9 J	3.3 J

Notes

(a) Source = Ohio Lake Erie Drainage Basin aquatic life water quality criteria (OMZA). OAC 3745-1-35. Ohio EPA 202

Bolded values exceed the screening criteria

mg/L = Milligram(s) per liter

CDF = Confined Disposal Facility

FD = Field Duplicate

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

MR = Maumee River

NSL = No Screening Level

SC = Swan Creek



					e Water						Standard Elutriates				
		Location:	SC21-CDF-WAT	SC21-MR-WAT	SC21-SC-WAT	SC21-SC-WAT	SC21-COMP-01	SC21-COMP-01	SC21-COMP-02	SC21-COMP-03	SC21-COMP-04	SC21-COMP-05	SC21-COMP-06	SC21-COMP-07	SC21-COMP-08
	Sa	mple Name:	SC21-CDF-WAT	SC21-MR-WAT	SC21-SC-WAT	SC21-SC-WATFD	SC21-COMP-01-SET	SC21-COMP-01-SETFD	SC21-COMP-02-SET	SC21-COMP-03-SET	SC21-COMP-04-SET	SC21-COMP-05-SET	SC21-COMP-06-SET	SC21-COMP-07-SET	SC21-COMP-08-SET
	S	ample Date:	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021
	Aquatic														
Analyte	Criteria ^(a)	Unit													
Aluminum	NSL	μg/L	1610	1560	75.2 J	75.1 J	4560 J	6740 J	8140 J	5400 J	22000 J	8120 J	9280 J	5000 J	5670 J
Antimony	190	μg/L	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U
Arsenic	150	μg/L	10 U	10 U	10 U	10 U	5.2 J	4.5 J	36.3	7.8 J	14.6	18.4	8.6 J	20.7	13
Barium	640	μg/L	45.8 J	47 J	64.9 J	64.7 J	139 J	156 J	176 J	129 J	305	172 J	138 J	131 J	146 J
Beryllium	11	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.88 J	5 U	5 U	5 U	5 U
Cadmium	2.5	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	2.2 J	5 U	2.4 J	0.74 J	5 U	0.74 J	0.88 J
Calcium	NSL	μg/L	63900	67200	96600	96400	90900	93600	100000	99500	131000	86100	82000	76000	84400
Chromium	86	μg/L	10 U	10 U	10 U	10 U	7.7 J	11.4	15.2	8.6 J	42.5	12.8	13	11.3	83.2
Cobalt	24	μg/L	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	12.7 J	50 U	50 U	50 U	50 U
Copper	9.3	μg/L	25 U	25 U	25 U	25 U	14.7 J	19 J	29.9	20.3 J	115	26.5	23 J	16.8 J	56.5
Iron	NSL	μg/L	1720	1640	294	297	5490	8370	9360	7320	32900	10800	10600	5700	6770
Lead	6.4	μg/L	10 U	10 U	10 U	10 U	17.7	23.8	94.5	46	209	52.9	47.5	50.7	81.2
Magnesium	NSL	μg/L	16400	17000	21700	21700	21400	22400	25300	24700	34400	25000	26000	26200	22300
Manganese	NSL	μg/L	36.1	33.2	46.8	46.9	860	914	391	149	1340	1360	253	454	378
Mercury	0.91	μg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.21	0.2 U	0.26	0.11 J	0.15 J	0.2 U	0.21
Nickel	52	μg/L	40 U	40 U	40 U	40 U	8.9 J	11.5 J	15.6 J	11.8 J	40.4	14.1 J	14.4 J	9.9 J	13.9 J
Potassium	NSL	μg/L	6500	6270	5050	5040	6070	6520	5940	6180	9440	6740	6970	7380	6700
Selenium	5	μg/L	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U
Silver	0.06	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Sodium	NSL	μg/L	17500	14600	50100	49700	50600	50500	66000	50100	50300	49700	52000	61900	49600
Thallium	17	μg/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Vanadium	44	μg/L	3.5 J	50 U	50 U	50 U	5.7 J	9.7 J	12.7 J	9.9 J	37.4 J	10.5 J	13.3 J	5.9 J	7.6 J
Zinc	120	μg/L	9.9 J	60 U	60 U	60 U	48 J	71	119	53.7 J	375	121	86	74.3	128

(a) Source = Ohio Lake Erie Drainage Basin aquatic life water quality criteria (OMZA). OAC 3745-1-35. Ohio EPA 2021

Bolded values exceed the screening criteria

μg/L = Microgram(s) per liter CDF = Confined Disposal Facility

FD = Field Duplicate

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

MR = Maumee River

NSL = No Screening Level

SC = Swan Creek



EA Project No.: 15834.06 EA Engineering, Science, and Technology, Inc., PBC Table 3-15. Surface Water and Standard Elutriate Results for PCBs Aroclors Version: Revision 01

		ı													
				Surfac	e Water						Standard Elutriates				
		Location:	SC21-CDF-WAT	SC21-MR-WAT	SC21-SC-WAT	SC21-SC-WAT	SC21-COMP-01	SC21-COMP-01	SC21-COMP-02	SC21-COMP-03	SC21-COMP-04	SC21-COMP-05	SC21-COMP-06	SC21-COMP-07	SC21-COMP-08
		Sample Name:	SC21-CDF-WAT	SC21-MR-WAT	SC21-SC-WAT	SC21-SC-WATFD	SC21-COMP-01-SET	SC21-COMP-01-SETFD	SC21-COMP-02-SET	SC21-COMP-03-SET	SC21-COMP-04-SET	SC21-COMP-05-SET	SC21-COMP-06-SET	SC21-COMP-07-SET	SC21-COMP-08-SET
		Sample Date:	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021
	Aquatic														
Analyte	Criteria ^(a)	Unit													
PCB-1016	NSL	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PCB-1221	NSL	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PCB-1232	NSL	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PCB-1242	NSL	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.33 J	3.5 J	0.73 J	1 U	1 U
PCB-1248	NSL	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PCB-1254	NSL	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PCB-1260	NSL	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PCB-1262	NSL	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PCB-1268	NSL	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Total PCBs ND=0	0.00012	μg/L	0	0	0	0	0	0	0	0	0.33	3.5	0.73	0	0

Notes:

(a) Source = Ohio Lake Erie Drainage Basin aquatic life water quality criteria (OMZA). OAC 3745-1-35. Ohio EPA 202 **Bolded** values exceed the screening criteria

 $\mu g/L = Microgram(s)$ per liter

CDF = Confined Disposal Facility

FD = Field Duplicate

 $J = Compound \ was \ detected, \ but \ result \ is \ below \ the \ reporting \ limit \ and \ greater \ than \ or \ equal \ to \ the \ method \ detection \ limit \ (value \ is \ estimated).$

MR = Maumee River

NSL = No Screening Level

PCB = Polychlorinated biphenyls

SC = Swan Creek

 $U = Compound \ was \ analyzed \ but \ not \ detected.$



		1													
					e Water						Standard Elutriates				
		Location:	SC21-CDF-WAT	SC21-MR-WAT	SC21-SC-WAT	SC21-SC-WAT	SC21-COMP-01	SC21-COMP-01	SC21-COMP-02	SC21-COMP-03	SC21-COMP-04	SC21-COMP-05	SC21-COMP-06	SC21-COMP-07	SC21-COMP-08
	Sai	mple Name:	SC21-CDF-WAT	SC21-MR-WAT	SC21-SC-WAT	SC21-SC-WATFD	SC21-COMP-01-SET	SC21-COMP-01-SETFD	SC21-COMP-02-SET	SC21-COMP-03-SET	SC21-COMP-04-SET	SC21-COMP-05-SET	SC21-COMP-06-SET	SC21-COMP-07-SET	SC21-COMP-08-SET
	Sa	ample Date:	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021
	Aquatic														
Analyte	Criteria ^(a)	Unit													
2-Methylnaphthalene	NSL	μg/L	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.02 J	0.1 U	0.23	0.86	0.054 J	0.32	0.26
Acenaphthene	15	μg/L	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.025 J	0.02 J	0.43	1.7	24	17	12	13	6.3
Acenaphthylene	13	μg/L	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.13	0.077 J	0.11	3.6	0.3	1.6	0.21
Anthracene	0.02	μg/L	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.021 J	0.023 J	0.1 U	0.12	1.1	0.57	0.53	1.1	1
Benzo(a)anthracene	4.7	μg/L	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.047 J	0.043 J	0.035 J	0.14	0.21	0.43	0.15	0.59	0.44
Benzo(a)pyrene	0.06	μg/L	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.042 J-	0.037 J	0.1 U	0.035 J	0.068 J	0.1 U	0.046 J	0.27	0.18
Benzo(b)fluoranthene	2.6	μg/L	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.065 J-	0.07 J	0.03 J	0.037 J	0.079 J	0.2	0.061 J	0.25	0.2
Benzo(g,h,i)perylene	NSL	μg/L	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.035 J-	0.037 J	0.1 U	0.0086 J	0.025 J	0.1 U	0.1 U	0.097 J	0.062 J
Benzo(k)fluoranthene	0.13 ^(b)	μg/L	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.019 J-	0.021 J	0.1 U	0.016 J	0.035 J	0.085 J	0.02 J	0.11	0.084 J
Chrysene	4.7	μg/L	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.068 J	0.067 J	0.055 J	0.11	0.18	0.37	0.11	0.47	0.35
Dibenz(a,h)anthracene	0.0013 ^(b)	μg/L	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Fluoranthene	0.8	μg/L	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.19	0.2	0.35	1.5	1.6 J	2.7	1.3 J	2.3	1.9
Fluorene	19	μg/L	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.021 J	0.02 J	0.45	0.38	9.4	14	2	1.5 J	2.2
Indeno(1,2,3-c,d)pyrene	0.013 ^(b)	μg/L	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.031 J-	0.03 J	0.1 U	0.1 U	0.025 J	0.048 J	0.1 U	0.085 J	0.057 J
Naphthalene	21	μg/L	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.039 J	0.1 U	0.079 J	0.24	0.035 J	0.44	0.31
Phenanthrene	2.3	μg/L	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.11	0.12	0.8	0.098 J	7.5	16	0.28	1.1	1.4
Pyrene	4.6	μg/L	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.13	0.15	0.11	1.2	1.3	1.6 J	0.99	2.3	1.7
Total PAH17 ND=1/2RL	NSL	μg/L	0.85	0.85	0.85	0.85	1.004	1.04	2.75	5.62	46.0	57.9	18.0	25.6	16.7

(a) Source = Ohio Lake Erie Drainage Basin aquatic life water quality criteria (OMZA). OAC 3745-1-35. Ohio EPA 2021

(b) Source = Ohio River Basin aquatic life water quality criteria nondrink human health values. OAC 3745-1-32. Ohio EPA 2021

Bolded values exceed the screening criteria

μg/L = Microgram(s) per liter CDF = Confined Disposal Facility

FD = Field Duplicate

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated).

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated and potentially biased low).

MR = Maumee River

NA = Not applicable NSL = No Screening Level PAHs = Polycyclic aromatic hydrocarbons

RL = Reporting limit

SC = Swan Creek

UJ = Compound was analyzed but not detected. The reported quantitation limit is approximate.



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Table 3-17. Surface Water and Standard Elutriate Results - Nutrients and Cyanide

Version: Revision 01

				Site '	Water						Standard Elutriates				
		Location:	SC21-CDF-WAT	SC21-MR-WAT	SC21-SC-WAT	SC21-SC-WAT	SC21-COMP-01	SC21-COMP-01	SC21-COMP-02	SC21-COMP-03	SC21-COMP-04	SC21-COMP-05	SC21-COMP-06	SC21-COMP-07	SC21-COMP-08
	S	Sample Name:	SC21-CDF-WAT	SC21-MR-WAT	SC21-SC-WAT	SC21-SC-WATFD	SC21-COMP-01-SET	SC21-COMP-01-SETFD	SC21-COMP-02-SET	SC21-COMP-03-SET	SC21-COMP-04-SET	SC21-COMP-05-SET	SC21-COMP-06-SET	SC21-COMP-07-SET	SC21-COMP-08-SET
		Sample Date:	11/10/2021	11/10/2021	11/10/2021	11/10/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021	11/22/2021
	Aquatic														
Analyte	Criteria ^(a)	Unit													
Cyanide	5.2	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Nitrogen, Ammonia (as N)	0.5	mg/L	0.13	0.1	0.05 J	0.035 J	5.4	6.2	1.3	0.31	5	6.3	8.6	13	8.7
Nitrogen, Kjeldahl, Total	NSL	mg/L	1.2	1.1	0.5	0.49	5.9	6.9	2.7	1	7.6	7.9	8.7	14	8.7
Phosphorus, Total (as P)	NSL	mg/L	0.19	0.17	0.041 J	0.048 J	0.37	0.41	0.39	0.11	1.2	0.31	0.26	0.28	0.22

Notes:

(a) Source = Ohio Lake Erie Drainage Basin aquatic life water quality criteria (OMZA). OAC 3745-1-35. Ohio EPA 2021

Bolded values exceed the screening criteria

mg/L = Milligram(s) per liter

CDF = Confined Disposal Facility

FD = Field Duplicate

 $J = Compound \ was \ detected, \ but \ result \ is \ below \ the \ reporting \ limit \ and \ greater \ than \ or \ equal \ to \ the \ method \ detection \ limit \ (value \ is \ estimated).$

MR = Maumee River

NSL = No Screening Level

SC = Swan Creek



EA Engineering, Science, and Technology, Inc., PBC

EA Project No.: 15834.06

Version: Revision 01

Table 3-18. Summary of PEC Exceedances, Swan Creek Assessment of Contaminated Sediments, Maumee Area of Concern, Toledo, Ohio (November 2021)

		S un Creen	I I I I I I I I I I I I I I I I I I I	ammutea seament	,, .,	a of Concern, Foleuo	, omo (riorember 2	·			
	Total Number of	Total Number of Submitted	Total Number of	Maximum			Depth Interval of				Percentage of
	Submitted	Samples (Without		Detected		Maximum	Maximum		Number of PEC		Samples That
Analyte	Samples	FDs)	FDs)	Concentration	Units	Location	Concentration	PEC	Exceedances*	Units	Exceeded PEC
PAHs											
Total PAH17 ND=1/2RL	131	124	124	706130	μg/kg	SC21-SC31-6080	6-8	22,800	50	μg/kg	40.3
PCB Aroclors											
Total PCBs ND=0	139	132	132	31400	μg/kg	SC21-SC15-1020	1-2	676	13	μg/kg	9.8
Metals											
Arsenic	144	136	136	394	mg/kg	SC21-SC31-2040	2-4	33	19	mg/kg	14.0
Cadmium	144	136	131	11.5	mg/kg	SC21-SC21-2040	2-4	4.98	6	mg/kg	4.4
Chromium	144	136	136	1820	mg/kg	SC21-SC19-0010	0-1	111	7	mg/kg	5.1
Copper	144	136	136	1210	mg/kg	SC21-SC19-0010	0-1	149	26	mg/kg	19.1
Lead	144	136	136	1290	mg/kg	SC21-SC21-2040	2-4	128	52	mg/kg	38.2
Mercury	144	136	117	4.6	mg/kg	SC21-SC31-2040	2-4	1.06	29	mg/kg	21.3
Nickel	144	136	136	97.1	mg/kg	SC21-SC29-0010	0-1	48.6	6	mg/kg	4.4
Zinc	144	136	136	1290	mg/kg	SC21-SC25-4060	4-6	459	23	mg/kg	16.9

Notes:

*Field duplicate samples not included in number of PEC exceedances.

 $\mu g/kg = micrograms \ per \ kilogram$

FD = Field duplicate

mg/kg = milligrams per kilogram

NA = Not applicable

ND = Non-detect

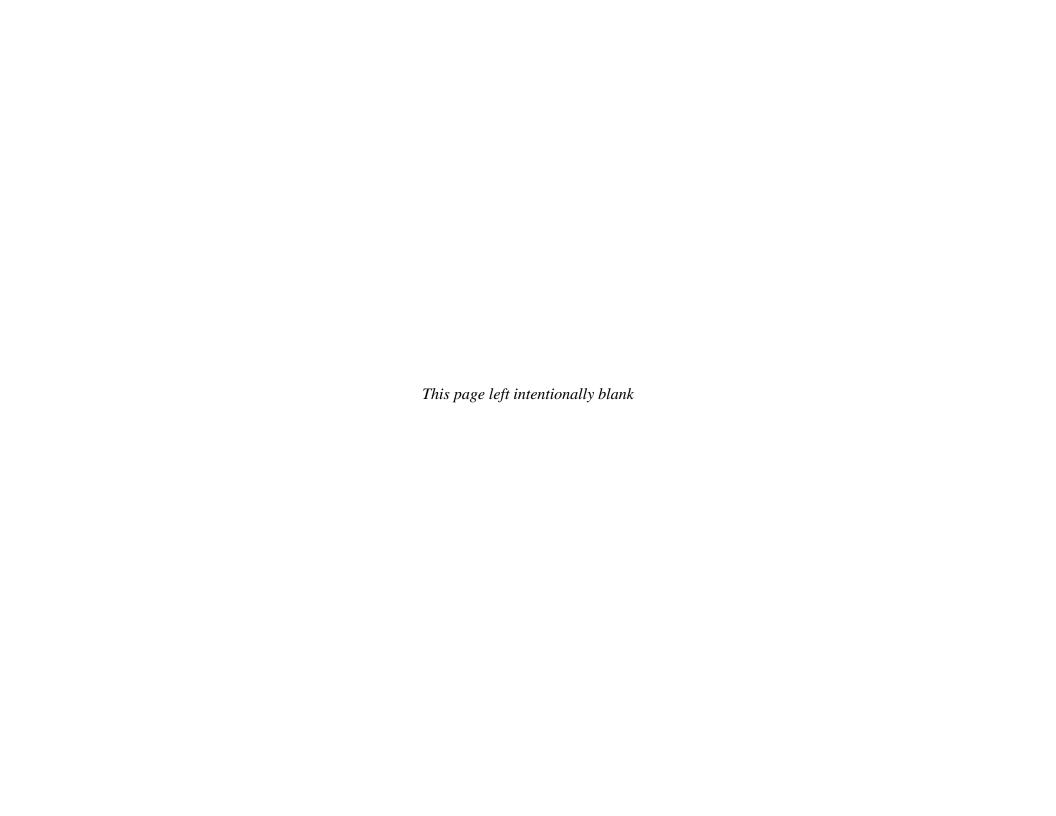
NSL = No screening level

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000).

RL= reporting limit



Version: Revision 01

Table 4-1. Summary of Elutriate Bioassay Survival Results for *Daphnia magna*, Swan Creek Assessment of Contaminated Sediments, Maumee Area of Concern, Toledo, Ohio (November 2021)

			48-Hour Survival (%)						
	EA					Percen	t Elutriat	te	48-hour
Sample Identification	Accession Number	Test Number	Lab Control	100%	50%	25%	12.5%	6.25%	LC50 (% elutriate)
SC21-SC-WAT	AT1-853	TN-21-750	100	95					>100
SC21-COMP-01	AT1-854	TN-21-733	95	100	100	100	100	100	>100
SC21-COMP-02	AT1-855	TN-21-734	100	100	100	100	100	100	>100
SC21-COMP-03	AT1-856	TN-21-735	100	100	100	100	100	100	>100
SC21-COMP-04	AT1-857	TN-21-736	100	100	95	100	100	100	>100
SC21-COMP-05	AT1-858	TN-21-737	100	100	100	100	100	100	>100
SC21-COMP-06	AT1-859	TN-21-738	100	100	100	100	100	100	>100
SC21-COMP-07	AT1-860	TN-21-739	100	95	95	95	100	100	>100
SC21-COMP-08	AT1-861	TN-21-740	100	100	100	100	100	100	>100

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Table 4-2. Summary of Elutriate Bioassay Survival Results for *Pimephales promelas*, Swan Creek Assessment of Contaminated Sediments, Maumee Area of Concern, Toledo, Ohio (November 2021)

				, v ciii b c			vival (%)		
					90-1	nour Sui	(70)		
Sample	EA Accession	Test	Lab			Percen	t Elutriate	2	96-hour LC50 (%
Identification	Number	Number	Control	100%	50%	25%	12.5%	6.25%	elutriate)
SC21-SC-WAT	AT1-853	TN-21-749	100	98					>100
SC21-COMP-01	AT1-854	TN-21-786	96	92	100	86	92	98	>100
SC21-COMP-02	AT1-855	TN-21-742	98	100	100	100	100	98	>100
SC21-COMP-03	AT1-856	TN-21-743	98	98	100	98	100	100	>100
SC21-COMP-04	AT1-857	TN-21-744	100	94	100	100	100	98	>100
SC21-COMP-05	AT1-858	TN-21-745	92	96	100	98	100	100	>100
SC21-COMP-06	AT1-859	TN-21-746	98	90	98	98	98	92	>100
SC21-COMP-07	AT1-860	TN-21-747	94	46	100	100	100	96	96.1
SC21-COMP-08	AT1-861	TN-21-748	100	98	100	100	100	100	>100



Table 4-3. Summary of Survival and Growth Results for Chironomus dilutus

Swan Creek Assessment of Contaminated Sediments, Maumee Area of Concern, Toledo, Ohio (November 2021)

EA Project No.: 15834.06

Sample Identification	EA Accession Number	10-Day Survival (percent)	Mean Ash Free Dry Weight as mg/Organism (±SD)
Laboratory Control	AT1-697	90	1.156 (±0.168) ^(c)
SC21-SCREF-SURF	AT1-873	85	1.621 (±0.190)
SC21-MRREF-SURF	AT1-863	84	1.280 (±0.398) ^(c)
SC21-SC01-SURF	AT1-864	89	1.065 (±0.391) ^(c)
SC21-SC05-SURF	AT1-865	88	1.487 (±0.605)
SC21-SC11-SURF	AT1-866	83 ^(a)	1.827 (±0.331)
SC21-SC14-SURF	AT1-867	90	1.658 (±0.379)
SC21-SC18-SURF	AT1-868	3 ^(abc)	0.750 (±1.047)
SC21-SC21-SURF	AT1-869	90	1.905 (±0.422)
SC21-SC27-SURF	AT1-870	84 ^(a)	1.392 (±0.356)
SC21-SC30-SURF	AT1-871	79 ^(a)	0.714 (±0.182) ^(abc)
SC21-SC33-SURF	AT1-872	76 ^(abc)	1.493 (±0.409)
SC21-MR06-SURF	AT1-862	35 ^(abc)	0.713 (±0.209) ^(abc)

Notes:

- (a) Significantly different (p=0.05) from laboratory control.
- (b) Significantly different (p=0.05) from SC21-MRREF-SURF (AT1-863).
- (c) Significantly different (p=0.05) from SC21-SCREF-SURF (AT1-873).



Table 4-4. Summary of Survival and Growth Results for *Hyalella azteca*, Swan Creek Assessment of Contaminated Sediments, Maumee Area of Concern, Toledo, Ohio (November 2021)

Sample Identification	EA Accession Number	10-Day Survival (percent)	Mean Dry Weight as mg/Organism (±SD)
Laboratory Control	AT1-697	91	0.125 (±0.020)
SC21-SCREF-SURF	AT1-873	85 ^(a)	$0.065 \ (\pm 0.022)^{(ab)}$
SC21-MRREF-SURF	AT1-863	90	$0.099~(\pm 0.007)^{(a)}$
SC21-SC01-SURF	AT1-864	80 ^(ab)	$0.079 \ (\pm 0.018)^{(ab)}$
SC21-SC05-SURF	AT1-865	36 ^(abc)	$0.066 \ (\pm 0.022)^{(ab)}$
SC21-SC11-SURF	AT1-866	49 ^(abc)	$0.064~(\pm 0.023)^{(ab)}$
SC21-SC14-SURF	AT1-867	55 ^(abc)	$0.056 \ (\pm 0.035)^{(ab)}$
SC21-SC18-SURF	AT1-868	59 ^(abc)	$0.052 (\pm 0.009)^{(ab)}$
SC21-SC21-SURF	AT1-869	74 ^(abc)	0.029 (±0.013) ^(abc)
SC21-SC27-SURF	AT1-870	74 ^(abc)	0.031 (±0.010) ^(abc)
SC21-SC30-SURF	AT1-871	83 ^(ab)	$0.043 \ (\pm 0.008)^{(abc)}$
SC21-SC33-SURF	AT1-872	74 ^(abc)	$0.053 \ (\pm 0.014)^{(ab)}$
SC21-MR06-SURF	AT1-862	56 ^(abc)	$0.066 (\pm 0.014)^{(ab)}$

Notes:

- (a) Significantly different (p=0.05) from laboratory control.
- (b) Significantly different (p=0.05) from SC21-MRREF-SURF (AT1-863).
- (c) Significantly different (p=0.05) from SC21-SCREF-SURF (AT1-873).



Table 4-5. Tissue Recovery Results for *Lumbriculus variegatus* Bioaccumulation Testing Swan Creek Assessment of Contaminated Sediments, Maumee Area of Concern, Toledo, Ohio (November 2021)

		`	/				
	EA		Orga	nism W	eight R	ecover	ed (g)
Sample Identification	Accession Number	Organism Weight Loaded (g)	A	В	C	D	E
Laboratory Control	AT1-697	15	15	15	15	15	15
SC21-SCREF-SURF	AT1-873	15	11	12	10	13	10
SC21-SC11-SURF	AT1-866	15	15	15	15	15	15
SC21-SC14-SURF	AT1-867	15	10	10	12	11	15
SC21-SC18-SURF	AT1-868	15	10	8	10	8	8



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Table 4-6. Mean Lipid Concentrations (Percent of Total Body Wet Weight) in Lumbriculus Variegatus, Swan Creek Assessment of Contaminated Sediments, Maumee Area of Concern, Toledo, Ohio (November 2021)

Sample Identification	Lipid Concentration (Percent)
Pre-test	2.24
Control	1.34
Reference Site	1.088
SC21-SC11-SURF	1.26
SC21-SC14-SURF	1.32
SC21-SC18-SURF	2.0



		Pre-test	Swan Creek Reference	SC21-SC11-SURF	SC21-SC14-SURF	SC21-SC18-SURF
Analyte	Units	%Lipids = 2.24	%Lipids = 1.088	%Lipids = 1.26	%Lipids = 1.32	%Lipids = 2
PCB-1	μg/kg-%lipid	0.00209	0.00834	0.756	0.034	0.505
PCB-2	μg/kg-%lipid	ND	ND	0.033	0.0168	0.153
PCB-3	μg/kg-%lipid	ND	ND	0.148	0.0182	0.203
PCB-4	μg/kg-%lipid	0.00377	0.0884	9.37	0.583	13.2
PCB-5	μg/kg-%lipid	ND	0.00674	0.232	0.053	1.33
PCB-6	μg/kg-%lipid	0.0124	0.0948	1.89	1.5	51.9
PCB-7	μg/kg-%lipid	ND	0.00946	0.472	0.06	1.52
PCB-8	μg/kg-%lipid	0.00935	0.105	5.45	1.18	38.5
PCB-9	μg/kg-%lipid	0.00722	0.00997	0.171	0.102	2.71
PCB-10	μg/kg-%lipid	ND	0.00432	0.213	0.028	0.781
PCB-11	μg/kg-%lipid	ND	0.0673	0.232	0.19	4.04
PCB-12	μg/kg-%lipid	0.00422	0.0363	0.861	0.631	18.1
PCB-14	μg/kg-%lipid	ND	ND	ND	ND	ND
PCB-15	μg/kg-%lipid	0.00418	0.0639	1.46	0.549	17.0
PCB-16	μg/kg-%lipid	0.0117	0.12	1.97	1.52	55.6
PCB-17	μg/kg-%lipid	0.0229	0.274	15.4	3.14	103
PCB-18	μg/kg-%lipid	0.0301	0.29	7.2	4.55	111
PCB-19	μg/kg-%lipid	0.004	0.0745	4.66	0.607	16.4
PCB-20	μg/kg-%lipid	0.0501	0.678	17.6	8.86	159
PCB-21	μg/kg-%lipid	0.00563	0.094	3.02	0.741	23.1
PCB-22	μg/kg-%lipid	0.0132	0.168	3.32	1.98	67.3
PCB-23	μg/kg-%lipid	ND	ND	ND	ND	ND
PCB-24	μg/kg-%lipid	0.00371	0.00632	ND	0.07	1.47
PCB-25	μg/kg-%lipid	0.0193	0.16	3.84	3.05	95.2
PCB-26	μg/kg-%lipid	0.0292	0.269	6.04	5.1	129
PCB-27	μg/kg-%lipid	0.00285	0.0491	2.05	0.393	12.4
PCB-31	μg/kg-%lipid	0.0482	0.587	17.1	8.23	143
PCB-32	μg/kg-%lipid	0.0129	0.181	8.31	1.93	61.4
PCB-34	μg/kg-%lipid	0.0072	ND	0.224	0.114	4.01
PCB-35	μg/kg-%lipid	ND	ND	ND	0.0821	2.3
PCB-36	μg/kg-%lipid	ND	ND	ND	ND	ND
PCB-37	μg/kg-%lipid	0.00398	0.0872	1.39	0.634	24.3
PCB-38	μg/kg-%lipid	ND	ND	ND	ND	ND
PCB-39	μg/kg-%lipid	ND	ND	0.181	ND	2.02
PCB-40	μg/kg-%lipid	0.0169	0.385	9.25	3.58	98.2
PCB-41	μg/kg-%lipid	ND	0.0401	1.15	0.183	1.49
PCB-42	μg/kg-%lipid	0.0124	0.26	5.04	2.29	71.1
PCB-43	μg/kg-%lipid	0.00247	0.0476	1.22	0.366	11.1
PCB-44	μg/kg-%lipid	0.0419	0.987	20.4	8.46	173
PCB-45	μg/kg-%lipid	0.00917	0.179	3.05	1.5	44.9



		Pre-test	Swan Creek Reference	SC21-SC11-SURF	SC21-SC14-SURF	SC21-SC18-SURF
Analyte	Units	%Lipids = 2.24	%Lipids = 1.088	%Lipids = 1.26	%Lipids = 1.32	%Lipids = 2
PCB-46	μg/kg-%lipid	0.00442	0.0659	1.31	0.625	19.8
PCB-48	μg/kg-%lipid	0.0057	0.117	3.79	0.975	26.0
PCB-49	μg/kg-%lipid	0.0255	0.632	13.5	5.74	117
PCB-50	μg/kg-%lipid	0.00822	0.129	3.71	1.32	43.6
PCB-51	μg/kg-%lipid	0.00324	0.0573	2.02	0.489	15.0
PCB-52	μg/kg-%lipid	0.0456	1.12	21.3	8.99	136
PCB-54	μg/kg-%lipid	0.000256	0.00464	0.21	0.047	1.12
PCB-55	μg/kg-%lipid	ND	0.0167	ND	ND	ND
PCB-56	μg/kg-%lipid	0.00606	0.222	5.94	1.39	34.6
PCB-57	μg/kg-%lipid	0.000407	0.00945	0.192	0.098	2.81
PCB-58	μg/kg-%lipid	ND	0.0162	ND	0.0343	1.39
PCB-59	μg/kg-%lipid	0.00476	0.121	2.96	0.793	22.9
PCB-60	μg/kg-%lipid	0.00167	0.101	3.8	0.433	4.51
PCB-61	μg/kg-%lipid	0.0256	0.852	26.6	6.08	140
PCB-63	μg/kg-%lipid	0.00199	0.0574	1.31	0.435	11.8
PCB-64	μg/kg-%lipid	0.0172	0.474	9.52	3.63	89.3
PCB-66	μg/kg-%lipid	0.0125	0.506	13.1	3.14	74.7
PCB-67	μg/kg-%lipid	0.000981	0.0273	0.641	0.262	5.57
PCB-68	μg/kg-%lipid	0.000373	0.0114	0.146	0.088	1.71
PCB-72	μg/kg-%lipid	0.00213	0.0102	0.133	0.068	2.98
PCB-73	μg/kg-%lipid	ND	ND	ND	ND	ND
PCB-77	μg/kg-%lipid	0.00103	0.0517	1.27	0.317	7.93
PCB-78	μg/kg-%lipid	ND	ND	ND	ND	ND
PCB-79	μg/kg-%lipid	ND	0.00995	0.13	0.034	0.781
PCB-80	μg/kg-%lipid	ND	ND	ND	ND	ND
PCB-81	μg/kg-%lipid	ND	ND	ND	ND	ND
PCB-82	μg/kg-%lipid	0.00118	0.085	1.8	0.386	6.96
PCB-83	μg/kg-%lipid	0.00136	0.0944	1.3	0.446	8.57
PCB-84	μg/kg-%lipid	0.00607	0.231	3.49	1.36	36.7
PCB-85	μg/kg-%lipid	0.00174	0.146	3.32	0.664	9.15
PCB-88	μg/kg-%lipid	0.00409	0.202	3.05	0.971	21.4
PCB-89	μg/kg-%lipid	0.000594	0.0252	0.524	0.162	3.2
PCB-90	μg/kg-%lipid	0.0112	0.76	9.56	2.93	55.8
PCB-92	μg/kg-%lipid	0.00303	0.193	2.11	0.755	15.6
PCB-93	μg/kg-%lipid	0.00676	0.0201	0.363	0.12	2.36
PCB-94	μg/kg-%lipid	ND	ND	0.278	0.091	1.71
PCB-95	μg/kg-%lipid	0.014	0.657	8.77	3.15	73.1
PCB-96	μg/kg-%lipid	0.000556	0.0163	0.357	0.118	2.6
PCB-98	μg/kg-%lipid	0.00138	0.066	1.43	0.432	7.54
PCB-99	μg/kg-%lipid	0.00501	0.346	5.35	1.45	26.0



			Swan Creek			
		Pre-test	Reference	SC21-SC11-SURF	SC21-SC14-SURF	SC21-SC18-SURF
Analyte	Units	%Lipids = 2.24	%Lipids = 1.088	%Lipids = 1.26	%Lipids = 1.32	%Lipids = 2
PCB-100	μg/kg-%lipid	0.00676	0.0201	0.363	0.12	2.36
PCB-102	μg/kg-%lipid	0.00138	0.066	1.43	0.432	7.54
PCB-103	μg/kg-%lipid	ND	0.0184	0.17	0.071	1.49
PCB-104	μg/kg-%lipid	ND	0.000594	0.014	0.004	0.061
PCB-105	μg/kg-%lipid	0.00234	0.198	3.83	0.602	8.94
PCB-106	μg/kg-%lipid	ND	ND	ND	ND	ND
PCB-107	μg/kg-%lipid	ND	0.0309	0.468	0.084	0.905
PCB-108	μg/kg-%lipid	0.00696	0.46	8.22	2.07	36.7
PCB-109	μg/kg-%lipid	0.000535	0.0513	0.776	0.177	3.41
PCB-110	μg/kg-%lipid	0.0124	0.853	11.9	3.61	78.8
PCB-111	μg/kg-%lipid	ND	ND	ND	ND	ND
PCB-112	μg/kg-%lipid	ND	ND	ND	ND	ND
PCB-114	μg/kg-%lipid	ND	0.0169	0.433	0.062	0.94
PCB-118	μg/kg-%lipid	0.00599	0.47	7.41	1.75	32.3
PCB-119	μg/kg-%lipid	0.00696	0.46	8.22	2.07	36.4
PCB-120	μg/kg-%lipid	ND	ND	ND	ND	0.241
PCB-121	μg/kg-%lipid	ND	ND	ND	ND	ND
PCB-122	μg/kg-%lipid	ND	0.0167	0.267	0.048	0.643
PCB-123	μg/kg-%lipid	ND	0.0162	0.29	0.05	0.626
PCB-126	μg/kg-%lipid	ND	ND	ND	ND	ND
PCB-127	μg/kg-%lipid	ND	ND	ND	ND	ND
PCB-128	μg/kg-%lipid	0.00115	0.0984	0.427	0.158	1.79
PCB-129	μg/kg-%lipid	0.00839	0.641	2.98	1.2	8.16
PCB-130	μg/kg-%lipid	0.000471	0.0495	0.223	0.092	0.976
PCB-131	μg/kg-%lipid	ND	0.00862	0.057	0.02	0.265
PCB-132	μg/kg-%lipid	0.00221	0.2	1.08	0.499	6.53
PCB-133	μg/kg-%lipid	0.000141	0.0138	0.06	0.028	0.265
PCB-134	μg/kg-%lipid	0.00674	0.0332	0.181	0.085	1.16
PCB-135	μg/kg-%lipid	0.00321	0.235	1.16	0.566	4.99
PCB-136	μg/kg-%lipid	0.00109	0.0757	0.416	0.213	2.63
PCB-137	μg/kg-%lipid	0.00533	0.0216	0.108	0.047	0.356
PCB-139	μg/kg-%lipid	0.00712	0.0165	0.09	0.037	0.376
PCB-141	μg/kg-%lipid	ND	0.053	0.206	0.107	0.849
PCB-142	μg/kg-%lipid	ND	ND	ND	ND	ND
PCB-144	μg/kg-%lipid	0.000208	0.0256	0.135	0.055	0.487
PCB-145	µg/kg-%lipid	ND	ND	ND	ND	ND
PCB-146	μg/kg-%lipid	0.00122	0.0972	0.386	0.182	1.63
PCB-147	μg/kg-%lipid	0.00643	0.512	2.53	1.19	11.4
PCB-148	µg/kg-%lipid	ND	ND	ND	ND	ND
PCB-150	μg/kg-%lipid	ND	ND	ND	ND	0.06
	rombia		1.12	1,10	1.12	0.00



		Pre-test	Swan Creek Reference	GCAL GCIL GUPE	GCAL GCLA GVIDE	GCO1 GC10 GVIDE
Analyte	Units	%Lipids = 2.24	%Lipids = 1.088	SC21-SC11-SURF %Lipids = 1.26	SC21-SC14-SURF %Lipids = 1.32	SC21-SC18-SURF %Lipids = 2
PCB-152	μg/kg-%lipid	ND	ND	ND	ND	ND
PCB-153	μg/kg-%lipid	0.00687	0.458	2.0	0.853	7.1
PCB-154	μg/kg-%lipid	0.00354	0.00996	0.046	0.025	0.272
PCB-155	μg/kg-%lipid	ND	ND	ND	ND	ND
PCB-156	μg/kg-%lipid	0.000534	0.065	0.338	0.115	1.13
PCB-158	μg/kg-%lipid	0.000351	0.055	0.251	0.095	0.953
PCB-159	μg/kg-%lipid	ND	0.00357	0.011	0.00511	0.037
PCB-160	μg/kg-%lipid	ND	ND	ND	ND	ND
PCB-161	μg/kg-%lipid	ND	ND	ND	ND	ND
PCB-162	μg/kg-%lipid	0.00704	0.00289	0.013	0.00441	0.033
PCB-164		0.000571	0.06	0.236	0.104	0.917
PCB-165	μg/kg-%lipid μg/kg-%lipid	0.000371 ND	ND	0.230 ND	0.104 ND	0.917 ND
		0.000198				
PCB-167	μg/kg-%lipid	0.000198 ND	0.026 ND	0.11 ND	0.043 ND	0.317 ND
PCB-169	μg/kg-%lipid					
PCB-170	μg/kg-%lipid	0.00118	0.104	0.36	0.158	0.888
PCB-171	μg/kg-%lipid	0.000596	0.0404	0.156	0.0647	0.472
PCB-172	μg/kg-%lipid	0.000194	0.0261	0.087	0.0392	0.198
PCB-174	μg/kg-%lipid	0.00137	0.117	0.431	0.194	0.989
PCB-175	μg/kg-%lipid	0.00369	0.00674	0.028	0.011	0.073
PCB-176	μg/kg-%lipid	0.000406	0.0249	0.099	0.042	0.288
PCB-177	μg/kg-%lipid	0.00166	0.0812	0.295	0.126	0.799
PCB-178	μg/kg-%lipid	0.000981	0.0416	0.143	0.065	0.388
PCB-179	μg/kg-%lipid	0.00145	0.0708	0.277	0.127	0.811
PCB-180	μg/kg-%lipid	ND	0.0803	0.248	0.152	0.807
PCB-181	μg/kg-%lipid	ND	0.00979	0.0116	0.0139	0.0202
PCB-182	μg/kg-%lipid	ND	0.0157	0.00372	0.0114	0.0137
PCB-183	μg/kg-%lipid	0.0026	0.0708	0.277	0.116	0.615
PCB-184	μg/kg-%lipid	0.00319	0.000922	0.002	0.0011	ND
PCB-185	μg/kg-%lipid	0.000425	0.0232	0.107	0.044	0.201
PCB-186	μg/kg-%lipid	ND	ND	ND	ND	ND
PCB-187	μg/kg-%lipid	0.00652	0.308	1.15	0.504	1.35
PCB-188	μg/kg-%lipid	0.00514	0.000582	0.002	0.001	0.004
PCB-189	μg/kg-%lipid	0.000372	0.00464	0.016	0.007	0.029
PCB-190	μg/kg-%lipid	0.000501	0.0251	0.086	0.0374	0.175
PCB-191	μg/kg-%lipid	ND	0.00366	0.015	0.00555	0.037
PCB-192	μg/kg-%lipid	ND	ND	ND	ND	ND
PCB-194	μg/kg-%lipid	ND	0.0156	0.039	0.027	0.07
PCB-195	μg/kg-%lipid	0.000358	0.0133	0.036	0.02	0.059
PCB-196	μg/kg-%lipid	0.00709	0.0167	0.049	0.029	0.092
PCB-197	μg/kg-%lipid	0.0000748	0.00378	0.012	0.00486	0.018



		Pre-test	Swan Creek Reference	SC21-SC11-SURF	SC21-SC14-SURF	SC21-SC18-SURF
Analyte	Units	%Lipids = 2.24	%Lipids = 1.088	%Lipids = 1.26	%Lipids = 1.32	%Lipids = 2
PCB-198	μg/kg-%lipid	0.00229	0.096	0.288	0.138	0.369
PCB-200	μg/kg-%lipid	0.00032	0.014	0.051	0.0203	0.077
PCB-201	μg/kg-%lipid	0.000412	0.0159	0.058	0.024	0.079
PCB-202	μg/kg-%lipid	0.000678	0.0193	0.057	0.029	0.09
PCB-203	μg/kg-%lipid	0.00131	0.0438	0.123	0.0621	0.161
PCB-204	μg/kg-%lipid	ND	0.0124	ND	ND	ND
PCB-205	μg/kg-%lipid	ND	0.00272	0.008	0.004	0.009
PCB-206	μg/kg-%lipid	0.000792	0.0281	0.065	0.0355	0.0611
PCB-207	μg/kg-%lipid	0.00683	0.0041	0.01	0.00527	0.00841
PCB-208	μg/kg-%lipid	0.000375	0.0138	0.03	0.0164	0.0248
PCB-209	μg/kg-%lipid	0.000449	0.0221	0.033	0.0215	0.0162
TOTAL PCBs (ND=0) ^(a)	μg/kg-%lipid	0.681	19.6	368	129	2,870

NOTES: For all tissue tests n = 5.

Lumbriculus variegatus species used for worm tissue tests.

The mean concentrations and statistical comparisons presented on the table are lipid-normalized.

ND = Not detected or was detected below the reporting limit in each of the tested tissue replicates.

NA = Not analyzed

RL = Reporting limit

 μ g/kg = Microgram(s) per kilogram

Analyte concentration is significantly higher than the reference site concentration (p<0.05)

Analyte concentration is significantly higher than the reference site concentration (p<0.05) and the pre-test tissue concentration (p<0.05)

As described in the Quality Assurance Project Plan, there is no current fish tissue screening level for polychlorinated biphenyls. The most conservative Aroclor fish tissue screening level from the 2018 EPA RSL is $2.1 \,\mu\text{g/kg}$, concentrations at all locations exceed this screening value as well as the reference site concentration (p<0.05) and the pre-test tissue concentration (p<0.05) as indicated.

⁽a) lipid-normalized concentration.



		Pre-test	Swan Creek Reference	SC21-SC11-SURF	SC21-SC14-SURF	SC21-SC18-SURF
Analyte	Units	%Lipids = 2.24	%Lipids = 1.09	%Lipids = 1.26	%Lipids = 1.32	%Lipids = 2
PCB-1	μg/kg	0.00478	0.00898	0.952	0.044	1.04
PCB-2	μg/kg	ND	ND	0.042	0.0216	0.316
PCB-3	μg/kg	ND	ND	0.186	0.0234	0.418
PCB-4	μg/kg	0.00842	0.0944	11.8	0.758	27.2
PCB-5	μg/kg	ND	0.00726	0.29	0.07	2.68
PCB-6	μg/kg	0.0278	0.1	2.38	1.96	106
PCB-7	μg/kg	ND	0.0101	0.594	0.078	3.12
PCB-8	μg/kg	0.021	0.112	6.86	1.54	79.6
PCB-9	μg/kg	0.0158	0.0106	0.216	0.133	5.62
PCB-10	μg/kg	ND	0.00458	0.266	0.037	1.59
PCB-11	μg/kg	ND	0.0732	0.292	0.248	8.32
PCB-12	μg/kg	0.00948	0.0388	1.09	0.822	37.6
PCB-14	μg/kg	ND	ND	ND	ND	ND
PCB-15	μg/kg	0.00938	0.0686	1.82	0.716	35.4
PCB-16	μg/kg	0.0262	0.128	2.48	1.98	115
PCB-17	μg/kg	0.0514	0.292	19.4	4.1	208
PCB-18	μg/kg	0.0676	0.308	9.08	5.94	222
PCB-19	μg/kg	0.00896	0.0796	5.84	0.79	33.6
PCB-20	μg/kg	0.112	0.724	22.0	11.6	316
PCB-21	μg/kg	0.0126	0.101	3.78	0.964	47.6
PCB-22	μg/kg	0.0296	0.18	4.16	2.58	138
PCB-23	μg/kg	ND	ND	ND	ND	ND
PCB-24	μg/kg	0.00811	0.00676	ND	0.091	3.01
PCB-25	μg/kg	0.0432	0.17	4.82	3.99	190
PCB-26	μg/kg	0.0654	0.286	7.58	6.65	256
PCB-27	μg/kg	0.0064	0.0526	2.58	0.512	25.4
PCB-31	μg/kg	0.108	0.626	21.4	10.7	284
PCB-32	μg/kg	0.0288	0.194	10.5	2.51	124
PCB-34	μg/kg	0.0158	ND	0.282	0.149	8.2
PCB-35	μg/kg	ND	ND	ND	0.107	4.66
PCB-36	μg/kg	ND	ND	ND	ND	ND
PCB-37	μg/kg	0.0089	0.094	1.72	0.826	50.0
PCB-38	μg/kg	ND	ND	ND	ND	ND
PCB-39	μg/kg	ND	ND	0.228	ND	4.06
PCB-40	μg/kg	0.038	0.414	11.7	4.68	196
PCB-41	μg/kg	ND	0.0432	1.44	0.234	3.08
PCB-42	μg/kg	0.0278	0.28	6.34	2.99	145
PCB-43	μg/kg	0.00554	0.0512	1.5	0.478	22.6
PCB-44	μg/kg	0.0938	1.06	25.6	11.0	340
PCB-45	μg/kg	0.0206	0.192	3.84	1.96	92.4



Analyte Uni PCB-46 μg/		Pre-test %Lipids = 2.24	Reference %Lipids = 1.09	SC21-SC11-SURF	SC21-SC14-SURF	SC21-SC18-SURF
PCB-46 µg/		70Lipius = 2.24		0/ I inida = 1 26	0/ I inida = 1 22	%Lipids = 2
	κσ	0.0000	•	%Lipids = 1.26	%Lipids = 1.32	%Lipids = 2 40.4
PCB-48 µg/		0.0099 0.0128	0.0704 0.125	1.62 4.76	0.816	53.2
1.0		0.0572	0.678	17.0	7.48	230
10						
PCB-50 μg/.		0.0184	0.138	4.66	1.72	88.2
PCB-51 μg/.		0.00724	0.0614	2.54	0.636	30.2
PCB-52 μg/.		0.102	1.2	26.8	11.7	268
PCB-54 μg/		0.000568	0.00494	0.264	0.061	2.24
PCB-55 μg/		ND	0.0181	ND	ND	ND
PCB-56 μg/		0.0136	0.24	7.46	1.81	70.8
PCB-57 μg/-		0.000916	0.0102	0.242	0.127	5.7
PCB-58 μg/		ND	0.0175	ND	0.0442	2.74
PCB-59 μg/	kg	0.0107	0.13	3.74	1.03	47.0
PCB-60 μg/	kg	0.00374	0.11	4.78	0.56	9.3
PCB-61 μg/	kg	0.0572	0.918	33.4	7.9	282
PCB-63 μg/	kg	0.00446	0.0618	1.62	0.566	24.0
PCB-64 μg/	kg	0.0386	0.51	12.0	4.74	178
PCB-66 μg/.	kg	0.028	0.546	16.4	4.08	152
PCB-67 μg/	kg	0.0022	0.0294	0.808	0.341	11.4
PCB-68 μg/	kg	0.000836	0.0122	0.184	0.114	3.48
PCB-72 μg/	kg	0.00433	0.0111	0.17	0.088	6.04
PCB-73 μg/	kg	ND	ND	ND	ND	ND
PCB-77 μg/	kg	0.0023	0.0558	1.6	0.412	16.3
PCB-78 μg/	kg	ND	ND	ND	ND	ND
PCB-79 μg/	kg	ND	0.0107	0.164	0.044	1.6
PCB-80 μg/	kg	ND	ND	ND	ND	ND
PCB-81 μg/	kg	ND	ND	ND	ND	ND
PCB-82 μg/	kg	0.00264	0.0916	2.26	0.5	14.3
PCB-83 μg/	kg	0.00306	0.101	1.62	0.582	17.6
PCB-84 µg/	kg	0.0136	0.248	4.38	1.77	75.2
PCB-85 µg/	kg	0.00388	0.158	4.2	0.858	18.9
PCB-88 µg/	kg	0.00914	0.218	3.8	1.26	43.6
PCB-89 µg/	kg	0.00133	0.027	0.662	0.211	6.5
PCB-90 μg/	kg	0.025	0.82	12.0	3.8	114
PCB-92 μg/		0.00678	0.208	2.64	0.982	31.8
PCB-93 µg/		0.0158	0.0216	0.456	0.155	4.74
PCB-94 µg/		ND	ND	0.35	0.119	3.46
PCB-95 μg/		0.0314	0.71	11.0	4.1	149
PCB-96 μg/		0.00124	0.0174	0.45	0.154	5.3
PCB-98 μg/		0.00308	0.0714	1.8	0.562	15.4
PCB-99 μg/		0.0112	0.374	6.7	1.87	53.4



		Pre-test	Swan Creek Reference	SC21-SC11-SURF	SC21-SC14-SURF	SC21-SC18-SURF
Analyte	Units	%Lipids = 2.24	%Lipids = 1.09	%Lipids = 1.26	%Lipids = 1.32	%Lipids = 2
PCB-100	μg/kg	0.0158	0.0216	0.456	0.155	4.74
PCB-102	μg/kg	0.00308	0.0714	1.8	0.562	15.4
PCB-103	μg/kg	ND	0.0196	0.214	0.093	3.02
PCB-104	μg/kg	ND	0.000638	0.018	0.005	0.122
PCB-105	μg/kg	0.00522	0.214	4.82	0.778	18.5
PCB-106	μg/kg	ND	ND	ND	ND	ND
PCB-107	μg/kg	ND	0.0336	0.588	0.108	1.82
PCB-108	μg/kg	0.0156	0.496	10.2	2.68	75.4
PCB-109	μg/kg	0.0012	0.0554	0.974	0.23	7.0
PCB-110	μg/kg	0.0278	0.92	15.0	4.68	161
PCB-111	μg/kg	ND	ND	ND	ND	ND
PCB-112	μg/kg	ND	ND	ND	ND	ND
PCB-114	μg/kg	ND	0.0184	0.546	0.079	1.89
PCB-118	μg/kg	0.0134	0.508	9.3	2.26	66.6
PCB-119	μg/kg	0.0156	0.496	10.2	2.68	74.8
PCB-120	μg/kg	ND	ND	ND	ND	0.478
PCB-121	μg/kg	ND	ND	ND	ND	ND
PCB-122	μg/kg	ND	0.018	0.336	0.062	1.34
PCB-123	μg/kg	ND	0.0176	0.366	0.065	1.31
PCB-126	μg/kg	ND	ND	ND	ND	ND
PCB-127	μg/kg	ND	ND	ND	ND	ND
PCB-128	μg/kg	0.00258	0.106	0.536	0.204	3.7
PCB-129	μg/kg	0.0188	0.692	3.74	1.54	17.3
PCB-130	μg/kg	0.00106	0.0532	0.28	0.119	2.0
PCB-131	μg/kg	ND	0.00924	0.072	0.026	0.548
PCB-132	μg/kg	0.00496	0.216	1.36	0.646	13.5
PCB-133	μg/kg	0.000316	0.015	0.075	0.036	0.544
PCB-134	μg/kg	0.0158	0.0358	0.228	0.11	2.38
PCB-135	μg/kg	0.0072	0.254	1.46	0.73	10.2
PCB-136	μg/kg	0.00246	0.0816	0.524	0.276	5.4
PCB-137	μg/kg	0.0115	0.0232	0.136	0.06	0.742
PCB-139	μg/kg	0.0155	0.0178	0.114	0.047	0.778
PCB-141	μg/kg	ND	0.0572	0.26	0.138	1.74
PCB-142	μg/kg	ND	ND	ND	ND	ND
PCB-144	μg/kg	0.000468	0.0276	0.17	0.071	1.01
PCB-145	μg/kg	ND	ND	ND	ND	ND
PCB-146	μg/kg	0.00274	0.105	0.484	0.234	3.34
PCB-147	μg/kg	0.0144	0.552	3.18	1.54	23.6
PCB-148	μg/kg	ND	ND	ND	ND	ND
PCB-150	μg/kg	ND	ND	ND	ND	0.12



		Pre-test	Swan Creek Reference	SC21-SC11-SURF	SC21-SC14-SURF	SC21-SC18-SURF
Analyte	Units	%Lipids = 2.24	%Lipids = 1.09	%Lipids = 1.26	%Lipids = 1.32	%Lipids = 2
PCB-152	μg/kg	ND	ND	ND	ND	ND
PCB-153	μg/kg	0.0154	0.494	2.5	1.1	14.7
PCB-154	μg/kg	0.00773	0.0107	0.058	0.032	0.556
PCB-155	μg/kg	ND	ND	ND	ND	ND
PCB-156	μg/kg	0.00119	0.0702	0.424	0.148	2.34
PCB-158	μg/kg	0.0008	0.0592	0.316	0.123	1.96
PCB-159	μg/kg	ND	0.00384	0.014	0.007	0.076
PCB-160	μg/kg	ND	ND	ND	ND	ND
PCB-161	μg/kg	ND	ND	ND	ND	ND
PCB-162	μg/kg	0.0154	0.00314	0.016	0.006	0.068
PCB-164	μg/kg	0.00128	0.0648	0.296	0.133	1.89
PCB-165	μg/kg	ND	ND	ND	ND	ND
PCB-167	μg/kg	0.000444	0.028	0.138	0.056	0.658
PCB-169	μg/kg	ND	ND	ND	ND	ND
PCB-170	μg/kg	0.00264	0.112	0.452	0.204	1.8
PCB-171	μg/kg	0.00134	0.0436	0.196	0.084	0.982
PCB-172	μg/kg	0.000432	0.0282	0.109	0.051	0.41
PCB-174	μg/kg	0.00306	0.126	0.542	0.25	2.0
PCB-175	μg/kg	0.00791	0.00726	0.035	0.014	0.151
PCB-176	μg/kg	0.000908	0.0268	0.124	0.054	0.594
PCB-177	μg/kg	0.00372	0.0876	0.37	0.162	1.61
PCB-178	μg/kg	0.0022	0.045	0.18	0.084	0.8
PCB-179	μg/kg	0.00326	0.0764	0.348	0.164	1.63
PCB-180	μg/kg	ND	0.0864	0.312	0.196	1.69
PCB-181	μg/kg	ND	0.00996	0.0139	0.0178	0.042
PCB-182	μg/kg	ND	0.0171	0.00468	0.0135	0.0282
PCB-183	μg/kg	0.00558	0.0762	0.348	0.15	1.27
PCB-184	μg/kg	0.00765	0.001	0.002	0.001	ND
PCB-185	μg/kg	0.000962	0.0256	0.134	0.056	0.414
PCB-186	μg/kg	ND	ND	ND	ND	ND
PCB-187	μg/kg	0.0146	0.334	1.44	0.648	2.76
PCB-188	μg/kg	0.0116	0.000628	0.002	0.001	0.008
PCB-189	μg/kg	0.000866	0.00498	0.02	0.009	0.06
PCB-190	μg/kg	0.00112	0.0272	0.108	0.048	0.364
PCB-191	μg/kg	ND	0.00396	0.018	0.007	0.076
PCB-192	μg/kg	ND	ND	ND	ND	ND
PCB-194	μg/kg	ND	0.0168	0.048	0.035	0.145
PCB-195	μg/kg	0.000802	0.0144	0.045	0.026	0.121
PCB-196	μg/kg	0.0155	0.018	0.061	0.037	0.189
PCB-197	μg/kg	0.000168	0.00406	0.015	0.006	0.037



		Pre-test	Swan Creek Reference	SC21-SC11-SURF	SC21-SC14-SURF	SC21-SC18-SURF
Analyte	Units	%Lipids = 2.24	%Lipids = 1.09	%Lipids = 1.26	%Lipids = 1.32	%Lipids = 2
PCB-198	μg/kg	0.00512	0.104	0.362	0.178	0.766
PCB-200	μg/kg	0.000716	0.0152	0.064	0.026	0.159
PCB-201	μg/kg	0.000926	0.0172	0.072	0.031	0.164
PCB-202	μg/kg	0.00152	0.0208	0.072	0.037	0.186
PCB-203	μg/kg	0.00294	0.0474	0.154	0.08	0.334
PCB-204	μg/kg	ND	0.0131	ND	ND	ND
PCB-205	μg/kg	ND	0.00292	0.01	0.005	0.018
PCB-206	μg/kg	0.00176	0.0302	0.081	0.046	0.127
PCB-207	μg/kg	0.0154	0.0044	0.012	0.007	0.018
PCB-208	μg/kg	0.000834	0.0148	0.038	0.021	0.051
PCB-209	μg/kg	0.00101	0.0238	0.042	0.0278	0.0332
TOTAL PCBs (ND=0)	μg/kg	1.53	21.1	462	168	5,790

NOTES: For all tissue tests n = 5.

Lumbriculus variegatus species used for worm tissue tests.

The mean concentrations and statistical comparisons presented on the table are based on whole body concentrations.

ND = Not detected or was detected below the reporting limit in each of the tested tissue replicates.

NA = Not analyzed

RL = Reporting limit

 $\mu g/kg = Microgram(s)$ per kilogram

Analyte concentration is significantly higher than the reference site concentration (p<0.05)

Analyte concentration is significantly higher than the reference site concentration (p<0.05) and the pre-test tissue concentration (p<0.05)

As described in the Quality Assurance Project Plan, there is no current fish tissue screening level for polychlorinated biphenyls. The most conservative Aroclor fish tissue screening level from the 2018 EPA RSL is $2.1 \,\mu\text{g/kg}$, concentrations at all locations exceed this screening value as well as the reference site concentration (p<0.05) and the pre-test tissue concentration (p<0.05) as indicated.

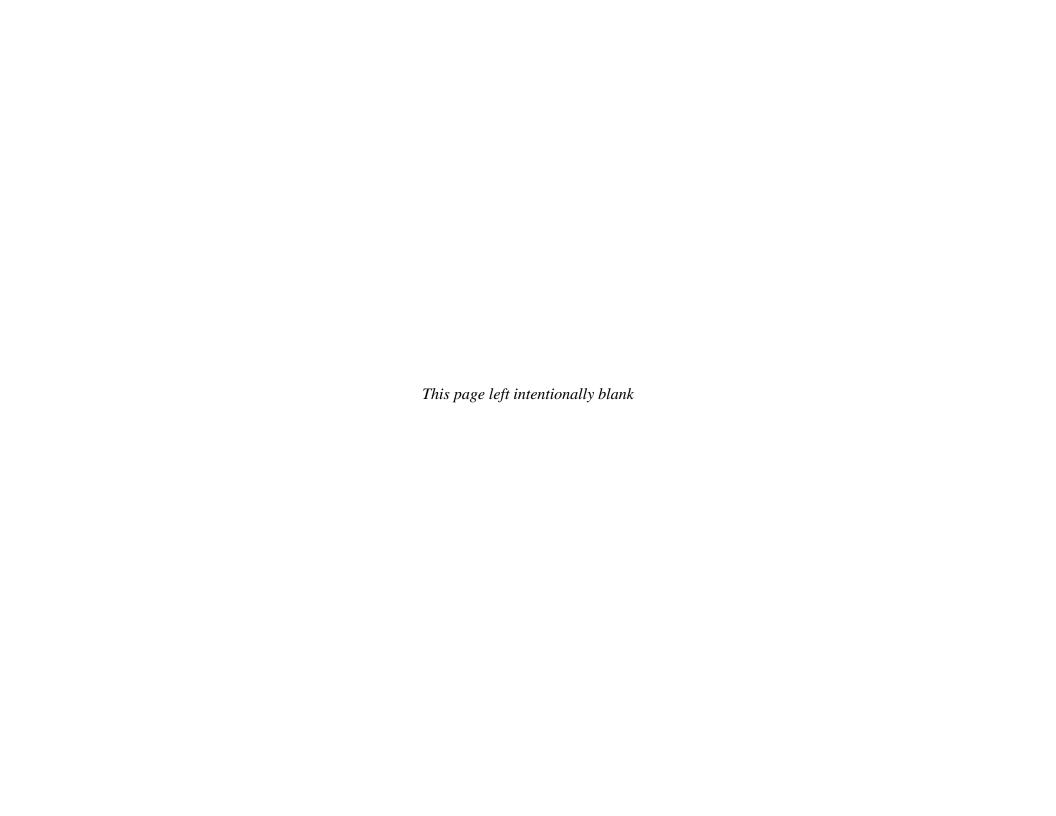


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Table 4-8a. Interpretation of *Chironomus dilutus* Benthic Toxicity Testing Results in Accordance with EPA/USACE Dredging Guidance, Swan Creek Assessment of Contaminated Sediments, Maumee Area of Concern, Toledo, Ohio

Sample Identification	Survival Statistical Difference Control	Survival >20% Different From Control	Survival Statistical Difference at Least 1 Reference	Survival >20% Different From at Least 1 Reference	Growth Statistical Difference Control	Growth >10% Different Than Control	Growth Statistical Difference at Least 1 Reference	Growth >10% Different Than Reference	Growth Less Than 0.6 mg
SC21-SCREF-SURF	NO	NO	NO	NO	NO	NO	NO	NO	NO
SC21-MRREF-SURF	NO	NO	NO	NO	NO	NO	YES	YES	NO
SC21-SC01-SURF	NO	NO	NO	NO	NO	NO	YES	YES	NO
SC21-SC05-SURF	NO	NO	NO	NO	NO	NO	NO	NO	NO
SC21-SC11-SURF	YES	NO	NO	NO	NO	NO	NO	NO	NO
SC21-SC14-SURF	NO	NO	NO	NO	NO	NO	NO	NO	NO
SC21-SC18-SURF	YES	YES	YES	YES	NO	YES	NO	YES	NO
SC21-SC21-SURF	NO	NO	NO	NO	NO	NO	NO	NO	NO
SC21-SC27-SURF	YES	NO	NO	NO	NO	NO	NO	YES	NO
SC21-SC30-SURF	YES	NO	NO	NO	YES	YES	YES	YES	NO
SC21-SC33-SURF	YES	NO	YES	NO	NO	NO	NO	NO	NO
SC21-MR06-SURF	YES	YES	YES	YES	YES	YES	YES	YES	NO

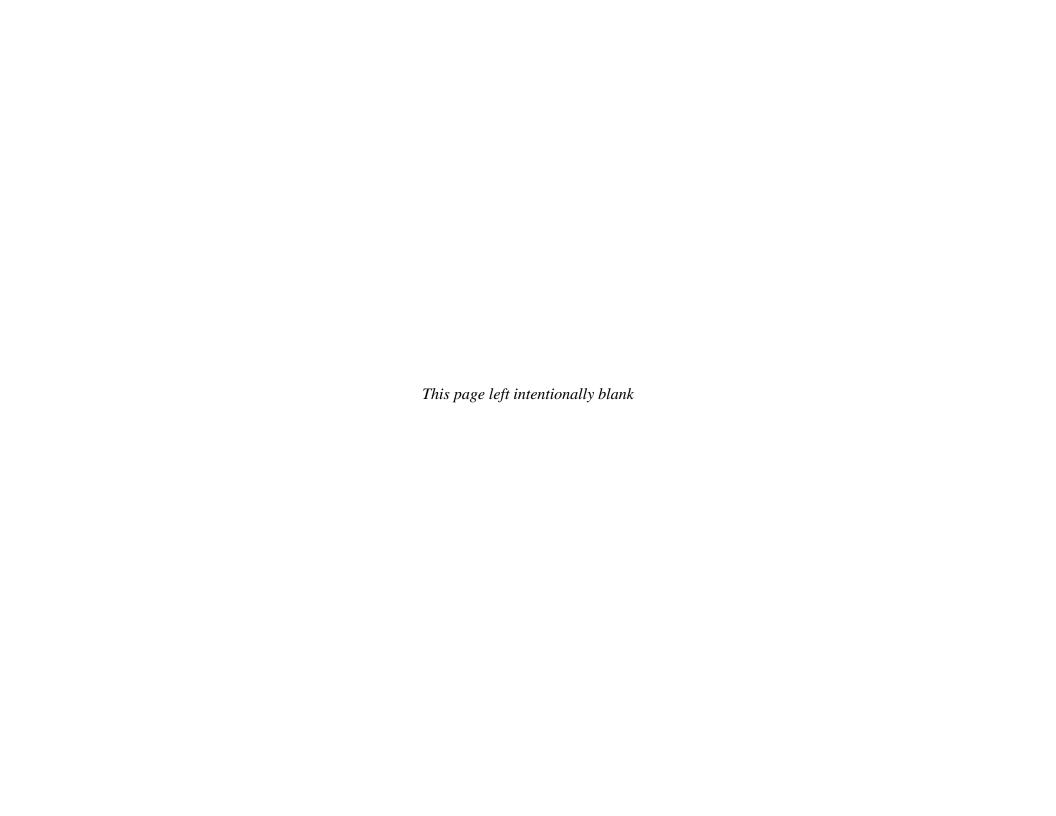


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Table 4-8b. Interpretation of *Hyalella azteca* Benthic Toxicity Testing Results in Accordance with EPA/USACE Dredging Guidance, Swan Creek Assessment of Contaminated Sediments, Maumee Area of Concern, Toledo, Ohio

Sample Identification	Survival Statistical Difference Control	Survival >10% Different From Control	Survival Statistical Difference at Least 1 Reference	Survival >10% Different From at Least 1 Reference	Growth Statistical Difference Control	Growth Statistical Difference at Least 1 Reference
SC21-SCREF-SURF	YES	NO	NO	NO	YES	YES
SC21-MRREF-SURF	NO	NO	NO	NO	YES	NO
SC21-SC01-SURF	YES	YES	YES	YES	YES	YES
SC21-SC05-SURF	YES	YES	YES	YES	YES	YES
SC21-SC11-SURF	YES	YES	YES	YES	YES	YES
SC21-SC14-SURF	YES	YES	YES	YES	YES	YES
SC21-SC18-SURF	YES	YES	YES	YES	YES	YES
SC21-SC21-SURF	YES	YES	YES	YES	YES	YES
SC21-SC27-SURF	YES	YES	YES	YES	YES	YES
SC21-SC30-SURF	YES	NO	YES	NO	YES	YES
SC21-SC33-SURF	YES	YES	YES	YES	YES	YES
SC21-MR06-SURF	YES	YES	YES	YES	YES	YES



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Table 5-1. Combined Summary of Findings for Toxicity and Bioccumulation Testing, Chemical Exceedances, and SEM/AVS
Swan Creek Assessment of Contaminated Sediments, Maumee Area of Concern, Toledo, Ohio (November 2021)

	Chironomus dilutus TEST		Hyalella azteca 10-Da			ening Crite			Lumbriculus variegatus 28-DAY BIOACCUMULATION TEST	SEM/AVS	Results
	C': f: 1 f	S:::f:1 f	C''t'1't	6::f:1f	M	etals	Org	anics ³	Significance ¹		(Σ SEM - AVS) / foc >
Sample Identification	Significant ¹ for SURVIVAL	Significant ¹ for GROWTH	Significant ¹ for SURVIVAL	Significant ¹ for GROWTH	SRV	PEC	TEC	PEC	Total PCBs	SEM/AVS Ratio > 1	130 μmole/goc
SC21-SC01-SURF	No	No	Yes	Yes	Х		х		Not tested	Х	No
SC21-SC05-SURF	No	No	Yes	Yes			х		Not tested	No	No
SC21-SC11-SURF	No	No	Yes	Yes	Х		х	х	Yes	No	No
SC21-SC14-SURF	No	No	Yes	Yes	Х		х	х	Yes	No	No
SC21-SC18-SURF	Yes	No	Yes	Yes	Х	x	х	х	Yes	No	No
SC21-SC21-SURF	No	No	Yes	Yes	х		х	х	Not tested	No	No
SC21-SC27-SURF	No	No	Yes	Yes			х	х	Not tested	No	No
SC21-SC30-SURF	No	Yes	Yes	Yes			Х	Х	Not tested	No	No
SC21-SC33-SURF	Yes	No	Yes	Yes			Х	Х	Not tested	No	No
SC21-MR06-SURF	Yes	Yes	Yes	Yes	Х	Х	Х	Х	Not tested	No	No
SC21-MRREF-SURF	Reference	Reference	Reference	Reference	Х		Х		Not tested	No	No
SC21-SCREF-SURF	Reference	Reference	Reference	Reference			х		Reference	No	No

Notes:

- 1. Statistically different from one or more reference locations and the laboratory control.
- 2. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000). Ohio SRV = Ecological Risk Assessment Guidance Document (Ohio EPA 2018).
- 3. Organics exceedances noted if individual analytes or summed totals exceeded sediment screening levels.

Shading indicates significant result or result exceeding screening criteria.

AVS = Acid volatile sulfides

foc = fraction organic carbon

PEC = Probable Effect Concentration

SEM = Simultaneously extracted metals

SRV = Ohio-specific Sediment Reference Values

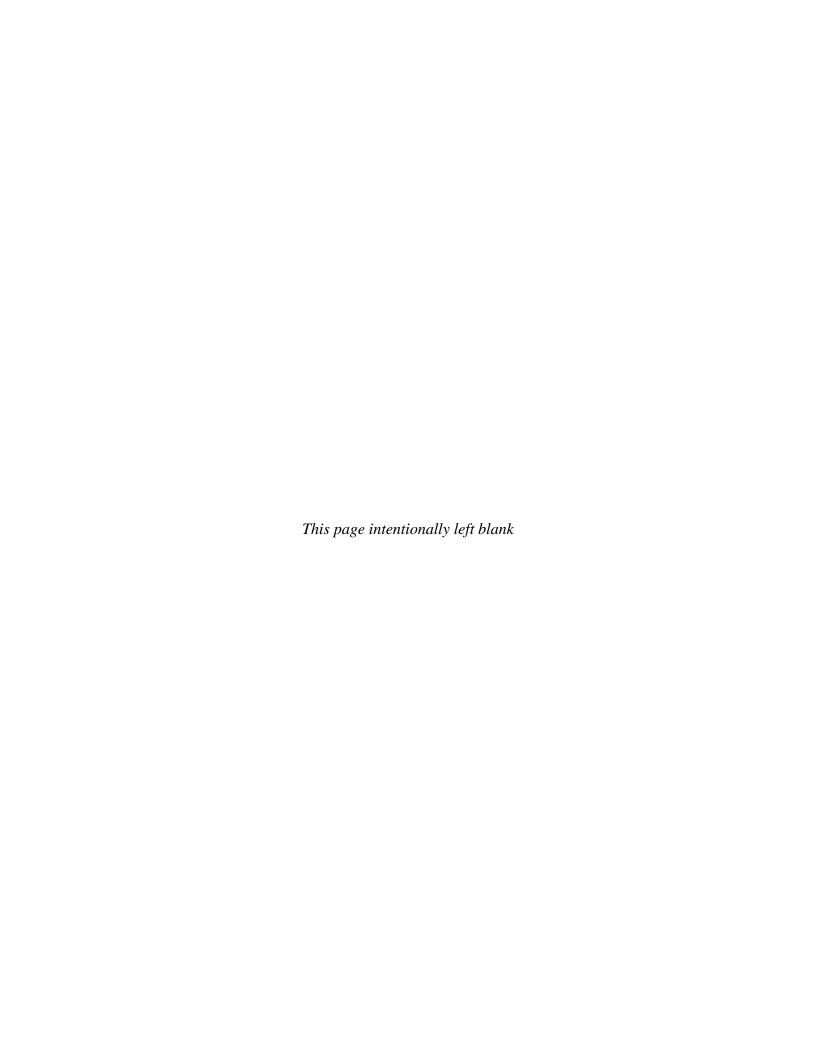
TEC = Threshold Effect Concentration

μmole/g = micromole per gram

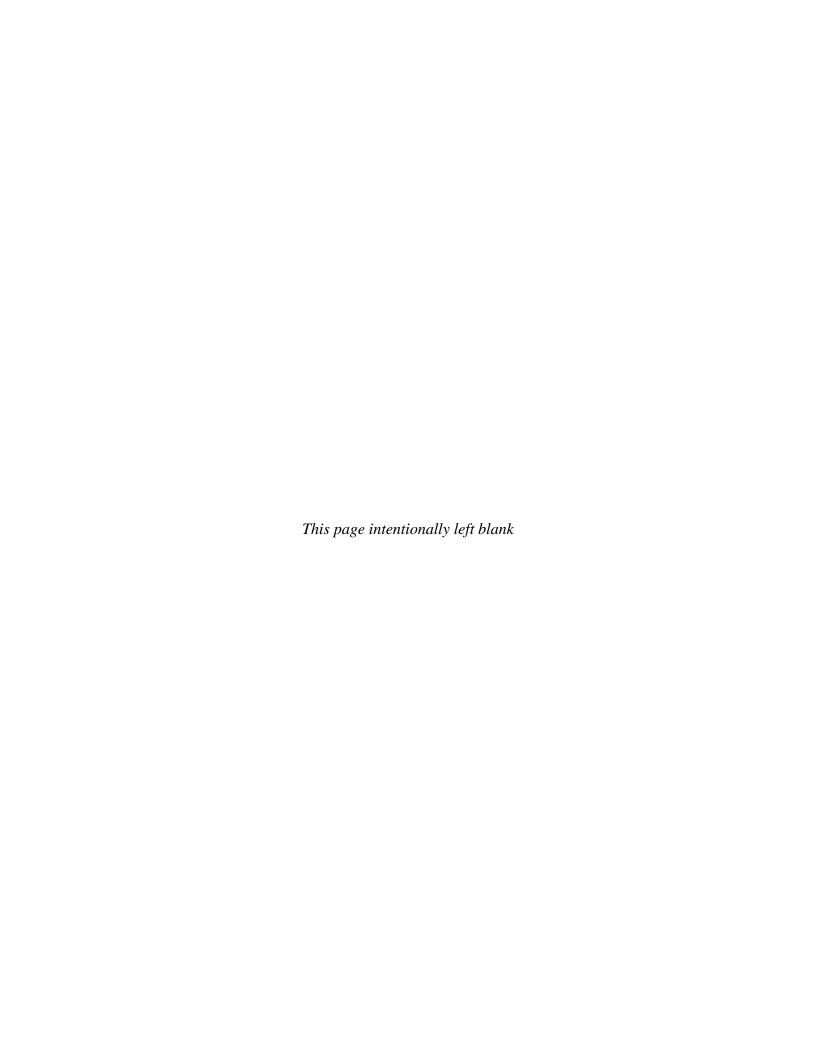


Appendix A

Field Logbooks and Data Collection Forms







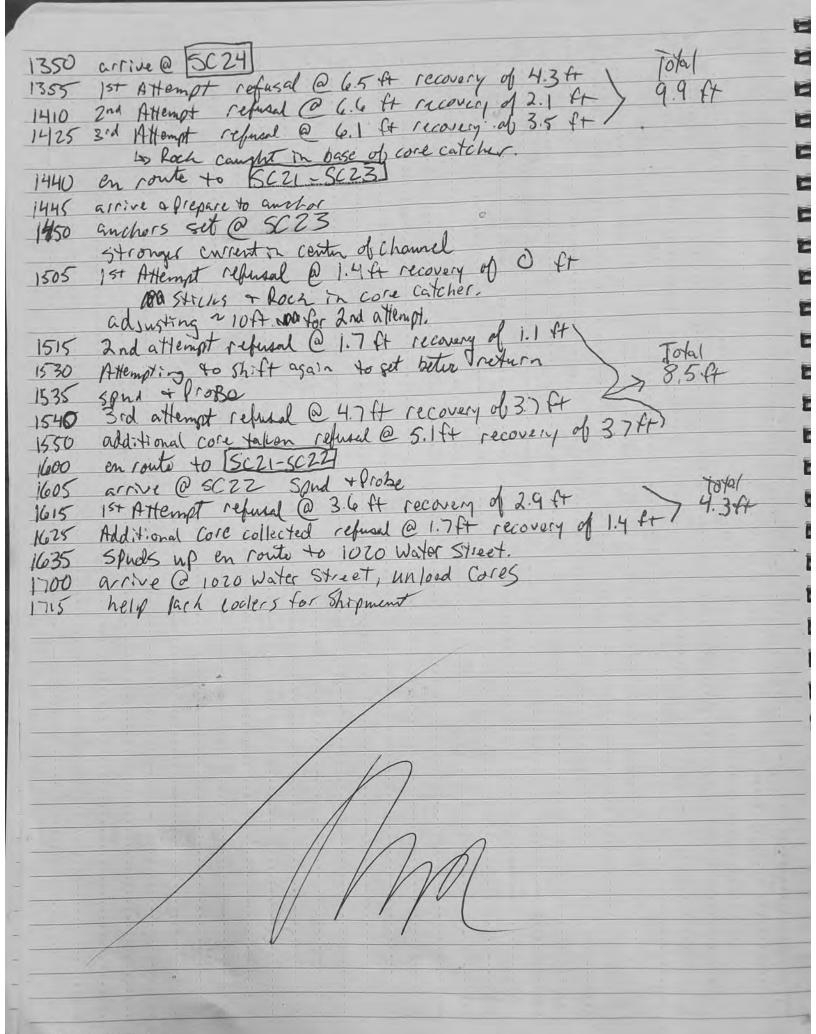
11/2/2021 arrive @ 1020 Water St @ 0800 wait for offiliated to finish Set up Weather 34°F Wind: SW 7mph Crew: EA: M. Durbano Affiliated D. Guike -M. Renik R. Sanderlin Salety meeting 0830 en route to Jeollet reference point on Green bony #63 0845 0850 la voute 40 SC21.5002) and a 0930 LOS sam near (SCOG), may need to contact Eity for semenal? Attempt to Clear Los Jam = 0935 Log Jam Not able to be removed en vonte +6 [5(21:5(07) - OR50 0955 Spud Down and Prohp 4) Sounded hard Rockil, Attempting to punch through Attempt vo secovery, Strong Current in center of Channel 1010 Another Attempt made No recovery, Shitting position to try and 1015 find softer material. found solt closer to share. 1030 Ktry obtset site, w. II need to offset more than 10 ft artire @ SCZI - SCO8) probe 1035 15: Arrend made. Penerration of 20ft recovery of 1.7ft 1040 bent spend due to strong Current breaking is free. 1045 1110 cut and moreon MORANTINOCITIVE a SOUND [SC21-SC09] 1st Attempt No recovery Adjusted Position + Attemptagein 1130 2nd Attempt , No recovery lear debri in core cetcher 1140 3rd Attempt off lift again to find another spot with a 10th rading refusal Q 2.1f+ recovery 1.1ft -1150 No additional Care Not taken at This time will return after EDA Yalk 1700 to en route to [5021-5010] Arrive @ I signed down + frobe 1205 probe entire 10 ft radius. All lock a hard sediments. Abandon for now. will return after EPA talks [SCZI-SCID Probe center of foint all graves. Probing 1710 all around point to see if Do-able. Cheking near Shore to See Sediment Softness. Both Shore lines have hard Rock substrate can not Prohe past afew taches. SCZI-SCIZ Probe centers hard substrate/gravel inch of Sand Noted, below hard compact substrate

Scale: 1 square =_

Rite in the Rein

ISC21-5613 1225 arrive & SC13 5 pud down 1240 1STATTEMPT refusal @ 3.8 At recovery of 2.2A) 1245 recovery of 3.00 > 6.0ft In Attempt refused @ B-OFF 1255 recovery of 08 ft 3rd Attempt repusal @ 2.9 ft 1310 en route to 1020 water st core Drop off. 1320 1340 a-rue at 10 20 water 5to en vonte to 5021-5033 1405 arrive @ 1 Spud down a Probe 1415 retry MATTERIA MENERAL Sample reserved fellout of core 1425 Total 154 (Hempt. refusal & 4.7 ft recovery of 2.5 ft) 1430 7.9 AT 2nd Attempt refusal @ 4.5 Pt recovery of 2.7 ft 1445 3rd Attempt refused @ 4.5 ft recovery of 2.7 ft/ 1505 enroute to 15(21-5632) 1515 Ist attempt offerme 8 ft/whicarry of 78 ft / 144 arrive @ or spuddown a Probe 1520 1530 And additional core of fush recovery of G.G. It 1545 acrive @ [5021-5031] 1000 b Spud down en + Probe or 1605 15+ Attempt full 8ft push recovery of 7.7 ft 1610 歐 en route to SCZI-SC30 1675 肚 arrive and spud down at set up Frame Probed harder material 1630 E with make attempts, Tofter under leyers. 15+ attempt refusal @ 3.3ft recovery of 1.9ft 1640 E 2nd Attempt "Moved & 3,2ft recovery of 1.4ft 1650 3rd Attempt rofusal @ 2.9A recovery of 1.4At 1700 Spinds up, head back to Dock processing facility 1720 arrive & Joch, unload cores End of Day on Rivel 1730 E E ā Scale: 1 square =

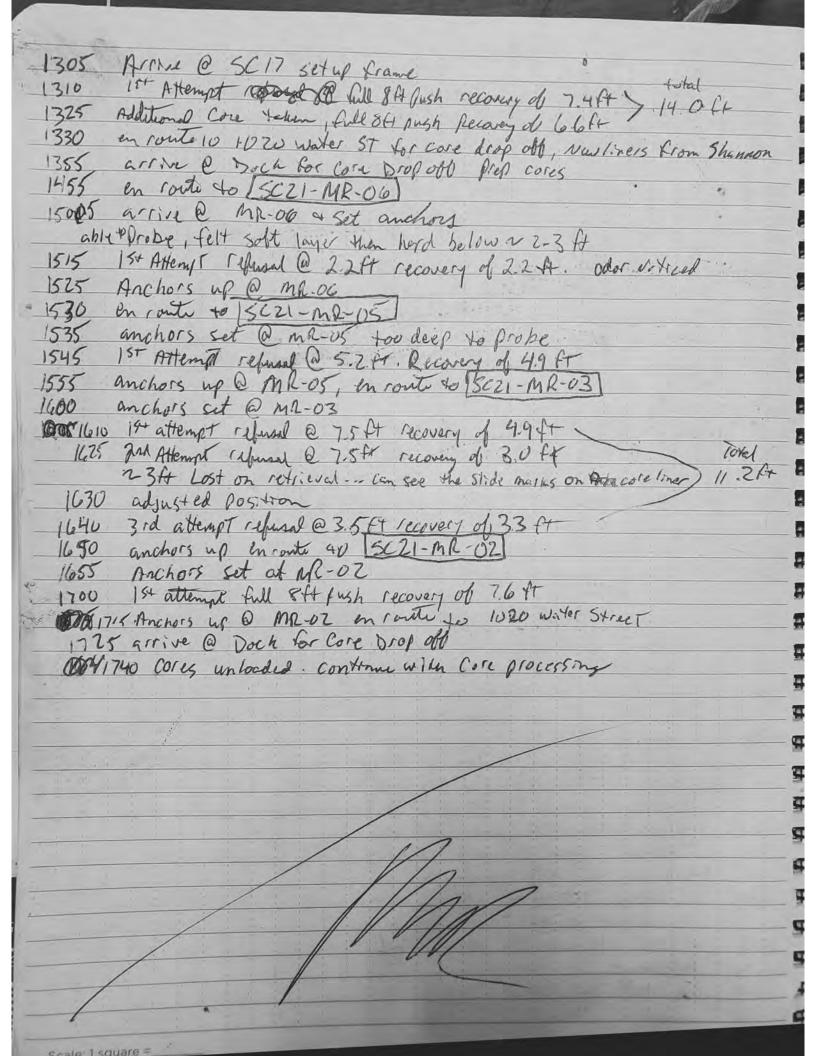
_	11/3,	12021			
	cre	w. EA	Afficieted	Weather: 320E	Wind: SW Zmph
		M. Renill	A.IZZO		Clear Skies
			D. Gerke		Frost on vehicles / Boat
			R. Sanderlin		
	0745				
	0100	Aft. 1; ated	arrive aget	up electronics	
-	0825	push do	Doch + Chech	reference point	
		en route	to 15621-5633	for fing additional Co	12
-	0840	arrive	en set up f	come + Probe station	- 7 0
		Additional	core refusal	@ 4.2ft recovery of	3.544
	0900	take down	Frame + head to	SC21-5C30	
	0905	arrive	@ 5630, SEY	up frame Probe	2.15
1	0915	Hadi tional	core refusal	Q 4,1 A recovery ob	34++
	1207-	Noticab	le odor when	retrieved. Sheen on t	of
178	0925		to 6021-5		
10	0930	arrive &	56.09. 110ge, 1	prefare to enchor, to doe,	o to spind
7	0945	Anchors	4 50 1 0 2	oft and I	St. Total
	1000	2 nd Asia	Trefusal Co L	of the covery of 1	Y /T F1/2
		3rd Atte	of refusal to 2	Y At case of i	100
7	1076	Anchae	p in route to	8 ft recovery of 1. 2x ft recovery of 1. 8 ft recovery of 1. [SC21-5C28]	641 >
77	1076	Geriss u	e SCZ8 anci	DICK FOR	
7	1045				s to find softer material
7	1050	anchors	Set at New 50	of offosite bank	July Selves May 1. Mi
	1100	1st Attend	t reduced Q D.	X AT recover of O	fr
-	1105	read justin	s position again	n to find greater pinetra	Your death.
7	1120	spried wor	on to vew locali	On	Taxal
7	1130	15+ Attempt	refusal @ 5.5	st recovery of 5.3 f	+ 0:1 odar. > 9.4ft
	1140	2nd A Henpt	- full 8 ft /us	h secovery of 4.1 ft	
	1150	en route	40 SCZ1-5CZ		
	1155	arrive @	476 P	robe rock a gravel,	May need to retaigte
1 -	1200	proped ar	ea, found 580t a	wherde 10 ft redrus to a	Hemost core.
-	1215	1 ST Attend	Treason 1 Q 3	Ittrecand of 7)+	4 7/4
_	1235	Additional	Core collected	retural (2 3's ft rece	over de la 1.6 fr
-	100	21.11.	DO OIT KOIN	tol coince - civels	i- Cat Lunch
-	1315	en route	to 15021-50	25	
-	1320	arrive es	CZ5 a Set up	Frame. Site in ver	y Shallow water.
-	1330	1st Adema	I trul 8th br	Sh. Recovery of 5.	1. ft = 11014
	1335	Halaittonal	core collected	off push Recovery	of 6.3ft/
-	1340	on route to	15621-562	9)	
	1350	arrive	25624 Spu	d down	
	Scale: 1 squ	are =			1. 1



11/4/2021 Affiliated CREW: EA Weather: 35°F Wind ESE Imph M. Rank D. Gerle Partly Cloudy A. ITTO R. Sanderlin 0740 Arrive @ 1020 Water Street affilialed arrive to set up And 0745 check reference point + en route to SCZI-SCOO 10 0830 0910 arrive @ SCIO spind a set up coring frame probed rocky gravel had Stronger current. 0930 1st Attempt refusal @ 1,2 ft recovery of 1.7 ft all Clay recovery, with the clay being maleable, the recovery seems greates than actual penetration, rulity should be work recovery . Talked with MD regarding completion, gave the ok to proceed. en rowte to SCZI SCIG 0950 Ity back issue , reeded to trouble short 1010 use trimble hypank Not receiving signal arrive @ 5019 1030 Set by frame & Probe, 18 Starting computer fixed issue 15 Attempt refusal @ 7.242 recovery of 5.2 ft 1035 Spuds of enroute to [5021-5021] 1045 1050 arrive & SCZI Spind down afrope 1st Attempt refusal @ 2.9 ft recovery of 6.7 ft 1.055 2nd Attempt refusal and ft No recovery, all rock in catcher of core 1105 Total find New location grobed 24-45ft 1110 3rd Attempt refusal @ 5.0ft recovery of 4.2 ft 1120 Additional core for ms/msD 1130 repusal @ 5.4ft recovery of 4.3ft. Noticeble odor mounts 40 [562]-5620 1146 g-rive e 5020. Tree directly over spot. Can see on map. Took Photo. 1150 shifting site down stream slightly to svoid tree, getting as close as possible to original location. Shift of 21 ft from center of original location anchors set @ SCLO. current @ location 1700 Total 15+ Attempt refusal @ 0.6ft recovery of O. No recovery -1210 Adjust position a loft try again 1215 And Attempt refusal @ 1.9 A recovery of 2.1 ft (core length) 1220 # Clay recovered, 5 milar to tocation SCIO. recovered slightly Longerthan refusal # Additional core collected, refusal Q2.1 ft recovery of 1.7 ft 1230 # 1240 eat lunch en route to [5621-5617] 1755 # ¥

Scale: 1 square =

Rete in she Rain.



11/5/2021 Ħ -B ... CREW: EA Weather: 33°F Wind: Not Affilialed m. Renin A. IZZO partly Cloudy B. Sanderlin Arrive @ 1020 Wayer Street 0740 wait for Affiliated to arrive - Down D. Gerke today Due to tamily matter. Upon arrival ACCI inted plans to prep 84 core lines for use the rest of the Krip. I will help processing crew until cores are ready two can go out. Affilialed arrived, load fret boot + cores & 30mil 0830 B 0920 en route to (5021-5002) Check reference point before going to SCOZ, Scout ahead to SCREF, Make Ture No log jams that need removal 10,30 arrive & SCREF, No los sam issues, Continue back to SCOZ arrive @ SCOZ Sprd a Set yp frame B 1055 B 1110 15 Attempt refusal @ 1.9 ft recovery of 1.1 for 1/241 readjust position, splud down for 2nd a flengt B 1130 2nd Attempt repusal @ 1.0 ft recovery of 0.9 ft radjust Bosition for additional coles for better recovery Total 1145 from around until Soft material found, center of River all rocky 1155 17.5% set spuds + prep for additional cones 1700 15t additional core taken represent @ 5,1 ft recovery of 3.6 ft B 1215 2ml additional Core taken reposal @ 5.7 ft recovery of 4.2 ft 1225 3'd additional core taken refusal @ 5.4 ft recovery of 3.8 ft 1245 4th additional core taken refusal @ 5.7 Pt recovery of 3.9 ft 750 eat lunch en vonte 40 [5671-5003] = 11310 arrive a Sfud @ 5003 some current probing hard substrute / gravel 1315 1st Attempt retural @ O. left vorceovery. only smallgraved in catcher 1325 3 moving for Ind Attempt. 1340 2nd Attempt refuse @ Opoth covery Total mounty to find better recovery for additional cores -1405 ofter property lots of area, found gossible location lots of rock throughout the stretch of over + current. 1410 H st additional core. Will Got push recovery of 3.5 Pt 2m additional core refusal @ 5,4 ft / ccovery of 2.) ft 1425 and additional core for when me 3 1435 en route to 6021-5004 7 1448 Arrive @ 5004 spud & set by frame Scale: 1 square = Rite in the Rain.

11/5/2021 arrive @ SCO4 5 pud or Set up frame 1445 1st A Hernot ful 8ft fush recovery of 7.4ft 1455 3-1 ottemper refusal @ 5,3 ft. recovery of 4.3 ft 17.2 fr 1510 1520 Sando up frame down en route to [521-5616 1535 arrive @ SCK spring down. 1653 15+ Attempt O. 8ft Push rebusal, No seconey 1605 hard gravel layer on surface. Shifted position & make 2nd allemys 2nd attempt A purch @ 8A fush recovery of 45 Pt 1615 Shifting again to other > 65% recovery 3rd attempt 8ft push recovery of 6.4 ft 1635 Additional core Collected 6ft push recovery of 3.7ft 1650 (700) for care dropolo arrive @ 1020 Vater Street 1725 unlook cores. 1735 Discussion with MD on sites I had questions on 1745

11/6/2021 Crew: EA affiliated Weather. 330F Wind: NNE Imph 0222 A mrenik Clear Skies R. Sanderlin D. Gerke: 1200 - Endob Day 0750 Hiring @ 1020 Water Street 0800 Affiliated arrive, set up their boat core times inventory done this morning total of 26 liners remaining. Will not be enough to finish at this time. Looking at remaining stations, roughly 40 would be needed to complete... That is worse case senario, every station 7 requires is attempts, plus site specific additional cores 0 KUN 0815 pref more linery with core catchers. en ranto to reference bong + [5021-5015 0915 arrive @ SC15 good offer 0940 7 anchor & Sciss set up frame a probe hard grand layer on top 0955 1st Attempt refusal @ 2.1 ft recovery of Oft 1010 Smalt grand in core catcher. Shifting for and Attempt: 2nd Attempt 1.6ft Bush recovery of o for Shifting for 3rd Attempt 7 1025 3 to find softer material content of channel very hard gravel. found softer material after probing all hard vock/grand 1040 for our third attempt a colditional cores. 1050 3rd Attempt Refusal @ 5,5ft recovery of 3.4ft 45414 less than 65% recovery. 7 talked with MD. Continue to probe to And soft water for leaving, May need to discuss alternate? -Everywhere grobed, from Bridge down to end of zone historical sites Straight grand frock, 7 found Location upperson of Bridge. Marked and will return, 1145 Our south to lich up D. Gerke from Market Brie then continue on 1150 to the mannel River locations 1200 en soute to [SCZI-MRO3] for 2 additional attempts per EPA. 1715 Needed to run back to dock " -1240 arrive @ m203 for 2 additional Mempte Set unchors 1745 7 1250 anchors sit set up frame 7 1255 15t Additional Attempt full Pft push recovery of 4.0 ft 2 Total Shepted for of 2nd. refusal @ 4.0ft recovery of 3.5 ft 3 11.8ft 1300 1325 anchors up @ MRO3, en route de 5(21-MRREF) 1335 1350 arrive & MRREF spud a prope 154 Attempt. @ 8ft Dush, recovery of 7.1 fr 1355 7

11/6/2021 route to SCII - MAOI) 1410 arrive & Am ROI prepare to anchol 1415 anchors Set to keep to prohe 1420 18t a Hempt refusal @ 4.1ft recovery of 3.4 ft 1425 anchors up @ Malor en route to SCZI-MROY 1435 unchors set 1450 15+ Attempt 8th fush secones of 5left 1500 anchors up @ MROY in route to 1020 water St for Core Drop our 1515 arrive @ Doch for core drop oft 1520 in route to [SCZI-5CK 1525 arrive @ SCIS, New location of for additional Core volume 1550 1st core refusal @ 2.7 ft recovery of 2.5 ft 1555 3rd Core 6ft push recovery of 4.2 ft 1610 1615 4th Care 3.1 ft push, hard rejection, Rock? recovery of 2; 1625 enroute 40 BCZI-SC13) 1635 1st attempt refusal @ 25 ft secovery of 1.0 ft 1645 enjoints to 1020 water Street for core drop off-1650 arrive @ Doca 40 intold cour 1715

11/7/2021 CREW . EA Affiliated weather: 410F Wind: SW Emph m. Renill A. IZZO Sunny D. Gerke R. Sandellin 0740 Arrive @ WW water Street Affiliated arrive set up boat. 0800 Otto core network not working on devices for RTK Corrections. Afterweed to set up base station to get a known point for correction occuracy MR Help with core processing during down time 1 0928 got corrections working preparing to depart 0935 en rowle to SC21-50061 0945 Bathroon Stop Q market 1030 arrive @ 5606 spuds down & Set up frame 1035 1 st attempt barrel must have gotten into some Blay, upon retrieval, felt 1050 bump in the vibracione head parrel didn't come up. Barrel found = 35-4A down in sodiment, couldn't retrieve attempt again 150 a Hempt refusal @ 4.2 ft recovery of 4.3 ft 1105 14 additional core refusal @ 39 ft recovery of 4.3 ft 1120 2nd additional core refusal @ 4.4 ft recovery of 4.6 ft 1130 Additional core taken for M5/M5D refusal @ 4.8ft recovery of 36 ft 1140 take down frame, spuds up en route to [SCZI-SCO3] for 1-2 additional Affents 1150 After probing around found N 4.0ft probe Penetration to attempt for better recovery. Set up frame & spud down. 19t attempt 3.0ft fush recovery of 46ft 1220 and attempt 5.5ft, hard rejection. recovery of 4.0 ft 3 8.6ft 1225 Both oHempts > 70% recovery 7 eat lunch. 1235 in route to SCRI-SCOZ 1250 arrive @ " 5007, making Atlement within wift radius 1st. revisited site Set up frame + Spud down. Probed bottom, GII rock. 154 attempt. 1.0 ft refusal pord No recovery 1315 Shitled fosition sustanted of 10ft bodius, /spud, 21-28+ Probe penetration. 1320 250d atlempt refusal & Caft, recovery of 1.6ft Any more position to find better recovery probe and Downstream of 1330 Bridge first. 139435 5 pud down above bridge found fofter Sediments. 3rd Attendet & refusal @ 6.0 ft recovery 5.9 ft 1344 1st additional core of push, recovery 29ft \neg 1350 1405 2 ad additional Refusal @ 3.9 ft recovery of 3.7 ft

11/7/2021 3rd additional core 5ft Rush recovery of 1.6 Ct
Take down frame + Bull sques. en route to Dock for Core Drop de.

arrive @ 1020 water street. core Drop off. Affiliated put more

core catchers in Liners. Omp continue to help with core processing 140 1425 1500

A. ITTO R. Sanderlin O745 Arcive & love water Street AR. Arrive a Street for accring. O830 Ocheck reference power enrout to sept 521-5091 Arrive & Scan had to work cound low hanging tree limbs to set on target. O910 Spud down and set up frame. O910 Spud down and set up frame. O915 150 Notall woody albritand grand in core catcher can not get closed to print due to trees in the way. taking had allempt on apposite bank, Photos CA30 had allempt advance cach point up adown stream, to that botto recovery material lots of hard clay a grand throughout stretch that was probled O850 Sound sufficent spot with a 2-3ft probe parteristic stretch was probled O650 Sound sufficent spot with a 2-3ft probe parteristic stretch that was probled O650 Sound sufficent spot with a 2-3ft probe parteristic 1000 If attempt refusal & 50ft recovery of 4.3ft 1010 spuds up & Scon, en route to Rezzi-SZII Arrive & SCII spud a probe all hard rack on location 101 Allempt refusal & 0 of recovery of 0 of hard rejection on or alternate, som grand in catcher 1030 Shifted for 2rd alternate Of the covery of 0 of hard rejection or or attempt, som grand in catcher 1040 Shifting tofinad Soft publical for 1656 recovery Orohad Contribe down singum stretch until darge on thall clearing all hard substrate a facual grand 2.56 hard refusal & 1947 1040 Shifting tofinad Soft publical for 1656 recovery Orohad Contribe down singum stretch until darge on thall clearing all hard substrate a facual grand 2.56 hard refusal below. 1100 3rd ottopper refusal & 3.4ft. recovery of 0.9 ft Spuds up the reported & 2.1 ft recovery of 2.2 ft. 1140 sound sup the refusal & 3.1 ft recovery of 2.2 ft. 1150 Ist Allempt refusal & 1.0 ft recovery of 2.2 ft. 1160 Ist Allempt refusal & 1.0 ft recovery of 2.2 ft. 1160 Ist Allempt refusal & 1.0 ft recovery of 3.4 ft	11/8/20 CREh	1. Elt Alliliated Weather: 45°F WIND: SW 8mph
R. Sanderlin O745 Arrive @ 1020 Waler Strand AR. Arrive of Sol up boat for accoring. OR30 Ocheck reference pount enrout to council low honging there limbs to set on target. O910 Spud down and set up frame. O910 Spud down and set up frame. O910 Iso Mannapp (Aproal @ 2.3 ft recovery of O ft 10ts of Small woody debrigand grand in core catcher can not get closed to print due to trees in the way. takene had altempt on opposite bank. Photos And altempt refusal @ 1.3 ft recovery of 1.4 ft O835 Probing halfway between each point up ordered throughout stretch (causing material, lots of hard clay a grand throughout stretch (causing material, lots of hard clay a grand throughout stretch O850 Jamed sufficient spot with a 2-3ft probe pentirition O855 PA 3rd altempt refusal @ 50ft recovery of 2.4 ft 1000 Lith alternal refusal @ 50ft recovery of 2.4 ft 1010 spuds up & score, en route to Ecc. Sill Arrive @ 5(11 spud oprobe althorid rock on location 10t Alternal refusal @ 0 ft recovery of 0 ft hard reference on 1st alternal son grand in catcher 1030 Shifted for 2rd afternal @ 30ft peacerial for 165% recovery Probable Centre down gream stretch until darge outfall clearing all hard substrate grand grabed 2.25th hard refusal below. 1000 Sid otterph refusal @ 34ft. recovery of 9.9 ft 1120 Shifting tofrad Soft peacerial for 165% recovery Probable Centre down gream stretch until darge outfall clearing all hard substrate of grand grabed 2.25th hard refusal below. 1100 Sid otterph refusal @ 3.9ft. recovery of 3.5 ft 5 guds up in route to SC21-SC12 1145 arrive @ SC11 squd 1150 Ist Altempt refusal @ 3.9ft recovery of 3.9 ft 1150 Ist Altempt refusal @ 3.9 ft recovery of 3.9 ft		of the state of th
10745 Arrive @ 1020 Waler Street AR Arrive a Sot up boat for accoring. OSSO & Check reference point enrout to STAP \$221-\$09] Arrive @ \$C.09. had to work crown low hanging year limbs to set on farget. O910 Sput down and set up frame. O910 Is A Thomps rethread @ 2.3 ft recovery of O ft Iots of Small woody debrinded grand in core catcher (can not get closely to print due to trees in the way. taking had attempt on opposite pank. Photos O830 Probing halfway between each point up adown Stream to find bother (cavery material, lots of hard clay a grand throughout stretch that was probed. O850 Janat sufficient sgot with a 2-3ft probe fendicitim O855 PM 3rd attempt refusal @ 50ft recovery of 4.4 ft 1000 Lith attempt refusal @ 50ft recovery of 4.3 ft 1000 Lith attempt refusal @ 50ft recovery of 9.4 ft 1010 Spuds up & 5003, en route & \$22-\$211 O870 Alternot refusal @ 0 ft recovery of 0 ft hard rejection on 12 attempt, son grand in catcher 1030 Shifted for 7rd afternoyd refusal @ 1.9 ft recovery of 0.9 ft Shifting toftack soft waterial for 565% recovery Probed control down greater for 565% recovery Probed Control soft waterial for 565% recovery Probed Control of Soft waterial for 185% recovery Probed Soft Afternot of Soft waterial for 185% recovery Probed Control of Soft waterial for 185% recovery Probed Control of Soft water a force of 3,5 ft Soft of Soft Afternot of Soft recovery of 2.4 ft. 1100 Soft Afternot refusal @ 3.1 ft recovery of 3.5 ft Soft of Soft of Soft recovery of 2.4 ft. 1150 In Afternot refusa		
OBSO Orcheck reference point en route to Collect reference point en route to Collect reference point en route to Collect reference OGUS herive & COQ. had to work crowed low hanging tree limbs to set on far get. OGUS Spud Cown and set up frame. OGUS Spud Spud Closed to print due to trees in the way. thing had alternate refused Point due to trees in the way. OGUS Prebing halfung refused Point up adown stream to that belle recovery material lots of hard Clay a gravel throughout sprekth that was probed. OGUS Spud Sufficent Spot with a 2-3ft probe finitretion. OGUS Spud Sufficent Spot with a 2-3ft probe finitretion. OGUS Spud Sufficent Spot with a 2-3ft probe finitretion. OGUS Spud Sufficent Spot with a 2-3ft probe finitretion. OGUS Spud Sufficent Spot with a 2-3ft probe finitretion. OGUS Spud Sufficent Spot with a 2-3ft probe finitretion. OGUS Spud Sufficent Spot with a 2-3ft probe finitretion. OGUS Spud Sufficent Spot with a 2-3ft probe finitretion. OGUS Spud Sufficent Spot with a 2-3ft probe finitretion. OGUS Spud Sufficent Spot with a 2-3ft probe finitretion. OGUS Spud Sufficent Spot with a 2-3ft probe finitretion. OGUS Spud Sufficent Spot with a 2-3ft probe finitretion. OGUS Spud Spot and Spot with a 2-3ft probe finitretion. OGUS Spud Spot and Spot with a 2-3ft probe finitretion. OGUS Spot Spot afternation. OGUS Spot Spot Alleman Spot with a 2-3ft probe finitretion. OGUS Spot Spot and Spot with a 2-3ft probe finitretion. OGUS Spot Spot Spot Spot Spot of Spot Spot Spot Spot Spot Spot Spot Spot		R. Sanderlin
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0915 Sput Clown and set up frame. 0915 15th Atlanga (Africal @ 2.3 ft recovery of O ft 10th of Small woody debrinand graved in core catcher can not get closed to point due to trees in the way. taking had atlangat on opposite bank, photos 0930 Lad atlangat infusal @ 1.3 ft recovery of 1.4 ft 0933 Probing halfway bothwern each point up adown stream to think bother recovery material, lots of hard clay a gravel throughout stretch that was probed. 0950 Journ's sufficent spot with 2.3 ft probe penetration 0955 PAT 3rd atlangal refusal @ 5.0 ft recovery of 4.3 ft 1000 4th atlangal refusal @ 5.0 ft recovery of 4.3 ft 1010 3puds wp @ 5009, en route to Eczi-Sell 1015 Arrive @ 9(1) 1 pud a frobe all hard rock on location 101 Atlangat refusal @ 0 ft recovery of 0 ft hard rejection on 100 attempt, sm gravel in catcher 1030 Shifted for 2rd afternyal 1040 Shifting tofind soft waterial for 1658 o recovery Probed Centric down stream stretch until darge ontiful clearing all hard substrate a gravel, probed 2.2 5th hard rebusal below. 1100 3rd attempt refusal @ 3.4th recovery of 0.9 ft 1120 4th alternyal refusal @ 3.4th recovery of 3.5 ft 1190 5th Atlangar refusal @ 5.0 ft recovery of 3.5 ft 1190 15th Atlangar refusal @ 5.0 ft recovery of 3.5 ft 1190 15th Atlangar refusal @ 5.0 ft recovery of 3.5 ft 1190 15th Atlangar refusal @ 5.0 ft recovery of 3.5 ft 1190 15th Atlangar refusal @ 2.1 ft recovery of 3.5 ft 1190 15th Atlangar refusal @ 2.1 ft recovery of 3.4 ft 1190 15th Atlangar refusal @ 4.0 ft recovery of 3.4 ft 1190 15th Atlangar refusal @ 2.1 ft recovery of 3.4 ft		to set on target.
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CA30 Lad attempt adjust on apposite pank, Photos Lad attempt refusal @ 1.3 ft recovery of 1.4 ft OR35 Probing halfway between each point up adown stream. to find both recovery material, Lots of hard clay a gravel throughout stretch that was probed. OR50 Journal sufficent spot with 22-3 ft probe fendred on OR55 DPH 3rd attempt refusal @ 6.0 ft recovery of 4.3 ft 1000 Lyth attempt refusal @ 50 ft recovery of 2.4 ft 1010 Spuds wp & scop, en route to Eczi-SZIII 1015 Arrive @ 5(11 spud a frobe, all hard rock on location 101 Attempt refusal @ 0 ft recovery of 0 ft hard rejection on 100 attempt, sm grand in catcher 1030 Shifting to find Soft waterial for 165% recovery Probed Cottile down Si seam stretch until dasse outfall clearing all hard substrat & gravel, probed 22.5 ft hard relived below. 1100 Sind attempt refusal @ 3.4 ft. recovery of 0.9 ft 1120 Ym altempt refusal @ 3.4 ft. recovery of 3.7 ft 1140 states up 5th Attempt (6ft push recovery of 3.5 ft 5 guids up in route to 5c21-SC12 1145 arrive @ 5C12 sand 1150 Ist Attempt refusal @ 2.1 ft recovery of 2.2 ft. recovered super denser clay 1155 Ind Kempt refusal @ 4.0 ft recovery of 3.4 ft		can not get closed to point day to trees in the way.
Chiro Lad allemost infused @ 1.3 H recovery of 1.4 H OS35 Probing haltway between each point up adown stream. to find belle (ccovery material lots of hard Clay a grand throughout stretch that was probed. OS50 Journ's sufficient spot with a 2-3ft probe fendration OS55 OPH 3rd alternyl refused @ 6.0 ft recovery of 4.3 ft 1000 4th alternyl refused @ 50ft recovery of 2.4 ft 1010 spends up & scoa, en rouse of RC21-SE11 1015 arrive @ 5(11 spend a probe, all hard rock on location 10th Attempt refused @ 0 ft recovery of 0 ft hard rejection on 10 attempt, sm grand in catcher 1030 shifted for 2rd alternyl refused @ 1.9 ft recovery of 0.9 ft 1040 Shifting tofind soft waterial for >65% recovery Probed Contine downstream stretch until darge outfall clearing all hard substract a gravel, groked 22.5 ft hard rebused below. 1100 3rd attempt refused @ 3.4ft. recovery of 0.9 ft 1120 4th alternyl refused @ 3.4ft. recovery of 3.5 ft 5900 up in route to [Sc21-Sc12] 1145 arrive @ SC12 sand. 1155 Intempt refused @ 2.1 ft recovery of 2.2ft. recovered super densor clay 2nd a Hempt refused @ 4.0 ft recovery of 3.4 ft		taking 2nd attempt on opposite bank, Photos
10535 Probing haltway between each point up adown stream to that bolle (ccovery material, lots of hard clay a gravel throughout stretch that was probed. 10550 Journal sufficent spot with a 2-3ft probe penetrotom 1055 1050 January refusal @ 6.0 ft recovery of 4.3 ft 1000 17th attempt refusal @ 50ft recovery of 2.4 ft 1010 3puds up & 5009, en route to RCZI-SZIII 1015 arrive @ 5(11 spud a probe, all hard rock on location 10th Attempt refusal @ 0 ft recovery of 0 ft hard rejection on 10 attempt, sm grand in catcher 1030 Shifting tofind soft material for >65% recovery 1040 Shifting tofind soft material for >65% recovery 1040 Shifting tofind soft material for >65% recovery 1050 all hard substitute a superial @ 3.4ft. recovery of 0.9 ft 1100 3rd attempt refusal @ 3.4ft. recovery of 0.9 ft 1110 3rd attempt refusal @ 5.0 ft recovery of 3.7 ft 1140 specific @ 5CII 50nd. 1145 arrive @ 5CII 50nd. 1150 15t Attempt refusal @ 2.1 ft recovery of 3.5 ft 1145 arrive @ 5CII 50nd. 1150 15t Attempt refusal @ 1.0 ft recovery of 3.4 ft 1155 2nd Kempt refusal @ 4.0 ft recovery of 3.4 ft	0930	2 nd attempt refusal @ 1.3 At recovery of 1.4 At
Closing material, lots of hard Clay a grant throughout sprotter that was probed. DSSO Jaurd sufficent spot with 22-3ft probe fenelration DSSS DAN 3rd attempt refusal Q 6.0 ft recovery of 4.3 ft 1000 Lyth attempt refusal Q 50ft recovery of 2.4 ft 1010 Spuds wp Q 5009, en route B E21-5211 1015 Arrive Q 5(11 spud a probe all hard rock on location 10t Attempt refusal Q 0 ft recovery of 0 ft hard rejection on 15 attempt, 5m grand in catcher 1030 Shifted for 2nd attempt refusal Q 1.9 ft recovery of 0.9 ft 1040 Shifting tofted Soft waterial for >65% recovery Probed Contine down & regard for 105% recovery Probed Contine down & regard for 105% recovery of 0.9 ft 1100 3rd attempt refusal Q 3.4ft. recovery of 0.9 ft 1140 Sports up 5th Attempt 6ft puch recovery of 3.5 ft 5puds up m route to 5021-5012 1145 arrive Q 5012 5and. 1150 15t Attempt refusal Q 2.1 ft recovery of 2.2ft. recovered super densor clay 1155 2nd Nempt refusal Q 4.0 ft recovery of 3.4 ft	0935	probing haltway between each point up adown Stream. to that bell
1050 Sand sufficent spot with 22-3ft probe penetration 0955 Spot 3rd attempt refusal Q 6.0 ft recovery of 4.3 ft 1000 Lyth attempt refusal Q 50ft recovery of 2.4 ft 1010 spends up Q 5009, en route to E221-5211 1015 arrive Q 5(11 spend a probe all hard rock on location 10t Attempt repusal Q 0 ft recovery of 0 ft hard rejection on 15 attempt, son grand in catcher 1030 Shifted for 2rd aftermpt refusal Q 1.9 ft recovery of 0.9 ft 1040 Shifting tofted 50ft makerial for >65% recovery Probed Contine down & regard, probed 22.5ft hard rebusal below. 1100 3rd attempt refusal Q 3.4ft. recovery of 0.9 ft 1120 4th alternat refusal Q 5.0 ft recovery of 3.7 ft 1140 spots up th retempt 6ft push recovery 1145 arrive Q 5C12 5and. 1150 15t Attempt refusal Q 2.1 ft recovery of 2.2 ft. recovered 5 upper densor clay 1155 2rd Chempt refusal Q 4.0 ft recovery of 3.4 ft	1	recovery material, lots of hard Clay a gravel throughout stretch
1050 Sound sufficent spot with 22-3ft probe penetration 0955 OPH 3rd attempt refusal @ 6.0 ft recovery of 4.3 ft 1000 Hith attempt refusal @ 50ft recovery of 2.4 ft 1010 Spuds up & 5009, en route to RCZI-5EIII 1016 Arrive @ 5(11 spud aprobe, all hard rock on location 10t Attempt refusal @ 0 ft recovery of 0 ft hard rejection on 150 attempt, sm grand in catcher 1030 Shifted for 2rd afternynt refusal @ 1.9 ft recovery of 0.9 ft 1040 Shifting tofind Soft waterial for >65% recovery Probed Contine down Gream 5 trevel until darge outfall clearing all hard substrat & gravel, probed 22.5 ft hard rebusal below. 1100 3rd attempt refusal @ 3.4ft. recovery of 0.9 ft 1140 Spuds up for route @ 5.0 ft recovery of 3.5 ft 1140 Spuds up for route for fusal recovery of 3.5 ft 1145 Grive @ 5C12 sound. 1150 15t Attempt refusal @ 2.1 ft recovery of 2.2ft. recovered super densor clay 2nd Hempt refusal @ 4.0 ft recovery of 3.4 ft recovered super densor clay		that was probed.
1000 19th attempt refusal @ 50ft recovery of 4.3 ft 1010 1010 1010 1010 1010 1010 1010 1015 1016 1016 1016 1017 1018 1018 1019 1018 1019	0950	Sound sufficent spot with 2 2-3 ft prohe penetrotton
1010 Spuds up @ SCO9, en course to ECZI-SEII 1015 Arrive @ SCII spud a probe, all hard cock on location 10t Attempt repusal @ O At recovery of O At hard rejection on 15 attempt, son grand in catcher 1030 Shifted for 2nd afternant refusal @ 1.9 At recovery of 0.9 At 1040 Shifting tofind Soft material for >65% recovery Probed Cottile down & regan stretch until darse outfall clearing all hard Substrate & gravel, probed 22.5 At hard refusal below. 1100 3rd ottempt refusal @ 3.4 At. recovery of 0.9 At 1140 4th altempt refusal @ 5.0 At recovery of 3.5 At 1140 5puds up in route to SC21-SCIZ 1145 arrive @ SCIZ Saud. 1150 15t Attempt refusal @ 1.1 At recovery of 3.4 At. recovered Super densor clay 1155 2nd Hempt refusal @ 4.0 At recovery of 3.4 At.	0955	ORY 3rd attempt 1 efusal Q 6.0 ft recovery of 4.3 ft
1010 Spends up & Scoq en coute to Sc21-SEII 1015 Arrive & SC11 spend a probe all hard rack on location 1st Attempt repusal & O At recovery of O At hard rejection on 15 attempt, sm grand in catcher 1030 Shifted for 2nd attempt refusal @ 1.9 At recovery of 0.9 At 1040 Shifting tofind Soft waterial for >65% recovery Probed Cottice down & ream 5 tretch until darge outfall Clearing all hard Substrat & gravel, probed 22.5 At hard rebusal below. 1100 3rd attempt refusal @ 3.4 ft. recovery of 3.9 ft 1140 4th attempt refusal @ 5.0 ft recovery of 3.5 ft 5guds up in route to Sc21-Sc12 1145 Grive @ SC12 sand. 1150 15t Attempt refusal @ 1.1 ft recovery of 2.2 ft. recommed Super denser clay 2nd Nempt refusal @ 4.0 ft recovery of 3.4 ft	1000	4th attempt refusal @ 5.0 ft recovery of 2.4 ft
1075 Arrive & SCII Thud a frobe, all hard rock on location 1st Atlempt repusal & O ft recovery of O ft hard rejection on 15 attempt, 5m grand in catcher 1030 Shifted for 2nd attempt refusal @ 1.9 ft recovery of 0.9 ft 1040 Shifting tofind Soft material for >65% recovery Probed Contrie down Stream Stretch until darge outfall clearing all hard Substrate & gravel, probed 22.5 ft hard rebusal below. 1100 3rd attempt refusal @ 3.4 ft. recovery of 0.9 ft 1170 4th altempt refusal @ 5.0 ft recovery of 3.5 ft 5 puds up in route to [5c21-5c12] 1145 arrive @ 5C12 gand. 1150 15t Attempt refusal @ 2.1 ft recovery of 2.2 ft. recovered super clears clay 1155 2nd a Hempt refusal @ 4.0 ft recovery of 3.4 ft	1010	sands up a scoa, en conte To Sczi-SZII
1030 Shifted for 2nd afternet, sm grand in catcher 1030 Shifted for 2nd afternet 1040 Shifting toffed Soft material for >65% recovery Probed Entire down & request of 0.9 ft 1040 Shifting toffed Soft material for >65% recovery Probed Entire down & request from 22.5ft hard relived below. 1100 3rd attempt refusal @ 3.4ft. recovery of 0.9 ft 1120 4th alternet refusal @ 5.0 ft recovery of 3.7ft 1140 State of 5th Attempt (off Just recovery of 3.5ft 5 guds up to route to \$6221-\$612 1145 arrive @ \$612 \$and. 1150 15t Attempt refusal @ 1.1 ft recovery of 2.2ft. recovered Super denser clay 1155 Inda Hempt refusal @ 4.0 ft recovery of 3.4 ft	1015	arrive @ S(11 spud a probe, all hard rock on location
hard rejection on 15° attempt, sm grand in catcher Shifted for 2nd attempt rebusal @ 1.9 ft recovery of 0.9 ft Shifting tofred Soft material for >65% recovery Probed Contine down Frequent Stretch until darge outfall clearing all hard substrate & gravel, probed 22.5 ft hard rebused below. 1100 3rd attempt refusal @ 3.4ft. recovery of 0.9 ft 1120 4th attempt refusal @ 5.0 ft recovery of 37ft 1140 5th at 5th Attempt (off fush recovery of 3.5 ft 5 suds up in route to [Sc21-Sc12] 1145 arrive @ 5C12 5and. 1150 15t Attempt refusal @ 2.1 ft recovery of 2.2ft. recovered super densor clay 1155 2nd Nempt refusal @ 4.0 ft recovery of 3.4 ft		1st Attempt repused @ Oft recovery of Oft
refusal @ 1.9 ft recovery of 0.9 ft 1040 Shifting toffed Soft material for >65% recovery Probed Entire down Frequent Stretch until darge outfall clearing all hard substrat - gravel, probed 22.5 ft hard rebusal below. 1100 3rd attempt refusal @ 3.4ft. recovery of 0.9 ft 1120 4th altempt refusal @ 5.0 ft recovery of 3.7 ft 1140 5the up 5th Attempt 6ft gush recovery of 3.5 ft 5 guds up to route to [SC21-SC12] 1145 arrive @ 5C12 sand. 1150 15t Attempt refusal @ 2.1 ft recovery of 2.2 ft. recovered super denser clay 1155 2nd c Hempt refusal @ 4.0 ft recovery of 3.4 ft		hard rejection on 15 attempt, son grand in catcher
1040 Shitting totand Soft material for >65% recovery Probed Contine down Stream Stretch until darge outfall clearing all hard substrate & gravel, probed 22.5ft hard rebused below. 1100 3rd attempt refusal @ 3.4ft. recovery of 0.9 ft 1120 4th attempt refusal @ 5.0 ft recovery of 3.7ft 1140 5th af 5th Attempt 6ft Just recovery of 3.5ft 5 guds up the route to [5c21-5c12] 1145 arrive @ 5C12 sand. 1150 15t Attempt refusal @ 2.1 ft recovery of 2.2ft. recovered super denser clay 1155 2nd c Hempt refusal @ 4.0 ft recovery of 3.4 ft		Shifted too "Lord a Herry of
Probed Contile downstream Stretch until darge outtail Clearing all hard substrate & gravel, probed 22.5ft hard rebused below. 1100 3rd attempt refusal @ 3.4ft. recovery of 0.9 ft 1120 4th attempt refusal @ 5.0 ft recovery of 37ft 1140 55th afferment 6ft push recovery of 3.5ft 55uds up in route to [\$c21-\$c12] 1145 arrive @ 5C12 gand. 1150 15t Attempt refusal @ 2.1 ft recovery of 2.2ft. recommed super denser clay 1155 2nd attempt refusal @ 4.0 ft-recovery of 3.4 ft	211.4	refusal @ 1.4 tt recovery of 0.4 tt
Prohed Contile downstream Stretch until darge outtail Clearing all hard substrate & gravel, prohed 22.5ft hard rebused below. 1100 3rd attempt refusal @ 3.4ft. recovery of 0.9 ft 1120 4th attempt refusal @ 5.0 ft recovery of 37ft 1140 556 up 5th Attempt 6ft push recovery of 3.5ft 550 spuds up in route to [\$c21-\$c12] 1145 arrive @ 5C12 gand. 1150 15t Attempt refusal @ 2.1 ft recovery of 2.2ft. recommed super denser clay 1155 2nd attempt refusal @ 4.0 ft-recovery of 3.4 ft	1040	Shitting totind soft material for >65% recovery
1100 Sol attempt refusal @ 3.4ft. recovery of 0.9 ft 1120 4th attempt refusal @ 5.0 ft recovery of 3.7ft 1140 5peds up the North to [SC21-SC12] 1145 arrive @ 5C12 goud. 1150 1st Attempt refusal @ 2.1 ft recovery of 2.2ft. recommed super denser clay 1155 2rac Hempt refusal @ 4.0 ft-recovery of 3.4 ft		prohed chile downstream stretch until darge outfall clearing
1140 Star of 5th Attempt 6ft Just recovery of 3,5ft 5 puds up in route to [SC21-SC12] 1145 arrive @ SC12 sand. 1150 Ist Attempt refused @ 2.1ft recovery of 2,2ft. recovered super denser clay 2 rachempt refused @ 4.0ft recovery of 3.4 ft	1100	all hard substrate + gravel, probed 22.5ft hard rebused below.
1140 Star of 5th Attempt 6ft Just recovery of 3,5ft 5 puds up in route to [SC21-SC12] 1145 arrive @ SC12 sand. 1150 Ist Attempt refused @ 2.1ft recovery of 2,2ft. recovered super denser clay 2 rachempt refused @ 4.0ft recovery of 3.4 ft	1100	Sid allerge refusal @ 5.44+. recovery of 0.9 47
1145 arrive @ SCIZ goud. 1150 1st Attempt refusal @ 2.1 ft recovery of 2.2ft. recommed super denser clay 2 rac Hempt refusal @ 4.0 ft recovery of 3.4 ft	1100	7" allemps refused (a) S. Off recovery off 3) +P
1145 arrive @ SCIZ sand. 1150 1st Attempt refusal @ 2.1 ft recovery of 2.2ft. recommed super denser clay 2 rac Hempt refusal @ 4.0 ft recovery of 3.4 ft	1140	500 up 5th Attempt 6th Jush recovery of 3.5 H
150 1st Attempt refusal & 2.1 ft recovery of 2.2ft. second Super densor clay 2 200 c Hempt refusal @ 4.0 ft recovery of 3.4 ft		5 guas up in route to SC21-SC12
1155 Inda Hempt refusal @ 4.0 ft recovery of 3.4 ft		arrive a SCIT gand.
1155 Inda Hempt refusal @ 4.0 ft recovery of 3.4 ft	1150	12 Hempt refuse & L. H recovery of 2.24.
1200 Lunch Break		recommend Super densor Clay
100 Luney Dieah		amarama refusal a 7.0 th recovery of 1.1 th
	100	Luncy Diean

11/7/2021 3rd additional core 5H Rush recovery of 1.6 Ct 140 Take down frame + Bull sques. en route to back tol Cole Drop de. 1425 core catchers in Liners. One continue to help with core processing 1500

11/8/204 125 the roote 40 (5021-5013) take down frome to fit under trees. probed light decending bank, all hard wock /substrate 1240 Left decending bank found a spot with ~ 4-5 At of probe penetration. set spuds 4 set up frame on spot to try for 74ft recovery. 15+ Attempt apart & St push recovery of 5.0ft. 1245 2nd attempt Coff push recovery of 3.9 ft. 1255 Spuds up en route to 10% water St. for core dropost. 1300 de-mob coring equipment + Set up pongr equipment. arrive @ Dock unload coles. Pref for Jones en route to SCZI-MROG Ponar - FIS 1430 arrive & anchor @ MROG Ponal 1445 anchors up @ MROG enroute to @SCZI-MEREF / Ponar 1520 arrive @ MROG PONAr - Spud. 1530 Take gone 5amples 1538 en route to \$5021-5633 fona 1550 arrive e sc 33 sput down collect formal 1400 en route to, 1020 water Street sample diopoble 1620 ulload Samples toto Fridge touch, continue assisting 1640 w/ core proceedsing & Sample custody of coolers

11/9/2021 Affiliated CREW: EA Weather: 49°F Wind Smpl SW m. Renik D. Gerke Sunny 3 A.IZZO R. Sanderlin 0745 Airive @ 1020 water street AR arrive + Prep boat for fonar Sampling EA Crew prex coolers & Labels for forar collection 0845 7 0945 Check Reference point, en soute to [SCZI-SCRET] Ponar arrive & SCRETT Yonar 1025 en route to [5621-500] Pongr 1030 arrive aspud a Scol Ponar 1100 en route to SCZI-SCOS longe Errive @ 5005 - aft set stightly duk to over hanging tree on Location 1135 spuds up @ 5105, en voute TU (SCZI-SCII) Ponar 1205 Finish SCII leat lunch 1235 1245 on route to BC21-5C141 forar Rrive @ 5014 ponar 1250 1315 on route to erie market for sample drop of arrise @ market for sample drop of 1320 1330 in route to [SCZI - SC18] poner 1340 arrive @ & 18 pora 1410 en route to 15021-5021 Ponar arrive a SCZI ponar spind 1415 more to opposite bank 1445 en rouse to [5021-5027] 1500 1500 arrive @ 5627 Doror Spud **300**1515 enroute to (5021-5030) long en route to the 1020 water Street for Jonar Sample Dropoll. 1545 1600 arrive @ 1020 Water Street to unload Samples 1620 Bonar samples unloaded Continue with core processing -7

Scale: 1 square =

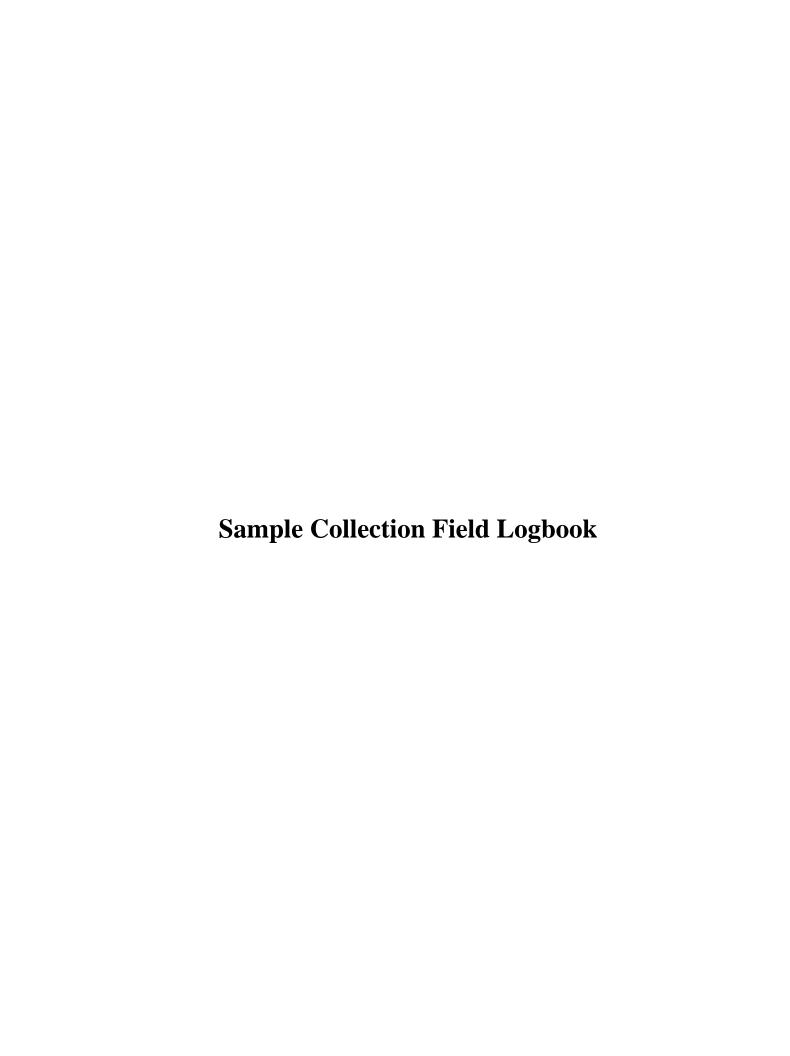
1

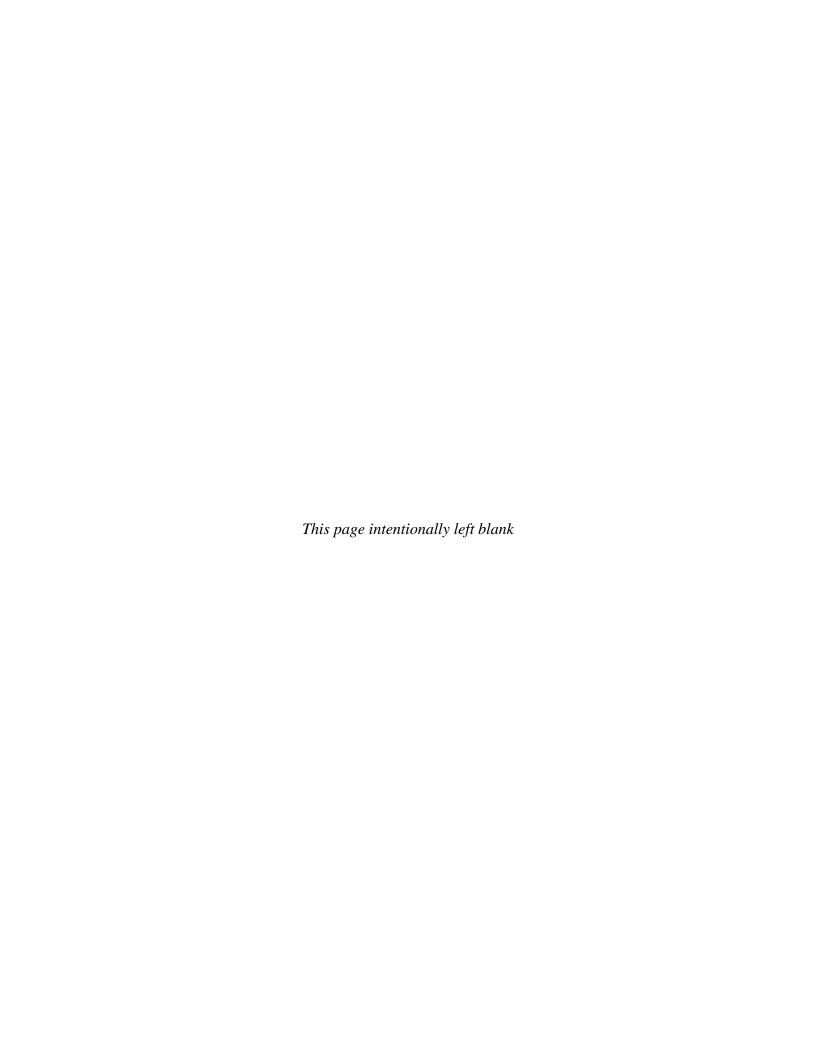
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	PA	Attiliai	led_	Weath	er: 41	of Cal	m wind 21mph
	- M. Renin	D. Garl		*	5	light Fog S	unny
			derlin		F3 1	1	
		A. IT	MORNING OSS	COAs			
0745	Arrive (0201	water &	freet L	ater St	art 0900	o for affected
	so they	Can Che	th out	of, Hotel	E		
	continue	help w/	1 cors pr	ocessing	unt	11 AR a	rrival
0900	applicated	acrosse ?	+ Ores bo	AT FOR	water	Sampline	
8600 ·	en route	40 /5CZ	1-CDF-	WAT C	check 1	eference 1	Point
1010	didn't have	cytina	pas for i	ong side.	Needle	ed to got	Point lare exa
	aos	w run ow	of freel,	1 0		1	N - 1 - 1 - 1 - 1
1110	arril	@ COF	WAT, LO	ist gps,	had o	to re-con	xy sure
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		13415.28		24.24.			
1/5L:	Temp	. Opposi					LP NTU
Bot				414.8	0.26	7.85 1	77.6 38.72
Surf	15.7	9	.63 4	43.4 (0.26	7.73 18	120 34.32
		. [4 1				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1130	en route	to SCZ	1-MK-	WAL	1 4 1	7 1	
1730	arrive 6	D MR-WAS					10.2
	N. /21 E: 1693	935.165	83	ft Door)	1 1 1	
11-	To To	118.17	C . J	C 0	10 M	ORP	NTU
	TOO EMD	20		201	hel	11111	NIU
4SI Cotton	97	11111		A 77			
Bottom	9.5	10.65	3860	0.27	7,95	176.7	S 38.06
Bottom	9.5	10.57	385.6	0.27	7,95	180.7	\$38.06 30.36
Bottom	9.5				7,95	176.7	S 38.06
Bottom MID Surface	9.5	10.57	385.6 385.6	0.27	7,79	180.7 183.4	30.36 30.75
Bottom MID Sa face	9.5 9.5 9.5	10.57 10.56	385.6 385.6 1020 We	0.27	7,79	180.7 183.4	30.36 30.75
Bottom MID Surface	9.5 9.5 9.5 en ron and	10.57 10.56 uto to	385.6 385.6 1020 we	0.27 0.27 In 8tre	7,95 7,77 7,77	180.7 180.7 183.4 Water D	30.36 30.75
Bottom MID Surface 1300	9.5 9.5 en ron and	10.57 10.56 uto to	385.6 385.6 1020 we 1020 we 1020 we	0.27 0.27 Ju Stre	7,95 7,77 et for	180.7 180.7 183.4 Water D	30.36 30.75
Bottom MID Shake 1300 1315 1330	9.5 9.5 9.5 en ron and orrive en ro	10.57 10.56 uto to 1 supply 6 Q Doca	385.6 385.6 1020 we 1020 we 1020 we 1020 we 1020 we	Ju Stre	7,85 7,79 7,77 et for hup +	180.7 183.4 Woder D	30.36 30.75
Bottom	en ron and arrive en ro	10.57 10.56 uto to 1 5 pply 6 2 Dock	385.6 385.6 1070 we Pick up & Yor S. [SC21-	Ju Stre	7,85 7,79 7,77 et for hup +	180.7 183.4 Woder D	30.36 30.75
Bottom MID Surface 1300 1315 1330	en ron and orrive en ro	10.57 10.56 uto to 1 5 apply 6 Q Dock oute to	385.6 385.6 1020 we 11:CK up 11:CK up 12:CK up 15:CZI-	Ju Stre upply Prc. SC-WA	7,85 7,79 7,77 et for hup +	180.7 183.4 Woder D	30.36 30.75
Bottom MID Surface 1300 1315 1330	en ron and orrive en ro	10.57 10.56 uto to 1 5 pply 6 2 Dock	385.6 385.6 1020 we 11:CK up 11:CK up 12:CK up 15:CZI-	Ju Stre	7,85 7,79 7,77 et for hup +	180.7 183.4 Woder D	30.36 30.75
Bottom MID Surface 1300 1315 1330 1355	9.5 9.5 9.5 en ron and arrive en ron Krri- W: 7	10.57 10.56 uto +0 1 5 pply 6 2 bock oute 40 121171.0	385.6 385.6 1020 we 11020 we 11020 we 15021- 15021- 143 853	Jer Streenply Pic. SC-WA.	7,85 7,79 7,77 et for hup + Deep	180.7 183.4 Woder D Sample Jumps	\$2.38.06 30.75 30.75
Bottom MID Surface 1300 1315 1330 1355	en ron and arrive en ro E: 10	10.57 10.56 uto +0 1 5 pply 6 2 bock oute +0 121171.0 080344.	385.6 385.6 1070 we Pick up & for 5 [SCZI- C.WAT. 043 853	Ju Stre upply Prc. SC-WA: Jand,	7,85 7,79 7,77 et for hup ~ Deep ph	176.7 180.7 183.4 Woder D Sample Jumps	20.36 30.75 30.75 Drop off
Bottom MID Saface 1300 1315 1330	9.5 9.5 9.5 en ron and arrive en ron Krri- W: 7	10.57 10.56 uto +0 1 5 pply 6 2 bock oute 40 121171.0	385.6 385.6 1020 we 11020 we 11020 we 15021- 15021- 143 853	Jer Streenply Pic. SC-WA.	7,85 7,79 7,77 et for hup + Deep	180.7 183.4 Woder D Sample Jumps	\$2.38.06 30.75 30.75

Scale: 1 square =_

11/10/2021 1430 en route to Zome 4 for poner collection volume arrive @ location, take 35al ponar sample 1445 En route to SC-05 form arrive a 5005 ponar neet Justin for bucket exchange. 1456 unload water. 1525 en route TO 1020 Water Street. arrive @ 1020 water Street. Unload rest of samples 1600 and Equipment from AR Bout. Continue on with helping core processing / cooler QC, pack & Shipping. Scale: 1 square = Rite in the Rain





	Daniel	LITHOLOGIC LOG Sediment Collection Log and Technology, Inc. PBC	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	Location/Borin	Name COZd	1 of	heet 2
_	eologist Name/Signature	5	Project Number	8 Start Date/Tir	CORE COLLECTION IN		
	K. Merandi		1583406	11/5/2021		21 14	10
2 Dri	illing Subcontractor/Equipm	nent Operator 6	Latitude/Northing/Grid	9 Sed Surface E	Elevation 57/.	79	
	Affiliated		71909.193	10 Coordinate Sy 11 Depth of Water	14		
3 Op	perator Name (License # If	Required) 7	Longitude/Easting/Grid		1.5		
			1675482,762	12 Weather (Tem	p, circle conditions, wind Sunny/Cloudy/Rair		
	ampling Equipment and Me			13 Boring Depth	(ft) 14 Recovery (ft)	15 % Rec	overy
v	- 42	parrelin diam		5.7	4.2	79	10
			neter Manual Push/Vibracore -ft Box/Ponar/Van Veen/Other	16 Location Note	s		- 0
	ther:		it Box/Folial/Vall Veel/Other	Color=Re	d		
Sa	ample Collection Meth	nod:					
Dep	F-65 (200)	Munse	Description of Materials Il Color; Moisture; Density; Consistency (Other Remarks)		Sample ID Sample Interval	PID (ppm)	USC
0-0	0	V DK GREENISH NE SAND (3% S SOFT, LOW PL)	AND, 97000 NET), TR ROOM USTY O DOOR, SHARP CENT	TACT	0010	C	3 L
1.0	2	OLIVE GREY(4) SAND, 190 FIN TR MICA, NO	(2) SAND, UF TO F, PEWSI EX), MED BENSE, COHESIVE DILATENCY, SHARP CONTA	LT, (9990 , NON-DL,	1020	S	SP.
1.2	8	SAND, 4570 FIIV	VF TOF, SOME SILT, LITTLE ES), TR LEAVES/WOOD, ME CY, COHESIVE, NON-WI, N ATIONAL	DENSE,	1020	Ś	M,
1.8	.3	11 AV/769 SAN	-1/1) SAND, VF TO M, LITTLE 10, 30% FINES), OR MICA, DENSE, RAPID GILATENCY,	I'VE IRPOT,	1020	<	5М
2.	3.8	BLUISH BLACK (1 SAND (1070 SAN TWICKS, ROOT PETROL ODOR, CONTACT	OBZ-S/I) CLAY, SOME SILT JO, 997, FINES) FEW LE T, 50FT, LOW-PL, FAINT BLOCKY STRUCTURE, SHA	AVES, MUSTY/	2040	(٥٢
2.9	8	_	SHARP CONTACT		2040	<	SM
73	9.0	TO M (170 SAN	3/) CLAY, SOMESILT, TR D, 9970 FINES, VSOFT, , SHARP CONTACT	SAND, VF MED-PL	2040	Č	ماد

(SY 4/2) SAND, VF TO VC, SUBANG TO SUBROUND, OUTZ, MAFICS, FEW SILT (95% SAND, 5% CINES), TR TWICK, DENSE, TR MICA, NONCOHESIVE, GRADATIONAL

2040

SW

1 of 2

3:2

		me/Signature	and Technology, Inc. PBC	Project Number		ORE COLLECTION I	NEO		
2 D	K. Merand			0					
2 D		i		1583406	8 Start Date/Tim	1		410	
	Drilling Subco	ntractor/Equipm	ent Operator	Latitude/Northing/Grid	9 Sed Surface E	levation 571.7	9		
	Affiliated			71909.193	10 Coordinate Sys	stem H V			
				77101.114	11 Depth of Wate				
3 C	Operator Nan	ne (License # If F	Required)	7 Longitude/Easting/Grid	12 Weather (Tem		d disastin	n)	
				1675482.742.	12 Weather (Tem	12 Weather (Temp, circle conditions, wind direction) Sunny/Cloudy/Rain			
4 S	Sampling Equ	ipment and Met	hodology (Check One)		13 Boring Depth	(ft) 14 Recovery (ft) 15 % F	Recover	
F	Rotosonic:	ft b	arrelin dian	meter	5.7	4.2	71	4%	
u l	Core:			neter Manual Push/Vibracore	211	3			
	Other:	ole:	ft xft x	ft Box/Ponar/Van Veen/Ot	her 16 Location Notes	5			
_	terval	Recovery	od:	Description of Materials		Sample ID	PID	USC	
	Depth)	(ft & %)		ell Color; Moisture; Density; Consistency (Other Rema		Sample Interval	(ppm)	Cod	
	3.8		NON-PL, GIR					SW	
901	·8 4.2		(SY 31) GRA LITTLES AND 38% SAND, II NONCOHESIVE	VEL, SM, (Glam), SUB, D, TRSILT, LITTHECLAY (070 FHUES), MED DENSO , MUSTY ODOR	ANG TO SUBROL S\$70 GRAVEL, I TO DENSE,	2040		Gi V	
				END CORE				1	
				KM					
4 1		/	1				1	_	

EA Engineering, Science	LITHOLOGIC LOG Sediment Collection Log ce, and Technology, Inc. PBC	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	Location/Boring	Name CO3e	1	Shee		
Geologist Name/Signature K. Merandi		5 Project Number 1583406	8 Start Date/Time	Stop Date	e/Time	850		
2 Drilling Subcontractor/Equ	ipment Operator	6 Latitude/Northing/Grid	9 Sed Surface Ele	evation 570	96			
Affiliated		719714.341	10 Coordinate Syst	tem H \	/			
			11 Depth of Water, ft (start/end) 2.2 12 Weather (Temp, circle conditions, wind direction)					
3 Operator Name (License #	# If Required)	7 Longitude/Easting/Grid						
		1675748.987		Sunny/Cloudy/Ra				
4 Sampling Equipment and	Methodology (Check One)		13 Boring Depth (ft) 14 Recovery (ft	t) 15 % F	Recove		
	ft barrelin dia		5.0	4.6	190	2%		
		meter Manual Push/Vibracore	16 Location Notes	Location Notes				
Grab Sample: Other:	ft xft x	ft Box/Ponar/Van Veen/Other	Color = green					
Sample Collection M	ethod:		odor					
Interval Recovery (Depth) (ft & %)		Description of Materials nsell Color; Moisture; Density; Consistency (Other Remarks)		Sample ID Sample Interval	PID (ppm)	US		
0-	BLACK (N2.5) (5% SAND, 95%	SILT, SOME CLAY, TR SAND SPINES), TR WOOD/ROOT, S V SOFT, LOW-PI (W) LL), GR	LIGHT	0010	0.0	OL		
0.7	V DK GREY (N SANO, 98% F GIZABATIONAL	INES), MED BTIFF, COHESIVE	ANO, (270 E, NON-PL,	0010	0.0	OL		
1,2	BLUISH BLACK V SOFT, MED- BLOCKY STR	(108 Z.S/I) CLAY, LITTLE SILT (PL, FAINT, PETROL. ODOR, UCTURE, SHARP CONTACT	100% FINES),	1020	0.0	01		
2.2 -3.5	DK GREENISH FINES), MED 5.	TIFF TO STIFF, HI-PL, GR	SILT (1009. MOATRONAL	2040		C		
3.5-	(10 Y 4/1) SILT, TE ORAVEL, SI GREAVEL, 252 INT. OF VE-M	SOME SAND, NETU F, SOME M TO LG (13.7 cm), SURROUN 2 SAND, 73% FINES), STIFF, I SANDE 3.7	CLAY, 010, (2 % ME10-PL	2040		M -C		
		END CORE						
		KM						

EA Engineering, Science, a.	LITHOLOGIC LOG Sediment Collection Log	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	Location/Boring		1	Sheet of 2
Geologist Name/Signature K. Merandi	5	Project Number 1583406	8 Start Date/Tim	1455 11/8/	21 1	010
Drilling Subcontractor/Equipme	ent Operator 6	19655.775	10 Coordinate Sys	200	1.00	
Operator Name (License # If R	lequired) 7	Longitude/Easting/Grid		o, circle conditions, wir	in	
	arrelin dian	neter Manual Push/Vibracore		(ft) 14 Recovery (ft) 15 % R	
Grab Sample: Other: Sample Collection Metholinterval Recovery		-ft Box/Ponar/Van Veen/Other Description of Materials	colon = fre	Sample ID	PID	USC
(Depth) (ft & %)		ell Color; Moisture; Density; Consistency (Other Remarks) 13/) SAND, VF TOF, SOME SI 1D, 25 % FINES), TR ROOT, T TENCY, COHESIVE, NON-BL,	LT, CEN VESHELL, CARADA-	Sample Interval	(ppm)	SN
0.4	DK GREENISH (FINES), SOFT,	GREY (1044/1) CLAY, FEW SI HI-PL, GRADATIONAL	LT (100°20	0010	0.0	CH
6.7	(104 4/1) SANT BENSE, LOW-R	SOME SILT, FENCLAY (700) PL, SHARP CONTACT PL	SAND, 3076 EINE	1020	0,0	SI
1.3 -3.5	(107 4/1) SAND SAND, 4070 F1 NON-PL, GRAD.	NES), MED STIFF TO STIFF, ATIONAL	COTIESIVE,	1020	0.0	SM
3.5	(10 Y 4/1) SILT, 95% CINES) GRADATIONA	SOFT, LOW-MED-PL, TR	70 SAND, WOUD/12007	2040	0,0	ML
4.0	SAME AS IH	GRADATIONAL	,	4060	0.0	SM
4.2	SAME AS IS	, GIRADATIONAL		4060	0,0	M
4.5	SAME AS I	4, GRADATIONAL		4060	0.0	М

1 of 7

EA Engin	neering. Science,	LITHOLOGIC LOG Sediment Collection Log and Technology, Inc. PBC	EPA Region 5	SC21- SC	,04	Q	Sheet of
	ame/Signature		5 Project Number		ORE COLLECTION IN		
K. Merar	ndi		1583406	8 Start Cate/Time	155 Stop Date		10
Drilling Sub	contractor/Equipm	ent Operator	6 Latitude/Northing/Grid	9 Sed Surface Ele	vation 568+	19	f
Affiliated	d		719655,775	10 Coordinate Syst			
		2000	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	11 Depth of Water,	4.8		
Operator Na	ame (License # If	Required)	7 Longitude/Easting/Grid 1676450 928	12 Weather (Temp.	, circle conditions, win)
Sampling E	quipment and Me	thodology (Check One)		13 Boring Depth (ft) 14 Recovery (ft)	15 % R	ecovery
7		parrelin di		8.0	7.4	9	3%
Grab Sar Other:		ft xft x	ameter Manual Push/Vibracoreft Box/Ponar/Van Veen/Other	16 Location Notes			
Interval	Recovery		Description of Materials unsell Color; Moisture; Density; Consistency (Other Remarks)		Sample ID Sample Interval	PID (ppm)	USCS
4.3		SAND, VE TO (190 GRAVEL, STIFF, COHESIV TR WOOD/POC	M TYZ G,RAVEL, SM, (1.5cm) 7% SAND, 92% FINES) STIFF (E, LOW-DL W) AREAS OF HIGH	TO MED- ERCLAY/HI-PL	6080	0.0	SM -ML
			NAW				
						1	
	/						

EA Faci	naerina Science	LITHOLOGIC LOG Sediment Collection Log and Technology, Inc. PBC	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	Location/Boring		1	Sheet		
	lame/Signature	and reciniology, inc. PBC	5 Project Number	C	ORE COLLECTION I	NFO			
			1583406	8 Start Date/Tim			-0		
K. Mera	nai		1383400	11/7/2021	1130 11/8	121 1	50		
2 Drilling Sub	contractor/Equipr	ment Operator	6 Latitude/Northing/Grid	9 Sed Surface Ele	. 12				
Addicates			TIGHIN ILA	10 Coordinate Sys	tem H V	1	11		
Affiliate			719442.160	11 Depth of Water, ft (start/end)					
3 Operator N	ame (License # If	Required)	7 Longitude/Easting/Grid		6.0				
			1677548.216	12 Weather (Temp	12 Weather (Temp, circle conditions, wind direction) Sunny/Cloudy/Rain				
4 Sampling F	Squipment and Me	ethodology (Check One)		13 Boring Depth	(ft) 14 Recovery (ft	t) 15 % R	ecove		
			mater	11.5	41				
	^	barrelin diar		4.4	4.6	10	0%		
	-		meter Manual Push/Vibracore	10 Leasting Notes			- 1		
Grab Sa	mple:	ft xft x	ft Box/Ponar/Van Veen/Other	16 Location Notes					
Other:									
	Collection Met	thod:	Description of Materials		Sample ID	PID	US		
(Depth)	Recovery (ft & %)	Muns	sell Color; Moisture; Density; Consistency (Other Remarks)		Sample Interval	(ppm)	Co		
0		GRAYISH BROGERY (7,542	OWN (2.57 5/2) CLAY with a 3/1), OLIVE (5Y 5/6), WEAK RE 2AVEL, SM, (3 mm) SUBANC	D(10R 5/3)	0010	0.0	0		
		9990 FINES), 1	MED STIFF TO SOFT, HI-PLIS	HARD CONTACT	1020				
1.2		GREY (575/1)	CLAY, TRSILT, TR SAND, NE (10m) (170 GRAVEL, 320 S	TOM, TR	1020				
-2.6		GIRAVEL, SM, (O MED STIFF, HI-PL	, 1010	2040	0.0	0.		
		F110 ESS, 500			20 10				
2.4		(SY S/I) CLAY	LITTLE SAND, JE TO C, LITTLE SAND, JE TO C, LITTLE SAND, SUBANG TO, 10% SAND, 80% FINES), H	TTLE					
-2.9		GRAVEL, SM	10 LG (44.6 cm) SUBANG TO	8418000NO,	2040	0.0	C		
2		(101001010	, (0.00 5,,, 40						
2.9-		SAME AS IZ	EXCEPT NO SILT, TR MICA	, STIFF TO					
4.6		V STIFF			2040	0.0	C		
4.0									
			END CORE				1		
						-	-		
			M						
			No.						
		1					-		
							-		
	/								

	EA Engineering, Science	LITHOLOGIC LOG Sediment Collection Log and Technology, Inc. PBC	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	Location/Bon	SCO7e	1	Shee	
1	Geologist Name/Signature K. Merandi	5	Project Number 1583406	8 Start Date/Ti	CORE COLLECTION I	e/Time	930	
2	Drilling Subcontractor/Equip	oment Operator 6	Latitude/Northing/Grid	9 Sed Surface	Elevation 566.7	9		
	Affiliated		720131.489	10 Coordinate S		Kopu		
3	Operator Name (License # I	If Required) 7	Longitude/Easting/Grid	12 Weather (Ter	mp, circle conditions, wir Sunny/Cloudy/Rai		ction)	
4	Sampling Equipment and M	ethodology (Check One)		13 Boring Dept	Boring Depth (ft) 14 Recovery (ft)		Recove	
	Rotosonic:ft Core: & -ft	barrel -in diam	eter Manual Push/Vibracore	6.0	5.9	9	29	
•		ft xft x	ft Box/Ponar/Van Veen/Other	16 Location Note			- 9	
101	nterval Recovery Depth) (ft & %)	Munea	Description of Materials	1700 1700	Sample ID	PID	US	
00	-		1 Color, Moisture; Density; Consistency (Other Remarks) 12 CUAY, SOME SILT, FEITHER TO SUBDOUND (1570 SAIDOUT) (1570 SAIDOUT) PRAGES, V SOFTLE BASE, SHARP CONTA	N S AND, ND, 85%, , LOW-102.	Sample Interval	(ppm)	0	
0	4.9	OLIVE GREY (S'	15/2) CLAY, FEW SILT, TRI (195AND, 987 PINES) SM SAND	JE TOM	0010 1020 2040-FD 4060	0.0	CF	
V - 4	5.2	(N2.5/) SAND Q+Z, SOME SIL NON-PL, MUST GRADATIONAL	LYF TO C. SUBANG TO SU T, LITTLE CLAY, LOOSE, IY ODOR (55% SAND, US90	BROUIND, COHESIVE, CINES),	4060	0.0	81	
5	5.7	SAME AS 12			4060	0.0	Cr	
			END CODE					
							4	
			KM					

		LITHOLOGIC LOG Sediment Collection Log and Technology, Inc. PBC	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	Location/Borin		1	Sheet	1
	st Name/Signature erandi		5 Project Number 1583406	8 Start Date/Tim	OCRE COLLECTION Stop Da	te/Time	1615	
2 Drilling S	Subcontractor/Equipro	nent Operator	6 Latitude/Northing/Grid 720744.112	9 Sed Surface E 10 Coordinate Sys	evation 2.9			ft
3 Operator	r Name <i>(License # If</i>	Required)	7 Longitude/Easting/Grid 1678204.838		r, ft (start/end) c, circle conditions wi Sunny/Cloudy/Ra		on)	
X Core: Grab S Other:	onic:ft b	ft xft x _		13 Boring Depth		(t) 15 %	Recovery 52	
	e Collection Meth	nod:						
(Depth)	Recovery (ft & %)	Muns	Description of Materials ell Color; Moisture; Density; Consistency (Other Remarks)		Sample ID Sample Interval	PID (ppm)	USC Code	
			END CODE					
	/							
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=	A EA Engineering, Science, an	LITHOLOGIC LOG Sediment Collection Log	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	SC21- SC	and the second	1	Sheet of
1	Geologist Name/Signature	a reciniology, inc. PBC	5 Project Number	COL	RE COLLECTION IN	IFO	
	K. Merandi		1583406	8 Start Date/Time	955 Stop Date		10
2	Drilling Subcontractor/Equipme	nt Operator	6 Latitude/Northing/Grid 721014.095	9 Sed Surface Eleva	ation 5550	77 56	8.69
	Affiliated		7/1/0/14/16/31	10 Coordinate System 11 Depth of Water, ft	(start/end)		
3	Operator Name (License # If Ro	equired)	7 Longitude/Easting/Grid /678072.253	12 Weather (Temp, c	sircle conditions, win	d direction)
4	Sampling Equipment and Meth	odology (Check One)	Decision	13 Boring Depth (ft)	14 Recovery (ft)	15 % R	ecover
x	Rotosonic:ft ba	arrelin dia	nmeter nmeter Manual Push/Vibracore	\$60	pet 4/3	7	20%
		-ft xft x	ft Box/Ponar/Van Veen/Other	16 Location Notes Color & Brow			
	nterval Recovery (Depth) (ft & %)	Mur	Description of Materials nsell Color; Moisture; Density; Consistency (Other Remarks)		Sample ID Sample Interval	(ppm)	US Co
-	0.6		14 3/1) CLAY, SOMESILT, Q 10, 90 90 PINES) I SOFT, LO FAVES, MUSTY/SLIGHTLY P	W-PL (W)LL ETROL.	0010	0-0	OL
0	2.1	DK GKET (S. SILTIER INT HI-PL, PETI	Y 4/1) CLAY, TRSILT (100% EPWAL & 1.6 Ft, V SOFT, ROL, ODOR GRADATIONAL	PINES), MED TO	0010 1020 2040	0.0	04
	2.1	BLACK (SY: FINES), VSOI SHARLD CON	2.5/1) SILT, SOMECLAY (FT, MED-PL PETROL. OF JTACT	100°20	2040	0.0	0
-	2.3	CLIVE GREY LITTLE CLAY(COHESTVE, N	(SY 4/2) SAND, VE TOF, SO (160% SAND, 4025 NES), LO SON-DL (W >LL), GRADA	MESILT, COSE, LONAL	2040	0.0	SI
	2.4	(95% FINE	T, SOMEKLAY, TR SAND, O S, 52 SAND), U SOFT, MED S, WOUD PRAGIS@ BASE OR, SHARP CONTACT	FTOE,	2640	0.0	07
	28	(SY 2.5/1) SI OTT, METICS SUBANT TO COSTO GRAVEL NONCOHEST	AND, UF TO UC, SUBANG TO SUB LOUND, FEW SILT, FE BUB LOUND, FEW SILT, FE 1 30% SAND, 10% FINES, K VE, SLIGHT PETROL. OF	SUBROUND, DIG (43cm), DENSE DUR, GRADA	2046	0.0	-S
	3.3 -3.6	(SY 4/2)CL	MY, SOME SILT (100% FIND PL, TR ROOT, MUSTY OP	ES), MED	2040	0.0	0
-	3.6	(SY 4/2) SAI SOME GIZAVE GIRAVE 1 (00	ND, VG TO VC, SUBANG TO I, LITTLE SILT, LITTLE CLA TO SAND, 1870 OINES, DENS TO LO (63 Scm), MUSTY OBOR	ROUND, F (25% E, MONCOFIESM	2040	0.0	SV

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E/.		. Science. a	LITHOLOGIC LOG Sediment Collection Log and Technology, Inc. PBC	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	Location/Boring		2	Sheet of 2
	eologist Name/Si		5	Project Number	C	ORE COLLECTION II	NFO	
	K. Merandi			1583406	8 Start Date/Time	955 Stop Date		010
2 Dr	rilling Subcontrac	tor/Equipme	ent Operator 6	Latitude/Northing/Grid	9 Sed Surface Ele	evation 568	69	ft
	Affiliated			721014.095	10 Coordinate Syst			
3 Or	perator Name (Li	cense # If F	Paguirad) 7	Longitude/Easting/Grid	11 Depth of Water,	ft (start/end)		
			, and a second	1478072.253	12 Weather (Temp	circle conditions, win		1)
4 Sa	ampling Equipme	nt and Meth	nodology (Check One)		13 Boring Depth (f	ft) 14 Recovery (ft)	15 % F	Recovery
			arrelin diam		6.0	4.3	72	%
				neter Manual Push/Vibracore				
	rab Sample: ther:	-	-ft xft x	-ft Box/Ponar/Van Veen/Other	16 Location Nutes			
	ample Collect		od:					
Inte (De)	06/00/0	overy & %)		Description of Materials Il Color, Moisture; Density; Consistency (Other Remarks)		Sample ID Sample Interval	PID (ppm)	USCS Code
6				END COPE				
				m				
		/						
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EA Eng	aineering, Science, a	LITHOLOGIC LOG Sediment Collection Log and Technology, Inc. PBC	EPA Region 5 Swan Creek Sediment Assessment	Location/Boring		i	Sheet of 1
	Name/Signature		5 Project Number 1583406	8 Start Date/Time	ORE COLLECTION II	e/Time	140
Drilling Su Affiliate	bcontractor/Equipm	ent Operator	6 Latitude/Northing/Grid 771477.997	9 Sed Surface Ele 10 Coordinate Sys 11 Depth of Water	tem H V	-	
Operator I	Name (License # If	Required)	7 Longitude/Easting/Grid 1677885.164	12 Weather (Temp	o, circle conditions, wir	in	
Rotosor Core:	nic:ft b		ameter ameter Manual Push/Vibracoreft Box/Ponar/Van Veen/Other	1, Z 16 Location Notes Color: Bro	nul.		CZ.
	Collection Meth	nod:		All Clay			
nterval	Recovery (ft & %)		Description of Materials unsell Color; Moisture; Density; Consistency (Other Remarks)		Sample ID Sample Interval	PID (ppm)	USCS
			ENO CORE				
			KM				
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			•				
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Geologist Name/Signat K. Merandi	ture	Swan Creek Sediment Assessment	SC21-	sclle	1	Sheet	
		5 Project Number 1583406	8 Start Date !	212		045	
2 Drilling Subcontractor/E Affiliated	Equipment Operator	6 Latitude/Northing/Grid 721860.222	9 Sed Surface	Elevation 569.			
3 Operator Name (Licens	se # If Required)	7 Longitude/Easting/Grid 1677977,675	11 Depth of Wa	of Water, ft (start/end) 3.3 or (Temp, circle conditions, wind direction)			
Rotosonic:	and Methodology (Check One) -ft barrel -ft barrel -ft barrel -in diameter Manual Push/Vibracore		13 Boring Dep	th (ft) 14 Recovery (f	t) 15 %	Recover	
Grab Sample: Other: Sample Collection		ft Box/Ponar/Van Veen/Other	16 Location Not				
(Depth) (ft & %)		Description of Materials sell Color; Moisture; Density; Consistency (Other Remarks)		Sample ID Sample Interval	PID (ppm)	USC	
0.%		13/1) CLAY, SOME SILT, F 10% SAND, 90% PINES), LE T, LOW-PL (W > LL) SHA	EWSAND, EAVES/TWICE 120 CONTAC	45 0010 + FD	6.0	OL	
0.8	CLAY (60% SI	MD, 40% FINES), LOOSE, COMMANDATIONAL	T, FEW OHENE,	0010+FD	0.0	SM	
0.9	SAME AS 11	SHARP CONTACT		00104FD 1020	0.0	OL	
1.6	CLIVE GREY (ROUND, QTZ. L COMESIVE, NON TR SHELL	SY 4/2) SAND, NF TO C, SU COSE, TR SILT (97% SAND, N-PL, GRADATIONAL	BANG TO 3% FINES?	1020	0.0	SW	
72.0	OTT, FEW GRE	S(1) SAND, VF TO VC, SUBAN AVEL, SM TO LG (42,5 cm) CLAY (6% GRAVEL, 849. SAN DENSE, NONCOHESIVE, SH	SUBANG,	1020	0.0	SW	
2.0	CLIVE GRET VF SAND (2°2 TO SOFT, TR	(BY 4/2) SILT, SOME C SAND, 98% FINES), ME 2 SHELL, TR WOOD, INT. OF +3.0 Ft, MUSTY ODUR	LAY, TR	2040	0.0	ML	
		ENO CORE					

5 0	LITHOLOGIC LOG Sediment Collection Log	FB4.5	Location/Boring N			Sheet
	ce, and Technology, Inc. PBC		SC21- 5C	125	1	of 1
Geologist Name/Signature		5 Project Number		RE COLLECTION II		
K. Merandi		1583406	8 Start Date/Time	Stop Date		ana
			11/8/2021 11.	55 11/11/2	21 0	500
Drilling Subcontractor/Equi	ipment Operator	6 Latitude/Northing/Grid	9 Sed Surface Eleva			
Affiliated		721816.966	10 Coordinate System			
		72.07	11 Depth of Water, ft			
, Operator Name (License #	If Required)	7 Longitude/Easting/Grid	A 1134	7.9		
		1678225, 387	12 Weather (Temp, o	sunny/Cloudy/Rair		1)
Sampling Equipment and f	Methodology (Check One)		13 Borin; Depth (ft)	14 Recovery (ft)	15 % F	Recovery
Rotosonic: -f	ft barrelin dia	ameter	1, .	7.4	(1	-4
Core: 4 -f	tharrol 3 in dir	ameter Manual Push/Vibracore	4.0	3.4	18	56
			16 Location Notes			
Other: Sample Collection Me		ft Box/Ponar/Van Veen/Other	To Essenion No.			
nterval Recovery		Description of Materials		Sample ID	PID	USCS
(Depth) (ft & %)		nsell Color, Moisture; Density; Consistency (Other Remarks)		Sample Interval	(ppm)	Code
3 4	(42,5cm), 50 STIFF, HI-P	UBANCA (17. GRAVEL, 992 6	INVES),	1020 1020 MSD	0.0	CH
		END (UKC			/	
				/		
		ken				
						/

Geologist Na K. Merand Drilling Subce Affiliated		5 Project Number 1583406 6 Latitude/Northing/Grid	8 Start Date/Tim	CORE COLLECTION IN Stop Date/	/Time	
Affiliated	ontractor/Equipment Operator	6 Latitude/Northing/Grid	$\overline{}$		21 11	50
			9 Sed Surface El	evation 571.4	14	
3 Operator Na		721082 562	10 Coordinate Sys			
	me (License # If Required)	7 Longitude/Easting/Grid 1679177.171	12 Weather (Temp	p, circle conditions, wind		1)
	guipment and Methodology (Check Or :ft barrel ft barrel			(ft) 14 Recovery (ft) 3.9	65 65	
Other:	collection Method:	-ft xft Box/Ponar/Van Veen/Oth	er 16 Location Votes		10/0	
(Depth)	Recovery (ff & %)	Description of Materials Munsell Color; Moisture; Density; Consistency (Other Remark	ks)	Sample ID Sample Interval	PID (ppm)	U
0-	SILT, SOM	EY(SY 4/2) & GREENSH BLACK E CLAY, FEW SAND, VETO F (79). EYY SOFT, NON-PL, MUSTY/SLIC CAVES+TWIGS, GRADATIONAL	E (10 Y 2.5/1) SAND, 93% SHLY PETROL	0010	0.0	N-0
0.5	SAND, 40	GREY (SY 3/2) SAND, NF TO F Y, COHESIVE, NON-AL, MUSTY 1% FINES) (WYLL): BOT INTERNAL @ BASE, SHAK	opor (60%	0010	0.0	SI
6.7	(SV 4/2) SAND, 9 LOW-ME LEAVES	CLAY, FEW SILT, TR SAND, TO 92 FINES), TR WOOD/LEAVE O-PL (WYLL), MUSTY ODOR, BASE	€ 70 €, (12. 15, U SOFT, LAYER	1020	0.0	0
-2.2	SAME AS	DOOR, GRADATIONAL	4/1), NO	1020 2040+MS/ MSD	0.0	M -0
2.2-	NOK GR N SOFT, A	NOK GREY (SY 4/1) CLAY, TR SILT (100% FINES) SOFT, MED-AL, PETROL. DYOR, GIRADATIONA			10,0	0-
3.0 -3.9	SAMEAS TRIVE 9570 SA	S IL, EXCEPT V DIC GIREY (C TO F SAND (FINING UPWAR) AND), TR ROOT, HI-PL	64 3/1), 6 (5% SAND,	2040 + MS	0.0	(
		END CORE			_	F
						+

EA En	gineering, Science,	LITHOLOGIC LOG Sediment Collection Log and Technology, Inc. PBC	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	Location/Borin	Name SC15e	1	Sheet
1 Geologist K. Me	t Name/Signature	47	5 Project Number 1583406	8 Start Date/Tir	1	te/Time	40
2 Drilling S	ubcontractor/Equipr	ment Operator	6 Latitude/Northing/Grid	9 Sed Surface E	levation 5697	/	
Affiliat	ted		721145.649	10 Coordinate Sy		V	
3 Operator	Name (License # If	Required) 7		11 Depth of Wate	r, ft (start/end)		
5 Орегаю	Name (License # II	Negurieu)	1679268.861	12 Weather (Tem	p, circle conditions, wi		n)
4 Sampling	Equipment and Me	ethodology (Check One)		13 Boring Depth	(ft) 14 Recovery (f	t) 15 % I	Recover
Rotoso	nic:ft l	barrelin dian	neter	(.)	4.2	7	03
X Core:	Left	barrel 3 -in dian	neter Manual Push/Vibracore	6.0	1.6	/	0 9
Other:	ample:		ft Box/Ponar/Van Veen/Other	Colof = mara			
(Depth)	Recovery (ft & %)	Mune	Description of Materials ell Color, Moisture; Density; Consistency (Other Remarks)		Sample ID Sample Interval	PID	US
0 - 2.5	111 (2 70)	MIXTURE OF D SAND, VF, (290 S (N 31) SILT, SON FINES), TOGGHE HI-PL, DETRO	IXTURE OF DK GIREY (SY 4/1) CLAY, SOME SILT, TR IND, VF, (790 SAND, 98% FINES) AND Y DARK GIREY 31) SILT, SOME CLAY, TR SAND, VI (170 SAND, 997, NES), TOCHHER TR WOOD FRAGS, Y 80FT, MED TO I-PL, DETROL. DUOR, SHARP CONTACT, BLOCKYS			(ppm)	OL - O1
2.5		BLUISH BLACK (SAND, NE TO E (V SOFT, MED	BLUISH BLACK (5 PB 2.5/1) CLAY, LITTLE SILT, TR BAND, NF TOF (5% SAND, 95% FINES), WOOD FRAGS, N SOFT, MED-PL, PETROL, ONDR				01
2.9	-	(SPB 2.5/1) ST atz, FEW SIL LOOSE, TR WHICE COINTACT	(SPB 2.5/1) SAND, UF TO M, SUBRUUND TO ROUND, OTZ, FEW SILT, EEW CLAY, (80% SAND, 20% FINES), LOOSE, TR MICA, COHESIVE, NON-PL, SHARP CONTACT NO DILATENCY				SP
3.0		SAME AS IZ	SAMEAS I2				OL
		E	NO CORE				/
			M				
			M				

J1

EA	alaerina Salence	LITHOLOGIC LOG Sediment Collection Log and Technology, Inc. PBC	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	Location/Boring Name S SC21- SC / G C 1 of			Sheet of 2
	Name/Signature	and recimology, Inc. PBC	Project Number	2000	ORE COLLECTION	INFO	PV P
Geologist	Name/Signature		Project Number	8 Start Date/Tim			
K. Mer	randi		1583406	1 1 1	1635 Stop Dat	1	345
	ubcontractor/Equipm	The second secon	Latitude/Northing/Grid	9 Sed Surface Ele	evation 56	1.33	ft
Affiliat			721002.859	10 Coordinate Sys	tem H	V	
			121000,451	11 Depth of Water			
3 Operator	Name (License # If	Required)	Longitude/Easting/Grid		8.7		
			1680168.359	12 Weather (Temp	, circle conditions, wi Sunny/Cloudy/Ra		1)
4 Sampling	Equipment and Me	ethodology (Check One)		13 Boring Depth (ft) 14 Recovery (f	t) 15 % F	Recovery
Rotosor	nic: -ft	barrelin dian	neter	70	6.4	0	lin
X Core:	- 1	A200	neter Manual Push/Vibracore	8:0	6.7	2	4%
Other:	ample:		ft Box/Ponar/Van Veen/Other	16 Location Notes	ed		
Interval	Recovery	il e e e e e e e e e e e e e e e e e e e	Description of Materials		Sample ID	PID	USCS
(Depth)	(ft & %)		all Color; Moisture; Density; Consistency (Other Remarks)		Sample Interval	(ppm)	Code
0.7		TR ROOT/W	1) CLAY, FEW SILT (10090 4 DOOD ORAGS, FAINT PETRO ED-PL(W>LL), GRADATION	LOVER.	0010	6.0	-OH
6.7		(N31) SILT, I TR GRAVEL, 340 SAND, 96 FAINT PETPOL.	LG, (<2 cm), SNBANG, VE 46, (<2 cm), SNBANG (190 90 FINES), SOFT, COHESIVE ODOR, TR WOOD/ROOT, SH.	TO F GRAVEL, NON-PL ARP CONTACT	0010	0.0	OL
0.9		SAMEAS I2 (3% SANO, 97	EXCEPT NO GRAVEL, FE 90 FINES, SHARP CONTAC	W CLAY	0010	0.0	OL
1.1 -1.4		SAME AS IS	L, SHARP CONTACT		1020	0.0	02 -0H
1.4		V DK GREY (5) ROUND, QTZ, MAI FINES), MED DE NO DILATENCY	V DIC GREY (SY 3/1) SAND, UF TO VC, SUBANG TO ROUND, QTZ, MARICS, TR SILT, TR CLAY (98% SAND, Z FINES), MED DENSE, NONCOHESIVE, SHARD CONTAC NO DILATENCY			0.0	sw
1.7		SAME AS II,	SHARP CONTACT		1020	0.0	OL -OH
2.1		(SY 3/1) SAND, SAND, 30 TO FIN BILATENCY, G	VF, TO F, SOME SILT, FEW CI SES), DENSE, COHESIVE, NON-K IRADATIONAL	AY (70%	2040	0.0	SM
2.4		(SY 3/1) GRAVE SUBROUND, SON SILT (SO% GIV NONZOHBIVE,	LISM TO LGI, (CZ. FOM), SUR ME CLAY, LITTLESAND, JE TO LINEL, 19% SAND, 35% FINE GRADATIONAL	SANG TO OC, TR 31, LOOSE,	2040	0.0	GM

T2

13

14

15

Iψ

17

2.7 -3.2 (SY 3/1) SILT, 60% FINES), NON-PL, SHA 3.2 -3.4 SAME AS IT	Swan Creek Sediment Assessment Project Number 1583406 Latitude/Northing/Grid 721002. 8S 9 Longitude/Easting/Grid 1680168. 35 9 Imeter Imeter Imeter Manual Push/Vibracore — -ft Box/Ponar/Van Veen/Other Description of Materials Issell Color, Moisture; Density; Consistency (Other Remarks) SOME SAND GITTLE CLAY (SLOW DILAYETEE DENSE	8 Start Date/T 1\subseteq 5 2 1 9 Sed Surface 10 Coordinate S 11 Depth of Wa 12 Weather (Te 13 Boring Depte	Elevation 564 System H ter, ft (start/end) The process of the start (start/end) The p	p Date/Time 1/7/21 1 1-1-33 V Ins., wind direction dy/Rain very (ft) 15 %	Recovery
X. Merandi 2 Drilling Subcontractor/Equipment Operator Affiliated 3 Operator Name (License # If Required) 4 Sampling Equipment and Methodology (Check One) Rotosonic:	1583406 6 Latitude/Northing/Grid 721002. 8S 9 7 Longitude/Easting/Grid 1680168. 3S 9 meter meter Manual Push/Vibracore ft Box/Ponar/Van Veen/Other Description of Materials sell Color, Moisture; Density; Consistency (Other Remarks) SOME SAND GITTLE CLAY (SLOW DILAYETES DENSE	9 Sed Surface 10 Coordinate S 11 Depth of Wa 12 Weather (Te 13 Boring Depth S 10 Coordinate S 11 Depth of Wa 12 Weather (Te	Elevation 564 System H ter, ft (start/end) Figure 14 Recovered 15 Reco	p Date/Time 1/7/21 1 1-1-33 V Ins., wind direction dy/Rain very (ft) 15 %	Recovery
2 Drilling Subcontractor/Equipment Operator Affiliated 3 Operator Name (License # If Required) 4 Sampling Equipment and Methodology (Check One) Rotosonic:	6 Latitude/Northing/Grid 721002. 8S 9 7 Longitude/Easting/Grid 1680168. 3S 9 Immeter Immeter Manual Push/Vibracore — -ft Box/Ponar/Van Veen/Other Description of Materials Issell Color, Moisture; Density; Consistency (Other Remarks) SOME SAND GITTLE CLAY (SLOW DILAYETES DENSE	9 Sed Surface 10 Coordinate S 11 Depth of Wa 12 Weather (Te 13 Boring Depth S 10 Coordinate S 11 Depth of Wa 12 Weather (Te	Elevation 564 System H ter, ft (start/end) The process of the start (start/end) The p	v v v v v v v v v v v v v v v v v v v	Recovery
Affiliated 3 Operator Name (License # If Required) 4 Sampling Equipment and Methodology (Check One) Rotosonic:	7 Longitude/Easting/Grid 1680168.359 meter meter Manual Push/Vibracoreft Box/Ponar/Van Veen/Other Description of Materials isell Color, Moisture; Density; Consistency (Other Remarks) SOME SAND ATTLE CLAY (SLOW DILAYETSE DENSE	10 Coordinate S 11 Depth of Wa 12 Weather (Te 13 Boring Depth 8 0	ter, ft (start/end) mp, circle condition sunny/clou th (ft) 14 Recoverses Sample III Sample Inter	ns, wind direction dy/Rain very (ft) 15 %	Recovery
3 Operator Name (License # If Required) 4 Sampling Equipment and Methodology (Check One) Rotosonic:	The self Color, Moisture; Density; Consistency (Other Remarks) SOME SAND LITTLE CLAY (SLOW DILATED DENSE	11 Depth of Wa 12 Weather (Te 13 Boring Depth S O	ter, ft (start/end) The property of the first start for the first	ns, wind direction dy/Rain very (ft) 15 %	Recovery
A Sampling Equipment and Methodology (Check One) Rotosonic:	meter meter Manual Push/Vibracoreft Box/Ponar/Van Veen/Other Description of Materials sell Color, Moisture; Density; Consistency (Other Remarks) SOME SAND, LITTLE CLAY (SLOW DILAYETTE DENSE	12 Weather (Te 13 Boring Depr	mp, circle condition Sunny/clou th (ft) 14 Recov	dy/Rain very (ft) 15 %	Recovery
Rotosonic:	Description of Materials sell Color, Moisture; Density; Consistency (Other Remarks) SOME SAND LITTLE CLAY (SLOW DILAY F.TOF DENSE	8,0	th (ft) 14 Recov	very (ft) 15 %	34%
Core:	Description of Materials isell Color, Moisture; Density; Consistency (Other Remarks) SOME SAND LITTLE CLAY (SLOW DILAYETDE DENSE	16 Location Not	Sample II	D PID	
Grab Sample:	Description of Materials isell Color; Moisture; Density; Consistency (Other Remarks) SOME SAND LITTLE CLAY (SLOW DILAYET DENSE		Sample II		USG
(Depth) (#8%) MM 2.7 -3.2 (SY 3/1) SILT, (DOTO FINES), NON-PL, SHA 3.2 -3.4 SAME AS IT 3.9 SAME AS IT 4.3 SAME AS IT S	ISEII COLOR; Moisture; Density; Consistency (Other Remarks) SOME SAND, LITTLE CLAY (SLOW DILAY TOS DENSE	40% SAND,	Sample Inter		050
3.2 -3.4 SAME AS I SAME AS I SAME AS I SAME AS I S.O -5.0 SAME AS I	SOME SAND, LITTLE CLAY (40% SAND,		rval (ppm)	Coc
3.6 3.6 -3.9 SAME AS I SAME AS I 4.3 SAME AS I	(SY 3/1) FILT, SOME SAND, LITTLE CLAY (40% SAND, 60% FINES), SLOW DILATENCY, DENSE, COHESIVE, NON-PL, SHARP CONTACT, TR WOOD, TR SHELL				ML
39 -5.0 SAME AS I 4.3 SAME AS I 5.2 SAME AS I	EXCEPT NO WOOD/ROOTS	, HI-PL	2040	0,0	Ct
5.0 SAME AS I 9 5.2 SAME AS I	3		2040	0.0	ML
5.2 SAME AS I	10, INTERVAL (< 0.15+)	of 19@	2040	0.0	CH
5.2 SAME AS I			4060	0.0	M
	10		4060	0,0	CH
	END CORE				-

EA	Engineering Science	LITHOLOGIC LOG Sediment Collection Log e, and Technology, Inc. PBC	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	Location/Borin		1	Sheet
1 Geolog	gist Name/Signature		5 Project Number 1583406	8 Start Date/Tir	1	e/Time	320
2 Drilling	Subcontractor/Equip	oment Operator	6 Latitude/Northing/Grid	9 Sed Surface E			
Affi	liated	*	721362.853	10 Coordinate Sy 11 Depth of Water	stem H	/	
3 Operat	or Name (License # I	If Required)	7 Longitude/Easting/Grid 1680506.715	12 Weather (Tem	np, circle conditions, wi		n)
Rotos	sonic:ft	lethodology (Check One) barrelin dian	neter	13 Boring Depth	(ft) 14 Recovery (f		Recover
Other	Sample:	ft xft x	neter Manual Push/Vibracoreft Box/Ponar/Van Veen/Othe	16 Location Note Color = Red			
(Depth)	Recovery (ft & %)		Description of Materials ell Color, Moisture, Density, Consistency (Other Remarks		Sample ID Sample Interval	PID (ppm)	Cod
0.5		DK GREY (2.5) FINE (5% SA (W)LL), ROOTS MUSTY/SUGHTI	DK GREY (2.54 4/1) SILT, SOME CLAY, TREAND, NETO FINE (5% SAND, 95% FINES), N SOFT, LOW-PL (W)LL), ROOTS! TWIGS & BASE, SHARD CON TACT, MUSTY/SUGHTLY PETROL, ODIR				OL
0.5		DIK GREY (NL) LITTLE SILT, TX COHESIVE, NO SHARP CONTAI	0010	0.0	SP -SM		
-1.4		CN4/SCLAY, SI MED-PLLWSI CONTACT	(N4/) CLAY, SOME SILT (100% FINES), V SOFT, MED-PLLW > LL), PETROL. 000 R. SHARP				cı
1.1		NON-PL TO L	BLACK (N 2.S/) CLAY, FEN SILT, TR SAND, VF TO VC, TR SM GRENEL/SLAG, (42.Smm), ANA, N SOFT, NON-PL TO LOW-PL (WXLL), STRONG PETROL- OBOR, SHARP CONTACT			0.0	01
1.3		SAND, 15% FI	BLACK (SY 2.5/1) SAND, VE TO VC, SUBANG TO SUBROUND, TR SM GRAVEL (32 GRAVEL, 8220 SAND, TSTO FINES), MED BENSE, NONCONLESIVE, SHARD CONTACT.			0.0	SW
1.8		BLUISH BLACK (VE SAND (3% BETROL O'00	SANO, 93% FINES), V SOO 12, SHARP CONTACT	E SILT, TEN	1020	0.0	-OL
-2.4			Y, SOME SILT, FEW VE TO ST. PINES), USOFT, MED I/PETROL OPOR SAND H, SHARP CONTACT	TO HI-PL, DIER INT, S	1020 2040+MS/ MSD	0.0	ОН
			, SHARP CONTACT				

License # If Required) License # If Required) License # If Required) License # If Required) License # If Required License # If Requi	diameter diameter Manual Push/Vibracore xft Box/Ponar/Van Veen/Oth Description of Materials Munsell Color; Moisture; Density; Consistency (Other Remark)	13 Boring Dept	Elevation 565. System H V ter, ft (start/end) 7.8 mp, circle conditions, win- Sunny/Cloudy/Rair th (ft) 14 Recovery (ft)	7/Time 21 12 LH d direction	n)
License # If Required) The sent and Methodology (Check One)	6 Latitude/Northing/Grid 72/362-853 7 Longitude/Easting/Grid 1686506-715 diameter diameter Manual Push/Vibracore xft Box/Ponar/Van Veen/Oth Description of Materials Munsell Color, Moisture; Density; Consistency (Other Remark	9 Sed Surface 10 Coordinate S 11 Depth of We 12 Weather (Te 13 Boring Depth S , O	Elevation 565. System H V ter, ft (start/end) 7.8 mp, circle conditions, winn Sunny/Cloud//Rain h (ft) 14 Recovery (ft) 7.4	21 12 1 H	n) Recovery
License # If Required) The sent and Methodology (Check One)	7 Longitude/Easting/Grid 1680506-715 diameter diameter Manual Push/Vibracore xft Box/Ponar/Van Veen/Oth	10 Coordinate S 11 Depth of Wa 12 Weather (Te 13 Boring Depth 8 0	ter, ft (start/end) The circle conditions, win Sunny/Cloudy/Rain th (ft) 14 Recovery (ft)	d direction	n) Recovery
ent and Methodology (Check One) -ft barrelin c -ft xft x ction Method:	7 Longitude/Easting/Grid 1686506-715 diameter diameter Manual Push/Vibracore xft Box/Ponar/Van Veen/Oth Description of Materials Munsell Color, Moisture; Density; Consistency (Other Remark	11 Depth of We 12 Weather (Te 13 Boring Depth 8 , 0	ter, ft (start/end) 7.6 mp, circle conditions, winn Sunny Cloud)/Rair h (ft) 14 Recovery (ft) 7.4	d direction	Recovery
ent and Methodology (Check One) -ft barrelin c -ft xft x ction Method:	diameter diameter Manual Push/Vibracore xft Box/Ponar/Van Veen/Oth Description of Materials Munsell Color; Moisture; Density; Consistency (Other Remark	12 Weathor (Te 13 Boring Dept 8 0	mp, circle conditions, win Sunny/Cloudy/Rain th (ft) 14 Recovery (ft)	1 15 % F	Recovery
ent and Methodology (Check One) -ft barrelin c -ft xft x ction Method:	diameter diameter Manual Push/Vibracore xft Box/Ponar/Van Veen/Oth Description of Materials Munsell Color; Moisture; Density; Consistency (Other Remark	13 Boring Dept	mp, circle conditions, win Sunny/Cloudy/Rain h (ft) 14 Recovery (ft)	1 15 % F	Recovery
-ft barrel -in c -ft barrel 3 -in c -ft x	diameter diameter Manual Push/Vibracore xft Box/Ponar/Van Veen/Oth Description of Materials Munsell Color; Moisture; Density; Consistency (Other Remar	8 . 0 ner 16 Location Not	h (ft) 14 Recovery (ft)	15 % F	32
-ft barrel -in c -ft barrel 3 -in c -ft x	diameter diameter Manual Push/Vibracore xft Box/Ponar/Van Veen/Oth Description of Materials Munsell Color; Moisture; Density; Consistency (Other Remark)	8 . 0 ner 16 Location Not	7.4 es	9:	32
Sample:ft x	16 Location Not	es			
ft xft x ction Method: covery (4.8%) SAME AS I	Description of Materials Munsell Color; Moisture; Density; Consistency (Other Remar			PID	USCS
SAME AS I	Munsell Color; Moisture; Density; Consistency (Other Remar		Sample ID	DID	USCS
K. Merandi ling Subcontractor/Equipment Operator Affiliated erator Name (License # If Required) resignation of the sample of	Munsell Color; Moisture; Density; Consistency (Other Remar	or, Moisture; Density; Consistency (Other Remarks)			
	3. EVERPT FEW SILT + OU		Sample Interval	(ppm)	Code
			2040+MS/ MSD	0.0	CL
DIK GIDEY (SY WOUND, Q+Z 90% SAND, NONCOHES	Y 4/1) SAND, UF TO VC, S TR GRAVEL, SM (L23 m 790 FILVES), TR SHELL, I WE, SHARP CONTACT	UBANG TO MED DENSE,	2040 +MS/ MSD	0.0	SW
8 AME AS I	9, HI-PL, WITH SILTY 1 0, S. H fts, GRADATION	NTERVALS *	2040 + MSD 4040 6080	0.0	СН
CLAY (557 LOW-DL	NO, VF TO F, SOMESILT, IN SAND, 4520 PINES), NE	NSE, CCHESINE	6080	0.0	SP-
E	Ny CORE				
	VM	The Control of the Co			
	SAME AS I CH.4,5. (SY 4/1) SA CLAY (557 LOW-DL	SAME AS 19, HI-PL, WITH SILTY I QY. 4, 5.0, S. 4 fts, GRADATION (SY 4/1) SAND, VF TO F, SOMESILT, CLAY (5570 SAND, 4570 PINES), DE LOW-PL END CORE	SAME AS I9, HI-PL, WITH SILTY INTERVALS POUR CHILL STORES OF SAND, UF TO F, SOMESILT, LITTLE CLAY (5570 SAND, 4520 PINES), NEINSE, COHESINE, LON-PL END CORE	NONCOMESINE, SHARP CONTACT SAME AS IP, HI-PL, WITH SILTY INTERVALS CH. 4, 5.0, S. 4 fts, GIRADATIONAL (SY 11/1) SAND, VF TO F, SOMESILT, LITTLE CLAY (5570 SAND, 4570 PINES), DENSE, COHESILE (6080 LOW-PL END CORE	SAME AS I9, HI-PL, WITH SILTY INTERVALS 2040+MS/ QH.4, S.O, S. H. FTS, GIRADATIONAL (SY 4/1) SAND, VF TO F, SOMESILT, LITTLE CLAY (5570 SAND, 4520 PINES), DENSE, COHESNE (6080 0.0) END CORE

EA Engine		LITHOLOGIC LOG diment Collection Log Technology, Inc. PBC	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	SC21- S		1	Sheet
Geologist Nan K. Merand	me/Signature	ecimology, me. 1 20	5 Project Number 1583406	8 Start Date/Tim	Ville	e/Time	134
2 Drilling Subco	ontractor/Equipment C	Operator	6 Latitude/Northing/Grid	9 Sed Surface El	evation 563.	.77	
Affiliated			2012/2011	10 Coordinate Sys	tem H V		
Amiliated			721765.847	.11 Depth of Water	, ft (start/end)		
3 Operator Nam	ne (License # If Requ	iired)	7 Longitude/Easting/Grid	12 Weather (Tem	o, circle conditions, win	nd direction)
			1681254.504	12 Weather (Terris	Sunny/Cloudy/Rai		'
4 Sampling Equ	uipment and Methodo	ology (Check One)	10	13 Boring Depth	(ft) 14 Recovery (ft) 15 % R	ecover
		elin dia	ameter	7-	5.2	7	24
X Core:			ameter Manual Push/Vibracore	7.2	216	/	6 4
Other:	ple:f		ft Box/Ponar/Van Veen/Other	Color = Red			
Interval	Recovery		Description of Materials		Sample ID	PID	USC
(Depth)	(ft & %)	Mu	nsell Color, Moisture; Density; Consistency (Other Remarks) S/) GRAVEL, SM. TO LG, (LITTLE SAND, VF TONC, SUT	Zam) ANG	Sample Interval	(ppm)	Cod
0.4	5	AND, 25% CH	0010	0.0	GC		
0.4	.((N 2.5/) SA (N 2.5/) SA (SILT (76%) (SHARV CON	0010	0.0	SW		
0.5	C	N 2.5/) CL PINES, SZO SO PETROL, C	AND, VISOFT, MED-PL	INE (9590 (W>LL),	0010	0.0	OL -01
0.6	0	CACT. A	4/) CLAY, TR SILT, TRS UED-PL, FAINT MUSTY 1890 FINES), GRADATION AT	ONOOK	1020	0.0	CH
0.67	(SAME AS :	UED-PL CAINT MUSTY	L 0180K	1020	0.0	
1.7		SAME AS :	14, EXCEPT HIGHERISING, WI TR SHELL, TR RISHARD CONTACT,	L 0180K	1020		0+
-1.7 1.7 -3.7		SAME AS THIGHERSAN	14, EXCEPT HIGHERISING, WI TR SHELL, TR RISHARD CONTACT,	L 0180K	1020	ල, ව	0+

EA Engineering, Science	Sediment Collection Log e, and Technology, Inc. PBC	EPA Region 5		206	1	Sheet of 1
Geologist Name/Signature K. Merandi		5 Project Number 1583406	8 Start Date/Tim	Stop Date	/Time	030
Drilling Subcontractor/Equi	pment Operator	6 Latitude/Northing/Grid	9 Sed Surface Ele			
Affiliated		721753.273	10 Coordinate Sys			
Operator Name (License #	If Required)	7 Longitude/Easting/Grid 1681590.077	12 Weather (Temp	, circle conditions, win	n	
Rotosonic:f	ft barrelin di	ameter Manual Push/Vibracore	1.9	(ft) 14 Recovery (ft		
Grab Sample: Other:	ft xft x	ft Box/Ponar/Van Veen/Other	Colora Red			
Sample Collection Me	Swan Creek Sediment Assessment Swan Creek Sediment Assessment Signature Merandi Subcontractor/Equipment Operator Subcontractor/Equipment			ravel mixed in.	- DID	11001
	Mu			Sample ID Sample Interval	PID (ppm)	Code
				. /		£
				-/		
		tw.				
						1

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EA Engineering, Science, a	Sediment Collection Log	ent Name and Project Name A Region 5 van Creek Sediment Assessment	SC21- 2	1d	1	Shee
Geologist Name/Signature	the same of the sa	ject Number	(ORE COLLECTION IN	IFO	
K. Merandi	18	583406	8 Start Date/Tim	1130 11/5/5		145
2 Drilling Subcontractor/Equipme	nt Operator 6 Lati	itude/Northing/Grid	9 Sed Surface E	evation 568.	01	
Affiliated	7	7.1555.622	10 Coordinate System 11 Depth of Water			
3 Operator Name (License # If R		G81974, 307	12 Weather (Tem	p, circle conditions, wind Sunny/Oloudy/Rair)
4 Sampling Equipment and Meth	odology (Check One)		13 Boring Depth	(ft) 14 Recovery (ft)	15 % F	ecove
	arrelin diameter	Manual Push/Vibracore	6N695.4	4.3	8	00
		Box/Ponar/Van Veen/Oth	Color - K	ed Netroable		-
Sample Collection Metho	od:		additional a	core for ms/mss)	
Interval Recovery (Depth) (ft & %)		Description of Materials Moisture; Density; Consistency (Other Remar	av.	Sample ID Sample Interval	PID (ppm)	US
	BLACK (N2-S/) GI	RAVEL, LG, (15.5 CL SAND, NF TO NC, FEI DO, 35% FINES, LOC TICNS=MED-DL, DETIZI	N SILT (50%	0010	0.0	G
0.2	DIT WALL	OFT, MED - PL, DET		0010	0,0	0
1.3	(10 Y 2.5/1) SAND GINES), TR CLAY NO DILATENCY, ODOR, SHARP CO	, SOME SILT (55%, MED DENSE, COH TR MILA, SLIGH NTACT	SAND, 45% ESIVE, NOW-PL T MUSTY	1020	0.0	S
1-5	SAME AS IZ, E @ 1.8, SHARP CO	XCEPT WITH SILTI NTACT	ER INTERIAL	1020 2040+MS/ MSD	0.0	0-0
2.2	SHARP CONTACT		E) MUSTY,000	2040+MS/ MSD	0.0	0
2.9	(10 Y 2.5/1) SAND, TR SILT, FEW C DENSE, NON COHESIN TR SHELL	VF TOC, SUBROUNT LAY (75% SAND, 2 VE, NO DILATENCY, SI	STO ROUND, ST. FINES), HARP CONTACT	2040+MS1	0,0	S
3.1	SAME AS IS, W	ITH SILTIER INTER	NAL @ 3.3	2040 + MSD	0.0	0
		10				-
	EN	ID CORE				

EΔ		LITHOLOGIC LOG Sediment Collection Log nd Technology, Inc. PBC	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	Location/Borin		1	Sheet of 1
	ame/Signature	na Technology, Inc. P.B.C.	5 Project Number		CORE COLLECTION I	NFO	
K. Merar			1583406	8 Start Date/Tir		1	35
Drilling Sub	contractor/Equipme	ent Operator	6 Latitude/Northing/Grid	9 Sed Surface E	elevation 563.0	00	
Affiliated			721344.641	10 Coordinate Sy			
Amilatec			121397.071	11 Depth of Wate	er, ft (start/end)		
Operator Na	ame (License # If R	Required)	7 Longitude/Easting/Grid		10.0	1011	
			1682480.599	12 Weather (Ten	np, circle conditions, win Sunny/Cloudy/Ra		1)
Sampling E	quipment and Meth	hodology (Check One)		13 Boring Depth	(ft) 14 Recovery (f	15 % F	Recovery
		arrelin dia	ameter	21	2.9	8	12
Core:	200	1000	ameter Manual Push/Vibracore	56	dil	0	160
-			ft Box/Ponar/Van Veen/Other	16 Location Note	s		
Other:			_	Color = R	901		
Sample	Collection Meth	nod:					
Interval	Recovery		Description of Materials		Sample ID	PID	USC
(Depth)	(ft & %)	VOK GIREY	nsell Color, Moisture, Density, Consistency (Other Remarks)	SAND	Sample Interval	(ppm)	Cod
0.5		C290 SAND, a PLLW 7LL), CONTACT					81
0.5		DK GREY (S SAND (1905 ANGULAR (A SWEET/MI	Y 4/1) CLAY LITTLE SILT AND GAZ FINES 3, 12, GRAVE SMM), SOFT, HI-PL (W>LL USTY ODOR, SHARP CON	0010	0.0	0+	
0 9	100	SAMEASI	2, EXCEPT FEW UF TOKES	AND, SUB-	0010		
- (. 1		SAND, 80%	2, EXCEPT FEW UF TOKES & ROUND, Qtz, FEW SM TO L & ANKT (L 2 cm) (10% GRAVE PANES) TO BRICK GRAGS + ARP CONTACT	1020	0.0	ОН	
1-1		VOKCIDEE	NISH GREICIOY 3/1) CILT 6	EW SAND,	1020		
-1.3		TR SHELL, C	STO SAND, 85 % FINES), GI	NING UP.	1020	0.0	ML
1.3		GREENISH G (100% FIN GRABATIC	GREENISH GIRDY (10 Y S/I) CLAY, TR SILT (100% FINES), MEND STIFE, HI-PL, GRADATIONAL				СН
1.8		VOK GREVISH	H BROWN (2.5Y 3/2) SILT, S	OME SAND,	1020		
-2.2		COHESIVE, N	R CLAY (45% SAND, 55% of GS, TR SHELL, TR MICA, LI JON-PL	DOSE/SOFT,	2040	0.0	ML
2.2		(cl.5 cm), S	SY H/1) SAND UF TO VC, SUN ECLAY, TR SILT, FEW GRAN UB ANG TO SUR ROUND, ME NON-PL TO LOW-PL (15%	D LOUSE,	20-10 AND, 30% AND	0.0	sc
			END CORE				
						1	

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EA Engir	neering, Science, a	LITHOLOGIC LOG Sediment Collection Log and Technology, Inc. PBC	EPA Region 5	- 60	MARY SC 23/4		Sheet
	ame/Signature		5 Project Number 1583406	8 Start Date/Tim	core collection in Stop Date	e/Time	550
2 Drilling Subo	contractor/Equipm	ent Operator	6 Latitude/Northing/Grid	9 Sed Surface El	201		
	ame (License # If I	Required)	7 Longitude/Easting/Grid 1683045.229	11 Depth of Water 12 Weather (Tem	p, circle conditions, wir Sunny/Cloudy/Ra)
Rotosoni	c:ft b	parrelin dia	ameter ameter Manual Push/Vibracore	4.7	(ft) 14 Recovery (ft) 3.7		ecover 92
Other:	mple: Collection Meth		ft Box/Ponar/Van Veen/Oth	ner 16 Location Notes	ole .		
Interval	Recovery		Description of Materials	rkel	Sample ID Sample Interval	PID (ppm)	Coo
(Depth)	(ft & %)	RI ACIL (NZ.	Munsell Color, Moisture; Density; Consistency (Other Remarks) BLACK (N 2. S/) CLAY, SOME SILT, TR S AND, VF TO F (3% SAND, 97% FINES), ARW WOOD/ROOT, V SOFT, MED-DL (W>LL), BLOCKY STRUCTURE FAINT SWEET/ DETROL. OTOOR, SHARP CONTACT				01
1.4	1	OLIVE GREY V SOFT, HI-	LIUDYO FINES	1020	0.0	CH	
1.V.8		EN2.51) 9 F (7°70 SA NUSTY/ PE	SILT, SOMECLAY, TR ST NO, 9320 FINES), SOFT TROL. ODOR, SHARP CON	I, LOW-PL, JTACT	1020	0.0	٥١
1.8-		CINES) VS	DIC OLIVEGREY (SY 3/2) CLAY, SOME SILT (100%) CINES) VEOFT, HI-PL, PETROL-ODOR, GRADATIONAL			0.0	01
2.0		MIXTURE	DF 13+IH		2040	0.0	01
-8.4		E	END CORE			0.0	
_			KM				

EA Engineering St	LITHOLOGIC LOG Sediment Collection Log cience, and Technology, Inc. PBC	EDA Pagion 6	Location/Boring		1	Sheet of 1
Geologist Name/Signa K. Merandi		5 Project Number 1583406	8 Start Date/Tim			
2 Drilling Subcontractor	/Equipment Operator	6 Latitude/Northing/Grid	9 Sed Surface El	evation 563.	73	
Affiliated		77.2020.471	10 Coordinate Sys			
			11 Depth of Water	ft (start/end)		
3 Operator Name (Licer	nse # If Required)	7 Longitude/Easting/Grid 1683213.156		o, circle conditions, win)
4 Sampling Equipment	and Methodology (Check One)		13 Boring Depth	(ft) 14 Recovery (ft) 15 % R	ecovery
	ft barrelin dia	ameter ameter Manual Push/Vibracore	6.54	- 43	66	20
The second secon		ft Box/Ponar/Van Veen/Other	16 Location Notes	ple		
Sample Collectio	n Method:		Petroleum &	der		
Interval Recov	very	Description of Materials insell Color; Moisture; Density; Consistency (Other Remarks)		Sample ID Sample Interval	PID (ppm)	USC
(Depth) (ff & 9	BLACK LN 2. F (1% SAND DETROL ODE	SI) CLAY, TR SILT, TRS., 90% FINLS) V SOFT, IME 90%, WOOD PRAGIS, SHARD O	DIE (FIE)	0010	0.0	ОН
2.4 -2.5	SAME AS I (W > LL), NO	I, EXCEPT EEW SAND, VE TO WOOD FRAGS, SHARP (CN	OM MEO-P	2040	0.0	-OL
2.4	DKGREY (1 NE TO L, (S SDET, HI-F SHARP CON	N 41) CLAY, LITTLESILT, 90 SAND, 95 20 GINES), TR PL, STRONGIER PETROLO TACT	TR SAND, 2 WOOD,	2040	0.0	ОН
3.9	DK GREY (5 ROUND, LIT 20% FINES PETROL OX	TLE SILT, FOW CLAY (80°), LOOSE, COHESIVE, NON-1	NL TO SUB- LO SAND, PL, STRONG	2040	0.0	SW
4.0 -4.3	SAME AS I	3		2040	0.0	OH
		END CORE				
		KM				

EA		LITHOLOGIC LOG Sediment Collection Log	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	Location/Bon	ng Name	1.	Sheet of 1
	ngineering, Science, a t Name/Signature	and Technology, Inc. PBC	5 Project Number	-	CORE COLLECTION II		Or /
				8 Start Date/Ti			
K. Me	erandi		1583406	11/3/2021	1330 11/41	21	0825
2 Drilling S	ubcontractor/Equipm	ent Operator	6 Latitude/Northing/Grid	9 Sed Surface	Elevation 577.	12	ħ
Affilia	ted		722289.678	10 Coordinate S 11 Depth of Wat			
3 Operator	Name (License # If F	Required)	7 Longitude/Easting/Grid		1.1		
			1683750.169	12 Weather (Ter	mp, circle conditions, win		n)
4 Sampling	Equipment and Met	hodology (Check One)		13 Boring Dept	h (ft) 14 Recovery (ft) 15 % 1	Recovery
Rotoso	nic: -ft b	arrelin dia	meter	8011		-	
X Core:			meter Manual Push/Vibracore	EMAY	5.6	1	02
Grab S. Other:	ample:	-ft xft x	ft Box/Ponar/Van Veen/Other	Color - Phr			
Sample	Collection Meth	od:		Shallow w	mter		
Interval	Recovery		Description of Materials		Sample ID	PID	USCS
(Depth)	(ft & %)		isell Color, Moisture; Density; Consistency (Other Remarks)	/2 2	Sample Interval	(ppm)	Code
3.6		NUSTY/PET	(SY 3/1) CLAY TR SILT, FI SAND, 85% FINES), FEW W ESINE, LOW TO MED - PL (W ROL ODOR, SHARP CONTAC	TLL),	2040+FD	0.0	ОН
3.6-			IK (S PB 2.5/1) SAND, VE TO ROUND, SOME SILT, TR CI FINES), RAPID DILATENCY ARP CONTACT OR, TR SHELL PRAGS.	TO M, LAY (65% Y, MED. DEN	2040+FD E14060	0.0	SM
4.5		BLACK (NZ. V SOFT, HI	SD CLAY, TR SILT LIOUY. -PL, PETROL, OCOVR, SHA	FINES), RP CONTAC	4060	0.0	ОН
5.19		SAME AS II	-, EXCEPT (5 PB, 2.5/1)		4060	0,0	ОН
			END CORE				
		1	KW				

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	THE R. LEWIS CO., LANSING, MICH.	LITHOLOGIC LOG Sediment Collection Log , and Technology, Inc. PBC	EPA Region 5	Location/Bo	ring Name SC ZC	1	Shee
1 Geologist	Name/Signature andi		5 Project Number 1583406	8 Start Date/T	1	te/Time	510
2 Drilling Sul Affiliate	bcontractor/Equip	ment Operator	6 Latitude/Northing/Grid 722034.135	9 Sed Surface 10 Coordinate S 11 Depth of Wa	System H	A D	56
3 Operator N	lame (License # If	Required)	7 Longitude/Easting/Grjd 1684181.605		mp, circle conditions, wi		n)
Rotosoni X Core: Grab Sai	c:ft		ameter ameter Manual Push/Vibracoreft Box/Ponar/Van Veen/Othe	16 Location Not		15 %	? 7
Other: Sample (Collection Met	hod:	Description of Materials	Color = P	Sample ID	PID	US
(Depth)	(ft & %)	GREENISH K SILT, (100% STRUCTURE	SELACK (10GY 2.5/1) CLA FINES Y SOFT, MED-PL PETROL, OPOR, 4 HAPN	Y, TR -, BLOCKY CONTACT	Sample Interval	(ppm)	Co
0.7		CIREY (2.5Y CITION, SUB, 95% CINES HI-PL, SHI	S/I) CLAY, TR GILT, I ANG TO SUBBOUND (SO S), SUFT W/ STIFF INT ARP CONTACT	TRISAND,	0010	0.0	C
1.5	*	DARK GREEN SILT, TR SA GRAVEL SI FAINT MUS	NISH GREY (104 41/1) CO IND, FTOM (5% JAND, O ZED SLACY, USUFT, LO TY ODOR	AY, FEW ASTO FINES! WHOLLWA	1020	0,0	C
			END CORE				
			KM				

EΔ		LITHOLOGIC LOG Sediment Collection Log	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	SC21- S	C28	t	Sheet of 1
EA Engin	eering, Science, an	nd Technology, Inc. PBC	5 Project Number		ORE COLLECTION IN		
f Geologist Na K. Meran			1583406	8 Start Date/Tim	1130 Stop Date/		
2 Drilling Subo	contractor/Equipme	ent Operator	6 Latitude/Northing/Grid	9 Sed Surface E	levation 566	82	n
Affiliated			722239.907	10 Coordinate Sys	r, ft (start/end)		
3 Operator Na	ame (License # If R	equired)	7 Longitude/Easting/Grid 1684609379	12 Weather (Tem	p, circle conditions, wind Sunny/Cloudy/Rain (ft) 14 Recovery (ft)		
	c:ft b	nodology (Check One) arrelin dia		Bonng Depth		-	6%
Core: Grab Sai			ameter Manual Push/Vibracoreft Box/Ponar/Van Veen/Other	2011	kTigr		
	Collection Meth	nod:		o: lodor			
Interval	Recovery		Description of Materials		Sample ID Sample Interval	PID (ppm)	Code
(Depth)	(ft & %)	BLUISH BLACK SAND, VF TO BASE LEIN V. BOFT, HI-1	insell Color, Moisture; Density; Consistency (Other Remarks) (5PB 2.5/1) CLAY FEW SIL M (1090 SAND 904. FINES ING OF WAY2 O) PETROLIFE IDL(W>LL), WOOD FRAGIS, S		0010+FP		OH
-1.5		V. DK GREY (CN 31) CLAY, TRSILT (10) L, PETROL ODOOZ, SHAR	LP CON IACT	1020	0.0	CH
1.5		(SPB 2.5/1) TOF, (770 V SOFT, MIN	SAND, 93% FINES), TRO O TO HI-PL, BLOCKY STR	N SAND, VE N BOD EPAGG UL TURE	1020	0.0	ОН
1.7		SAME AS I			1020	0.0	CH
2.0			(54 4/1) CLAY, TR SILT, DISANG TO SUBROUND, QTZ K2.1cm), SUBANG TO SUBRO TO SAND, 789. FINES), SOFT,			800	ML
2.1		GREYISH R	SROWN (104R S/2) CLAY IT 10, (3% SAND, 97070 FIN TARP CONTACT	R SILT, TR ES), SOFT,	2040+MS/MSD	0.0	СН
2.4		SAME AS	IZ, SHARP CONTACT		2040+MS/MSD 4060	0.0	CH
U. H -6.3		SAME AS TR SAND, 90% GIN	IZ, EXCEPT TO GRAVELLE C TO M, (5% GRAVEL, DES, PETROL/MUSTY ODO	G, SUBANCA, S70 SANO,	4060		СН

END CORE

EA	ingineering, Science,	LITHOLOGIC LOG Sediment Collection Log and Technology, Inc. PBC	EPA Region 5	Location/Boring	- 0 0	1	Sheet of 1
	st Name/Signature erandi		5 Project Number 1583406	8 Start Date/Time	Stop Date	e/Time	425
2 Drilling S	Subcontractor/Equipm	ent Operator	6 Latitude/Northing/Grid	1 1 1	vation 560		
Affilia	ated		722508.769	10 Coordinate System 11 Depth of Water,	ft (start/end)	/	
3 Operato	r Name (License # If I	Required)	7 Longitude/Easting/Grid 1684846.395	12 Weather (Temp,	circle conditions, wir		n)
Rotoso X Core:	onic:ft b		ameter ameter Manual Push/Vibracoreft Box/Ponar/Van Veen/Other	13 Boring Depth (fi	1.7	15 % [Recovery
Sample	e Collection Meth	od:		Sheen on			
Interval (Depth)	Recovery (ft & %)		Description of Materials nsell Color; Moisture; Density; Consistency (Other Remarks)	sitesh on	Sample ID Sample Interval	PID	USCS
0.0	LEAN CLA	VOKGREY SILT (290 S FRAGIS, SOF	SUB DDUNID LITTLE SAND, O SUBANCY TRESILT (1870 G) FINES) LOOSE SOFT, COHESING LASS, NAIL PETRALE. DOOR, (N 3/) CLAY TR SAND, VE AND, 9870 CINES) TR ROT, COHESIVE, MED TO HI-LET OBOR, SLAG BASE END CORE	OT + WOOD PL, (W>LL)	AL 0010	0.0	ОН
	-		F				
	-		M				
	/						

E A Engli	neering, Science, a	LITHOLOGIC LOG Sediment Collection Log and Technology, Inc. PBC	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	SC21-	ng Name SC 30 d	1	Sheet
	lame/Signature		5 Project Number 1583406 .	8 Start Date/Ti	CORE COLLECTION II	/Time	200
2 Drilling Sub	contractor/Equipme	ent Operator	6 Latitude/Northing/Grid		Elevation 562		
Affiliated	i.		722886.334	10 Coordinate S 11 Depth of Wat	ter, ft (start/end)		
3 Operator Na	ame (License # If F	Required)	7 Longitude/Easting/Grid 1685112.311	12 Weather (Te	mp, circle conditions, win		1)
4 Sampling E	quipment and Met	hodology (Check One)		13 Boring Dept	h (ft) 14 Recovery (ft) 15 % F	Recove
		arrelin dia		4.1	3.4	8	300
Grab San			meter Manual Push/Vibracoreft Box/Ponar/Van Veen/Other	16 Location Note	es Tiger od	lor	
Other: Sample 0	Collection Meth	od:		Raddition	al Core		
Interval (Depth)	Recovery (ft & %)	Mur	Description of Materials nsell Color, Moisture; Density; Consistency (Other Remarks)		Sample ID Sample Interval	PID (ppm)	Co
0-		BLUISH BLAC SAND, VF TO MEO-PL, PE BLOCKY STY	IK (10B Z.S/1) CLAY, TRS 0 F (190 SAND, 99 22 FINE TROL, ODOR, SHARD CO 2UCTUPE	SILT, TR S), VSOFT, NTACT,	0010	0,0	0
0.5		SAME AS :	17, EXCEPT BLACK (N : 00% CINES), TR WOOD FI	2.5/7, 2AGS	0010	0.0	OF
			END COPE				/
			KM				
							\
	/						

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EA Factoria	Sediment Collection	Log EPA Region 5 Swan Creek Sediment Assessment	Location/Bori		1	Sheet
1 Geologist Name	ing, Science, and Technology, Inc. F /Signature	5 Project Number		CORE COLLECTION	INFO	
K. Merandi	roightaid	1583406	8 Start Date/Ti		-	
			11/2/202	1610 11/3/	21 09	120
Drilling Subcon	ractor/Equipment Operator	6 Latitude/Northing/Grid	9 Sed Surface I	Elevation 564	1.56	
Affiliated	A Spirit II	723305.641	10 Coordinate S		V	
			11 Depth of Water	er, ft (start/end)		
3 Operator Name	(License # If Required)	7 Longitude/Easting/Grid	12 Weather (Ten	np, circle conditions, wi	ind direction	1)
		1685477.310		Sunny/Cloudy/Ra	ラーフらい	ww
Sampling Equip	ment and Methodology (Check One)		13 Boring Depti	n (ft) 14 Recovery (f	t) 15 % F	Recove
	ft barrelin		8.0ft	7.7	9	68
Core:	-ft barrel 3 -in	diameter Manual Push/Vibracore	0.011	/ / /		
Grab Sampl	e:ft xft	xft Box/Ponar/Van Veen/Othe	16 Location Note	es		
Other:						
	ection Method:	Description of Materials		Sample ID	DID	110
(Depth)	ecovery (ft & %)	Munsell Color, Moisture; Density; Consistency (Other Remarks)		Sample ID Sample Interval	(ppm)	Co
0-9	TENESA LOW-PL (ENISH GREY (1043/1) SILT, SIND, TEROOT/PLANT MATE W>LL), FANT MUSTY OF (99% FINES, 190 SAND)	DOR, SHARP	T, 0010	0.0	M
0.9		Y LN3/) CLAY, TR SILT	was on			
3.8	FINES), SO	OFT, MED TO HI-PL., PETRI	DLIFEROUS	1020	0.0	0
3.8	BLACK CA	IZ, EXCEPTMED STIFF TO U.S. SAND), GRADATIONAL	- 1	2040	ల,ర	0
-5.0	M, TR R SAND, 90	IR, EXCEPT FEW SAN, OUT MATERIAL, SOMES 90 PINES), STRONG PET INTACT	1LT (10%)	4060	0.0	0
	OT MET CO					
5.0	(6090 SANTE PLANT	AND, UFTOF, SOME SILT, F ND, 40% FINES), TR SHELL O MATERIAL, MED DENSE, O REA HII CLAY @ S.3, GRAD	EWLLAY, FIRAGE, COHESIVE,	4060	0.0	SI
5.0	(6090 SANTE PLANT	AND, UFTOF, SOME SILT, F NO, 40% FINES), TR SHELL O MATERIAL MED DENSE, O REA HII CLAY (D. S.3, GRAD	EWLLAY, CIRAGE COHESIVE,			SI
-5.6	(6090 SAN TR PLANT LOW-PL, AY	AND, UFTOF, SOME SILT, F NO, 40% FINES), TR SHELL O MATERIAL MED DENSE, O REA HII CLAY (D. S.3, GRAD	EWCLAY, FIRAGS, COHESIVE,	4060	0.0	
5.6	(6090 SAN TR PLANT LOW-PL, AY	AND, UFTOF, SOME SILT, F NO, 40% FINES), TR SHELL O MATERIAL MED DENSE, O REA HII CLAY (D. S.3, GRAD	EWLLAY, FRAGE, COHESIVE,			
5.6	(6090 SAN TR PLANT LOW-PL, AY	AND, VETOF, SOME SILT, F NO. 40% FINES), TR SHELL O MATERIAL, MED DENSE, O REA HI CLAY (P. S. 3, GIRAD) IY	EWLLAY, FIRAGE COHESIVE,	4060	0.0	01
-5.6 5.6 -6.1	(6090 SANTE PLANT LOW-PL, AV	AND, VETOF, SOME SILT, F NO. 40% FINES), TR SHELL O MATERIAL, MED DENSE, O REA HI CLAY (P. S. 3, GIRAD) IY	EWLLAY, FIRAGE COHESIVE, ATLONAL	4060		01

EA Eng	ineering, Science,	LITHOLOGIC LOG Sediment Collection Log and Technology, Inc. PBC	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	Location/Borin	Name	1	Sheet
1 Geologist N K. Mera	Name/Signature andi	5	Project Number 1583406	8 Start Date/Tir	core collection ne Stop Dat	e/Time	50
2 Drilling Sub	ocontractor/Equipm	ment Operator 6	Latitude/Northing/Grid		Elevation 569.		
Affiliate	d		723466.943	10 Coordinate Sy	stem H	V	
			160.175	11 Depth of Water			
3 Operator N	lame (License # If	Required). 7	Longitude/Easting/Grid	12 Weather (Tem	3.0 f4	nd direction	n)
			1685837, 295		Sunny/Claudy/Ra		.,
4 Sampling B	Equipment and Me	thodology (Check One)		13 Boring Depth	(ft) 14 Recovery (f	t) 15 % l	Recover
Rotoson	ic:ft l	barrelin diam	eter	8.0	7.8	a	82
X Core:	8 -ft 1	barrelin diam	eter Manual Push/Vibracore	0.0	1.1	1	06
Grab Sa	mple:	ft xft x	ft Box/Ponar/Van Veen/Other	16 Location Note			
Other:				Color = link	itser		
Sample	Collection Met	hod:					
(Depth)	Recovery (ft & %)	Munsel	Description of Materials Il Color; Moisture; Density; Consistency (Other Remarks)		Sample ID Sample Interval	PID (ppm)	USC
0-	(11 4 70)		SH GRAY (10 Y 4/1) CLA ELL FRAGIS (100% FI MEO-HI-PL (W) LL), H	Y TR NES)	0010	0.0	Cr
		TOWARD BTM	, SHARP CONTACT	1011-2 12	2040		
4.4		(307 SAND, SAND, SAND, TR	LT, FEW CLAY, TR SAN 1700, CINES), COHESIVE MICA, GRADATIONAL	D, VF TOF,	4060	0.0	ML
5.3		SAME AS IT	L, EXCEPT LITTLE SILT,	GRAD-	4060	0,0	CH
4.0		DK GREY (SY SUBBOUND, QTZ 170 FINES), T SHARP CONT	H/1) SAND, VE TO M, SUR MARCESTER SILT, (9990 KMICA, DENSE, COHESI TACT	SANG TO SANO, VE, NON-PL	6080	0.0	Sp- SW
7.0		SAME AS IS			6080	0.0	CH
			END CORE				
			KM				

		LITHOLOGIC LOG	Client Name and Project Name	Location/Boring	Name		Sheet
EΔ		Sediment Collection Log	EPA Region 5 Swan Creek Sediment Assessment	SC21- 5C	233d	1	of 1
EA Engin	eenng, Science, a	and Technology, Inc. PBC	5 Project Number	CC	RE COLLECTION I	NFO	
Geologist Na	ame/Signature			8 Start Date/Time	Stop Date		620
K. Meran	idi		1583406	11/3/2021	0850 11/4	121	(L
Drilling Subo	contractor/Equipm	ent Operator	6 Latitude/Northing/Grid	9 Sed Surface Ele	vation 562.	53	
			777775 800	10 Coordinate Syste			
Affiliated			723725.980	11 Depth of Water,			
Operator Na	ame (License # If I	Required)	7 Longitude/Easting/Grid		circle conditions, win	d direction)
5 Operator 11-			1686004.478	12 Weather (Temp,	Sunny/Cloudy/Rai		,
			16.66001.118	13 Boring Death (f	t) 14 Recovery (ft) 15 % F	ecover
4 Sampling E	quipment and Met	thodology (Check One)		13 Bonny Depart		1	
Rotosonie	c:ft t	parrelin dia	ameter	42	3.3	/	92
X Core:	8 -ft t	parrel 3 -in dia	ameter Manual Push/Vibracore	1	1 3.3		, ,
			ft Box/Ponar/Van Veen/Other	16 Location Notes			
				Color = Pin	k Tiger		
Other:	- 4 - 14-11	i i i		Color = Pin	Core		
	Collection Meth	nod:	Description of Materials		Sample ID	PID	US
(Depth)	Recovery (ft & %)	Mu	nsell Color: Moisture; Density; Consistency (Other Remarks)	2 2 1 10	Sample Interval	(ppm)	Co
0-		E TOC. SIDE	(SY 3/1) CLAY, TR SILT, TO BROUND, GAZ, (5% SAND	, 10101 10 43/	0010	0.0	01
0.7		VSOFT, ME	10 TO +11-101 (M >11), WI	ISTY ODOR			0.
		WADDEDAG	1511 GODADATIONAL				
4 -		GREENISH A	BLACK (1042 S/1) BILT, SOI	ME GRAVELY	0010		
0.7		LG TO SMI	(LUS cm), SUBANC, LITT	7 CEW CLAY	1000	0.0	0
1.2		(30% GIRAVE	SLACK (104 2 5/1) SILT, SOI (LUS CM), SUBANCI, LITT UBANCE TO EVEROUND, AT EL, 2090 SAND, SOTO CINES, NON-IOL, FAINT PETIZOL	ON I BOSE	1020		
1.2		BLACKIN	2.5/) CLAY, TR SILT, FEW LUCHON SUBANG TO SUBBONO OVC, SUBANG TO ROUND (1)	J GIRAVEL,	1020	0.0	0
-1.7		SUTOLONG	VC SUBANA TO ROUND	590 GIRAV.			
		25070SAND	, 60% FINES) FINING UI	SOFT, CCHES	ine,		-
1 -7							
1.7		SAME AS I	ETROL. OBOTE, SHARP CON ES EXCEPT HIGHER SILT & SIRAVEL & SAND TROUGHOR ACUN STRIVINE	T. VARIED	2040	0.0	0+
-5.5		URWARD - C	STRAVEL & SAND TYPE	/	20 10		
		SIZES, BL	LOCKET STEGGET				
			END CORE				
				-			
							-
		3	/				
		3/					1
			KNI				
AV III	1					1	
		-					
10000	/						
	/	100				1	

T1

EA	nnineering Science	LITHOLOGIC LOG Sediment Collection Log te, and Technology, Inc. PBC	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	Location/Boring	g Name	1	Sheet of 1
	st Name/Signature		5 Project Number		CORE COLLECTION	N INFO	
K. N	lerandi		1583406	8 Start Date/Tin	1355 11/9	ate/Time	130
2 Drilling	Subcontractor/Equi	ipment Operator	6 Latitude/Northing/Grid	9 Sed Surface E			
Affil	ated		719979.617	10 Coordinate Sy:		٧	4
3 Operato	or Name (License #	: If Required)	7 Longitude/Easting/Grid 1635812.692	12 Weather (Tem	p, circle conditions, v		1)
4 Samplin	ng Equipment and M	Methodology (Check One)	1000	13 Boring Depth	(ft) 14 Recovery		Recovery
	onic:f	ft barrelin diar	meter Manual Push/Vibracore	8.0	7,1	89	770
Other Samp	le Collection Me	ethod:	-ft Box/Ponar/Van Veen/Oth Description of Materials	Color = Can	Sample ID	PID	USC
(Depth)	(# & %)	PIC CIREY (NY SOME CLAY, TO 2°20 SANO 33 MED-102 MAT CONTACT	rell Color; Moisture; Density; Consistency (Other Remark CARAVEL, LG (15 cm), St SILT, TR SAND VF, (16) TO FINES), SOFTILOUSE, CO RIX (W-LL), NWSTY OVO	UBROUND, 5% GRANEL, OHESIVE, RISHARP	Sample Interval	(ppm)	Code
0.2		1 1 - 1		7 12 1		_	-
0.7		99% FINES), MUSTY ODOR,	SOME SILT, TRSAND, OF VSOFT, LOW TO MED-PL GRADATIONAL	(170 SAND, - (W>LL),	0010	0.0	CL
		DK GREA (SY	GRADATIONAL 4/1) CLAY, TR SAND, VE USOFT, LOW TO MED-PL GRADATIONAL 4/1) CLAY, TR SAND, VE 100 4/10 CLAY, TR SA	190 FINES)		0.0	CL
0.7		MUSTY ODOR, DK GRET (SY MED TO HI-PL (SY 41/1) GUAN (1976 SAND, 9	GRADATIONAL	0% FINES). GIRADATIONA	0010		C L - C H
0.7		MUSTY ODOR, DK GRET (SY MED TO HI-PL (SY 41/1) GUAN (197, SAND, 9 PL, MUSTY	GRADATIONAL 4/1) CLAY, TR SILT (100 , MUSTY ODOR, U SOFT, 1, SOME BILTY, TR & AND, 9% FINES), TR WOOD,	OF TOF,	0010	0.0	CH CH
0.7		MUSTY ODOR, DK GRET (SY MED TO HI-PL (SY 41/1) GUAN (1º71 SAND, 9 PL, MUSTY SAME AS IS	GRADATIONAL 4/1) CLAY, TR SILT (100 MUSTY ODOR, U SOFT, 1, SOME SILTY, TR & AND, 9% FINES), TR WOOD, ODOR, SHARP CONTACT	OF TOF,	0010 1020 2040 4060	0.0	CH CH
0.7		MUSTY ODOR, DK GREG (SY MED TO HI-PL (SY LI/I) GUAN (197, SAND, 9 PL, MUSTY SAME AS IS (SY 5/I) SIL	GRADATIONAL 4/1) CLAY, TR SILT (100 MUSTY ODOR, U SOFT, 1, SOME BILTY, TR & AND, 9% FINES), TR WOOD, ODOR, SHARP CONTACT 6, HI-PL, GRADATIONA	OF FINES). GRADATIONAL VE TOF, SOFT, HI-	0010 1020 2040 4060	0.0	CH CH

END

CORE

EA Engineering,	LITHOLOGIC LOG Sediment Collection Log Science, and Technology, Inc. PBC	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	Location/Bori	ng Name	1	She
Geologist Name/Sig K. Merandi	gnature	5 Project Number 1583406	8 Start Date/Ti		e/Time	08
2 Drilling Subcontract	or/Equipment Operator	6 Latitude/Northing/Grid	9 Sed Surface I	Elevation 541.7	77	
Affiliated	723285-663 10		10 Coordinate S		-	
			11 Depth of Water			
3 Operator Name (Lic	ense # If Required)	7 Longitude/Easting/Grid	12 Weather (Ten	mp, circle conditions, wir	nd direction	n)
		1686413.550		Sunny/Cloudy/Ra	in	
4 Sampling Equipmen	nt and Methodology (Check One)		13 Boring Depth	h (ft) 14 Recovery (ft	t) 15 % F	Recove
	-ft barrelin diar		4.1	311	8	3%
X Core:	ft barrelin diar	meter Manual Push/Vibracore	1.1	344	0.	9
Grab Sample: Other: Sample Collecti		ft Box/Ponar/Van Veen/Other	Color = Ca			
Interval Reco		Description of Materials ell Color; Moisture; Density; Consistency (Other Remarks)		Sample ID Sample Interval	PID (ppm)	US
7,3	DK GRET (2.5° TO M (590 SAN GRADATIONA	O, 95% FINES), N SOFT, MED	- PL (W) 14-	0010	0.0	-c
1.3	(Z.SY4/1)CLA SURROUND, Q HI-PL, SLIGH	H, FEW SILT, FEW SAND, HZ (189, SAND, 909, FIN HT MUSTY OBOR, SHARD CO	VE TO M, ES), SOFT, NTACT	1020 2040	0.0	CU-CU
2.5	DIC GIREY (10YR HI-PL	4/1) CLAY (10090 FINES),	STIFF,	2040	0.0	C
	EN	CORE			H	
		KM				

EA Engineering,	LITHOLOGIC LOG Sediment Collection Log Science, and Technology, Inc. PBC	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	Location/Borin	Name MROZ	1	Sheet of 1		
1 Geologist Name/Sig	nature	5 Project Number	8 Start Date/Tir	CORE COLLECTION				
K. Merandi		1583406	11/4/2021		21 0	950		
2 Drilling Subcontracte	or/Equipment Operator	6 Latitude/Northing/Grid	9 Sed Surface E	Elevation 553	1.83			
Affiliated		723569-901	10 Coordinate Sy					
3 Operator Name (Lic	ense # If Required)	7 Longitude/Easting/Grid	11 Depth of Water	er, ft (start/end)				
o operator Name (Ele			mp, circle conditions, wind direction) Sunny/Cloudy/Rain					
Sampling Equipmen	at and Methodology (Check One)		13 Boring Depth	(ft) 14 Recovery (f	t) 15 % l	Recovery		
Rotosonic:ft barrelin dian		meter	8.0	7.6	91	19		
Core:	-ft barrel 3 -in diar	meter Manual Push/Vibracore	0.0	1.6	11	40		
Grab Sample: Other: Sample Collection		ft Box/Ponar/Van Veen/Other	16 Location Note	s				
Interval Reco	(%) Muns	Description of Materials iell Color; Moisture; Density; Consistency (Other Remarks)		Sample ID Sample Interval	PID (ppm)	USCS Code		
4.2	F (3% SAND, W) DEPTH, ODOR, SHARP	(1) CLAY, FEW SILT, TRS/ 97% FINES), SLIGHTY LES 1 SOFT, MED-PL, SLIGHTY CONTACT	AND, UF TO S SANDY MUSTY	0010 1020 2040 4060	0.0	СН		
4.2	VERY DIL GIREY VG TO FINE (PRAGS, SOFT, SHARP CONTAI	(N 3/) SILT, SOMECLAY, FE 7% SAND, 93% GINES), TK MBO-PL, SLIGHTMUSTY O	W SAND, 2 ROOT/WOOK DOR,	4060	0,0	ML -CL		
4.5	SAME AS I	1		4060	0.0			
7.6				6088		CH		
	E	NO CORE				/		
		KM						
						\		

EA Engineeri	LITHOLOGIC LOG Sediment Collection Log ng, Science, and Technology, Inc. PBC	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	Location/Boring	Name AR-03	1	Sheet of 1
Geologist Name		5 Project Number 1583406	8 Start Date/Tin	1		115
2 Drilling Subcontr	ractor/Equipment Operator	6 Latitude/Northing/Grid	9 Sed Surface E 10 Coordinate Sy			
Affiliated 3 Operator Name	(License # If Required)	723930.956 7 Longitude/Easting/Grid 1686388.619	11 Depth of Wate	11 Depth of Water, ft (start/end) 22 -3 12 Weather (Temp, circle conditions, wind direction) Sunny/Cloudy/Rain)
Sampling Equipment and Methodology (Check One) Rotosonic: -ft barrel -in dia X Core: -ft barrel -in dia		infilient and methodology (critical critic)		(ft) 14 Recovery (f		Recover
Other:	e:ft xft x ection Method:	ft Box/Ponar/Van Veen/Oth	er 16 Location Note:			
Interval R	ecovery	Description of Materials nsell Color; Moisture; Density; Consistency (Other Remark	s	Sample ID Sample Interval	PID (ppm)	USC
0-2		BEFORE OPENING - WATER				7
0.2	CAREENISH BL VF TO F TR (2% GARAVEL, V SOFT, HI-	ENISH BLACK (104 2.5/1) CLAY, TR SILT, TR SAND, TO F, TR GRAVELYSLAG, SM (41.2cm), ANG., GIRAVEL, 3% SAND, 95% PINES), TR ROOT, OF T, HI-PL, PETROL, OUTR, SHARD CONTACT (WILL)			0.0	OH
6.7	BLACK (N 2. NP TOM, (188 STRONG PE SHARP CON	S/) CLAY, LITTLE SILT, LI SAND, 85% FINES) SO TROL. ODOR, BLOCKY STX	OFT, HI-PL,	0010 1020+ MS MS	60.0	04
1.6	PK GREY (S HI-PL, SHAR	Y Uli) CLAY, (100% FINE P CONTACT	ES), V SOFT,	1020+MS1	10.0	C
1.7	SAME AS I	3, GRADATIONAL		1020+MS	60.0	OF
2.3	(60% SAND	10, VE TO.F., SOME SILT, F D. 40% FINES), MED DENS O DILATENCY, GIRADATI	E, COHESNE,	2040	0,0	SA
3.3	GREY LIOYR SUBROUND, TO GUBANG, TO DENSE,	5/1) SAND, UF TO UC, AND, FEN GRAVEL, SM (CL. 6 17% GRAVEL, 93% SAND NO DILATENCY	ULAR TO CM), ANG D), MED DENS	2040 E	0.0	51
		ENO COR				
		KM				

EA EA Engli	neering, Science,	LITHOLOGIC LOG Sediment Collection Log and Technology, Inc. PBC	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	Location/Boring	Name 1RO3F	1	Sheet of		
Geologist N K. Merai	ame/Signature	5	Project Number 1583406	8 Start Date/Tim	111	e/Time	545		
Drilling Sub	contractor/Equipn	nent Operator 6	Latitude/Northing/Grid	9 Sed Surface El	evation 549.0	50			
Affiliated	1		723912.856	10 Coordinate Sys					
3 Operator Na	ame (License # If	Required) 7	7 Longitude/Easting/Grid	11 Depth of Water	23.7				
Operatorina	anie (License # ii	Noquillo	1686393.049		o, circle conditions, win Sunny/Cloudy/Rai	in			
Rotosoni	Sampling Equipment and Methodology (Check One) Rotosonic:ft barrelin dian Core:ft barrelin dian			13 Boring Depth	(ft) 14 Recovery (ft		2°Z		
Grab Sar Other:		ft xft x	ft Box/Ponar/Van Veen/Other	16 Location Notes Color=Can					
Interval (Depth)	Recovery (ft & %)	Muns	Description of Materials ell Color, Moisture; Density; Consistency (Other Remarks)		Sample ID Sample Interval	PID (ppm)	US		
0 - 0 - 8	(11 04 76)	DKGREY CSY V SOFT, HI-T SHARP CON	M/1) CLAY, FEW SILT, (10 PL, WOOD FRAGS@13/15) TACT	Ε,	0010	0.0	Ct		
0.8		SAME AS I	I, EXCEPTUL INTERVALS	OF SAND,	6010 1020+FD 2040_	0.6	Ct		
21-25		(54 4/1) SILT J SOFT, COM PINES), WOO	T, SOMESAND VE TO F, LIT 1-PL (W>LL), (40% SAND) 10/ ROOT ERAGIS, GRAD	NO, 60% ATLONAL	2040	0.0	SIM		
2.6		SAME AS I	2, SHARP CONTACT		2040	0.0	ct		
3.3		OFF, TO CM	SAND, UF TO UC, SUBAN GRAVELISUBANG, TR SILT -, 96% SAND, 2% FINES),	T, TYZCLAY	2040	0,0	Sv		
			END COME						
			KM						
							H		
						_			

	Sediment Colli Science, and Technology		Location/Boring N		1	Sheet of 1
Geologist Name/Sig	gnature	5 Project Number 1583406	8 Start Date/Time	Stop Date	/Time	820
Drilling Subcontract Affiliated	or/Equipment Operator	6 Latitude/Northing/Grid 723931.088	1 1	n H V	79	
Operator Name (Lic	ense # If Required)	7 Longitude/Easting/Grid 1686 821.049	12 Weather (Temp, circle conditions, wind direction)		n)	
Rotosonic:	ft x		13 Boring Depth (ft) 6-0 16 Location Notes COLOTE Camp	5-6	15 % F	Recovery
	overy	Description of Materials Munsell Color, Moisture; Density; Consistency (Other Remarks)		Sample ID	PID (ppm)	USCS
3.0	CINES	MSH GREY (10 Y 4/1) CLAY, FEWS 1, V SOFT, MED-PL (WYLL), MU CONTACT	11 T (10090	0010	0.1	CL
5.6	GREY (7 MEOST	SYR, S/I) CLAY, TR SILT (1009) TIPE TO STIFE, HI-YL	'o FINES),	2040	0.2	CH
		END CORE				/
		KN				
						\

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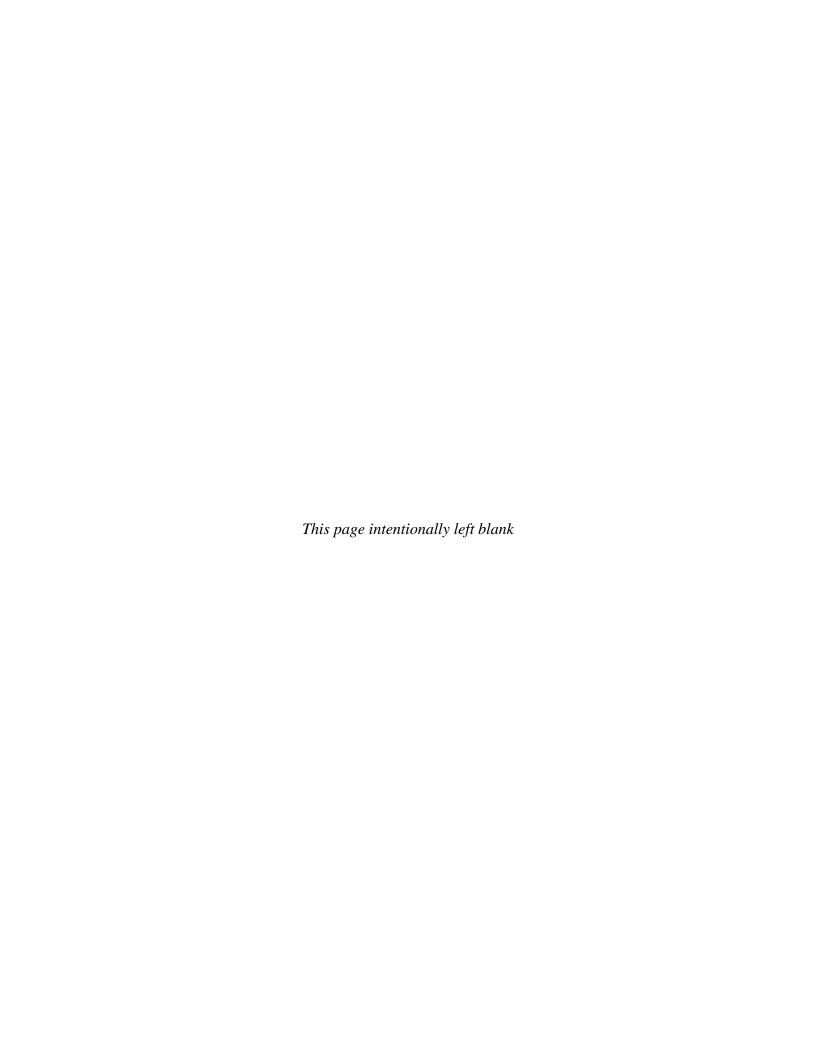
72

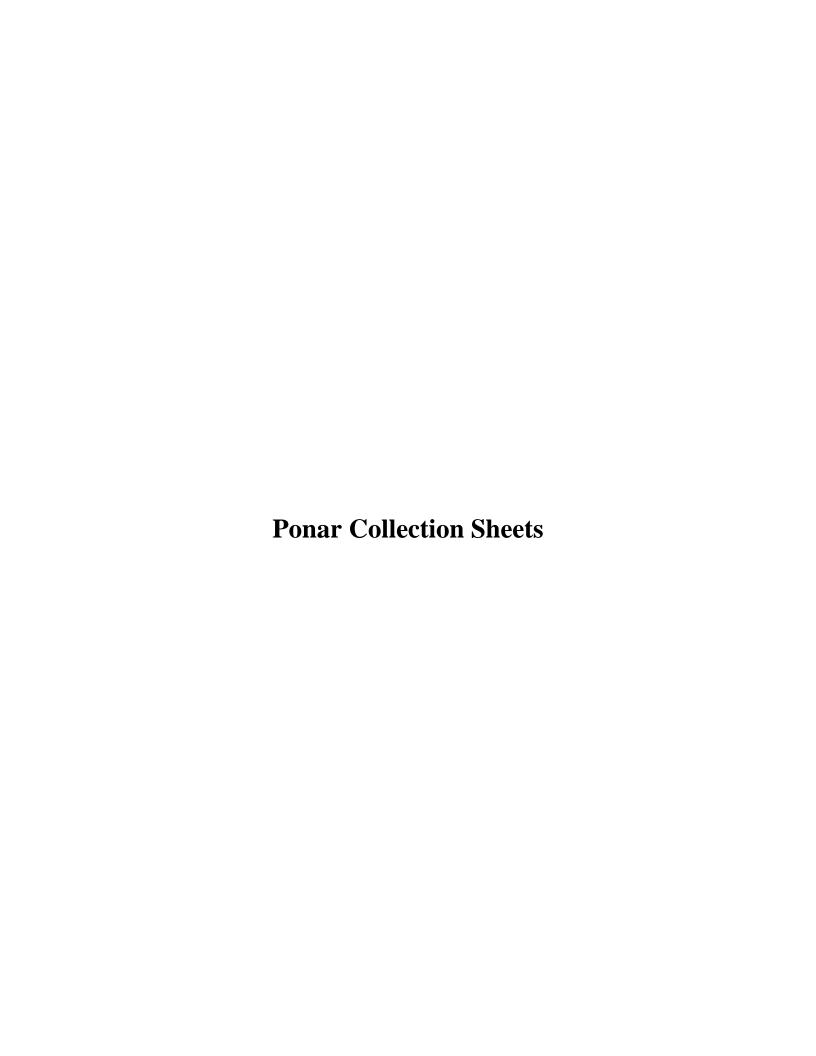
EA Engineering Science	Sediment Collection Log	EPA Region 5 Swap Creek Sediment Assessment	Location/Boring	UR-05	1	Sheet	
EA Engineering, Science, Geologist Name/Signature K. Merandi	and Technology, Inc. PBC	5 Project Number 1583406	8 Start Date/Tim	1		ouc	
2 Drilling Subcontractor/Equip	ment Operator	6 Latitude/Northing/Grid	9 Sed Surface E	levation 551.3	3		
Affiliated		724302.038	10 Coordinate Sy	stem H V	/		
			11 Depth of Wate	r, ft (start/end)			
3 Operator Name (License # I	Required)	7 Longitude/Easting/Grid 1686609.007	12 Weather (Tem	12 Weather (Temp, circle conditions, wind direction) Sunny/Cloudy/Rain			
4 Sampling Equipment and M			13 Boring Depth	(ft) 14 Recovery (ft	15 % R	ecove	
Rotosonic: -ft X Core: 8 -ft		ameter ameter Manual Push/Vibracore	3.6	74	1	90%	
		ft Box/Ponar/Van Veen/0	Other 16 Location Note:				
Other:			(010, 200		1		
Sample Collection Me	thod:	Description of Materials	teint boo	Sample ID	PID	US	
(Depth) Recovery (ft & %)	Mu	unsell Color; Moisture; Density; Consistency (Other Re	marks)	Sample Interval	(ppm)	Co	
0 -	SOME SILT.	TIRUSAND, VE TO E, (S) FT, MED-DL (W>LL), DOBTM (FINES UPWI	70 SAND. 95%	0010	0.0	Or.	
1.4 MIXTURE O	PETVLOL. OV DE BIK GREY (S TOM (57. S SILT, LITTLE	AND, 95% FINES), &V D LAY, FEW SAND, VE TOG (1	N TR SAND, UN K GREY (N 3/) 09. SAND, 907, F	1020 2040	0.0	01	
2.1	(57 4/1) S, Otz, Mafics, DENSE, NO.	AND, VE TUC., BUBB FENSILT (902 SAND, II NCOMEINE, NO DILAT STY ODOR, SHARP CON	DUNB TO ROUND 0% FIND) MED ENUT, TR STACT	2040	0.0	SI	
2 4	OLIVE GIRE	1 (SY 4/2) CLAY, TR S				-	
-3.9	CINES), SOL	VE-M SANO@ 3,6 ft	SARP CONTACT	2040	0.0	G	
-3.9 3.9 -9.1	(54 4/2) 5 CLAY (30%	SILT, SOME SAIND, VE SAND, 70% FINES), HESINE, NON-PL	SARP CONTACT		0.0		
-3.9 3.9 -4.1	(54 4/2) 5 CLAY (30%	SAND, 70% FINES),	SARP CONTACT				
3.9	(54 4/2) 5 CLAY (30%	SILT, SOME SAIND, VE SAND, 70% FINES), HESINE, NON-FL	SARP CONTACT				
3.9	(54 4/2) 5 CLAY (30%	FT, HI-PL, INETRIVALIVE-M SAND, WE SAND, VE SAND, NON-PL	SARP CONTACT				

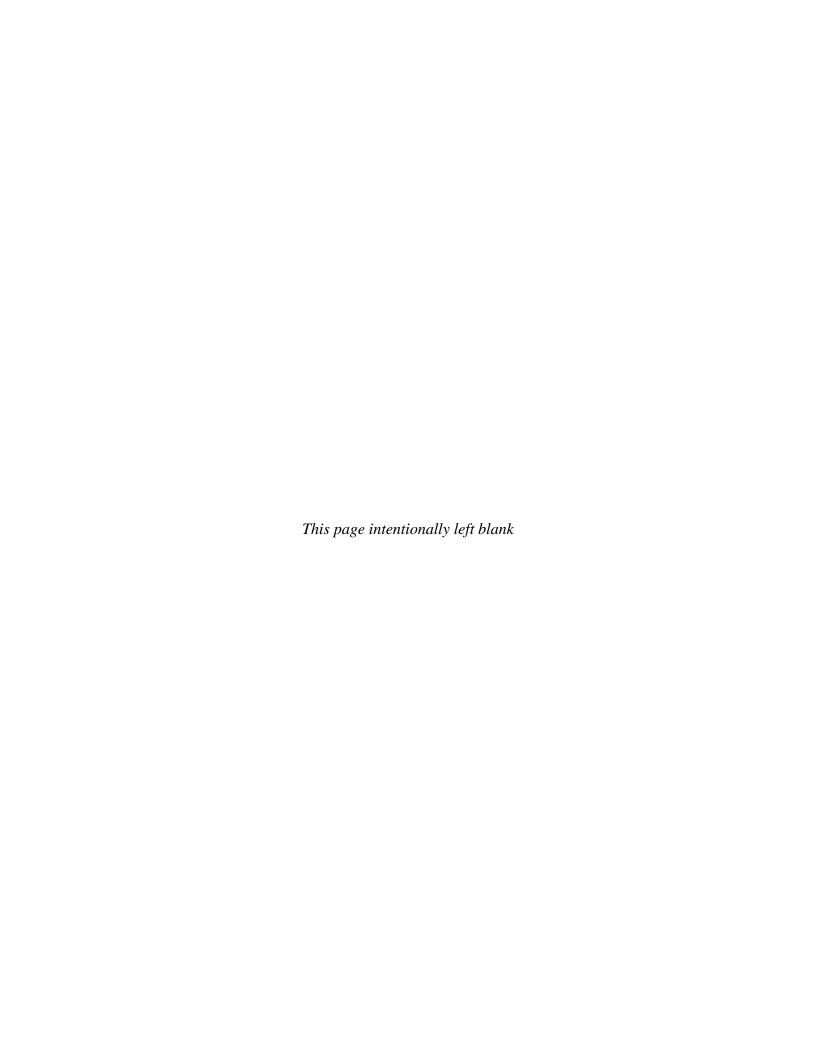
EA Eng	nineering, Science,	LITHOLOGIC LOG Sediment Collection Log and Technology, Inc. PBC	FD4 D	Location/Boring N		1	Sheet of 1
	Name/Signature		5 Project Number	co	RE COLLECTION II	NFO	
K, Mera	andi		1583406	8 Start Date/Time	515 Stop Date		535
2 Drilling Su	bcontractor/Equipr	ment Operator	6 Latitude/Northing/Grid	9 Sed Surface Elev	ation 553.	05	ft
Affiliate	ed		7711070 775	10 Coordinate Syste	m H V		
			724830.775	11 Depth of Water, f	(start/end)		
3 Operator N	Name (License # If	Required)	7 Longitude/Easting/Grid	12 Masthes (Town	W. L	d diss stic	
			1686923.440	12 Weather (Temp, o	Sunny/Cloudy/Rain		n)
4 Sampling I	Equipment and Me	ethodology (Check One)		13 Boring Depth (ft)	14 Recovery (ft)	15 % 1	Recovery
Rotoson	ic:ft l	barrelin dia	meter	2.2	72	10	200
Core: 8 -ft barrel 3 -in dia		barrel 3 -in dia	meter Manual Push/Vibracore	d.d	2.2	100	0%
The state of the s			ft Box/Ponar/Van Veen/Other	16 Location Notes			
Other: Sample	Collection Met	hod:		odor			
Interval	Recovery	MINE ST	Description of Materials		Sample ID	PID	USCS
(Depth)	(ft & %)		sell Color, Moisture; Density; Consistency (Other Remarks)		Sample Interval	(ppm)	Code
1.7			N 41) CLAY CHITE SILT, TO ND, 95% FINES), V SOFT, HI- 21 BLOCKY STRUCTURE,	TR SHELL	1020	0.0	041
		SHARIP CONT	ACT				
1. 7		CN 4/) SAND SOMECLAY TO	NF TO VC, SUBANG TO SUB IR SLT (60% SAND, 40% F N-PL (W >LL)	DOUND,	1020	0.0	SC
			END CORE		-		/
						/	
	1.0						
			KW				
							,
			1+1				
						1	
1			-				/

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LITHOLOGIC LOG Sediment Collection Log EA Engineering, Science, and Technology, Inc. PBC		Location/Boring Na		Sheet	
Geologist Name/Signature K. Merandi	5 Project Number 1583406	8 Start Date/Time	Stop Date/		
2 Drilling Subcontractor/Equipment Operator	6 Latitude/Northing/Grid	9 Sed Surface Eleva	tion 554.0	3	ft
Affiliated	1/48<17/90	10 Coordinate System H V 11 Depth of Water, ft (start/end)			
3 Operator Name (License # If Required)	7 Longitude/Easting/Grid 1686978.532	12 Weather (Temp, ci	rcle conditions, wind Sunny/Cloudy/Rain	direction)	
4 Sampling Equipment and Methodology (Check One) Rotosonic: -ft barrel -in dia Core: -ft barrel -in dia X Grab Sample: -ft x Other: Sample Collection Method:	ameter Manual Push/Vibracore	13 Boring Depth (ft) 16 Location Notes	14 Recovery (ft)	15 % Recovery	
Interval (Depth) Major Sedimer	Description of Materials It type, color, presence of SAV/rock/wood, odor/sheen, other in	clusions	Sample ID	USCS Code	
	black Clay. Some week t sheen on surface w				

LITHOLOGIC LOG Sediment Collection Log EA Engineering, Science, and Technology, Inc. PBC	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	Location/Boring N	MRREF	Sheet 1 of			
Geologist Name/Signature K. Merandi	5 Project Number 1583406	8 Start Date/Time	Start Date/Time Stop Date/Time				
2 Drilling Subcontractor/Equipment Operator	3 Latitude/Northing/Grid	9 Sed Surface Elevation 5/5/67 10 Coordinate System H V 11 Depth of Water, ft (start/end) 12 Weather (Temp, circle sonditions, wind direction) Surfay/Cloudy/Rain					
Affiliated	719970.270						
3 Operator Name (License # If Required),	7 Longitude/Easting/Grid						
	1685802.531						
4 Sampling Equipment and Methodology (Check One) Rotosonic: -ft barrel -in diameter Core: -ft barrel -in diameter Manual Push/Vibracore X Grab Sample: -ft x -ft Box/Ponar/Van Veen/O Other: Sample Collection Method:		/Other 16 Location Notes					
Interval (Depth) Major Sediment t	Description of Materials ype, color, presence of SAV/rock/wood, odor/sheen, other in	clusions	Sample ID	USCS			
GrabSample (~0-0.5 ft) Roodor	clay w/ some silt. - woody debits mixed in or sheen						

	OLOGIC LOG Client Name and Project Name Collection Log EPA Region 5 Swan Creek Sediment Assessment	SC21-5433 1 of	1			
Geologist Name/Signature K. Merandi	5 Project Number 1583406	CORE COLLECTION INFO 8 Start Date/Time Stop Date/Time	F			
2 Drilling Subcontractor/Equipment Operato	6 Latitude/Northing/Grid	9 Sed Surface Elevation 565.07				
Affiliated 3 Operator Name (License # If Required)	723730.722 7 Longitude/Easting/Grid	10 Coordinate System H V 11 Depth of Water, ft (start/end)				
	1686002.093	12 Weather (Temp, circle conditions, wind direction)	T			
4 Sampling Equipment and Methodology (C Rotosonic: -ft barrel Core: -ft barrel X Grab Sample: -ft x Other: Sample Collection Method:	-in diameter -in diameter Manual Push/Vibracore	13 Boring Depth (ft) 14 Recovery (ft) 15 % Recovery	y .			
Interval (Depth)	Description of Materials Major Sediment type, color, presence of SAV/rock/wood, odor/sheen, other	ser inclusions Sample ID USC	- 1			
GrabSample (~0-0.5 ft)	Brown silt w/clay, leaf lit +woody d					

LITHOLOGIC LO Sediment Collection Lo EA Engineering, Science, and Technology, Inc. PB	g EPA Region 5	Location/Boring N	A	Sheet		
Geologist Name/Signature K. Merandi	5 Project Number 1583406		Stop Date/			
2 Drilling Subcontractor/Equipment Operator	6 Latitude/Northing/Grid	9 Sed Surface Elevation 570.31				
Affiliated	718366.672	10 Coordinate System H V 11 Depth of Water, ft (start/end)				
3 Operator Name (License # If Required)	1672643,898	12 Weather (Temp, c	ircle conditions, wind Sunny/Cloudy/Rain			
4 Sampling Equipment and Methodology (Check One) Rotosonic: -ft barrel -in d Core: -ft barrel -in d X Grab Sample: -ft x Other: Sample Collection Method:	iameter Manual Push/Vibracore	13 Boring Depth (ft) 16 Location Notes	14 Recovery (ft)	15 % Recovery		
Interval (Depth) Major Sedim	Description of Materials ent type, color, presence of SAV/rock/wood, odor/sheen, other in	nclusions	Sample ID	USC\$ Code		
GrabSample . (~0-0.5 ft)	leaf litter a wood some larger socks up but not retain als	y dehrita pulled ned				

Sediment Collection Log EA Engineering, Science, and Technology, Inc. PBC	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	Location/Boring Na		Sheet 1 of 1		
Geologist Name/Signature K. Merandi	5 Project Number 1583406	8 Start Date/Time	Stop Date/			
2 Drilling Subcontractor/Equipment Operator	6 Latitude/Northing/Grid	9 Sed Surface Elevation 571.35				
Affiliated	718945,106	10 Coordinate System H V 11 Depth of Water, ft (start/end)				
3 Operator Name (License # If Required)	7 Longitude/Easting/Grid 1674617.555	12 Weather (Temp, ci	Conditions, wind Sunny/Cloudy/Rain	direction)		
4 Sampling Equipment and Methodology (Check One) Rotosonic: -ft barrel -in dia Core: -ft barrel -in dia X Grab Sample: -ft x Other: Sample Collection Method:	meter Manual Push/Vibracore	13 Boring Depth (ft) 16 Location Notes	14 Recovery (ft)	15 % Recovery		
Interval (Depth) Major Sedimen	Description of Materials t type, color, presence of SAV/rock/wood, odor/sheen, other in	clusions	Sample ID	USCS	,	
some	brown small gravel, mixed in clam shells (cort ed sized rocks. Some sa in.					

EA Engineering, Science,	LITHOLOGIC LOG Sediment Collection Log and Technology, Inc. PBC	EPA Region 5	SC21- SC	-	Sheet 1 of	-
Geologist Name/Signature K. Merandi		5 Project Number 1583406	8 Start Date/Time	Stop Date/		
Drilling Subcontractor/Equipm Affiliated	nent Operator	6 Latitude/Northing/Grid 719598.518	9 Sed Surface Elevation 10 Coordinate System H V			ft
3 Operator Name (License # If Required)		7 Longitude/Easting/Grid	11 Depth of Water, ft (start/end) 2-3 12 Weather (Temp, circle conditions, wind direction) Sunny/Cloudy/Rain			
4 Sampling Equipment and Methodology (Check One) Rotosonic: -ft barrel -in di Core: -ft barrel -in di X Grab Sample: -ft x -ft x Other: Sample Collection Method:		ameter Manual Push/Vibracore	13 Boring Depth (ft) 16 Location Notes	14 Recovery (ft)	15 % Recovery	
Interval (Depth)		Description of Materials nt type, color, presence of SAV/rock/wood, odor/sheen, other is		Sample ID	Code	
GrabSample (~0-0.5 ft)		to other side of bood got som srawl. Sheen notice lytteed.	more debra			

LITHOLOGIC LOG Sediment Collection Log EA Engineering, Science, and Technology, Inc. PBC	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	SC21- SC//		Sheet 1 of 1
Geologist Name/Signature K. Merandi	5 Project Number 1583406	8 Start Date/Time	Stop Date/Tim	
2 Drilling Subcontractor/Equipment Operator	6 Latitude/Northing/Grid 721860.859	9 Sed Surface Elevation		
Affiliated		10 Coordinate System H V 11 Depth of Water, ft (start/end)		
3 Operator Name (License # If Required)	7 Longitude/Easting/Grid 1677958.396	12 Weather (Temp, circle conditions, wind direction) Sunny/Cloudy/Rain		rection)
4 Sampling Equipment and Methodology (Check One) Rotosonic: -ft barrel -in dia Core: -ft barrel -in dia X Grab Sample: -ft x -ft x Other: Sample Collection Method:	meter Manual Push/Vibracore	13 Boring Depth (ft) 1. 16 Location Notes had to relocate to to take power.		10044:07
Interval (Depth) Major Sedimen	Description of Materials t type, color, presence of SAV/rock/wood, odor/sheen, other in	oclusions	Sample ID	USC\$ Code
silty	Sand Mixed W/ leaf woody debris, Sheen No surface	litter		

LITHOLOGIC LOG Sediment Collection Log EA Engineering, Science, and Technology, Inc. PBC	Client Name and Project Name EPA Region 5 Swan Creek Sediment Assessment	SC21- SC/14		Sheet 1 of 1
	5 Project Number 1583406	8 Start Date/Time Stop Date/Time		
2 Drilling Subcontractor/Equipment Operator	6 Latitude/Northing/Grid 721206 - 546 7 Longitude/Easting/Grid	9 Sed Surface Elevation		
Affiliated 3 Operator Name (License # If Required)		10 Coordinate System 11 Depth of Water, ft (
	16-19495.640	12 Weather (Temp, circle conditions, wind direction Sunny Cloudy/Rain		Account to the second s
4 Sampling Equipment and Methodology (Check One) Rotosonic: -ft barrel -in dia Core: -ft barrel -in dia X Grab Sample: -ft x Other: Sample Collection Method:	meter Manual Push/Vibracore	13 Boring Depth (ft) 16 Location Notes	ing Depth (ft) 14 Recovery (ft) 15 % Recovery	
Interval (Depth) Major Sediment	Description of Materials t type, color, presence of SAV/rock/wood, odor/sheen, other in	clusions	Sample ID	USC\$ Code
GrabSample (~0-0.5 ft)	s: 14y clay.			

Sediment Collection L EA Engineering, Science, and Technology, Inc. Pt	og EPA Region 5	Location/Boring Nam		Sheet 1 of 1
Geologist Name/Signature K. Merandi	5 Project Number 1583406	8 Start Date/Time	Stop Date/T	
2 Drilling Subcontractor/Equipment Operator	6 Latitude/Northing/Grid	9 Sed Surface Elevation f 10 Coordinate System H V 11 Depth of Water, ft (start/end) 12 Weather (Temp, circle conditions, wind direction) Sunny/Cloudy/Rain		
Affiliated 3 Operator Name (License # If Required)	721442 - 819 7 Longitude/Easting/Grid			
, , , , , , , , , , , , , , , , , , , ,	1680711.711			
4 Sampling Equipment and Methodology (Check One) Rotosonic: -ft barrel -in of core: -ft barrel -in of core: -ft x -ft x Other: Sample Collection Method:	diameter Manual Push/Vibracore	13 Boring Depth (ft) 16 Location Notes	14 Recovery (ft)	15 % Recovery
	Description of Materials ment type, color, presence of SAV/rock/wood, odor/sheen, other in	THE RESERVE OF THE PERSON NAMED IN COLUMN 1	Sample ID	USCS Code
GrabSample (~0-0.5 ft) GrabSample (~0-0.5 ft) Sheen mixed	Black clay w/sit, son es a woody debris, odor on water. Some Brown din	ne Noticed a Clay	· ·	4.

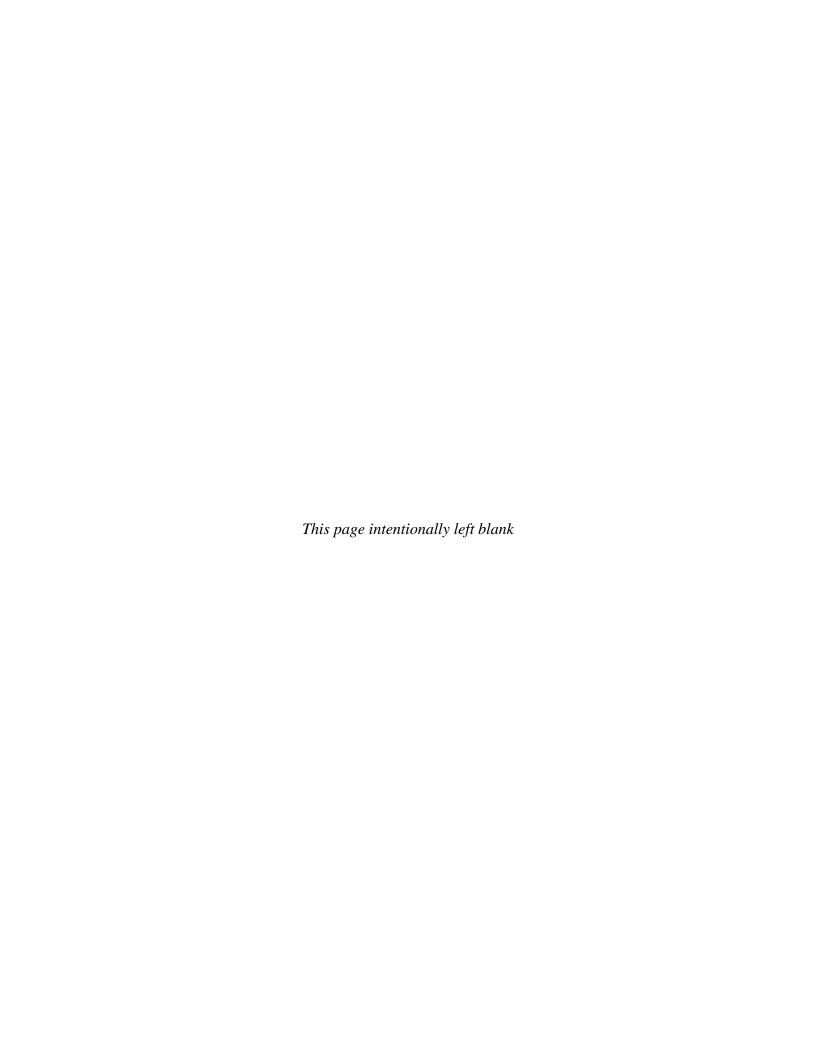
EA Engineering, Science, al	LITHOLOGIC LOG Sediment Collection Log nd Technology, Inc. PBC	EPA Region 5	SC21- SC 2		Sheet
Geologist Name/Signature K. Merandi		5 Project Number 1583406	8 Start Date/Time	Stop Date/Ti	
2 Drilling Subcontractor/Equipme	ent Operator	6 Latitude/Northing/Grid 721550-7671	9 Sed Surface Elevation		
Affiliated			10 Coordinate System H V 11 Depth of Water, ft (start/end)		
3 Operator Name (License # If R	equired)	7 Longitude/Easting/Grid 1681975, 338	12 Weather (Temp, circle conditions, wind direction) Sunny/Cloud/Rain		firection)
	arrelin dia	ameter ameter Manual Push/Vibracore -ft Box/Ponar/Van Veen/Other	13 Boring Depth (ft) 16 Location Notes Noved 40 of to rocky Subs	iposite haut	15 % Recovery
Interval (Depth)	Major Sedimen	Description of Materials t type, color, presence of SAV/rock/wood, odor/sheen, other in	clusions	Sample ID	USCS Code
GrabSample (~0-0.5 ft)	Brown :	Silt w/ Some clay	lebris		



-	LITHOLOGIC LOG Sediment Collection Log EA Engineering, Science, and Technology, Inc. PBC		Location/Boring Name SC21- SC27	Sheet 1 of 1	
Geologist Name/Signature K. Merandi		5 Project Number 1583406	Start Date/Time	LECTION INFO Stop Date/Time	
Drilling Subcontractor/Equipment Operator Affiliated		6 Latitude/Northing/Grid 721996.243	9 Sed Surface Elevation #1 10 Coordinate System H V 11 Depth of Water, ft (start/end)		
3	Operator Name (License # If Required)	7 Longitude/Easting/Grid 1684420.732	12 Weather (Temp, circle cor Sunny)	_	
4 ×	Sampling Equipment and Methodology (Check One) Rotosonic: -ft barrel -in dia Core: -ft barrel -in dia Grab Sample: -ft x -ft x Other: Sample Collection Method:	ameter Manual Push/Vibracore	13 Boring Depth (ft) 14 F	Recovery (ft) 15 % Recovery	
		Description of Materials at type, color, presence of SAV/rock/wood, odor/sheen, other in	clusions	ample ID USCS Code	
	GrabSample (~0-0.5 ft)	1 5iltw/clay, Some w	body debits		

EA Engineering, Science, a	LITHOLOGIC LOG Sediment Collection Log and Technology, Inc. PBC	EPA Region 5	Location/Boring N SC21- SC		Sheet 1 of 1	
Geologist Name/Signature K. Merandi		5 Project Number 1583406	8 Start Date/Time Stop Date/Time			
2 Drilling Subcontractor/Equipme	ent Operator	6 Latitude/Northing/Grid				
Affiliated		722966.066	10 Coordinate System H V 11 Depth of Water, ft (start/end)			
3 Operator Name (License # If R	'equired)	7 Longitude/Easting/Grid 168510-1.136	12 Weather (Temp, circle conditions, wind direction) Sunny/Cloudy/Rain		direction)	
4 Sampling Equipment and Methodology (Check One) Rotosonic: -ft barrel -in dia Core: -ft barrel -in dia X Grab Sample: -ft x Other: Sample Collection Method:		ameter Manual Push/Vibracore	13 Boring Depth (ft) 16 Location Notes Rocky in Co	14 Recovery (ft)	15 % Recovery	
Interval (Depth)	Major Sedimen	Description of Materials type, color, presence of SAV/rock/wood, odor/sheen, other in	nclusions	Sample ID	USCS Code	
GrabSample (~0-0.5 ft)	Brown	stity clay, some Bla with odo, on surface	ck Clay risheen water			





SUAN 11/3/21 Excell 0830 avrive @ 1010 marer 55. crew: M. Durbano J. 0011211 K. Merandi C. Simpson #+5 Brief 0915 SCALSC31 opened 0600 wherted 0010 1070 collected 2040 4060 6080 5271-5637 opened 1150 too odo collected 1080 2040 - 4060 6080. Break for lunch. Justin picking 13 15 off & Erie market for wat cren. 5C71-24 opened 1475 DOID - COllecters opened 3221-26 1510 odo > cohectep 100 5281-08 16015 0010. conected parking zoolers 1700 Riof off roder TO matt and Justi'n leave 1880 e 495 EH Offsite 1850 MRD

SWAN/ Creek 114/41 DI AIVINE DE 1080 Waser ST 0800 M. Durbano, J. Dorian, K. Merandi, crew: 0880 H+3 Brief SC 24 25 opened 4 intervals conceted, colo, 1020, 2040, 4060 + 2040 FD (2) 0875 SC 22 opened. 2 intervals 0010, 1020. SC 30 opened. 3 Intervals. 0010, 1020, 2040. 1035 1200 1300 meet matt @ Jock to unload zors 1350 SCDI-SCD8 epenear. 4:110 vals, 0010,0010 FD, 1020, 2040, 2040 MS, 2040 MSD, 4060. 5271-5233 openeal, 0010, 1020, 2040. 1415 1620 cooler parking, enerthing cos. 1730 Just in and Atatte en laure to 830 UPS for cooler 1915 OFF SITE

SWAN Creek 11/5/21 0745 Aprive @ 1000 Marer 55. M. Dulbano, J. Dorian, K. Meraneli. creu: HIS Brief. 0800 5071-5071 opened. 0010, 1000, 2040, 0845 SCHI- SCOO SPENEEL. GOLO, LOSO.
SCHI- SCOO SPENEEL. GOLO.
SCHI- SCIO SPENEEL. GOLO.
SUSSIN TO GET SUPPLIES and lunch.
SCHI- SCIO. DOLO - NOT ENOUGH WHIME 1030 1140 1230 1345 for 65 on ano. 1070, 8040, 4040 5221-5224 opened 0010, 1020, 2040 1450 5281-5223 opened colo, 1020, 2040. 1550 SCOI - MR 05 opened 0010, lose souro Dout feturus to elock of rload core 1645 1745 Bredok down and clean up core processing area. 1820 offsite Scale: 1 square =_

09/5 arrive onsite @ 1020 News 80 Elle M. Dyrbano, J. Dorian 0945 Boldh down processing equipment.
More equipment oursine. Setup weller sample coders

Pick up cores from even e book

scribe trainer

code inventor 1100 1300 1400 1530 1650 unloquel cores from electe 1715 Finish percking reeter Track 1780

"11 SUAN Crack 0800 Drrive onsite a 1020 water 80. 0 230 start setup of processing M. Darkono, A. Merandi, J. Dorian csen: 0840. DIS Breek 0345 MR01 openael, 0010, 1080, 2040. 0950 SE MA 0) opened colo, 1070, rono, 5071-5015 grenzel. 0010, 1020, 2040. 1140 5271_5016 oftened. 00/0, 1020, 2040, 4060. 1345 1535 mROG opened. ook, loso. 1600 Checking samples in cochers 1630 off site Scale: 1 square = Scale: 1 square =_

5MAN Zreek 4/8/21 Arrive on 8ite & who water 8t. 0800 HTS Brief. Begin setting up ourside for sore placessing. 5071-5003 opened 0010, 1070, 0850 2040. 5C21- 5CO4 openal, 0010, 1020, 2040 4060, 4060 FD. 1010 5071-506 opened. 0010, 1020, 2040. 5071-MRO3-H opened. 0010, 1020, 1020115 1150 1415 1020 MSD, 2040. 5221-MRO 3-B opened. 0010, 1020, 1020 FD, 2040. 1545 parking recters for shipping 1200 1850 1

Rite in the Rain

SWAN creek W/9/21 arrive & 10to water ST 175 Brief, serup processmy in 0730 arrive 0800 vare house. MREF opened. 0010, 1020, 2040, 4060,6080. SC21-5C13 opened. 0010, 1020, 2040, 2040 MS, 0930 1150 2040 MSD. perking and checking todies 1215 1315 5281- 5202 opened. 0010, 1020, 2040. 1410 packing suit coolers W/5 5271-5209 opened. 0010, 1020, 8040. 1610 checking exes peecking coders
Tustin and mats dop att exers 1635 1875 at UPS. off site 1855 Scale: 1 square =

SWAN Craek 11/10/21 arrive & 1000 warer st. 0800 0130 2800 18+3 BIVEF - START SETUP. 2800 MROU openendel colo, 1020, 2040, 4040. 21-LW: M. DWIGMO, J. Dorian, IL. Merenel: 0800 0800 SC21-5707 opened co10, 1020, 2040, 7040, 7040 0930 2010 BB FD, 4060. SCOI- SZ 11 opened. 0010, 0010 FD, 1000, 2040. 10 45 pick up vieller samples from mast 1130 login surface sed und ruser 1245 Lunch INW-01 and INW-07 collection 1300 SCD1-5217 opened colo, 1020, 2040, 1390 2040 ms, 2040 msel, 4060, 6080. SC21-comp-06 collected, Ned, 166, 1420 17, 176, 20c, 226 cores included in composite. Start prepping coolers for Shipping. 1530 Justin and Kyle go To ups 1815 To zerop toders. offsite 1340

n/10/21 SWAN Crack to 5 Bret. Setup for eary. 0730 0800 5001- 5012 opener, 0010, 1080, 1080 MS, 1020 MS, 2000 L 0800 0830 5271- 20mp-04 cores included. 13 09, 136, 13d, 13c, 09c, 09d, 09e, 116, SZ21- COMP -05, FD, MS, MSD. Coses included, 150, 150, 15F, 15g. 0930 045 SCDI- COMP-OD. COPES Melyeliel, OBC, 03d, 03f, 03b, 04, 04b, 04c. 5281 - 20MD-08. Cores included 296, 29c, 30, 306, 30c, 376, 33, 336, 1115 SCH- COMP-03, copes included
Oba, Obb, Obc, Obd, otd, ote, ott,
Otg, oth.

were horek

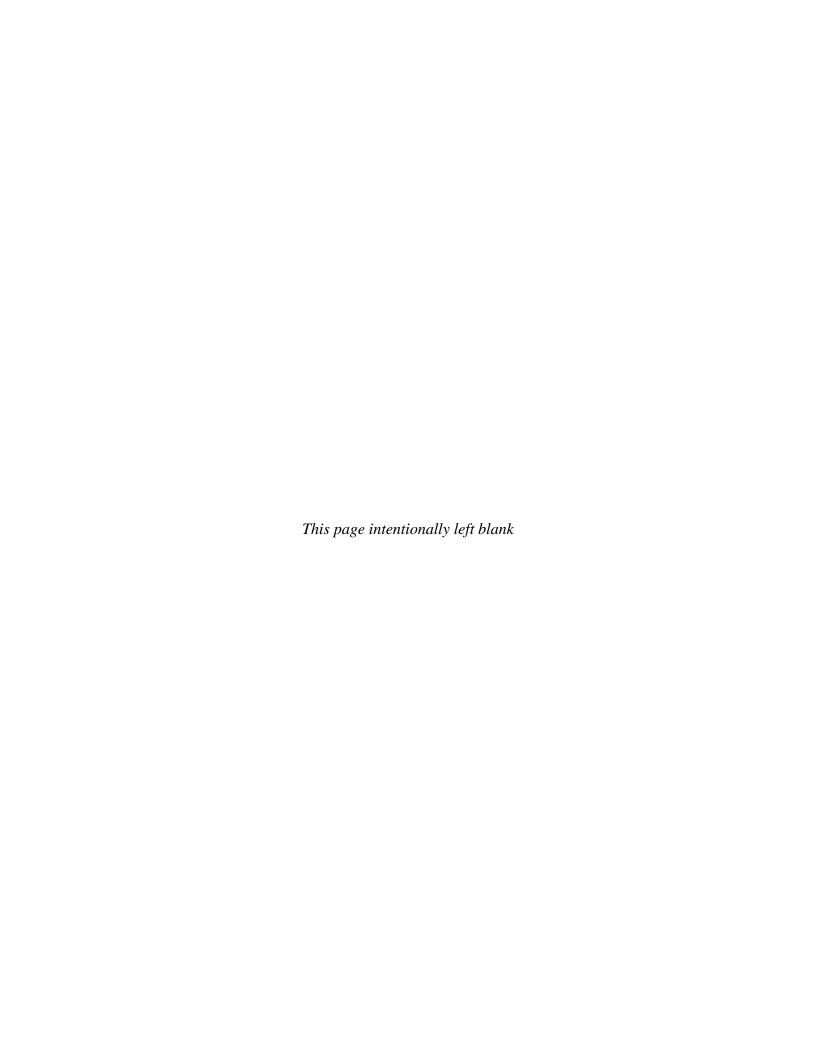
packing verter cochers and cots 1780 745 HAD 1300 1245 1415 SCOI- COMP-Ol. COSES in chiefry 02,026,020,020,020,020 5221- COMP-06. COSES INCluded 16b, 16c, 16d, 17, 17b, 20c, 22b. 5221- COMP-07. COSES Included 23d, 23b, 24b, 25b, 26b. 4100 1500 clean up, thething toolers.

ruiting on delivery of coders

and sais Leow 1750 Start parking fridge Trielle with samples, buckets-1815 off site / MAD

11/12/21 SWAN Crack arrive @ 1000 wever st 0830 Mil wildeno W. Meranzes, S. Darian, M. Renill Justin and Matt nead to fedral for colors 0845 1 csew: 0900 T and bottles. 0945 -Start Jorring remaining samples and parking Eadlers For delivery To UPS. 1 1145 loading Coolers for UPS. 7 parking cosing supplies breaking down 1300 processing area. 7 1400 closing up drem and voll off. 1430 To the second 1 1 1 -1 1 1 Scale: 1 square = Rite in the Rain.

11/13/21	SWAN Creek
0600	Justin and mike Durband beave
	Deelo for Hunt Valley.
1520	
1530	ATTOR & ## Taxlab unlocal wester source
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	action action early. Igh act
1700	Offs te
	(MA)
7 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
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7	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Scale: 1 square =	



APPENDIX B: LITHOLOGIC CORE LOGS





NORTHING 723285.663 EASTING_ 1686413.55 SPC OH N USFT (NAD83)

541.77 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

Affiliated Researchers, LLC SAMPLING METHOD DRILLING SUBCONTRACTOR Vibracore

DATE/TIME COLLECTED 11/6/2021 2:25:00 PM CORE REPLICATE LOGGED GEOLOGIST K. Merandi

SEDIMENT SURFACE ELEVATION

DATE/TIME PROCESSED 11/7/2021 8:45:00 AM **TARGET RECOVERY** 70% CORE RECOVERY 3.4 ft / 83 %

DEPTH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
- 1 -	_		СН	(0 to 1.3 ft) Dark Gray (2.5Y 4/1) CLAY, tr. SAND, vf to m., tr. SILT, very soft, medium to high plasticity (w>LL), gradational contact.	95	5	0	SC21-MR01-0010	541 —
	540 		СН	(1.3 to 2.5 ft) Dark Gray (2.5Y 4/1) CLAY, few SAND, vf to m., subrounded, Qtz., few SILT, soft, high plasticity, slight musty odor, sharp contact.	90	10	0	SC21-MR01-1020	- 540
- 3 -	_ 539 _ 		СН	(2.5 to 3.4 ft) Dark Gray (10YR 4/1) CLAY, stiff, high plasticity.	100	0	0	SC21-MR01-2040	- 539 -
- 4	538 537 536 535 534			BOTTOM OF CORE= 3.4 ft below sediment surface; 538.37 ft NAVD88					- 538 - - 537 - - 536 - - 535 - - 534 - - 534 -
SC21.GPJ NNC.GPJ 29/12/21 F	533 532								- 533 - - 532 -
	OTES: W>LL: W Juid Limit Isticity.	ater conte inhibited t	ent greate field deter	r than the rmination of				DRAF	Т
SWAN CREEK bla bla	,							PA	GE 1 OF 1



NORTHING 723569.901 **EASTING** 1686175.971 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 553.83 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD DRILLING SUBCONTRACTOR Affiliated Researchers, LLC Vibracore

DATE/TIME COLLECTED 11/4/2021 5:00:00 PM CORE REPLICATE LOGGED Α GEOLOGIST K. Merandi

DATE/TIME PROCESSED 11/7/2021 9:50:00 AM **CORE RECOVERY** 7.6 ft / 95 % **TARGET RECOVERY** 70%

DEPTH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
- 1 -	_							SC21-MR02-0010	
	 _ 552 _		CL	(0 to 4.2 ft) Dark Gray (5Y 4/1) CLAY, few SILT, tr. SAND, vf to f., coarsening	97	3	0	SC21-MR02-1020	
- 3 -	 551 _ 		OL.	upward, very soft, medium plasticity, slight musty odor, sharp contact.		J	0	SC21-MR02-2040	_ 551 -
- 4 - 	— 550 — — — —	******	ML /	(4.2 to 4.3 ft) Very Dark Gray (N 3) SILT, some CLAY, few SAND, vf to f., tr. root/wood fragments, soft, medium plasticity, slight musty odor, sharp contact.	93	7_	0		
- 5 - 	549 548			(4.3 to 7.6 ft) Dark Gray (5Y 4/1) CLAY, few SILT, tr. SAND, vf to f., coarsening				SC21-MR02-4060	- 549 - - 548 -
- 6 - - 7 -	 _ 547 _		CH	upward, very soft, medium plasticity, slight musty odor.	97	3	0	SC21-MR02-6080	
- 8 -	546 _ 			BOTTOM OF CORE= 7.6 ft below sediment surface; 546.23 ft NAVD88					
.GPJ 29/12/21	— 545 — —								- 545 -
	TES: V>LL: Wiuid Limit sticity.	ater conte	ent greatei field deter	r than the mination of					- 544 -
owan Ckerk	ouony.							PAG	GE 1 OF 1



SEDIMENT BORING SC21-MR03-1

 NORTHING
 723930.956
 EASTING
 1686388.619
 SPC OH N USFT (NAD83)

 SEDIMENT SURFACE ELEVATION
 554.02 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD Vibracore DRILLING SUBCONTRACTOR Affiliated Researchers, LLC

DATE/TIME COLLECTED 11/4/2021 4:10:00 PM CORE REPLICATE LOGGED A GEOLOGIST K. Merandi

DEPTH BELOW SEDIMENT SURFACE (#)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
		ŊŖ		(0 to 0.2 ft) No Recovery (Water) (0.2 to 0.7 ft) Greenish Black (10Y 2.5/1) CLAY, tr. SAND, vf to f., tr. GRAVEL,					
-	┼ -		ОН	sm. (<1.2 cm), angular, slag, tr. SILT, tr. root, very soft, high plasticity (w>LL), petroliferous odor, sharp contact.	95	3	2	SC21-MR03A-0010	-
-1-	553 		ОН	(0.7 to 1.6 ft) Black (N 2.5/) CLAY, little SAND, vf to m., little SILT, soft, high plasticity, blocky structure, strong petroliferous odor, sharp contact.	85	15	0	362 I-WIN03A-00 IV	_ 553 _
			CH /	(1.6 to 1.7 ft) Dark Gray (5Y 4/1) CLAY, very soft, high plasticity, sharp contact.	100	٥	٥	SC21-MR03A-1020	
2 -	 552		ОН	(1.7 to 2.3 ft) Black (N 2.5/) CLAY, little SAND, vf to m., little SILT, soft, high plasticity, blocky structure, strong petroliferous odor, gradational contact.	85	15	0	SC21-MR03A-1020MS SC21-MR03A-1020MSD	- 552 -
- 3 -	- 551 -		SM	(2.3 to 3.3 ft) Dark Gray (5Y 4/1) SAND, vf to f., some SILT, few CLAY, medium dense, cohesive, low plasticity, no dilatency, gradational.	40	60	0		 _ 551 _
- 4 - - 4 -	550 5	o o	SW	(3.3 to 4.9 ft) Gray (10YR 5/1) SAND, vf to vc., angular to subrounded, few GRAVEL, sm. (<1.6 cm), angular to subangular, medium dense to dense, no dilatency.	0	93	7	SC21-MR03A-2040	 _ 550 _
- 5 -	549 	b							_ 549 _
6 -	— 548 —								548
- 7 -	547 								– 547 –
8 -	— 546 —			BOTTOM OF CORE= 4.9 ft below sediment surface; 549.12 ft NAVD88					– 546 –
9 -	545								545 <u></u>

NOTES:

SWAN CREEK SC21.GPJ NNC.GPJ 29/12/21 REV.

 W>LL: Water content greater than the Liquid Limit inhibited field determination of plasticity.



SEDIMENT BORING SC21-MR03-2

NORTHING 723912.856 **EASTING** 1686393.049 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 549.62 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD DRILLING SUBCONTRACTOR Affiliated Researchers, LLC Vibracore

DATE/TIME COLLECTED 11/6/2021 1:25:00 PM CORE REPLICATE LOGGED F GEOLOGIST K. Merandi

DATE/TIME PROCESSED 11/8/2021 3:45:00 PM **CORE RECOVERY** 4.3 ft / 72 % **TARGET RECOVERY** 70%

DEPTH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
	549 -		СН	(0 to 0.8 ft) Dark Gray (5Y 4/1) CLAY, few SILT, very soft, high plasticity, wood fragments @ -0.8 ft., sharp contact.	100	0	0	SC21-MR03F-0010	_ 549 _
- 1 - - 2 -	 548 _		СН	(0.8 to 2.1 ft) Dark Gray (5Y 4/1) CLAY, few SILT, very soft, high plasticity, sandy interval @ -1.0 ft., sharp contact.	95	5	0	SC21-MR03F-1020 SC21-MR03F-1020FD	
-	F47		ML	(2.1 to 2.6 ft) Very Dark Gray (5Y 4/1) SILT, some SAND, vf to f., little CLAY, tr. wood/root fragments, very soft, low plasticity (w>LL), gradational contact.	60	40	0		 - 547 -
- 3 -	547 		СН	(2.6 to 3.3 ft) Dark Gray (5Y 4/1) CLAY, few SILT, very soft, high plasticity, sharp contact.	100	0	0	SC21-MR03F-2040	- 547 -
- 4 -	_ 546 <u>-</u> 	0.00	SW	(3.3 to 4.3 ft) Gray (5Y 5/1) SAND, vf to vc., subangular to rounded, Qtz., tr. GRAVEL, sm., tr. SILT, tr. CLAY, tr. shell fragments, dense.	2	96	1	3021-WIN031-2040	546
SC21.GPJ NNC.GPJ 29/12/21 REV.	544 543 542 541 540			BOTTOM OF CORE= 4.3 ft below sediment surface; 545.32 ft NAVD88					- 545 - 544 - 543 - 542 - 541 - 540
H Liq	DTES: N>LL: W quid Limit asticity.	ater conte inhibited t	nt greater field deter	r than the rmination of				PAG	E 1 OF 1



NORTHING 723931.088 **EASTING** 1686821.049 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 543.79 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD Vibracore DRILLING SUBCONTRACTOR Affiliated Researchers, LLC

DATE/TIME COLLECTED 11/6/2021 3:00:00 PM CORE REPLICATE LOGGED Α **GEOLOGIST** K. Merandi

DATE/TIME PROCESSED 11/10/2021 8:20:00 AM **CORE RECOVERY** 5.6 ft / 70 % TARGET RECOVERY 70%

DEPTH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
- 1 -	 543 		2	(0 to 3 ft) Dark Greenish Gray (10Y 4/1) CLAY, few SILT, very soft, medium	100		0	SC21-MR04-0010	543
- 2 - 3 -	542 541		CL	plasticity (w>LL), musty odor, sharp contact.	100	0	0	SC21-MR04-1020 SC21-MR04-2040	_ 542 _ _ 541 _
4 -	540 <u></u>		СН	(3 to 5.6 ft) Gray (7.5YR 5/1) CLAY, tr. SILT, medium stiff to stiff, high plasticity.	100	0	0		
- 5 - - 6 -	539 538							SC21-MR04-4060	- 539 - - 538 -
- 7 -	537 536								- 537 - - 536 -
PJ 29/12/21 REV.	_			BOTTOM OF CORE= 5.6 ft below sediment surface; 538.19 ft NAVD88					 _ 535 _
C21.GPJ NNC.G	534								- 534 -
副 Liq	V>LL: Walled Limit sticity.	ater conte inhibited f	nt greater ïeld deter	r than the rmination of				PAC	GE 1 OF 1



DATE/TIME PROCESSED 11/5/2021 4:45:00 PM

SEDIMENT BORING SC21-MR05

NORTHING 724302.038 **EASTING** 1686609.007 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 551.33 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD Vibracore DRILLING SUBCONTRACTOR

DATE/TIME COLLECTED 11/4/2021 3:45:00 PM CORE REPLICATE LOGGED Affiliated Researchers, LLC

Α

GEOLOGIST K. Merandi

CORE RECOVERY 4.1 ft / 79 %

TARGET RECOVERY 70%

SEDIMENT SURFACE (ft) ELEVATION (ft MLW) GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (# MI I W)
- 551 - 7	OH	(0 to 1.4 ft) Very Dark Greenish Gray (10Y 3/1) CLAY, some SILT, tr. SAND, vf to f., fining upward, very soft, medium plasticity (w>LL), faint petroliferous odor.	95	5	0	SC21-MR05-0010	– 551
- 550	OL	(1.4 to 2.1 ft) Mixture of Dark Gray (5Y 4/1) SILT, some CLAY, tr. SAND, vf to m. AND Dark Gray (N 3/) SILT, little CLAY, few SAND, vf to c., low to medium	95	5	0	SC21-MR05-1020	— 55 0
- 2 - - 549 -	SW	plasticity. (2.1 to 2.4 ft) Dark Gray (5Y 4/1) SAND, vf to c., subrounded to rounded, Qtz., mafics, few SILT, tr. shell, medium dense, noncohesive, no dilatency, musty odor, sharp contact.	10	90	0		- 54 9
- 3 548 -	СН	(2.4 to 3.9 ft) Olive Gray (5Y 4/2) CLAY, tr. SILT, soft, high plasticity, discrete interval of SAND, vf., @ - 3.5 ft, sharp contact.	95	5	0	SC21-MR05-2040	— — 54 8
- 4 547 -	ML	(3.9 to 4.1 ft) Olive Gray (5Y 4/2) SILT, some SAND, vf to f., little CLAY, few shell fragments, stiff, cohesive, nonplastic.	70	30	0		
- 546 —		BOTTOM OF CORE= 4.1 ft below sediment surface; 547.23 ft NAVD88					_ _ 54
6 545 -							_ _ 54
7 - 544 -							_ _ 54
8 - 543 -							_ _ 54
9 - 542 -							_ _ 54
							_
NOTES: - W>LL: Water con	ntent greate	r than the					
plasticity.	4510						GE 1 OF



NORTHING 724830.775 EASTING_ 1686923.44 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 553.05 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD DRILLING SUBCONTRACTOR Affiliated Researchers, LLC Vibracore

DATE/TIME COLLECTED 11/4/2021 3:15:00 PM CORE REPLICATE LOGGED Α GEOLOGIST K. Merandi

DATE/TIME PROCESSED 11/7/2021 3:35:00 PM **CORE RECOVERY** 2.2 ft / 100 % **TARGET RECOVERY** 70%

DEPTH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
1-1-	 _ 552 _		ОН	(0 to 1.7 ft) Very Dark Gray (N 4/) CLAY, little SILT, tr. SAND, vf to f., tr. shell fragments, very soft, high plasticity, blocky structure, faint petroliferous odor, sharp contact.	95	5	0	SC21-MR06-0010	
- 2 -	_		SC	(1.7 to 2.2 ft) Very Dark Gray (N 4/) SAND, vf to vc., subangular to subrounded, some CLAY, tr. SILT, soft, cohesive, low plasticity (w>LL).	40	60	0	SC21-MR06-1020	551 _
- 6		ater conte	nt greater	BOTTOM OF CORE= 2.2 ft below sediment surface; 550.85 ft NAVD88					- 549 548 547 545 544 544
NAMO								PAG	SE 1 OF 1



SEDIMENT BORING SC21-MRREF

NORTHING 719979.617 **EASTING** 1685812.692 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 563.31 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

DRILLING SUBCONTRACTOR SAMPLING METHOD Vibracore

DATE/TIME COLLECTED 11/6/2021 1:55:00 PM CORE REPLICATE LOGGED

Α **DATE/TIME PROCESSED** 11/9/2021 9:30:00 AM

GEOLOGIST K. Merandi

Affiliated Researchers, LLC

CORE RECOVERY 7.1 ft / 89 % TARGET RECOVERY 70%

DEPTH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
	— 563 —		GC CL	(0 to 0.2 ft) Dark Gray (N 4/) GRAVEL, Ig. (<5 cm), subrounded, some CLAY, tr. SAND, vf., tr. SILT, soft/loose, cohesive, medium plasticity in clayey portions (w>LL), musty odor, sharp contact. (0.2 to 0.7 ft) Dark Gray (N 4/) CLAY, some SILT, tr. SAND, vf., very soft, low to	33 99	1	65	SC21-MRREF-0010	- 563 -
- 1 - 	562 			\medium plasticity (w>LL), musty odor, gradational.				SC21-MRREF-1020	
- 2 - - 3 -	— 561 — — — —		СН	(0.7 to 4 ft) Dark Gray (5Y 4/1) CLAY, tr. SILT, very soft, medium to high plasticity, musty odor, gradational contact.	100	0	0	SC21-MRREF-2040	
 - 4 -	— 560 — — — —							3021-WRREF-2040	— 560 -
	559 		СН	(4 to 5 ft) Dark Gray (5Y 4/1) CLAY, some SILT, tr. SAND, vf to f., tr. wood fragments, soft, high plasticity, musty odor, sharp contact.	99	1	0		- 559 -
- 5 - 	558 		CH	(5 to 5.4 ft) Dark Gray (5Y 4/1) CLAY, tr. SILT, very soft, high plasticity, musty odor, gradational contact. (5.4 to 5.7 ft) Dark Gray (5Y 4/1) CLAY, some SILT, tr. SAND, vf to f., tr. wood fragments, soft, high plasticity, musty odor, sharp contact.	100	0	0	SC21-MRREF-4060	- 558
- 6 - - 7 -	— 557 — — — —		CH	(5.7 to 6 ft) Gray (5Y 5/1) SILT, some CLAY, tr. SAND, vf to f., tr. wood fragments, soft, low plasticity, musty odor, gradational contact. (6 to 7.1 ft) Dark Gray (5Y 4/1) CLAY, little SILT, very soft, medium to high plasticity, musty odor.	100	0	0	SC21-MRREF-6080	
 - 8 -	556 			POTTOM OF CODE 7.4.4 halou and mont our face, FFC 24.4 NAVD00					
 - 9 -	— 555 — —	-		BOTTOM OF CORE= 7.1 ft below sediment surface; 556.21 ft NAVD88					- 555
	554 	-							554
- V Liq		ater conte		r than the mination of					
								PAG	GE 1 OF



NORTHING 71909.193 **EASTING** 1675482.762 SPC OH N USFT (NAD83)

571.79 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD DRILLING SUBCONTRACTOR Vibracore

CORE REPLICATE LOGGED

SEDIMENT SURFACE ELEVATION

Affiliated Researchers, LLC

DATE/TIME COLLECTED 11/5/2021 12:15:00 PM **DATE/TIME PROCESSED** 11/9/2021 2:10:00 PM

GEOLOGIST K. Merandi

D **CORE RECOVERY** 4.2 ft / 74 % **TARGET RECOVERY** 70%

SEDIMENT SURFACE (ft) ELEVATION (ft MILW)	GRAPHIC	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
_ _ _ 571		OL	(0 to 1 ft) Very Dark Greenish Gray (10Y 3/1) SILT, some CLAY, tr. SAND, vf., tr. root/twigs, soft, low plasticity, musty odor, sharp contact.	97	3	0	SC21-SC02-0010	_ _ 571
- ' <u> </u>		SP	(1 to 1.2 ft) Olive Gray (5Y 4/2) SAND, vf to f., few SILT, tr. mica, medium dense, cohesive, nonplastic, no dilatency, sharp contact.	1	99	0		
 - 570		SM	(1.2 to 1.8 ft) Olive Gray (5Y 4/2) SAND, vf to f., some SILT, little CLAY, tr. leaves, tr. wood fragments, medium dense, cohesive, nonplastic, no dilatency, musty odor, gradational contact.	45	55	0	SC21-SC02-1020	- 570
		SM	(1.8 to 2.3 ft) Dark Gray (5Y 4/1) SAND, vf to m., little SILT, tr. CLAY, tr. mica, tr.	90	70	0		
 - 569		OL SM /	root, medium dense to dense, rapid dilatency, gradational contact. (2.3 to 2.8 ft) Bluish Black (10B 2.5/1) CLAY, some SILT, tr. SAND, vf., few leaves, few twigs, few root, soft, low plasticity, blocky structure, slight	90	10 55	0		- 569
- 3 –		OL	\musty/petroliferous odor, sharp contact. (2.8 to 2.9 ft) Olive Gray (5Y 4/2) SAND, vf to f., some SILT, little CLAY, tr.	99	95		SC21-SC02-2040	
	ه ه	SW	leaves, tr. wood fragments, medium dense, cohesive, nonplastic, no dilatency, musty odor, sharp contact.	15	78	7		
- 4 - 568		GW GC	(2.9 to 3 ft) Very Dark Gray (N 3/) CLAY, some SILT, tr. SAND, vf to m., very soft, medium plasticity, musty odor, sharp contact. (3 to 3.2 ft) Olive Gray (5Y 4/2) SAND, vf to vc., subangular to subrounded, Qtz.,	10	35	55		– 568
 - 567			mafics, few SILT, tr. mica, tr. twigs, dense, noncohesive, gradational contact. (3.2 to 3.8 ft) Very Dark Gray (5Y 3/1) SAND, vf to vc., subangular to subrounded, Qtz., mafics, little SILT, few GRAVEL, sm. (<9 mm), subangular to subrounded, few CLAY, tr. shell fragments, cohesive, nonplastic, gradational contact.					- 567
 _ 566			(3.8 to 4.2 ft) Very Dark Gray (5Y 3/1) GRAVEL, sm. (<1 cm), subangular to subrounded, some SAND, little CLAY, tr. SILT, medium dense to dense, noncohesive, musty odor.					- - 566
- 6 -	_		BOTTOM OF CORE= 4.2 ft below sediment surface; 567.59 ft NAVD88					_
 - 565	_							- 565
	-							
- 8 564	-							- 564
	-							
- 9 - - 563	_							- 563
_ }	-							-
- 562	_							- 562
	Water cont nit inhibited		r than the mination of					



DATE/TIME PROCESSED 11/8/2021 8:50:00 AM

SEDIMENT BORING SC21-SC03

NORTHING 719714.341 **EASTING** 1675748.987 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 570.96 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD Vibracore DRILLING SUBCONTRACTOR

DATE/TIME COLLECTED 11/7/2021 12:20:00 PM CORE REPLICATE LOGGED

Ε CORE RECOVERY 4.6 ft / 92 % TARGET RECOVERY 70%

Affiliated Researchers, LLC

GEOLOGIST K. Merandi

DEPTH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
			OL	(0 to 0.7 ft) Black (N 2.5/) SILT, some CLAY, tr. SAND, vf., tr. root/wood fragments, very soft, low plasticity (w>LL), slight musty odor, gradational contact.	95	5	0	SC21-SC03-0010	
- 1 -	— 570 —		OL	(0.7 to 1.2 ft) Very Dark Gray (N 3/) SILT, few CLAY, tr. SAND, vf., medium stiff, cohesive, nonplastic, gradational contact.	98	2	0		570
 _ 2 _	_		OL	(1.2 to 2.2 ft) Bluish Black (10B 2.5/1) CLAY, little SILT, tr. root, very soft, medium plasticity, blocky structure, slight petrolfierous odor, sharp contact.	100	0	0	SC21-SC03-1020	569
3 -	 568 		СН	(2.2 to 3.5 ft) Dark Greenish Gray (10Y 4/1) CLAY, some SILT, medium stiff to stiff, high plasticity, gradational contact.	100	0	0	SC21-SC03-2040	 _ 568 _
- 4 -	567 		CL	(3.5 to 4.6 ft) Dark Greenish Gray (10Y 4/1) SILT, some SAND, vf to f., some CLAY, tr. GRAVEL, sm to lg. (<3.7 cm), subrounded, stiff, medium plasticity, interval of coarser sand @ -3.7 ft.	73	25	2		- 567 -
- 5 -	566			BOTTOM OF CORE= 4.6 ft below sediment surface; 566.36 ft NAVD88					- 566 -
- 6 - 	— 565 —								- 565 -
-7 -	564 								- 564 -
8 -	563								- 563 -
1	— 562 —								- 562 -

NOTES:

SWAN CREEK SC21.GPJ NNC.GPJ 29/12/21 REV.

- W>LL: Water content greater than the Liquid Limit inhibited field determination of plasticity.



NORTHING 719655.775 **EASTING** 1676450.928 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 568.19 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

DRILLING SUBCONTRACTOR SAMPLING METHOD Vibracore

> CORE REPLICATE LOGGED Α

Affiliated Researchers, LLC **GEOLOGIST** K. Merandi

DATE/TIME COLLECTED 11/6/2021 9:55:00 PM **DATE/TIME PROCESSED** 11/8/2021 10:10:00 AM

CORE RECOVERY 7.4 ft / 93 %

TARGET RECOVERY 70%

SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
	- 568 -		SM	(0 to 0.4 ft) Very Dark Gray (N 3/) SAND, vf to f., some SILT, few CLAY, tr. root, tr. shell fragments, dense, cohesive, nonplastic, no dilatency, gradational.	25	75	0		- 568
	<u> </u>		СН	(0.4 to 0.7 ft) Dark Greenish Gray (10Y 4/1) CLAY, few SILT, soft, high plasticity, gradational contact.	100	0	0	SC21-SC04-0010	-
- 1 —	_ 567 —		SM	(0.7 to 1.3 ft) Dark Greenish Gray (10Y 4/1) SAND, vf., some SILT, few CLAY, dense, low plasticity, sharp contact.	20	70	0		 _ 567
								SC21-SC04-1020	
- 2 —	— 566 —		SM	(1.3 to 3.5 ft) Dark Greenish Gray (10Y 4/1) SAND, vf., little SILT, tr. CLAY, medium dense to dense, cohesive, nonplastic, gradational contact.	40	60	0		 566
- 3 -	565							SC21-SC04-2040	— — 56
	<u> </u>		ML	(3.5 to 4 ft) Dark Greenish Gray (10Y 4/1) SILT, little CLAY, tr. SAND, vf., tr. root/wood fragments, soft, low to medium plasticity, gradational contact.	95	5	0		-
- 4 — - –	_ 564 _ 		SM ML	(4 to 4.2 ft) Dark Greenish Gray (10Y 4/1) SAND, vf., little SILT, tr. CLAY, medium dense to dense, cohesive, nonplastic, gradational contact. (4.2 to 4.5 ft) Dark Greenish Gray (10Y 4/1) SILT, little CLAY, tr. SAND, vf., tr. root/wood fragments, soft, low to medium plasticity, gradational contact.	40 95	60 5	0		_ 56·
- 5 — - –	_ 563 _ 		SM	(4.5 to 6.3 ft) Dark Greenish Gray (10Y 4/1) SAND, vf., little SILT, tr. CLAY, medium dense to dense, cohesive, nonplastic, gradational contact.	40	60	0	SC21-SC04-4060	- 56
Ü	- 562 -								– 56
7 –	 _ 561 _		ML	(6.3 to 7.4 ft) Dark Greenish Gray (10Y 4/1) SILT, some CLAY, few SAND, vf to m., tr. GRAVEL, sm (<1.5 cm), subangular, tr. root/wood fragments, medium stiff to stiff, low plasticity with areas of higher clay/high plasticity.	92	7	1	SC21-SC04-6080	_ _ 56
8 —	 _ 560 —			BOTTOM OF CORE= 7.4 ft below sediment surface; 560.79 ft NAVD88					_ 56
9 –	 559 								— — 55
- \ Liq				r than the rmination of					



NORTHING 719442.16 **EASTING** 1677548.216 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 567.14 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

DRILLING SUBCONTRACTOR SAMPLING METHOD Vibracore

> CORE REPLICATE LOGGED С

Affiliated Researchers, LLC

DATE/TIME COLLECTED 11/7/2021 11:30:00 AM **DATE/TIME PROCESSED** 11/8/2021 11:50:00 AM

GEOLOGIST K. Merandi

CORE RECOVERY 4.6 ft / 105 %

TARGET RECOVERY 70%

DEP IH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
- 1 -	- 567 - 		СН	(0 to 1.2 ft) Grayish Brown (2.5YR 5/2) with areas of Gray (7.5YR 5/1), Olive (5Y 5/6), and Weak Red (10R 5/3), CLAY, tr. GRAVEL, sm. (<3 mm), subangular, tr. SILT, soft to medium stiff, high plasticity, sharp contact.	99	0	1	SC21-SC06-0010	- 567 -
 - 2 -	566 565		СН	(1.2 to 2.6 ft) Gray (5Y 5/1) CLAY, tr. SAND, vf to m., tr. GRAVEL, sm. (<1 cm), tr. SILT, soft to medium stiff, high plasticity.	95	4	1	SC21-SC06-1020	- 566 - - - 565
- 3 -			СН	(2.6 to 2.9 ft) Gray (5Y 5/1) CLAY, little GRAVEL, sm to lg. (<4.6 cm), subangular to subrounded, little SAND, vf to c., subangular to subrounded, high	80	10	10		
 - 4 - 	564 563		СН	\plasticity. (2.9 to 4.6 ft) Gray (5Y 5/1) CLAY, tr. SAND, vf to m., tr. GRAVEL, sm. (<1 cm), tr. mica, stiff to very stiff, high plasticity.	95	4	1	SC21-SC06-2040	— 564 — — 563
- 5 — - — — - 6 —	562 561			BOTTOM OF CORE= 4.6 ft below sediment surface; 562.54 ft NAVD88					- 56 - 56
 - 7 - 	560 - 5	-							_ _ 56
- 8 - - 9 - 	559 558	-							- 55 - - 55
- V Liq	DTES: N>LL: W uid Limit sticity.	ater conte	nt greate ield detei	r than the rmination of					



NORTHING 720131.489 **EASTING** 1678165.814 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 566.29 ft MLLW

Е

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD Vibracore DRILLING SUBCONTRACTOR

CORE REPLICATE LOGGED

GEOLOGIST K. Merandi

Affiliated Researchers, LLC

DATE/TIME COLLECTED 11/7/2021 1:40:00 PM **DATE/TIME PROCESSED** 11/10/2021 9:30:00 AM

CORE RECOVERY 5.9 ft / 98 %

TARGET RECOVERY 70%

SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
	566 		OL	(0 to 0.4 ft) Black (N 2.5/) CLAY, some SILT, few SAND, vf to c., subangular to subrounded, tr. root/wood fragments, very soft, low plasticity, petroliferous odor, cobble @ -4.9 ft, sharp contact.	85	14	1	SC21-SC07-0010	- 566
- 1 -	565 							SC21-SC07-1020	
- 3 -	564 563 		СН	(0.4 to 4.9 ft) Olive Gray (5Y 5/2) CLAY, few SILT, tr. SAND, vf to m., soft, high plasticity, sand fining upwards, very stiff gravel-sized clay pieces througout, sharp contact.	98	2	0	SC21-SC07-2040 SC21-SC07-2040FD	- 564 - - 563
 - 5 -	562 		SM CH	(4.9 to 5.2 ft) Black (N 2.5/) SAND, vf to c., subangular to subrounded, Qtz., some SILT, little CLAY, loose, cohesive, nonplastic, musty odor, gradational contact. (5.2 to 5.7 ft) Olive Gray (5Y 5/2) CLAY, few SILT, tr. SAND, vf to m., soft, high	45 98	55	0	SC21-SC07-4060	- 562 - - 561
- 6 -	560 560			plasticity, sand fining upwards, very stiff gravel-sized clay pieces througout. BOTTOM OF CORE= 5.9 ft below sediment surface; 560.39 ft NAVD88					 560
- 7 — -	559 	-							— 559 —
- 9 -	558 	-							- 558 -
	557 	-							— 557 —
- V Liq	TES: V>LL: W uid Limit sticity.	ater conter inhibited fi	nt greater	r than the rmination of					



NORTHING 720744.112 **EASTING** 1678204.838 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 2.9 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD DRILLING SUBCONTRACTOR Affiliated Researchers, LLC Vibracore

DATE/TIME COLLECTED 11/2/2021 10:40:00 AM CORE REPLICATE LOGGED Α GEOLOGIST K. Merandi

DATE/TIME PROCESSED 11/3/2021 4:15:00 PM **CORE RECOVERY** 1.7 ft / 85 % TARGET RECOVERY 70%

DEPTH BELOW SEDIMENT SURFACE (ft) ELEVATION (ft MILW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
2 - - 1 - 2 -		СН	(0 to 1.7 ft) Dark Gray (2.5Y 4/1) CLAY, tr. SAND, vc., subrounded, tr. SILT, tr. mica, very stiff, high plasticity.	99	1	0	SC21-SC08-0010	 _ 2 _
2 — 1 — — — — — — — — — — — — — — — — —	er conter	nt greater	BOTTOM OF CORE= 1.7 ft below sediment surface; 1.2 ft NAVD88					- 1
plasticity.							PAG	GE 1 OF 1



NORTHING 721014.095 **EASTING** 1678072.253 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 568.69 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD Vibracore

DRILLING SUBCONTRACTOR

Affiliated Researchers, LLC

DATE/TIME COLLECTED 11/8/2021 9:55:00 AM

CORE REPLICATE LOGGED D **GEOLOGIST** K. Merandi

DATE/TIME PROCESSED 11/9/2021 4:10:00 PM

CORE RECOVERY 4.3 ft / 72 %

TARGET RECOVERY 70%

DEPTH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
			OL	(0 to 0.6 ft) Very Dark Gray (5Y 3/1) CLAY, some SILT, few SAND, vf., tr. root, tr. leaves, very soft, low plasticity (w>LL), musty/slightly petroliferous odor, gradational contact.	90	10	0	SC21-SC09-0010	_ 568 -
- 1 - - 2 -	 _ 567 _		ОН	(0.6 to 2.1 ft) Dark Gray (5Y 4/1) CLAY, tr. SILT, very soft, medium to high plasticity, petroliferous odor, siltier interval @ -1.6 ft., gradational contact	100	0	0	SC21-SC09-1020	
-		X3 X3 35 X3	OL SM /	(2.1 to 2.3 ft) Black (5Y 2.5/1) SILT, some CLAY, very soft, medium plasticity, petroliferous odor sharp contact.	100		0		-
	- 566 -		OL	(2.3 to 2.4 ft) Olive Gray (5Y 4/2) SAND, vf to f., some SILT, little CLAY, loose,	95	/I—	0		- 566 -
- 3 −		a. a a	SW SM	\(\cohesive, nonplastic (w>LL), gradational contact.\((2.4 to 2.8 ft) Olive Gray (5Y 4/2) SILT, some CLAY, tr. SAND, vf to f., tr. brick	10	70	20	SC21-SC09-2040	
		1/1/1	OH	\fragments, wood fragments @ -2.8 ft., very soft, medium plasticity, strong petroliferous odor, sharp contact.	100	0	0		
_	— 565 —		SW SC	(2.8 to 3.3 ft) Black (5Y 2.5/1) SAND, vf to vc., subangular to subrounded, Qtz., mafics, little GRAVEL, sm to lg. (<3 cm), subangular to subrounded, few SILT,	15	60	25		- 565 -
- 4 -		0 0	SW	\rightarrow CLAY, dense, noncohesive, slight petroliferous odor, gradational contact. (3.3 to 3.6 ft) Olive Gray (5Y 4/2) CLAY, some SILT, tr. root, medium stiff, high	5	95	0		Ţ
 _ 5 _	564			plasticity, musty odor, sharp contact. (3.6 to 4 ft) Olive Gray (5Y 4/2) SAND, vf to vc., subangular to rounded, some GRAVEL, sm to lg. (<3.5 cm), little SILT, little CLAY, dense, noncohesive, musty odor, sharp contact. (4 to 4.3 ft) Olive Gray (5Y 4/2) SAND, vf to vc., subangular to subrounded, tr.					- 564
 - 6 -	– 563 –			SILT, tr. CLAY, tr. shell fragments, dense, noncohesive.					- 563
•				BOTTOM OF CORE= 4.3 ft below sediment surface; 564.39 ft NAVD88					-
 - 7 -	562 								- 562
	— 561 —	1							- 561 -
- 8 -		-							<u> </u>
 - 9 -	– 560 –								- 560
•									-
	– 559 –								- 559
- V Liqi		ater conte inhibited t		r than the rmination of	•				•
								PΛ	GE 1 OF



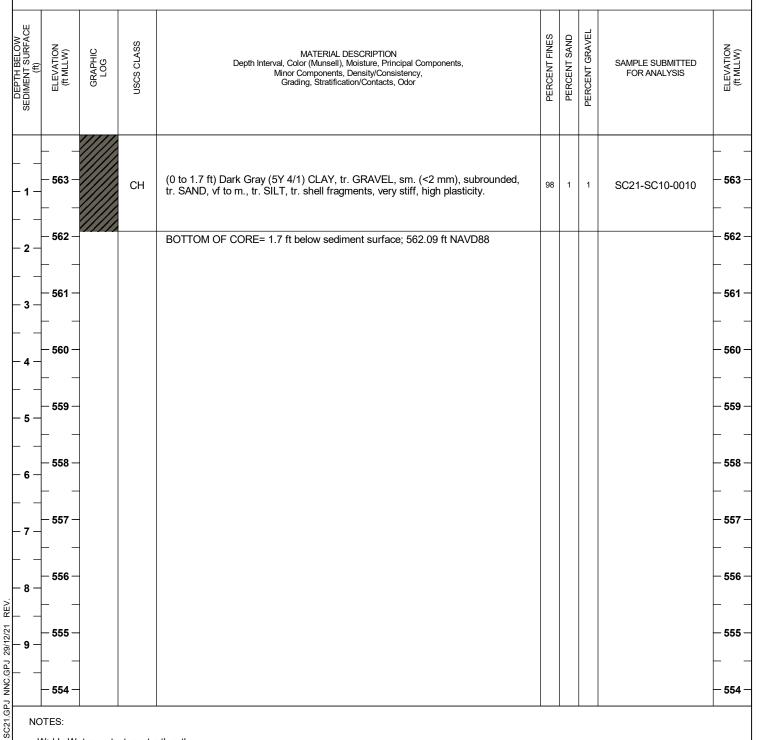
EASTING 1677885.164 SPC OH N USFT (NAD83) **NORTHING** 721427.997 SEDIMENT SURFACE ELEVATION 563.79 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

DRILLING SUBCONTRACTOR SAMPLING METHOD Vibracore Affiliated Researchers, LLC

DATE/TIME COLLECTED 11/4/2021 9:30:00 AM CORE REPLICATE LOGGED GEOLOGIST K. Merandi Α

DATE/TIME PROCESSED 11/5/2021 11:40:00 AM **CORE RECOVERY** 1.7 ft / 142 % **TARGET RECOVERY** 70%



SWAN CREEK

- W>LL: Water content greater than the Liquid Limit inhibited field determination of plasticity.



SPC OH N USFT (NAD83) NORTHING 721860.222 **EASTING** 1677972.675 SEDIMENT SURFACE ELEVATION 569.85 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

Vibracore SAMPLING METHOD DRILLING SUBCONTRACTOR

DATE/TIME COLLECTED 11/8/2021 11:20:00 AM CORE REPLICATE LOGGED

DATE/TIME PROCESSED 11/10/2021 10:45:00 AM

Affiliated Researchers, LLC

Ε GEOLOGIST K. Merandi CORE RECOVERY 3.7 ft / 74 % **TARGET RECOVERY** 70%

PERCENT GRAVEL PERCENT FINES PERCENT SAND ELEVATION (ft MLLW) JSCS CLASS ELEVATION (ft MLLW) GRAPHIC LOG MATERIAL DESCRIPTION SAMPLE SUBMITTED Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, FOR ANALYSIS Grading, Stratification/Contacts, Odor (0 to 0.8 ft) Very Dark Gray (5Y 3/1) CLAY, some SILT, few SAND, vf to f., few OL 90 10 0 leaves/twigs, tr. root, very soft, low plasticity (w>LL), musty odor, sharp contact. SC21-SC11-0010 SC21-SC11-0010FD 569 569 (0.8 to 0.9 ft) Black (N 2.5/) SAND, vf to m., few CLAY, tr. SILT, loose, cohesive, 40 1 60 1 0 SM OL nonplastic, gradational contact. 90 10 0 (0.9 to 1.3 ft) Very Dark Gray (5Y 3/1) CLAY, some SILT, few SAND, vf to f., few SW 3 97 0 SC21-SC11-1020 leaves/twigs, tr. root, very soft, low plasticity (w>LL), musty odor, sharp contact. (1.3 to 1.6 ft) Olive Gray (5Y 4/2) SAND, vf to c., subangular to rounded, Qtz., tr. SW 10 84 6 568 568 SILT, tr. shell fragments, loose, cohesive, nonplastic, gradational contact. (1.6 to 2 ft) Black (5Y 2.5/1) SAND, vf to vc., subangular to rounded, Qtz., few GRAVEL, sm to lg. (<2.5 cm), aubangular, tr. SILT, tr. CLAY, medium dense, noncohesive, sharp contact (2 to 3.7 ft) Olive Gray (5Y 4/2) SILT, some CLAY, tr. SAND, vf., tr. wood 567 - 567 ML 98 2 0 SC21-SC11-2040 fragments, tr. shell fragments, soft to medium stiff, musty odor, intervals of vf to f. sand @ -2.4, -3.0 ft. 566 566 565 5 BOTTOM OF CORE= 3.7 ft below sediment surface; 566.15 ft NAVD88 564 563 563 562 562 8 561 561 NNC.GPJ 560 560

REV

29/12/21

.GPJ SC21.

CREEK

- W>LL: Water content greater than the Liquid Limit inhibited field determination of plasticity.



NORTHING 721816.966 **EASTING** 1678225.387 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 565.25 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD Vibracore DRILLING SUBCONTRACTOR Affiliated Researchers, LLC

DATE/TIME COLLECTED 11/8/2021 11:55:00 AM CORE REPLICATE LOGGED В **GEOLOGIST** K. Merandi

DATE/TIME PROCESSED 11/11/2021 8:00:00 AM **CORE RECOVERY** 3.4 ft / 85 % TARGET RECOVERY 70%

DEPTH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
- 1 - - 2 - 2	565 564 563 563		СН	(0 to 3.4 ft) Dark Gray (5Y 4/1) CLAY, tr. GRAVEL, sm. (<2.5 cm), subangular, tr. SILT, stiff, high plasticity.	99	0	1	SC21-SC12-0010 SC21-SC12-1020 SC21-SC12-2040	- 565 - 564 - - 563 -
- 3 - - 4 - - 5 -	562 561 560			BOTTOM OF CORE= 3.4 ft below sediment surface; 561.85 ft NAVD88				SC21-SC12-2040MS SC21-SC12-2040-MSD	_ 562
- 6	559 _ 								- 559
SWAN CREEK SC21.GPJ NNC.GPJ 29/12/21 REV.	557 556								- 557 - - 556 -
SWAN CREEK SC21.G Pld bld A ON	OTES: V>LL: W uid Limit sticity.	ater conte inhibited f	nt greate field deter	r than the rmination of				PAG	6E 1 OF 1



NORTHING 721082.562 **EASTING** 1679177.171 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 571.44 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

DRILLING SUBCONTRACTOR SAMPLING METHOD Vibracore Affiliated Researchers, LLC

DATE/TIME COLLECTED 11/8/2021 12:55:00 PM CORE REPLICATE LOGGED F **GEOLOGIST** K. Merandi

DATE/TIME PROCESSED 11/9/2021 11:50:00 AM **CORE RECOVERY** 3.9 ft / 65 % TARGET RECOVERY 70%

DEPTH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
	- 571 -		OL	(0 to 0.5 ft) Olive Gray (5Y 4/2) and Greenish Black (10Y 2.5/1) SILT, some CLAY, few SAND, vf to f., few leaves/twigs, very soft, nonplastic, slight musty/petroliferous odor, gradational contact.	93	7	0	SC21-SC13-0010	 571 -
			SM	(0.5 to 0.7 ft) Dark Olive Gray (5Y 3/2) SAND, vf to f., some SILT, few CLAY, cohesive, nonplastic (w>LL), musty odor, woody interval @ -0.7 ft., sharp	40	60	0	3021-3013-0010	L _
- 1 - 	- 570 —		OL	\contact. / (0.7 to 1.6 ft) Olive Gray (5Y 4/2) CLAY, few SILT, tr. SAND, vf to f., tr. wood fragments, tr. leaves, very soft, low to medium plasticity (w>LL), musty odor,	99	1	0	SC21-SC13-1020	570
- 2 -			OL	\(\)interval of leaves @ -2.2 ft. (1.6 to 2.2 ft) Dark Gray (5Y 4/1) and Greenish Black (10Y 2.5/1) SILT, some CLAY, few SAND, vf to f., few leaves/twigs, very soft, nonplastic, gradational	93	7	0		-
_	– 569 –		ОН	contact. (2.2 to 3 ft) Dark Gray (5Y 4/1) CLAY, tr. SILT, very soft, medium to high plasticity, petroliferous odor, gradational contact.	100	0	0		 569 -
- 3 - 	- - 568 -		ОН	(3 to 3.9 ft) Very Dark Gray (5Y 3/1) CLAY, tr. SAND, vf to f., tr. SILT, tr. root, very soft, high plasticity, petroliferous odor.	95	5	0	SC21-SC13-2040 SC21-SC13-2040MS SC21-SC13-2040MSD	568 -
- 4 -	 - 567 								_ 567 -
- 5 - 	– 566 –								– 566 -
- 6 - 	- - 565 -			BOTTOM OF CORE= 3.9 ft below sediment surface; 567.54 ft NAVD88					_ 565 -
- 7 -	-								_
- 8 -									-
_	- 563 -								- 563 -
- 9 -									
	- 562 - -								- 562 - -
- W Liqu		ater conte inhibited t		r than the rmination of	ı	1	ı		E 1 OF 1



NORTHING 721145.649 **EASTING** 1679268.861 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 569.71 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

DRILLING SUBCONTRACTOR SAMPLING METHOD Vibracore

CORE REPLICATE LOGGED

Affiliated Researchers, LLC

DATE/TIME COLLECTED 11/6/2021 4:10:00 PM **DATE/TIME PROCESSED** 11/7/2021 11:40:00 AM Ε **GEOLOGIST** K. Merandi

CORE RECOVERY 4.2 ft / 70 % TARGET RECOVERY 70%

DEPTH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MILW)
 - 1 -	 _ 569 _			(0 to 2.5 ft) Mixture of Dark Gray (5Y 4/1) CLAY, some SILT, tr. SAND, vf., AND Very Dark Gray (N 3/) SILT, some CLAY, tr. SAND, vf. (1% SAND, 99% FINES),				SC21-SC15-0010	_ 569 _
 - 2 -	568		OH	tr. wood fragments, very soft, medium to high plasticity, blocky structure, petroliferous odor, sharp contact.	98	2	0	SC21-SC15-1020	- 568 - - -
- 3 -	— 567 —		OL SM	(2.5 to 2.9 ft) Bluish Black (5PB 2.5/1) CLAY, little SILT, tr. SAND, wood fragments, very soft, medium plasticity, petroliferous odor. (2.9 to 3 ft) Bluish Black (5PB 2.5/1) SAND, vf to m., subrounded to rounded,	95 20	5	0	SC21-SC15-2040	- 567 -
- 4 -	— 566 —		OL	\times \t	95	5	0		- 566 -
- 5 -	— 565 — — -								- 565 -
- 6 - 	564 563			BOTTOM OF CORE= 4.2 ft below sediment surface; 565.51 ft NAVD88					- 564 - - 563 -
- 7 -	 _ 562 _								
9/12/21 REV. 	_								_ 561 _
SC21.GPJ NNC.GPJ 29/12/21	 560 _	_							_
REEK SC21.GF				r than the rmination of					
WAN CREEK bla Lid								PAG	SE 1 OF 1



NORTHING 721001.859 **EASTING** 1680168.359 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 564.33 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD DRILLING SUBCONTRACTOR Affiliated Researchers, LLC Vibracore

DATE/TIME COLLECTED 11/5/2021 4:35:00 PM CORE REPLICATE LOGGED С GEOLOGIST K. Merandi

DATE/TIME PROCESSED 11/7/2021 1:45:00 PM CORE RECOVERY 6.4 ft / 80 % **TARGET RECOVERY** 70%

DEPTH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
	- 564 -		ОН	(0 to 0.7 ft) Very Dark Gray (N 3/) CLAY, few SILT, tr. root/wood fragments, very soft, medium plasticity (w>LL), slight petroliferous odor, gradational contact.	10		0	SC21-SC16-0010	- 564 -
-1-	563 =		OL OH SW	(0.7 to 0.9 ft) Very Dark Gray (N 3/) SILT, little CLAY, tr. GRAVEL, Ig., (<2 cm), subangular, tr. SAND, vf to f., tr. root/wood fragments, soft, cohesive, nonplastic, slight petroliferous odor, sharp contact. (0.9 to 1.1 ft) Very Dark Gray (N 3/) SILT, few CLAY, tr. SAND, vf to f., tr. root/wood fragments, soft, cohesive, nonplastic, slight petroliferous odor, sharp contact.	96 97 100 2	3 0 0 98	0 0	SC21-SC16-1020	
- 2 - 	_ 562 _		OH SM GM	(1.1 to 1.4 ft) Very Dark Gray (N 3/) CLAY, few SILT, tr. root/wood fragments, very soft, medium plasticity (w>LL), slight petroliferous odor, gradational contact. (1.4 to 1.7 ft) Very Dark Gray (5Y 3/1) SAND, vf to vc., subangular to rounded, Qtz., mafics, tr. SILT, tr. CLAY, medium dense, noncohesive, no dilatency, sharp contact.	30	70 15	50		
- 3 - - 4 -	_ 561 _ 		ML CH ML	(1.7 to 2.1 ft) Very Dark Gray (N 3/) CLAY, few SILT, tr. root/wood fragments, very soft, medium plasticity (w>LL), slight petroliferous odor, gradational contact. (2.1 to 2.4 ft) Very Dark Gray (5Y 3/1) SAND, vf to f., some SILT, few CLAY, dense, cohesive, nonplastic, no dilatency, gradational contact. (2.4 to 2.7 ft) Very Dark Gray (5Y 3/1) GRAVEL, sm to lg. (<2.7 cm), subangular	100	0 0	0	SC21-SC16-2040	- 561 -
 - 5 -	_ 560 <u>_</u>		СН	to subrounded, some CLAY, little SAND, vf to c., tr. SILT, loose, noncohesive, gradational. (2.7 to 3.2 ft) Very Dark Gray (5Y 3/1) SILT, some SAND, vf to f., tr. wood fragments, tr. shell fragments, dense, cohesive, nonplastic, slow dilatency, sharp contact.		0	0		- 560 -
- 6 -	559 		ML CH	(3.2 to 3.6 ft) Very Dark Gray (N 3/) CLAY, few SILT, very soft, high plasticity, slight petroliferous odor, gradational contact. (3.6 to 3.9 ft) Very Dark Gray (5Y 3/1) SILT, some SAND, vf to f., tr. wood fragments, tr. shell fragments, dense, cohesive, non-plastic, slow dilatency, sharp contact. (3.9 to 5 ft) Very Dark Gray (N 3/) CLAY, few SILT, very soft, high plasticity,	100		0	SC21-SC16-4060	559
- 7 -	_ 558 _ _ 557 _			\langle Slight petroliferous odor, siltier interval @ -4.3 ft., gradational contact. (5 to 5.2 ft) Very Dark Gray (5Y 3/1) SILT, some SAND, vf to f., tr. wood fragments, tr. shell fragments, dense, cohesive, non-plastic, slow dilatency, sharp contact. (5.2 to 6.4 ft) Very Dark Gray (N 3/) CLAY, few SILT, very soft, high plasticity, slight petroliferous odor, gradational contact.					558
- 8 -	_ 556 _			BOTTOM OF CORE= 6.4 ft below sediment surface; 557.93 ft NAVD88					 556 _
- 6 –	 _ 555 _								 _ 555 _
- V		ater conte		r than the rmination of				PAC	GE 1 OF 1

NOTES:



NORTHING 721362.853 **EASTING** 1680506.715 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 565.14 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD Vibracore DRILLING SUBCONTRACTOR Affiliated Researchers, LLC

DATE/TIME COLLECTED 11/4/2021 1:10:00 PM

CORE REPLICATE LOGGED Α **GEOLOGIST** K. Merandi

DATE/TIME PROCESSED 11/10/2021 1:20:00 PM

CORE RECOVERY 7.4 ft / 93 % TARGET RECOVERY 70%

DEPTH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
1 -	- 565 - 		OL SM CL	(0 to 0.5 ft) Dark Gray (2.5Y 4/1) SILT, some CLAY, tr. SAND, vf to f., very soft, low plasticity (w>LL), slight musty/petroliferous odor, twigs and leaves @ -0.5 ft., sharp contact. (0.5 to 0.6 ft) Dark Gray (N 4/) SAND, vf to m., subrounded to rounded, little SILT, tr. CLAY, tr. shell fragments, loose, cohesive, non-plastic, no dilatency,	95 20 100	80	0	SC21-SC17-0010	- 565 -
2 -	- 564 - 		OL SW SM CL	\musty odor, sharp contact. \((0.6 to 1.1 ft) Dark Gray (N 4/) CLAY, some SILT, very soft, medium plasticity \(\((w>LL)\), petroliferous odor, sharp contact. \((1.1 to 1.3 ft) Black (N 2.5/) CLAY, few SILT, tr. GRAVEL, sm. (<2.5 mm), \(\) angular, slag, tr. SAND, vf to vc., very soft, low plasticity (w>LL), strong	96 15 93	7	0	SC21-SC17-1020	- 564 -
	- 563 - 		OH SP SM /	petroliferous odor, sharp contact. (1.3 to 1.5 ft) Black (5Y 2.5/1) SAND, vf to vc., subangular to subrounded, tr. GRAVEL, sm., few SILT, medium dense, noncohesive, sharp contact. (1.5 to 1.8 ft) Bluish Black (10B 2.5/1) CLAY, little SILT, few SAND, vf., very soft,	93		0		- 563 -
- 3 -	_ 562 <u>_</u>		CL	medium plasticity, petroliferous odor, sharp contact. (1.8 to 2.4 ft) Dark Gray (2.5Y 4/1) CLAY, some SILT, few SAND, vf to f., very soft, medium to high plasticity, slight musty/petroliferous odor, sandier intervals @ -2.1, -2.3 ft., sharp contact.	100		0	SC21-SC17-2040 SC21-SC17-2040MS SC21-SC17-2040MSD	- 562 -
- 4 - - 5 - - 6 -	561 560		СН	(2.4 to 2.5 ft) Dark Gray (N 4/) SAND, vf to m., subrounded to rounded, little SILT, tr. CLAY, tr. shell fragments, loose, cohesive, nonplastic, no dilatency, musty odor, sharp contact. (2.5 to 3.4 ft) Dark Gray (5Y 4/1) CLAY, few SILT, very soft, medium plasticity (w>LL), petroliferous odor, sharp contact. (3.4 to 3.6 ft) Dark Gray (5Y 4/1) SAND, vf to vc., subangular to rounded, Qtz., tr. GRAVEL, sm. (<2.5 mm), few SILT, tr. shell fragments, medium dense, noncohesive, sharp contact. (3.6 to 6.8 ft) Dark Gray (5Y 4/1) CLAY, few SILT, very soft, high plasticity, petroliferous odor, siltier intervals @ -4.4, -5.0, -5.4 ft., sharp contact.	100	0 0	0	SC21-SC17-4060	
- 7 -	559 558		SP SM	(6.8 to 7.4 ft) Dark Gray (5Y 4/1) SAND, vf to f., some SILT, little CLAY, dense, cohesive, low plasticity.	45	55	0	SC21-SC17-6080	- 559 - - 558 -
8 -				BOTTOM OF CORE= 7.4 ft below sediment surface; 557.74 ft NAVD88					_ 557 - _ 5
- 9	_ 556 _ 								- 556 -
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NOTES:



NORTHING 721765.847 **EASTING** 1681254.504 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 563.77 ft MLLW

Α

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

DRILLING SUBCONTRACTOR SAMPLING METHOD Vibracore

CORE REPLICATE LOGGED

Affiliated Researchers, LLC

DATE/TIME COLLECTED 11/4/2021 10:35:00 AM

GEOLOGIST K. Merandi

DATE/TIME PROCESSED 11/5/2021 1:45:00 PM

CORE RECOVERY 5.2 ft / 72 %

TARGET RECOVERY 70%

DEPTH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
- 1 -			GC SM / OH /	(0 to 0.4 ft) Black (N 2.5/) GRAVEL, sm to lg. (<3 cm), angular to subangular, little SAND, vf to vc., subangular to subrounded, few CLAY, tr. SILT, tr. shell fragments, dense, noncohesive, musty odor, gradational contact. (0.4 to 0.5 ft) Black (N 2.5/) SAND, vf to vc., some SILT tr. CLAY, loose, noncohesive, slight petroliferous odor, sharp contact. (0.5 to 0.6 ft) Black (N 2.5/) CLAY, tr. SAND, vf to f., very soft, medium to high plasticity (w>LL), petroliferous odor, sharp contact. (0.6 to 1.7 ft) Dark Gray (N 4/) CLAY, tr. SAND, vf to f., tr. SILT, very soft, medium plasticity, faint musty odor, gradational contact.	25 25 95 98	15 75 5 2		SC21-SC19-0010 SC21-SC19-1020	- 563 - - 562 -
- 2 - 3 - 	 561 _ 		ОН	(1.7 to 3.7 ft) Dark Gray (N 4/) CLAY, tr. SAND, vf to f., little SILT, tr. shell fragments, tr. root/plant material, very soft, medium to high plasticity, faint musty odor, sharp contact.	98	2	0	SC21-SC19-2040	
- 4 - - 5 -	560 559		СН	(3.7 to 5.2 ft) Black (N 2.5/) CLAY, tr. SAND, vf to f., very soft, medium to high plasticity, petroliferous odor.	95	5	0	SC21-SC19-4060	- 560 - 559
- 6				BOTTOM OF CORE= 5.2 ft below sediment surface; 558.57 ft NAVD88					- 558 557 - 556 555 554
- V Liq		ater conte inhibited t		r than the rmination of	1			PAG	GE 1 OF



NORTHING 721753.273 **EASTING** 1681590.077 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 554.45 ft MLLW

В

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD Vibracore

DRILLING SUBCONTRACTOR

Affiliated Researchers, LLC

DATE/TIME COLLECTED 11/4/2021 12:20:00 PM

CORE REPLICATE LOGGED

GEOLOGIST K. Merandi

DATE/TIME PROCESSED 11/5/2021 10:30:00 AM

CORE RECOVERY 2.1 ft / 111 %

TARGET RECOVERY 70%

DEPTH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
	— 554 —			(0 to 2.1 ft) Dark Gray (5Y 4/1) CLAY tr. GRAVEL sm. (<7 mm) subrounded				SC21-SC20-0010	— 554
 _ 2 _	553 		CH	(0 to 2.1 ft) Dark Gray (5Y 4/1) CLAY, tr. GRAVEL, sm. (<7 mm), subrounded, tr. SILT, very stiff, high plasticity.	99	0	1	SC21-SC20-1020	- 553
	— 552 —			BOTTOM OF CORE= 2.1 ft below sediment surface; 552.35 ft NAVD88					
- 3 - 	 551								_ _ 551
- 4 - 	 550								_ _ 550
- 5 -	 — 549 —								_ _ 549
- 6 -									-
 - 7 -	— 548 — — — —								- 548
- 8 -	547 								547
 - 9 -	546 								- 546
	— 545 —								– 545
- V Liqi	OTES: V>LL: Wauid Limit sticity.	ater conte inhibited f	nt greater	r than the mination of			<u> </u>		<u> </u>



NORTHING 721555.622 **EASTING** 1681974.307 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 568.01 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD DRILLING SUBCONTRACTOR Affiliated Researchers, LLC Vibracore

DATE/TIME COLLECTED 11/4/2021 11:30:00 AM CORE REPLICATE LOGGED D GEOLOGIST K. Merandi

DATE/TIME PROCESSED 11/5/2021 8:45:00 AM CORE RECOVERY 4.3 ft / 80 % **TARGET RECOVERY** 70%

DEPTH BELOW SEDIMENT SURFACE (ft) ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
		GC	(0 to 0.2 ft) Black (N 2.5/) GRAVEL, sm to lg., (<5.5 cm), angular, some CLAY, few SAND, few SILT, loose, cohesive, medium plasticity in intervals with less	35	15	50		
1 567		ОН	\(\)\(\)\(\)\(\)\(\)\(\)\(\)\(\)\(\)\(\	100	0	0	SC21-SC21-0010	 _ 567 _
		SM	(1.3 to 1.5 ft) Greenish Black (10Y 2.5/1) SAND, vf to f., some SILT, tr. CLAY, tr.	45	55	0	SC21-SC21-1020	
_ 2 566		ОН	mica, medium dense, cohesive, nonplastic, no dilatency, slight musty odor, sharp / contact. (1.5 to 2.2 ft) Greenish Black (10Y 2.5/1) CLAY, little SILT, very soft, medium	100	0	0	3021-3021-1020	— 566 —
		ОН	plasticity, petroliferous odor, siltier interval @ -1.8 ft., sharp contact. (2.2 to 2.9 ft) Bluish Black (10PB 2.5/1) CLAY, little SILT, few SAND, vf to f.,	85	15	0		
3 565		SM	soft, high plasticity, blocky structure, musty odor, sharp contact. (2.9 to 3.1 ft) Greenish Black (10Y 2.5/1) SAND, vf to c., subrounded to rounded,	25				— 565 —
		SIVI	few CLAY, tr. SILT, tr. shell, dense, noncohesive, no dilatency, sharp contact.	25	13		SC21-SC21-2040 SC21-SC21-2040MS	303
4 564		ОН	(3.1 to 4.3 ft) Bluish Black (10PB 2.5/1) CLAY, little SILT, few SAND, vf to f., soft, high plasticity, blocky structure, musty odor, siltier interval @ -3.3 ft.	85	15	0	SC21-SC21-2040MSD	_ 564 _
- 5 - 563			BOTTOM OF CORE= 4.3 ft below sediment surface; 563.71 ft NAVD88					- 563 562 561 560 559
NOTES: W>LL: Wa Liquid Limit plasticity.								

NOTES:



NORTHING 721344.641 **EASTING** 1682480.599 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 563 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD Vibracore DRILLING SUBCONTRACTOR Affiliated Researchers, LLC

DATE/TIME COLLECTED 11/3/2021 4:15:00 PM CORE REPLICATE LOGGED Α GEOLOGIST K. Merandi

DATE/TIME PROCESSED 11/4/2021 10:35:00 AM CORE RECOVERY 2.9 ft / 81 % **TARGET RECOVERY** 70%

DEPTH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
			OL	(0 to 0.5 ft) Very Dark Gray (N 3/) CLAY, tr. SAND, f., tr. SILT, few wood fragments, medium plasticity, faint musty odor, sharp contact.	98	2	0		
			СН	(0.5 to 0.9 ft) Dark Gray (5Y 4/1) CLAY, little SILT, tr. GRAVEL, sm. (<5 mm), angular, tr. SAND, vf., soft, high plasticity (w>LL), faint sweet/musty odor, sharp	98	1	1	SC21-SC22-0010	
1-	- 562 -		CH ML	contact. (0.9 to 1.1 ft) Dark Gray (5Y 4/1) CLAY, little SILT, few GRAVEL, sm to lg. (<2	80 85	10			
-			CH	cm), angular to subangular, few SAND, vf to vc., subangular to subrounded, brick fragments, wood fragments, soft, high plasticity (w>LL), faint sweet/musty odor,		0	0	SC21-SC22-1020	
2 –	_ 561 <u>_</u>		ML	\\sharp contact. \\((1.1 to 1.3 ft) Very Dark Greenish Gray (10Y 3/1) SILT, few SAND, vf to f., fining	55	45	0		561
-			SC	Upward, tr. shell fragments, cohesive, nonplastic, no dilatency, sharp contact(1.3 to 1.8 ft) Greenish Gray (10Y 5/1), CLAY, tr. SILT, medium stiff, high	30	55	15		
- 3 -	— 560 —		30	\ \ \ \ \ \ \ \ \ \ \ \ \	30	33	13	SC21-SC22-2040	- 560 -
- 4 -	— 559 —			BOTTOM OF CORE= 2.9 ft below sediment surface; 560.1 ft NAVD88					559
-									
- 5 -	— 558 —								- 558 -
- 6 -	557 _ 5								_ 557 _
7-	— 556 —								- 556 -
	336 -								330
	_								
REV. —	— 555 — 								— 555 —
29/12/21	— 554 —								- 554 -
NNC									
¥ - V	DTES: W>LL: Wa Juid Limit Insticity.	ater conte inhibited t	nt greate field deter	r than the rmination of				PAC	GE 1 OF 1

NOTES:



 NORTHING
 721739.817
 EASTING
 1683045.229
 SPC OH N USFT (NAD83)

 SEDIMENT SURFACE ELEVATION
 567.99 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD Vibracore DRILLING SUBCONTRACTOR Affiliated Researchers, LLC

DATE/TIME COLLECTED 11/3/2021 3:40:00 PM CORE REPLICATE LOGGED C GEOLOGIST K. Merandi

DATE/TIME PROCESSED 11/5/2021 3:50:00 PM **CORE RECOVERY** 3.7 ft / 79 % **TARGET RECOVERY** 70%

DEP IN BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
- 1 -	 _ 567 _		OL OH	(0 to 1.4 ft) Black (N 2.5/) CLAY, some SILT, tr. SAND, vf to f., few root/wood fragments, very soft, medium plasticity (w>LL), blocky structure, slight sweet/petroliferous odor, sharp contact.	97	3	0	SC21-SC23-0010	567 -
			CH OL	(1.4 to 1.6 ft) Olive Gray (5Y 5/2) CLAY, tr. SILT, very soft, high plasticity, musty odor, sharp contact.	100	7	0	SC21-SC23-1020	-
- 2 -	— 566 —		OH	\(\) (1.6 to 1.8 ft) Black (N 2.5/) SILT, some CLAY, few SAND, vf to f., soft, low \(\) plasticity, musty/petroliferous odor, sharp contact. \(\) (1.8 to 2 ft) Dark Olive Gray (5Y 3/2) CLAY, some SILT, very soft, high plasticity,	100	0	0		
- 3 -			OL OH	petroliferous odor, gradational contact. (2 to 3.7 ft) Mixture of Black (N 2.5/) SILT, some CLAY, few SAND, vf to f., soft, low plasticity AND Dark Olive Gray (5Y 3/2) CLAY, some SILT, very soft, high plasticity, petroliferous odor.	97	3	0	SC21-SC23-2040	- 565 -
4 -	— 564 —	<i>/,'/,</i> '							
5 -	_			BOTTOM OF CORE= 3.7 ft below sediment surface; 564.29 ft NAVD88					- 563 -
- 6 -	_								_ 562 -
									-
7 -	— 561 —								- 561 -
8 -	_								_ 560 <u>_</u>
- 9 —	— 559 —								- 559 -
									-
									<u> </u>

NOTES:

SWAN CREEK SC21.GPJ NNC.GPJ 29/12/21 REV

- W>LL: Water content greater than the Liquid Limit inhibited field determination of plasticity.



NORTHING 722020.471 **EASTING** 1683213.156 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 563.73 ft MLLW

Α

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD Vibracore DRILLING SUBCONTRACTOR

CORE REPLICATE LOGGED

Affiliated Researchers, LLC

DATE/TIME COLLECTED 11/3/2021 1:55:00 PM

GEOLOGIST K. Merandi

DATE/TIME PROCESSED 11/5/2021 2:50:00 PM

CORE RECOVERY 4.3 ft / 66 %

TARGET RECOVERY 70%

DEPTH BELOW SEDIMENT SURFACE (ft) ELEVATION (ft MILW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
- 563 - 1 562 - 2 -		ОН	(0 to 2.4 ft) Black (N 2.5/) CLAY, tr. SAND, vf to f., tr. SILT, few wood fragments, very soft, medium to high plasticity, petroliferous odor, sharp contact.	99	1	0	SC21-SC24-0010 SC21-SC24-1020	- 563 -
- 561 - 3		OH OH SM OH	(2.4 to 2.5 ft) Black (N 2.5/) CLAY, few SAND, vf to m., tr. SILT, very soft, medium to high plasticity (w>LL), petroliferous odor, sharp contact. (2.5 to 3.9 ft) Dark Gray (N 4/) CLAY, little SILT, tr. SAND, vf to c., tr. wood fragments, soft, high plasticity, strong petroliferous odor, sharp contact. (3.9 to 4 ft) Dark Gray (5Y 4/1) SAND, vf to vc., subangular to subrounded, little SILT, few CLAY, loost, cohesive, nonplastic, strong petroliferous odor, sharp contact. (4 to 4.3 ft) Dark Gray (N 4/) CLAY, little SILT, tr. SAND, vf to c., tr. wood	99 95 20 95	5	0	SC21-SC24-2040	- 561 560 559 -
- 5 - - 558 - 6 - - 557 - 7 -	_ _ _		\fragments, soft, high plasticity, strong petroliferous odor. BOTTOM OF CORE= 4.3 ft below sediment surface; 559.43 ft NAVD88					- 558 - - 557 -
SPJ 29/12/21 REV. - 6 - - 8 - - 8 - - - - - -	_							- 556 - - 555 -
	Vater conte		r than the rmination of					- 554 -



DATE/TIME PROCESSED

SEDIMENT BORING SC21-SC25

 NORTHING
 722289.678
 EASTING
 1683750.169
 SPC OH N USFT (NAD83)

 SEDIMENT SURFACE ELEVATION
 572.12 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

11/4/2021 8:25:00 AM

SAMPLING METHOD Vibracore DRILLING SUBCONTRACTOR

DATE/TIME COLLECTED 11/3/2021 1:30:00 PM

CORE REPLICATE LOGGED A

GEOLOGIST K. Merandi

Affiliated Researchers, LLC

CORE RECOVERY 5.6 ft / 70 %

TARGET RECOVERY 70%

PERCENT GRAVEL PERCENT FINES PERCENT SAND JSCS CLASS ELEVATION (ft MLLW) ELEVATION (ft MLLW) GRAPHIC LOG MATERIAL DESCRIPTION SAMPLE SUBMITTED Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, FOR ANALYSIS Grading, Stratification/Contacts, Odor - 572 -- 572 SC21-SC25-0010 571 SC21-SC25-1020 (0 to 3.6 ft) Very Dark Gray (5Y 3/1) CLAY, few SAND, vf to f., tr. SILT, few CI wood fragments, very soft, cohesive, low to medium plasticity (w>LL), 85 15 0 musty/petroliferous odor, sharp contact. 570 SC21-SC25-2040 569 SC21-SC25-2040FD (3.6 to 4.5 ft) Bluish Black (5PB 2.5/1) SAND, vf to m., subrounded to rounded, 35 65 n SM some SILT, tr. CLAY, tr. shell fragments, medium dense, nonplastic, rapid 568 568 dilatency, petroliferous odor, sharp contact. (4.5 to 5.1 ft) Black (N 2.5/) CLAY, tr. SILT, very soft, high plasticity, petroliferous CH 100 0 0 SC21-SC25-4060 odor, sharp contact. 567 567 (5.1 to 5.6 ft) Bluish Black (5PB 2.5/1) CLAY, few SAND, vf to f., tr. SILT, few ОН 85 15 0 wood fragments, very soft, cohesive, low to medium plasticity (w>LL), musty/petroliferous odor, sharp contact.

BOTTOM OF CORE= 5.6 ft below sediment surface; 566.52 ft NAVD88

NOTES:

566

565

564

563

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29/12/21

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.GPJ

SC21.

SWAN CREEK

 W>LL: Water content greater than the Liquid Limit inhibited field determination of plasticity.

PAGE 1 OF 1

566

565

564

563



DATE/TIME COLLECTED

SEDIMENT BORING SC21-SC26

EASTING 1684181.605 SPC OH N USFT (NAD83) NORTHING 722034.135 SEDIMENT SURFACE ELEVATION 565.67 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

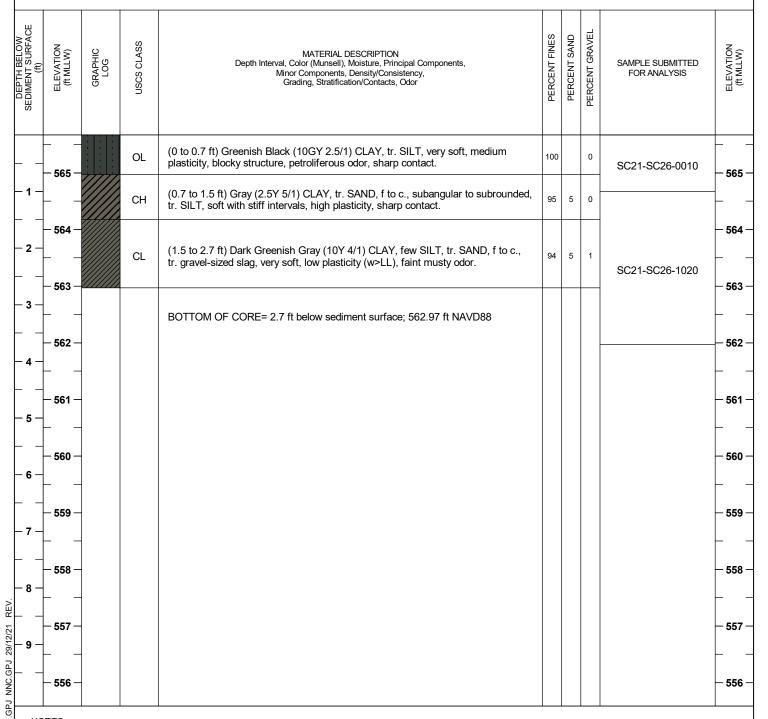
DRILLING SUBCONTRACTOR SAMPLING METHOD Vibracore 11/3/2021 12:15:00 PM

CORE REPLICATE LOGGED Α Affiliated Researchers, LLC

DATE/TIME PROCESSED 11/3/2021 3:10:00 PM

GEOLOGIST K. Merandi

CORE RECOVERY 2.7 ft / 87 % **TARGET RECOVERY** 70%



NOTES:

SC21.

SWAN CREEK

- W>LL: Water content greater than the Liquid Limit inhibited field determination of plasticity.



DATE/TIME COLLECTED 11/3/2021 11:50:00 AM

DATE/TIME PROCESSED 11/4/2021 2:15:00 PM

SEDIMENT BORING SC21-SC28

NORTHING 722239.907 **EASTING** 1684609.379 SPC OH N USFT (NAD83)

566.82 ft MLLW

Affiliated Researchers, LLC

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD Vibracore DRILLING SUBCONTRACTOR

> CORE REPLICATE LOGGED Α **GEOLOGIST** K. Merandi

SEDIMENT SURFACE ELEVATION

CORE RECOVERY 5.3 ft / 96 % TARGET RECOVERY 70%

DEPTH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
_			ОН	(0 to 0.6 ft) Bluish Black (5PB 2.5/1) CLAY, few SAND, vf to m., few SILT, fining upward, tr. wood fragments, very soft, high plasticity (w>LL), petroliferous odor, sharp contact.	90	10	0	SC21-SC28-0010 SC21-SC28-0010FD	
1-1-	— 566 — —		СН	(0.6 to 1.5 ft) Very Dark Gray (N 3/) CLAY, tr. SILT, soft, high plasticity, petroliferous odor, sharp contact.	100	0	0		_ 566 _
- 2 -	— 565 — 		OH CH CL /	(1.5 to 1.7 ft) Bluish Black (5PB 2.5/1) CLAY, little SILT, few SAND, vf to f., tr. wood fragments, very soft, medium to high plasticity (w>LL), blocky structure. (1.7 to 2 ft) Very Dark Gray (N 3/) CLAY, tr. SILT, soft, high plasticity, petroliferous odor, sharp contact.	100 100 75 97	$\overline{}$	0 0 10 0	SC21-SC28-1020	_ 565 _
- 3 - - 4 -	564 563		СН	(2 to 2.1 ft) Dark Gray (5Y 4/1) CLAY, few SAND vf to vc., subangular to subrounded, Qtz., few GRAVEL, sm to lg. (<2.1 cm), subangular to subrounded, ltr. SILT, soft, noncohesive, sharp contact. (2.1 to 2.4 ft) Grayish Brown (10YR 5/2) CLAY, tr. SAND, vf to f., tr. SILT, soft, high plasticity, sharp contact. (2.4 to 4.4 ft) Very Dark Gray (N 3/) CLAY, tr. SILT, soft, high plasticity, petroliferous odor, sharp contact.	100		0	SC21-SC28-2040 SC21-SC28-2040MS SC21-SC28-2040MSD	- 564 - - 563 -
- 5 -	 562		СН	(4.4 to 5.3 ft) Very Dark Gray (N 3/) CLAY, tr. GRAVEL, lg., subangular, tr. SAND, m to c., tr. SILT, soft, high plasticity, petroliferous/musty odor.	90	5	5	SC21-SC28-4060	_
- 6 -	 _ 561 _			BOTTOM OF CORE= 5.3 ft below sediment surface; 561.52 ft NAVD88					561 <u></u>
7 -	— 560 —								560 <u></u>
- 8 - >	— 559 —								— 559 —
9 29/12/21 REV.	558 <u></u>								558 <u></u>
SC21.GPJ NNC.GPJ	 557								557 <u></u>
H Liq		ater conte inhibited f		r than the rmination of					
SWAN								PAG	E 1 OF 1



NORTHING 722508.769 **EASTING** 1684846.395 SPC OH N USFT (NAD83)

560.6 ft MLLW

Affiliated Researchers, LLC

GEOLOGIST K. Merandi

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

Vibracore SAMPLING METHOD DRILLING SUBCONTRACTOR

DATE/TIME COLLECTED 11/3/2021 9:50:00 AM CORE REPLICATE LOGGED

DATE/TIME PROCESSED 11/3/2021 2:25:00 PM CORE RECOVERY 1.7 ft / 61 %

TARGET RECOVERY 70%

SEDIMENT SURFACE ELEVATION

DEPTH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
			CL	(0 to 0.6 ft) Black (N 2.5/) CLAY, little GRAVEL, sm to lg., angular to subrounded, little SAND, vf to vc., subangular to subrounded, tr. SILT, tr. root, tr. glass, nail, loose/soft, cohesive, nonplastic, petroliferous odor, gradational	70	15	15		 _ 560 —
- 1 -			ОН	contact. (0.6 to 1.7 ft) Very Dark Gray (N 3/) CLAY, tr. SAND, vf to c., tr. SILT, tr. root/wood fragments, soft, cohesive, medium to high plasticity (w>LL), petroliferous, slightly sweet odor.	98	2	0	SC21-SC29-0010	 559 —
- 2 -	 - 								
 - 3 -	558 	-		BOTTOM OF CORE= 1.7 ft below sediment surface; 558.9 ft NAVD88					- 558 -
 - 4 -	557 <i></i>	-							- 557 -
5 -	556 <u></u>								- 556 - -
6 -	555 <u></u>								- 555 -
 - 7 -	554 <u></u>								_ 554 <u>_</u>
	553 _								553
29/12/21 REV.	 _ 552 _								 _ 552 _
SC21.GPJ NNC.GPJ 29/	 551								 _ 551 _
H Lic	DTES: W>LL: Ward Limit pasticity.	ater conte inhibited t	ent greate field deter	r than the rmination of	ı	ı	l	ı	



 NORTHING
 722886.334
 EASTING
 1685112.311
 SPC OH N USFT (NAD83)

 SEDIMENT SURFACE ELEVATION
 562.92 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD Vibracore DRILLING SUBCONTRACTOR Affiliated Researchers, LLC

DATE/TIME COLLECTED 11/3/2021 9:15:00 AM CORE REPLICATE LOGGED D GEOLOGIST K. Merandi

DATE/TIME PROCESSED 11/4/2021 12:00:00 PM CORE RECOVERY 3.4 ft / 83 % TARGET RECOVERY 70%

DEPTH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
			ОН	(0 to 0.5 ft) Bluish Black (10B 2.5/1) CLAY, tr. SAND, vf to f., tr. SILT, very soft, medium to high plasticity, blocky structure, petroliferous odor, sharp contact.	99	1	0	SC21-SC30-0010	
-1-	_ 562 _								562
_ 2 -	561 <u></u>		ОН	(0.5 to 3.4 ft) Black (N 2.5/) CLAY, tr. SILT, tr. wood fragments, very soft, medium to high plasticity, blocky structure, petroliferous odor.	100	0	0	SC21-SC30-1020	561
- 3 -	560 —							SC21-SC30-2040	 _ 560 _
- 4 -	559			BOTTOM OF CORE= 3.4 ft below sediment surface; 559.52 ft NAVD88					- 559 -
- 5 -	558 <u></u>								- 558 -
- 6 -	_ 557 —								- 557 -
- 7 -	556								- 556 -
-									
- 8 –									
9 -	_ 554 —								- 554 -
									 _ 553 _

NOTES:

SWAN CREEK SC21.GPJ NNC.GPJ 29/12/21 REV.

 W>LL: Water content greater than the Liquid Limit inhibited field determination of plasticity.



NORTHING 723305.641 **EASTING** 1685477.31 SPC OH N USFT (NAD83) SEDIMENT SURFACE ELEVATION 564.56 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD Vibracore

DATE/TIME COLLECTED 11/2/2021 4:10:00 PM

DATE/TIME PROCESSED 11/3/2021 9:20:00 AM

DRILLING SUBCONTRACTOR Affiliated Researchers, LLC

CORE REPLICATE LOGGED Α **GEOLOGIST** K. Merandi

CORE RECOVERY 7.7 ft / 96 % TARGET RECOVERY 70%

DEPTH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
	— 564 —		ML	(0 to 0.9 ft) Very Dark Greenish Gray (10Y 3/1) SILT, some CLAY, tr. SAND, vf., tr. root/plant material, very soft, low plasticity (w>LL), faint musty odor, sharp contact.	99	1	0	SC21-SC31-0010	- 564 -
- 1 - - 2 -	 563 _							SC21-SC31-1020	 _ 563 -
	562 _ 		ОН	(0.9 to 3.8 ft) Very Dark Gray (N 3/) CLAY, tr. SILT, soft, medium to high plasticity, petroliferous odor, sharp contact.	100	0	0	SC21-SC31-2040	- 562 -
- 4 -	561			(3.8 to 4.6 ft) Black (N 2.5/) CLAY, tr. SAND, f to m., tr. SILT, soft to medium				-	561 <u></u>
	— 560 —		OH	stiff, medium to high plasticity, petroliferous odor, gradational contact. (4.6 to 5 ft) Black (N 2.5/) CLAY, few SAND, f to m., some SILT, tr. root, soft to	99	1	0		- 560 -
- 5 -			OL SM	medium stiff, medium plasticity, strong petroliferous odor, sharp contact. (5 to 5.6 ft) Very Dark Greenish Gray (10Y 3/1) SAND, vf to f., some SILT, few CLAY, tr. shell fragments, tr. plant material, medium dense, cohesive, low	40	10 60	0	SC21-SC31-4060	
- 6 -	— 559 — —		OL	plasticity, interval of high clay content @ -5.3 ft., gradational contact. (5.6 to 6.1 ft) Black (N 2.5/) CLAY, few SAND, f to m., some SILT, tr. root, soft to medium stiff, medium plasticity, strong petroliferous odor, sharp contact.	90	10	0		559
	— 558 —		SM	(6.1 to 6.3 ft) Very Dark Greenish Gray (10Y 3/1) SAND, vf to f., some SILT, few CLAY, tr. shell fragments, tr. plant material, medium dense, cohesive, low plasticity, gradational contact.	40_	60	0		- 558 -
7 -			ОН	(6.3 to 7.7 ft) Black (N 2.5/) CLAY, tr. SAND, f to m., tr. SILT, soft to medium stiff, medium to high plasticity, petroliferous odor, gradational contact.	99	1	0	SC21-SC31-6080	-
8-	557 	<u>////</u>		BOTTOM OF CORE= 7.7 ft below sediment surface; 556.86 ft NAVD88					557 -
29/12/21 REV.	— 556 —								 556 -
NNC.GPJ 28	555 <u>_</u>								— 555 –
∑ Y Liq Liq			ent greatei field deter	r than the mination of				PAC	GE 1 OF 1



SEDIMENT BORING SC21-SC32

 NORTHING
 723466.943
 EASTING
 1685837.295
 SPC OH N USFT (NAD83)

 SEDIMENT SURFACE ELEVATION
 569.28 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD Vibracore DRILLING SUBCONTRACTOR

DATE/TIME COLLECTED 11/2/2021 3:30:00 PM CORE REPLICATE LOGGED

Affiliated Researchers, LLC

A GEOLOGIST K. Merandi

DATE/TIME PROCESSED 11/3/2021 11:50:00 AM

CORE RECOVERY 7.8 ft / 98 %

TARGET RECOVERY 70%

DEPTH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)
	569 							SC21-SC32-0010	- 569 -
	568 			(0 to 4.4 ft) Dark Greenish Gray (10Y 4/1) CLAY, tr. SILT, tr. shell fragments, very soft, medium to high plasticity (w>LL), sharp contact.		0		SC21-SC32-1020	_ 568 <u>_</u>
- 2 - 	567 		CH		100		0		567
- 3 - 	566 	5-						SC21-SC32-2040	- 566 -
-4-	– 565 –								- 565 -
- 5 -	 _ 564 —		ML	(4.4 to 5.3 ft) Dark Greenish Gray (10Y 4/1) SILT, few CLAY, tr. SAND, vf to f., tr. mica, stiff, low plasticity, gradational contact.	97	3	0	SC21-SC32-4060	
6 -	 _ 563 _	СН		(5.3 to 6.6 ft) Dark Greenish Gray (10Y 4/1) CLAY, little SILT, tr. shell fragments, very soft, medium to high plasticity (w>LL), gradational contact.	100	0	0		
	_ 563 _			(6.6 to 7 ft) Dark Gray (5Y 4/1) SAND, vf to m., subangular to subrounded, Qtz.,			_		_ 563 _
7 -	ECO	/////	SP	mafics, tr. SILT, tr. mica, dense, cohesive, nonplastic, sharp contact.	1	1 99 0	0	SC21-SC32-6080	- 562 -
	— 562 —		СН	(7 to 7.8 ft) Dark Greenish Gray (10Y 4/1) CLAY, little SILT, tr. shell fragments, very soft, medium to high plasticity (w>LL).	100	0	0		- 562 -
- 8 - 	 561 —			BOTTOM OF CORE= 7.8 ft below sediment surface; 561.48 ft NAVD88					561 <u></u>
_ 9 _ 	_								_ 560 <u>_</u>

NOTES:

SWAN CREEK SC21.GPJ NNC.GPJ 29/12/21 REV.

- W>LL: Water content greater than the Liquid Limit inhibited field determination of plasticity.

PAGE 1 OF 1



SEDIMENT BORING SC21-SC33

NORTHING 723725.98 **EASTING** 1686004.478 SPC OH N USFT (NAD83)

SEDIMENT SURFACE ELEVATION 562.53 ft MLLW

PROJECT NAME AND NUMBER Swan Creek Sediment Assessment (1571806)

SAMPLING METHOD DRILLING SUBCONTRACTOR Affiliated Researchers, LLC Vibracore

DATE/TIME COLLECTED 11/3/2021 8:50:00 AM CORE REPLICATE LOGGED GEOLOGIST K. Merandi

DATE/TIME PROCESSED 11/4/2021 4:20:00 PM **CORE RECOVERY** 3.3 ft / 79 % **TARGET RECOVERY** 70%

DEPTH BELOW SEDIMENT SURFACE (ft)	ELEVATION (ft MLLW)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION Depth Interval, Color (Munsell), Moisture, Principal Components, Minor Components, Density/Consistency, Grading, Stratification/Contacts, Odor	PERCENT FINES	PERCENT SAND	PERCENT GRAVEL	SAMPLE SUBMITTED FOR ANALYSIS	ELEVATION (ft MLLW)		
	562		ОН	(0 to 0.7 ft) Very Dark Gray (5Y 3/1) CLAY, tr. SAND, f to c., subrounded, Qtz., tr. SILT, tr. wood fragments, very soft, medium to high plasticity (w>LL), musty odor, gradational contact.	95	5	0	SC21-SC33-0010	- 562 -		
-1-	-		OL	(0.7 to 1.2 ft) Greenish Black (10Y 2.5/1) SILT, some GRAVEL, sm to lg. (<6.5 cm), subangular, little SAND, vf to vc., subangular to subrounded, Qtz., few CLAY, tr. wood fragments, loose, cohesive, nonplastic, faint petroliferous odor,	50	20	30		+ -		
	561 —		OL	\sharp contact. / (1.2 to 1.7 ft) Black (N 2.5/) CLAY, little SAND, vf to vc., subangular to rounded, few GRAVEL, sm to lg. (<4 cm), subangular to subrounded, tr. SILT, fining	60	25	15	SC21-SC33-1020	- 561 -		
- 3 -	560		ОН	\upward, soft, cohesive, low plasticity, petroliferous odor, sharp contact. (1.7 to 3.3 ft) Black (N 2.5/) CLAY, little SAND, vf to vc., subangular to rounded, few GRAVEL, sm to lg. (<4 cm), subangular to subrounded, few SILT, soft, cohesive, low plasticity, blocky structure, petroliferous odor.	60	25	15	SC21-SC33-2040			
-	559 —	,,,,							_ _ 559 _		
- 4	558 —			BOTTOM OF CORE= 3.3 ft below sediment surface; 559.23 ft NAVD88					 _ 558 _		
	557 —								_ 557 <u>_</u>		
- 6	_ 556 —								 _ 556 _		
7 -	555 —								 - 555 -		
8 —	-										
1/21 REV.	554 —								- 554 -		
NNC.GPJ 29/12/21	_ 553 —								 _ 553 _		
ン ・ W> Liquid											

EA Project No.: 15834.06
Revision: 00

Table B-1. Core Sample Coordinates and Depth of Refusal, Swan Creek Assessment of Contaminated Sediments, Maumee River Area of Concern, Toledo, Ohio

			Target C	oordinates	Actua	al Coordinates			
Location ID	Date Collected	Time Collected	Y	X	Y	X	Depth of	Field Notes	
Location 1D	Date Conected	(local)	NAD 1983 StatePlane Ohio North FIPS 3401 Feet		NAD83 State Plane Ohio North (US Feet)		Refusal (ft)	Field Notes	
SC21-SC02a	11/5/2021	1110	719869.35	1675433.89	719866.00	1675442.26	1.9	2 attempts on target position.	
SC21-SC02b	11/5/2021	1130	719869.35	1675433.89	719876.97	1675456.71	1	Sampling crew probed around area	
SC21-SC02c	11/5/2021	1200	719869.35	1675433.89	719809.19	1675482.76	5.1	until soft material was found. Center	
SC21-SC02d*	11/5/2021	1215	719869.35	1675433.89	719809.19	1675482.76	5.7	of the river is rocky substrate. Position	
SC21-SC02e	11/5/2021	1225	719869.35	1675433.89	719809.19	1675482.76	5.4	was adjusted several times to find soft sediment.	
SC21-SC02f	11/5/2021	1245	719869.35	1675433.89	719809.19	1675482.76	5.7	sediment.	
SC21-SC03a	11/5/2021	1340	719582.72	1675906.11	719589.65	1675920.69	1	Probing revealed hard or gravel	
SC21-SC03b	11/5/2021	1410	719582.72	1675906.11	719583.84	1675853.80	6	substrate. 2 attempts made on	
SC21-SC03c	11/5/2021	1425	719582.72	1675906.11	719583.84	1675853.80	5.4	location. Location offset to find soft	
SC21-SC03d	11/7/2021	1220	719582.72	1675906.11	719714.34	1675748.99	5	sediments and avoid rocky/gravely	
SC21-SC03e*	11/7/2021	1225	719582.72	1675906.11	719714.34	1675748.99	5	sediments.	
SC21-SC04a*	11/5/2021	1455	719647.71	1676448.08	719655.78	1676450.93	8		
SC21-SC04b	11/5/2021	1510	719647.71	1676448.08	719655.78	1676450.93	5.3	1	
SC21-SC04c	11/5/2021	1520	719647.71	1676448.08	719655.78	1676450.93	6	1	
SC21-SC06a	11/7/2021	1105	719444.29	1677549.25	719442.16	1677548.22	4.2		
SC21-SC06b	11/7/2021	1120	719444.29	1677549.25	719442.16	1677548.22	3.9	3 cores collected onsite plus 1 core for	
SC21-SC06c*	11/7/2021	1130	719444.29	1677549.25	719442.16	1677548.22	4.4	MS/MSD	
SC21-SC06d	11/7/2021	1140	719444.29	1677549.25	719442.16	1677548.22	4.8		
SC21-SC07a	11/7/2021	1315	720008.97	1678125.09	720011.13	1678131.68	6.9		
SC21-SC07b	11/7/2021	1320	720008.97	1678125.09	720011.13	1678131.68	6	Hard substrate, rocky in center of	
SC21-SC07c	11/7/2021	1345	720008.97	1678125.09	720011.13	1678131.68	6	channel with strong currents. Location	
SC21-SC07d	11/7/2021	1350	720008.97	1678125.09	720027.15	1678117.25	3.9	offset greater than 10 ft radius to find soft sediments.	
SC21-SC07e*	11/7/2021	1405	720008.97	1678125.09	720131.49	1678165.81	6	son seaments.	
SC21-SC08a	11/2/2021	1040	720753.05	1678204.00	720744.11	1678204.84	2		
SC21-SC09a	11/2/2021	1150	721083.01	1678037.61	721075.35	1678058.08	1.3	Several attempts made at this location.	
SC21-SC09b	11/8/2021	930	721083.01	1678037.61	721078.76	1678053.62	2.3	Leaf debris stuck in core catcher.	
SC21-SC09c	11/8/2021	955	721083.01	1678037.61	721093.34	1678078.33	6	Location was offset more than 10 ft	
SC21-SC09d*	11/8/2021	1000	721083.01	1678037.61	721014.10	1678072.25	6	from target location to find recoverable material.	
SC21-SC10a	11/4/2021	930	721424.63	1677871.02	721428.00	1677885.16	1.2	Rocky and gravel substrate on target location with a strong current.	

EA Project No.: 15834.06
Revision: 00

Table B-1. Core Sample Coordinates and Depth of Refusal, Swan Creek Assessment of Contaminated Sediments, Maumee River Area of Concern, Toledo, Ohio

			Target C	coordinates	Actua	al Coordinates			
Location ID	Date Collected	Time Collected	Y	X	Y	X	Depth of	Field Notes	
Location 1D	Date Conected	(local)	NAD 1983 StatePlane Ohio North FIPS 3401 Feet		NAD83 State Plane Ohio North (US Feet)		Refusal (ft)	Field Notes	
SC21-SC11a	11/8/2021	1030	721731.56	1677804.10	721737.55	1677820.67	1.9	Target location is gravel and rocky	
SC21-SC11b	11/8/2021	1040	721731.56	1677804.10	721737.55	1677820.67	3.4	substrate. Gravel caught in core	
SC21-SC11c	11/8/2021	1100	721731.56	1677804.10	721860.22	1677972.68	5	catcher on 1st and 2nd attempt. Location offset more than 10 ft to find	
SC21-SC11d*	11/8/2021	1120	721731.56	1677804.10	721860.22	1677972.68	6	soft sediments	
SC21-SC12a	11/8/2021	1150	721815.12	1678212.38	721816.97	1678225.39	2.1		
SC21-SC12b*	11/8/2021	1155	721815.12	1678212.38	721816.97	1678225.39	4		
SC21-SC12c	11/8/2021	1410	721815.12	1678212.38	721816.97	1678225.39	4	1	
SC21-SC13a	11/2/2021	1245	721024.67	1679086.33	721021.63	1679093.79	3.8		
SC21-SC13b	11/2/2021	1255	721024.67	1679086.33	721021.63	1679093.79	8	3 attempts were made to collect cores	
SC21-SC13c	11/2/2021	1310	721024.67	1679086.33	721021.63	1679093.79	2.8	with <70% recovery on the target	
SC21-SC13d	11/6/2021	1645	721024.67	1679086.33	721018.47	1679090.48	2.5	location. Soft sediment probed on the	
SC21-SC13e	11/8/2021	1245	721024.67	1679086.33	721082.56	1679177.17	8	left descending bank, location offset more than 10 ft.	
SC21-SC13f*	11/8/2021	1255	721024.67	1679086.33	721082.56	1679177.17	6	inore than 10 it.	
SC21-SC15a	11/6/2021	1050	721207.51	1679641.39	721144.87	1679701.04	5.5	1st and 2nd attempts 0 recovery.	
SC21-SC15b	11/6/2021	1555	721207.51	1679641.39	721145.65	1679268.86	2.7	Gravel and rocks stuck in core catcher.	
SC21-SC15c*	11/6/2021	1610	721207.51	1679641.39	721145.65	1679268.86	6	Probed entire sampling unit looking for	
SC21-SC15d	11/6/2021	1615	721207.51	1679641.39	721145.65	1679268.86	6	soft sediment. Location offset more	
SC21-SC15e	11/6/2021	1625	721207.51	1679641.39	721145.65	1679268.86	3.1	than 10 ft.	
SC21-SC16a	11/5/2021	1615	720975.82	1680167.30	720983.19	1680169.05	8	Hard gravel layer on surface at target	
SC21-SC16b	11/5/2021	1635	720975.82	1680167.30	720989.49	1680177.84	8	location. Location offset more than 10	
SC21-SC16c*	11/5/2021	1650	720975.82	1680167.30	721002.86	1680168.36	8	ft.	
SC21-SC17a*	11/4/2021	1310	721362.95	1680504.24	721362.85	1680506.72	8		
SC21-SC17b	11/4/2021	1325	721362.95	1680504.24	721362.85	1680506.72	8]	
SC21-SC19a	11/4/2021	1035	721767.25	1681255.06	721765.85	1681254.50	7.2		
SC21-SC20a	11/4/2021	1220	721760.85	1681555.92	721753.27	1681590.08	1.9	location cannot setup frame under the tree. Location Offset downstream as	
SC21-SC20b*	11/4/2021	1230	721760.85	1681555.92	721753.27	1681590.08	1.9	close to original location as possible.	
SC21-SC21a	11/4/2021	1055	721592.75	1681985.66	721591.11	1681993.47	2.9	Second attempt lost rocks and gravel in	
SC21-SC21c	11/4/2021	1120	721592.75	1681985.66	721555.62	1681974.31	2.3	core catcher. Location offset more than	
SC21-SC21d*	11/4/2021	1130	721592.75	1681985.66	721555.62	1681974.31	5.4	10 ft to find soft sediment.	
SC21-SC22a*	11/3/2021	1615	721356.59	1682479.88	721344.64	1682480.60	3.6		
SC21-SC22b	11/3/2021	1625	721356.59	1682479.88	721344.64	1682480.60	1.7		
SC21-SC23a	11/3/2021	1515	721739.55	1683004.59	721720.52	1683003.51	1.7	Sticks and rocks in core catcher.	
SC21-SC23c*	11/3/2021	1540	721739.55	1683004.59	721739.82	1683045.23	4.7	Probed area for soft sediment.	
SC21-SC23d	11/3/2021	1550	721739.55	1683004.59	721739.82	1683045.23	5.1	Location offset more than 10 ft.	

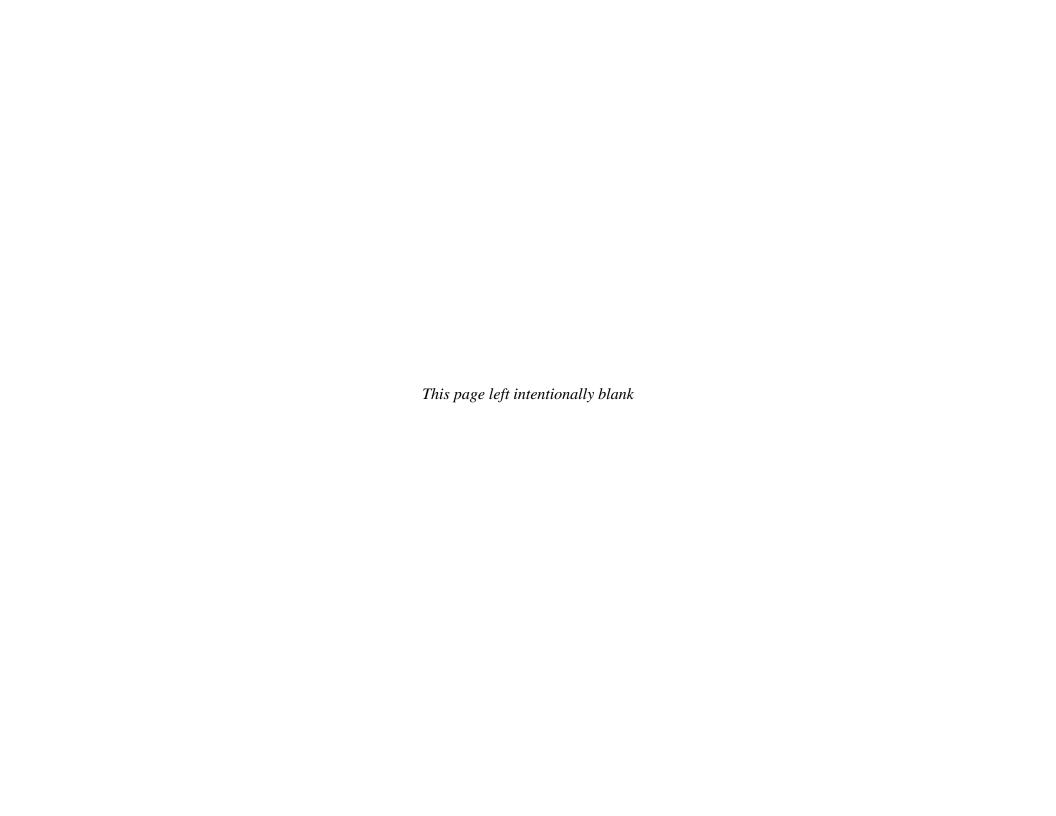
EA Project No.: 15834.06 EA Engineering, Science, and Technology, Inc., PBC Revision: 00

Table B-1. Core Sample Coordinates and Depth of Refusal, Swan Creek Assessment of Contaminated Sediments, Maumee River Area of Concern, Toledo, Ohio

			Target C	oordinates	Actua	al Coordinates			
Location ID	Data Callagted	Time Collected	Y X Y X		X	Depth of	Field Notes		
Location ID	Date Collected	(local)	NAD 1983 StatePlane Ohio North FIPS 3401 Feet		NAD83 State Plane Ohio North (US Feet)		Refusal (ft)	Field Notes	
SC21-SC24a*	11/3/2021	1355	722026.23	1683201.04	722020.47	1683213.16	6.5		
SC21-SC24b	11/3/2021	1410	722026.23	1683201.04	722020.47	1683213.16	6.6		
SC21-SC24c	11/3/2021	1425	722026.23	1683201.04	722020.47	1683213.16	6.1		
SC21-SC25a*	11/3/2021	1330	722298.29	1683736.86	722289.68	1683750.17	8	Site in very shallow water.	
SC21-SC25b	11/3/2021	1335	722298.29	1683736.86	722289.68	1683750.17	8	Site in very snanow water.	
SC21-SC26a*	11/2/2021	1215	722072.17	1684155.06	722034.14	1684181.61	3.1	Probed rock and gravel on target	
SC21-SC26b	11/2/2021	1235	722072.17	1684155.06	722034.14	1684181.61	3.5	location. Location offset more than 10 ft to find soft sediment.	
SC21-SC28a*	11/3/2021	1130	722132.66	1684580.03	722239.91	1684609.38	5.5	Probed gravel and rocks on target location. Location offset more than 10	
SC21-SC28b	11/3/2021	1140	722132.66	1684580.03	722239.91	1684609.38	8	ft to find soft sediment.	
SC21-SC29a*	11/3/2021	950	722523.45	1684835.49	722508.77	1684846.40	2.8	Location offset more than 10 ft from	
SC21-SC29b	11/3/2021	1000	722523.45	1684835.49	722508.77	1684846.40	2.8		
SC21-SC29c	11/3/2021	1010	722523.45	1684835.49	722508.77	1684846.40	2.8	arget location to find soft sediment.	
SC21-SC30a	11/2/2021	1640	722903.39	1685098.23	722887.80	1685107.93	3.3	Noticeable odor and sheen when	
SC21-SC30b	11/2/2021	1650	722903.39	1685098.23	722887.80	1685107.93	3.2	SC30d was collected. Location offset	
SC21-SC30c	11/2/2021	1700	722903.39	1685098.23	722887.80	1685107.93	2.9	more than 10 ft from target location to	
SC21-SC30d*	11/3/2021	915	722903.39	1685098.23	722886.33	1685112.31	4.1	find soft sediment.	
SC21-SC31a	11/2/2021	1610	723309.00	1685479.46	723305.64	1685477.31	8		
SC21-SC32a*	11/2/2021	1530	723472.93	1685838.52	723466.94	1685837.30	8		
SC21-SC32b	11/2/2021	1545	723472.93	1685838.52	723466.94	1685837.30	8		
SC21-SC33a	11/2/2021	1430	723725.49	1685989.72	723722.11	1685993.99	4.7		
SC21-SC33b	11/2/2021	1445	723725.49	1685989.72	723722.11	1685993.99	4.5	Location offset more than 10 ft from	
SC21-SC33c	11/2/2021	1505	723725.49	1685989.72	723722.11	1685993.99	4.5	target location to find soft sediment.	
SC21-SC33d*	11/3/2021	850	723725.49	1685989.72	723725.98	1686004.48	4.2		
SC21-MRREFa	11/6/2021	1355	719981.58	1685800.46	719979.62	1685812.69	8		
SC21-MR01a	11/6/2021	1425	723283.48	1686408.97	723285.66	1686413.55	4.1		
SC21-MR02a	11/4/2021	1700	723575.22	1686172.42	723569.90	1686175.97	8		
SC21-MR03Aa*	11/4/2021	1610	723941.78	1686384.05	723930.96	1686388.62	7.5	Y	
SC21-MR03Ab	11/4/2021	1625	723941.78	1686384.05	723930.96	1686388.62	7.5	Location offset more than 10 ft from	
SC21-MR03Ac	11/4/2021	1640	723941.78	1686384.05	723938.30	1686388.43	3.5	target location to find soft sediment.	
SC21-MR03Bd	11/6/2021	1255	723941.78	1686384.05	723931.69	1686386.63	8	Location office was all 10 % 6	
SC21-MR03Be	11/6/2021	1310	723941.78	1686384.05	723948.00	1686388.54	4	Location offset more than 10 ft from	
SC21-MR03Bf*	11/6/2021	1325	723941.78	1686384.05	723912.86	1686393.05	6	target location to find soft sediment.	
SC21-MR04	11/6/2021	1500	723941.78	1686807.32	723931.09	1686821.05	8		
SC21-MR05a	11/4/2021	1545	724308.34	1686595.69	724302.04	1686609.01	5.2		
SC21-MR06a	11/4/2021	1515	724834.55	1686916.25	724830.78	1686923.44	2.2		

* = core used for discrete interval sampling ft = feet

NAD83 = North American Datum of 1983



APPENDIX C: PHOTOGRAPHIC RECORD



Sampling Location: SC21-MR01

SC21-MR01



Sampling Location: SC21-MR02

SC21-MR02



Sampling Location: SC21-MR03

SC21-MR03



SC21-MR03f



Sampling Location: SC21-MR04

SC21-MR04



Sampling Location: SC21-MR05

SC21-MR05



Sampling Location: SC21-MR06

SC21-MR06-SURF





SC21-MR06



Sampling Location: SC21-MRREF

SC21-MRREF-SURF



SC21-MRREF



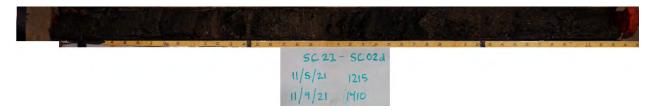
Sampling Location: SC21-SC01

SC21-SC01-SURF



Sampling Location: SC21-SC02

SC21-SC02d



Sampling Location: SC21-SC03

SC21-SC03e



Sampling Location: SC21-SC04

SC21-SC04



Sampling Location: SC21-SC05

SC21-SC05-SURF





Sampling Location: SC21-SC06

SC21-SC06c



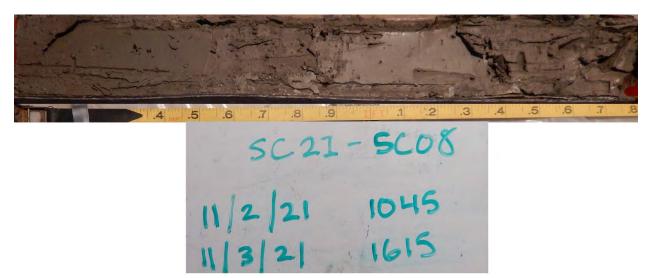
Sampling Location: SC21-SC07

SC21-SC07e



Sampling Location: SC21-SC08

SC21-SC08



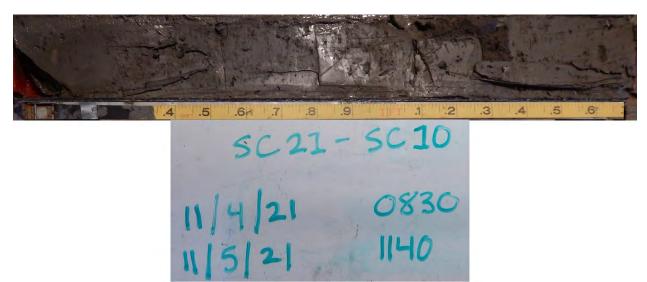
Sampling Location: SC21-SC09

SC21-SC09d



Sampling Location: SC21-SC10

SC21-SC10

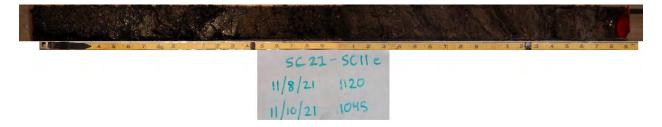


Sampling Location: SC21-SC11

SC21-SC11-SURF

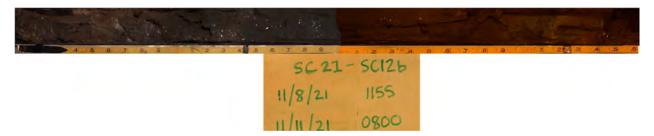


SC21-SC11e



Sampling Location: SC21-SC12

SC21-SC12b



Sampling Location: SC21-SC13

SC21-SC13f



Sampling Location: SC21-SC14

SC21-SC14-SURF



Sampling Location: SC21-SC15

SC21-SC15e



Sampling Locations: SC21-SC16

SC21-SC16c



Sampling Locations: SC21-SC17

SC21-SC17



Sampling Location: SC21-SC18

SC21-SC18-SURF





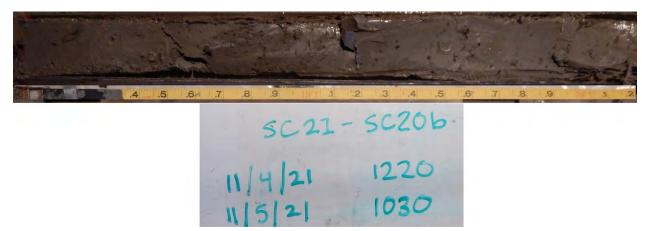
Sampling Location: SC21-SC19

SC21-SC19



Sampling Location: SC21-SC20

SC21-SC20b



Sampling Location: SC21-SC21

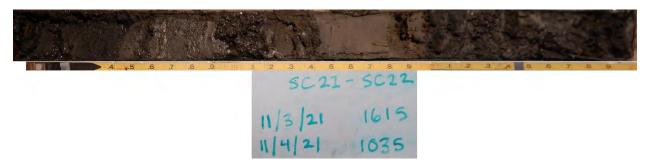
SC21-SC21-SURF



SC21-SC21d

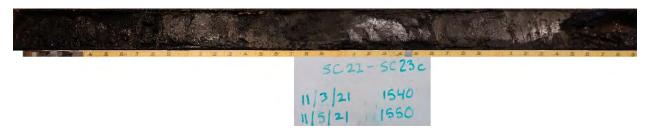


Sampling Location: SC21-SC22



Sampling Location: SC21-SC23

SC21-SC23c



Sampling Location: SC21-SC24



Sampling Location: SC21-SC25



Sampling Location; SC21-SC26



Sampling Location: SC21-SC27

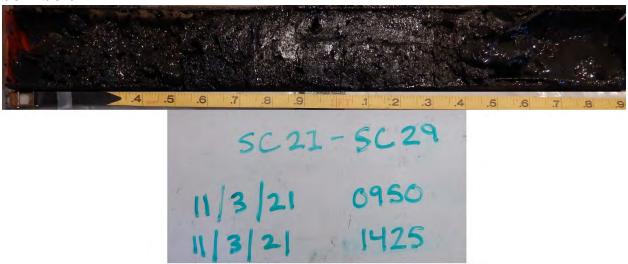
SC21-SC27-SURF



Sampling Location: SC21-SC28



Sampling Location: SC21-SC29

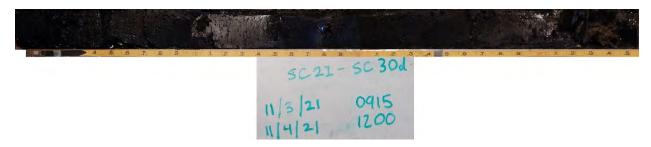


Sampling Location: SC21-SC30

SC21-SC30-SURF



SC21-SC30d



Sampling Location: SC21-SC31



Sampling Location: SC21-SC32

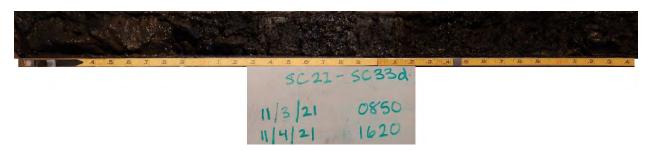


Sampling location: SC21-SC33

SC21-SC33-SURF



SC21-SC33d



Sampling Location: SC21-SCREF

SC21-SCREF-SURF





APPENDIX D: TOXICITY RESULTS





RESULTS OF TOXICITY TESTING AND BIOACCUMULATION ANALYSES ON SEDIMENT SAMPLES FROM THE SWAN CREEK MAUMEE AREA OF CONCERN, TOLEDO, OHIO

GREAT LAKES ARCHITECT-ENGINEER SERVICES CONTRACT NO. 68HE0519D0001

Prepared for:

EA Engineering, Science, and Technology, (MI) PLC and Its Affiliate EA Science and Technology 5918 Meridian Boulevard, Suite 4 Brighton, Michigan 48116

Prepared by:

EA Engineering, Science, and Technology, Inc., PBC 231 Schilling Circle
Hunt Valley, Maryland 21031
For questions, please contact Michael Chanov
ph: 410-584-7000

Results relate only to the items tested or to the samples as received by the laboratory.

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This report contains 34 pages plus 7 attachments.

My K CIE

11 February 2022

Michael K. Chanov II Laboratory Director



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1. INTRODUCTION

EA Engineering, Science, and Technology performed toxicity testing on sediment samples for the Assessment of Contaminated Sediments in Swan Creek Maumee Area of Concern, Toledo, Ohio. The objective of the testing was to evaluate the toxicity and bioaccumulation potential of site sediment samples as compared to control sediment and reference sediments.

The toxicity testing program consisted of: 1) water column bioassays with *Daphnia magna* (water flea), and *Pimephales promelas* (fathead minnow); 2) 10-day whole sediment survival and growth toxicity tests with *Chironomus dilutus* (midge) and *Hyalella azteca* (amphipod); and 3) 28-day bioaccumulation tests with *Lumbriculus variegatus* (oligochaeta worm). The water column bioassays evaluated the effects of exposure to the sediment elutriates on survival of the water column organisms. The whole sediment toxicity tests evaluated the effects of exposure to the sediment samples on survival and growth of the test organisms. The bioaccumulation tests evaluated percent recovery of the test organisms and bioaccumulative effects as a result of 28 days of exposure to the sediment samples. At the completion of the bioaccumulation testing, the organism tissues were submitted for selected chemical analyses, the results of which are not included in this report.

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2. METHODS AND MATERIALS

2.1 SAMPLE DESCRIPTIONS

Twenty sediment samples were collected for the project by EA personnel. In addition, one grab sample of site water were collected from a location within the sampling area. The samples were packed on wet ice and transported to EA's Ecotoxicology Laboratory in Hunt Valley, Maryland. Upon receipt at EA, the samples were visually inspected, compared against the chain-of-custody record, and assigned EA laboratory accession numbers. Copies of the chain-of-custody records are included in Attachment I. Table 1 summarizes the collection and receipt data for the site sediments. When not being processed for testing, the samples were stored in the dark at 4°C.

2.2 CONTROL SEDIMENT

The control sediment used in the toxicity tests was a natural sediment from Pretty Boy Reservoir, Maryland which has been routinely utilized in freshwater sediment toxicity testing.

2.3 LABORATORY WATER

Test solutions for the water column toxicity tests were prepared with moderately hard synthetic freshwater (80-100 mg/L CaCO₃). Batches of this water were made with deionized water and adding reagent grade chemicals per US EPA guidance (2002) and aerating overnight. The water was stored up to 14 days at 20 and 25°C under gentle aeration, until needed. Moderately hard synthetic freshwater was also used as the control water for these tests and as culture water for the *D. magna*.

Dechlorinated tap water was used as the overlying water for the sediment exposures. The source of the water was the City of Baltimore municipal water system. Upon entering the laboratory, the water passed through a high-capacity, activated-carbon filtration system to remove any possible contaminants such as chlorine and trace organic compounds. This water source has proven safe for aquatic organism toxicity testing at EA as evidenced by maintenance of the multigeneration *Hyalella azteca*, *Lumbriculus variegatus* and fathead minnow cultures with no evident loss of fecundity. Additionally, this water has been routinely utilized in freshwater sediment toxicity testing, which have met test acceptability criteria.

2.4 TEST ORGANISMS

The *Daphnia magna* (water flea) were obtained from EA's Culture Facility in Hunt Valley, Maryland. The *D. magna* were cultured in moderately hard synthetic freshwater, and the cultures were kept in an environmentally controlled room at 20°C with a 16-hour light/8-hour dark photoperiod. Organisms were fed daily a suspension of yeast/cereal leaves/trout chow supplemented with the algae *Raphidocelis subcapitata* as described in US EPA (2002). Gravid adults were reisolated the day prior to the initiation of toxicity testing to ensure that neonates (young) produced were less than 24 hours old.

The *Pimephales promelas* (fathead minnow) for the acute toxicity tests were obtained from Aqautic BioSystems in Fort Collins, Colorado. The larvae utilized for the acute toxicity testing were all less than 14 days old.

The midges (*Chironomus dilutus*) lot were obtained from Aquatic Research Organisms (Hampton, New Hampshire). Upon receipt at EA, the organisms were gradually acclimated to laboratory water at 23°C. Second to third instar larvae were used in the toxicity testing.

The amphipods (*Hyalella azteca*) were obtained from Aquatic Research Organisms (Hampton, New Hampshire). Organisms were 9 days old for testing and were gradually acclimated to the testing temperature of 23°C during the holding period.

The oligochaetes, *Lumbriculus variegatus* were obtained from Eastern Aquatics, Lancaster, PA. The organisms were gradually acclimated to laboratory water at 23°C and allowed to depurate prior to test initiation.

2.5 TOXICITY TEST OPERATIONS AND PERFORMANCE

Toxicity testing was conducted in accordance with US EPA guidance (US EPA 2002), and test methodologies followed EA's standard toxicity testing protocols DM-AC-06 and FH-AC-06 (EA 2018).

2.5.1 Water Column Toxicity Testing

For the water column toxicity testing, elutriates were prepared from the composited sediment samples using the site water. A subsample of homogenized sediment was combined with site water in a 1:4 sediment to water ratio, on a volume/volume basis. The sediment/water combination was vigorously mixed by aeration and manual stirring for 30 minutes and was then allowed to settle for a minimum of one hour. After settling, the supernatant was siphoned off for testing. The elutriates were used for the water column toxicity testing within 24 hours of preparation.

Test concentrations of 100, 50, 25, 12.5, and 6.25 percent of each elutriate were prepared by measuring aliquots of elutriate in a graduated cylinder and bringing to final volume with moderately hard synthetic freshwater. A dilution water control of moderately hard synthetic freshwater and a undiluted site water were also prepared.

2.5.1.1 Daphnia magna Water Column Toxicity Testing

The *D. magna* acute toxicity test was conducted in 30-ml beakers with 25 ml of test solution per cup. The toxicity test had 4 replicates per concentration and control, with five organisms per replicate, for a total of 20 organisms exposed per test concentration and control. To initiate the acute toxicity test, neonates (<24 hours old) were randomly assigned to the test chambers. The test was maintained at 20±1°C with a 16-hour light/8-hour dark photoperiod. Temperature, pH, dissolved oxygen, conductivity measurements as well as survival were recorded on each concentration at test initiation, at 24-hours and test termination.

Summaries of water quality parameters measured during the toxicity tests are presented in Table 2. The number of live organisms in each test chamber were counted daily and recorded on the test data sheets. Copies of the *D. magna* acute toxicity test data sheets are included in Attachments II.

2.5.1.2 Pimephales promelas Water Column Toxicity Testing

The *P. promelas* acute toxicity test was conducted in 1,000 ml beakers, with each beaker containing

250 ml test solution. For the acute toxicity test, each test concentration and the control had five replicates of ten organisms, for a total of 50 organisms exposed per test concentration and control. The test was performed at 25±1°C with a 16-hour light/8-hour dark photoperiod. Observations of mortality were recorded daily, and dead organisms were removed when observed. Temperature, pH, dissolved oxygen, and conductivity measurements were recorded on one replicate of each concentration at test initiation and termination, and daily on the test solutions. Test organisms were fed daily to prevent starvation.

Summaries of water quality parameters measured during the toxicity tests are presented in Table 3. The number of live organisms in each test chamber were counted daily and recorded on the test data sheets. Copies of the *P. promelas* acute toxicity test data sheets are included in Attachments III.

2.5.2 Chironomus dilutus 10-Day Toxicity Tests

Toxicity testing was conducted in accordance with US EPA guidance (US EPA 2000), and test methodologies followed EA's standard toxicity testing protocol CT-AC-06 (EA 2018).

The test chambers used in the *C. dilutus* 10-day survival and growth toxicity test were 300-ml lipless glass beakers, each containing 100 ml of sediment and 175 ml of overlying water. The tests were performed with eight replicates per sediment. The sediments and overlying water were added to the chambers one day prior to introduction of the test organisms. The beakers were left undisturbed overnight to allow any suspended sediment particles in the water column to settle. The introduction of the test organisms to the test chambers marked the initiation of the toxicity tests. Ten organisms were randomly introduced into each replicate beaker for a total of 80 organisms per sediment. The test chambers were placed in a water bath to maintain temperatures at a target range of 23±1°C, with a 16-hour light/8-hour dark photoperiod. The *C. dilutus* were fed 1.5 ml per replicate of a 4 g/L slurry of Tetramin flake food daily.

The overlying water in the exposure chambers was renewed a minimum of twice daily using a water delivery system (Zumwalt et al. 1994). Fresh overlying water was slowly added to each replicate, displacing the water already in the beaker to flow out through a notch cut into the top

of the beaker. The notch was sealed with fine mesh screen to prevent loss of organisms during the renewal process.

For the midge toxicity testing, water quality parameters of temperature, pH, dissolved oxygen, and conductivity were recorded daily on the overlying water in one replicate of each sediment. Composite samples of the overlying water of each sediment were also analyzed for alkalinity, hardness, conductivity and ammonia at test initiation and termination.

At the end of the 10-day exposure period, the surviving organisms from each replicate were retrieved from the sediment. The number of surviving organisms from each replicate was recorded. The surviving *C. dilutus* from each replicate were then placed in a dried, pre-weighed ceramic crucible and placed in a drying oven at 100°C for a minimum of 24 hours. The crucibles were then removed from the oven, placed in a desiccator to cool, and weighed. The dry weight of the surviving organisms in each replicate was determined by subtracting the weight of the crucible from the weight of the crucible plus dried organisms. The mean dry weight per organism was obtained by dividing the total organism dry weight per replicate by the number of surviving organisms per replicate.

The ash-free dry weight was determined for the *C. dilutus* by placing the crucibles with oven-dried organisms in a muffle furnace at 550°C for at least two hours, then weighing the crucibles with organisms following an appropriate cooling period. For each replicate, the weight of the crucible with furnace-dried organisms was subtracted from the weight of the crucible with oven-dried organisms, yielding a total organism ash-free dry weight. A mean ash-free dry weight per organism was obtained by dividing the total organism ash-free dry weight per replicate by the number of surviving organisms per replicate.

The survival and growth results of the *C. dilutus* toxicity tests were statistically analyzed according to US EPA guidance (US EPA 2000) to determine if any of the site sediments were significantly different (p=0.05) from the control or reference sediments. If the data were normally distributed, then a t-Test was performed to detect statistically significant differences between test sediments and the control sediment. If the data distribution was non-normal, then a Wilcoxon Two-Sample Test was used to compare the group means. Shapiro-Wilk's Test was

used to determine if the data were normally distributed, and the F-Test was used to test for homogeneity of variance.

Table 4 presents the water quality for the *C. dilutus* toxicity testing. Copies of the original data sheets and statistical analyses from the sediment toxicity testing are included in Attachment IV for *C. dilutus*.

2.5.3 Hyalella azteca 10-Day Toxicity Tests

Toxicity testing was conducted in accordance with US EPA guidance (US EPA 2000), and test methodologies followed EA's standard toxicity testing protocol HA-AC-06 (EA 2018).

The test chambers used in the *H. azteca* 10-day survival and growth toxicity test were 300-ml lipless glass beakers, each containing 100 ml of sediment and 175 ml of overlying water (lab water). The tests were performed with eight replicates per sediment. The sediments and overlying water were added to the chambers at least 24 hours prior to introduction of the test organisms. The beakers were left undisturbed overnight to allow any suspended sediment particles in the water column to settle. The introduction of the test organisms to the test chambers marked the initiation of the toxicity tests. Ten organisms were randomly introduced into each replicate beaker for a total of 80 organisms per sediment. The test chambers were placed in a water bath to maintain temperatures at a target range of 23±1°C, with a 16-hour light/8-hour dark photoperiod.

The the *H. azteca* were fed 1.0 ml per replicate of YCT (a suspension of yeast, ground cereal leaves, and trout chow) daily. The overlying water in the exposure chambers was renewed a minimum of twice daily using a water delivery system (Zumwalt et al. 1994). Fresh overlying water was slowly added to each replicate, displacing the water already in the beaker to flow out through a notch cut into the top of the beaker. The notch was sealed with fine mesh screen to prevent loss of organisms during the renewal process.

For the amphipod toxicity testing, water quality parameters of temperature, pH, dissolved oxygen, and conductivity were recorded daily on the overlying water in one replicate of each

sediment. Composite samples of the overlying water of each sediment were also analyzed for alkalinity, hardness, and ammonia at test initiation and termination.

At the end of the 10-day (*H. azteca*) exposure period, the surviving organisms from each replicate were retrieved from the sediment. The number of surviving organisms from each replicate was recorded. The surviving *H. azteca* from each replicate were then placed in a dried, pre-weighed aluminum pan, and placed in a drying oven at 100°C for at least 24 hours. The pans were then removed from the oven, placed in a desiccator to cool, and weighed. The dry weight of the surviving organisms in each replicate was determined by subtracting the weight of the empty pan from the weight of the pan plus dried organisms. The mean dry weight per organism was obtained by dividing the total organism dry weight per replicate by the number of surviving organisms per replicate.

The survival and growth results of the *H. azteca* toxicity tests were statistically analyzed according to US EPA guidance (2000) to determine if any of the site sediments were significantly different (p=0.05) from the control or reference sediments. If the data were normally distributed, then a t-Test was performed to detect statistically significant differences between test sediments and the control or reference sediments. If the data distribution was nonnormal, then a Wilcoxon Two-Sample Test was used to compare the group means. Shapiro-Wilk's Test was used to determine if the data were normally distributed, and the F-Test was used to test for homogeneity of variance.

Table 5 summarizes the water quality measurements recorded during the *H. azteca* toxicity testing. Copies of the original data sheets and statistical analyses from the sediment toxicity testing are included in Attachment V for *H. azteca*.

2.5.4 Lumbriculus variegatus 28-day Bioaccumulation Test

Bioaccumulation testing was conducted in accordance with US EPA guidance (US EPA 2000), and test methodologies followed EA's standard toxicity testing protocol LV-BIO-06 (EA 2018).

The *L. variegatus* bioaccumulation test was conducted in 5-gallon aquaria, with five replicates per test sediment and control. Based on the analytical tissue biomass requirements, approximately 15 g wet weight of *L. variegatus* were loaded into each replicate. Each replicate had 1.5 L of sediment and 6 L of overlying water. Sediment and overlying water were loaded into the test chambers two days prior to test initiation to allow time for the suspended sediments to settle.

The overlying water was replaced daily by siphoning approximately 80 percent of the overlying water from the aquaria and replacing with new overlying water, taking care not to disturb the sediment surface. During the 28-day exposure period, the test chambers were maintained at a target temperature of 23±1°C with a 16-hour light/8-hour dark photoperiod. Measurements of temperature, pH, dissolved oxygen, and conductivity of the overlying water were recorded on one replicate of each sample and control at test initiation, termination and on each intermediate day. Composite samples of the overlying water of each sediment were also analyzed for alkalinity, hardness, and ammonia at test initiation and termination. These water quality measurements are summarized in Table 6. The organisms were not fed during the exposure period.

After 28 days of exposure, the *L. variegatus* were recovered from each sediment and placed into clean laboratory water for 24 hours to purge their digestive tracts. Copies of the original data sheets from the *L. variegatus* testing are included in Attachment VI.

2.6 REFERENCE TOXICANT TESTS

In conformance with EA's quality assurance/quality control program, reference toxicant tests were performed on *D. magna*, *P. promelas*, *C. dilutus*, *H. azteca* and *L. variegatus*. The results of the reference toxicant tests were compared to EA's established control chart limits according to US EPA methodology (US EPA 2002). Reference toxicant test data are presented in Table 12.

2.7 ARCHIVES

Original data sheets, records, memoranda, notes, and computer printouts are archived at EA's Office in Hunt Valley, Maryland. These data will be retained for a period of 5 years unless a longer period of time is requested.

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3. RESULTS AND DISCUSSION

3.1 Daphnia magna ELUTRIATE TOXICITY TEST

Table 7 summarizes the results of the *D. magna* 48-hour acute toxicity testing on site elutriates. None of the elutriate samples were acutely toxic to *D. magna*. All of the elutriates had 48-hour LC50 values of >100 percent elutriate, and survival in the 100 percent test concentrations ranged from 95 to 100 percent. There was a minimum of 95 percent survival in the laboratory controls, and the site water had 95 percent survival at test termination.

3.2 Pimephales promelas ELUTRIATE TOXICITY TEST

Table 8 summarizes the results of the *P. promelas* 96-hour acute toxicity testing on site elutriates. The results indicate that one of the elutriate samples (SC21-COMP-07) was acutely toxic to *P. promelas* with a 96-hour LC50 of 96.1 percent (46 percent survival in 100 percent concentration). All of the other elutriates had 96-hour LC50 values of >100 percent elutriate, and survival in the 100 percent test concentrations ranged from 90 to 100 percent. There was a minimum of 92 percent survival in the laboratory controls, and the site water had 98 percent survival at test termination.

3.3 Chironomus dilutus SEDIMENT TOXICITY TEST

Table 9 summarizes the results of the *C. dilutus* 10-day survival and growth test. The survival and growth of *C. dilutus* exposed to the site sediments were statistically compared to organisms exposed to the laboratory control and reference sediments (SC21-MRREF-SURF, SC21-SCREF-SURF). The survival results indicated that the organisms exposed to 6 site sediments were statistically different (p=0.05) from the laboratory control and/or a reference samples. Mean ash free dry weight indicated that 4 sediment samples were significantly different from the control and/or a reference samples.

3.4 Hyalella azteca SEDIMENT TOXICITY TEST

Table 10 summarizes the results of the *H. azteca* 10-day survival and growth test. The survival and growth of *H. azteca* exposed to the site sediments were statistically compared to organisms exposed to the laboratory control and reference sediments (SC21-MRREF-SURF, SC21-SCREF-SURF). The results indicated that for survival the organisms exposed to 11 site sediments were statistically different (p=0.05) from the laboratory control and/or a reference samples. Mean weight indicated that 12 sediment samples were significantly different from the control and/or a reference samples.

3.5 Lumbriculus variegatus BIOACCUMULATION TEST

After 28 days of exposure, the *L. variegatus* were recovered from the sediment and placed into clean laboratory water for 24 hours to purge their digestive tracts. After the depuration period, the organisms were collected and submitted for chemical analyses. Statistical comparisons were not conducted on the weights of the organisms recovered from the sediments. A summary of the recoveries recorded during the *L. variegatus* bioaccumulation testing is presented in Table 11.

3.6 REFERENCE TOXICANT TESTS

The results of the reference toxicant tests are summarized in Table 12. All of the reference toxicant test results fell within the established laboratory control chart limits.

4. REFERENCES

- EA. 2018. EA Ecotoxicology Laboratory Quality Assurance and Standard Operating Procedures Manual. EA Manual ATS-102. Internal document prepared by EA's Ecotoxicology Laboratory, EA Engineering, Science, and Technology, Inc., PBC, Hunt Valley, Maryland.
- US EPA. 2000. Methods for Measuring the Toxicity and Bioaccumulation of Sediment-Associated Contaminants with Freshwater Invertebrates. Second Edition. EPA/600/R-99/064. U.S. Environmental Protection Agency, Office of Research and Development, Duluth, Minnesota.
- US EPA. 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA-821-R-02-012. U.S. Environmental Protection Agency, Office of Water, Washington, DC.
- Zumwalt, D.C., F.J. Dwyer, I.E. Greer, and C.G. Ingersoll. 1994. A water-renewal system that accurately delivers small volumes of water to exposure chamber. Environmental Toxicology and Chemistry. 13:1311-1314.

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TABLE 1 SUMMARY OF COLLECTION AND RECEIPT INFORMATION FOR SEDIMENT SAMPLES

Sample Identification	EA Accession Number	Sample Time and Date	Receipt Time and Date	Receipt Temperature (°C)
SC21-SC-WAT	AT1-853	1410, 11/10/21	1250, 11/15/21	<4.0
SC21-COMP-01	AT1-854	1415, 11/11/21	1250, 11/15/21	<4.0
SC21-COMP-02	AT1-855	1045, 11/11/21	1250, 11/15/21	<4.0
SC21-COMP-03	AT1-856	1220, 11/11/21	1250, 11/15/21	<4.0
SC21-COMP-04	AT1-857	0830, 11/11/21	1250, 11/15/21	<4.0
SC21-COMP-05	AT1-858	0930, 11/11/21	1250, 11/15/21	<4.0
SC21-COMP-06	AT1-859	1420, 11/10/21	1250, 11/15/21	<4.0
SC21-COMP-07	AT1-860	1500, 11/11/21	1250, 11/15/21	<4.0
SC21-COMP-08	AT1-861	1115, 11/11/21	1250, 11/15/21	<4.0
SC21-MR06-SURF	AT1-862	1445, 11/8/21	1250, 11/15/21	<4.0
SC21-MRREF-SURF	AT1-863	1535, 11/8/21	1250, 11/15/21	<4.0
SC21-SC01-SURF	AT1-864	1030, 11/9/21	1250, 11/15/21	<4.0
SC21-SC05-SURF	AT1-865	1130, 11/9/21	1250, 11/15/21	<4.0
SC21-SC11-SURF	AT1-866	1220, 11/9/21	1250, 11/15/21	<4.0
SC21-SC14-SURF	AT1-867	1300, 11/9/21	1250, 11/15/21	<4.0
SC21-SC18-SURF	AT1-868	1345, 11/9/21	1250, 11/15/21	<4.0
SC21-SC21-SURF	AT1-869	1420, 11/9/21	1250, 11/15/21	<4.0
SC21-SC27-SURF	AT1-870	1500, 11/9/21	1250, 11/15/21	<4.0
SC21-SC30-SURF	AT1-871	1525, 11/9/21	1250, 11/15/21	<4.0
SC21-SC33-SURF	AT1-872	1600, 11/8/21	1250, 11/15/21	<4.0
SC21-SCREF-SURF	AT1-873	1000, 11/9/21	1250, 11/15/21	<4.0

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TABLE 2 SUMMARY OF WATER QUALITY PARAMETERS MEASURED DURING ELUTRIATE BIOASSAY TESTING WITH Daphnia magna

Sample Identification	EA Accession Number	Test Number		erature (C)	_	pH (su)		d Oxygen g/L)	Condu (µs/	·	Alkalinity (mg/L)	Hardness (mg/L)	Ammonia (mg/L)
140110110401011			MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX			
SC21-SC-WAT	AT1-853	TN-21-750	19.0	21.0	7.7	8.1	8.8	9.5	320	429	246	300	< 0.2
SC21-COMP-01	AT1-854	TN-21-733	19.0	20.5	7.6	8.1	7.9	10.3	321	828	224	264	7.7
SC21-COMP-02	AT1-855	TN-21-734	19.0	21.0	7.5	8.2	7.0	9.5	316	972	234	288	1.8
SC21-COMP-03	AT1-856	TN-21-735	19.0	21.0	7.7	8.2	8.2	9.9	320	851	232	292	0.5
SC21-COMP-04	AT1-857	TN-21-736	19.0	21.0	7.8	8.1	8.2	10.2	325	866	240	272	7.1
SC21-COMP-05	AT1-858	TN-21-737	19.0	21.0	7.8	8.2	7.6	9.7	326	847	240	272	9.0
SC21-COMP-06	AT1-859	TN-21-738	19.0	21.0	7.7	8.2	8.2	9.6	326	1,206	236	248	12.0
SC21-COMP-07	AT1-860	TN-21-739	19.0	20.8	7.6	8.3	8.1	9.4	334	950	260	256	16.9
SC21-COMP-08	AT1-861	TN-21-740	19.0	21.0	7.4	8.3	8.5	9.2	320	874	244	260	12.4

TABLE 3 SUMMARY OF WATER QUALITY PARAMETERS MEASURED DURING ELUTRIATE BIOASSAY TESTING WITH Pimephales promelas

Sample Identification	EA Accession Number	Test Number	Tempe	erature C)		H u)		d Oxygen g/L)	Condu (µs/c	•	Alkalinity (mg/L)	Hardness (mg/L)	Ammonia (mg/L)
			MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX			
SC21-SC-WAT	AT1-853	TN-21-749	24.0	24.4	7.5	8.2	6.5	9.1	314	886	246	300	< 0.2
SC21-COMP-01	AT1-854	TN-21-786	24.0	25.2	6.8	8.3	6.7	8.6	321	888	224	264	7.7
SC21-COMP-02	AT1-855	TN-21-742	24.0	25.1	7.4	8.2	6.4	8.4	310	952	234	288	1.8
SC21-COMP-03	AT1-856	TN-21-743	24.0	24.7	7.5	8.3	6.8	8.5	310	859	232	292	0.5
SC21-COMP-04	AT1-857	TN-21-744	24.0	25.4	7.4	8.2	4.2	8.7	321	874	240	272	7.1
SC21-COMP-05	AT1-858	TN-21-745	24.0	25.3	7.4	8.2	6.2	8.2	326	890	240	272	9.0
SC21-COMP-06	AT1-859	TN-21-746	24.0	25.5	7.3	8.1	6.6	8.8	321	888	236	248	12.0
SC21-COMP-07	AT1-860	TN-21-747	24.0	25.5	7.3	8.1	6.6	8.7	327	970	260	256	16.9
SC21-COMP-08	AT1-861	TN-21-748	24.0	25.4	7.3	8.2	6.8	9.1	320	875	244	260	12.4

TABLE 4 WATER QUALITY PARAMETERS MEASURED DURING Chironomus dilutus 10-DAY TOXICITY TESTING

EA Test Number: TN-21-771

Test Initiation: 3 December 2021 Test Termination: 13 December 2021

Sample Identification	EA Accession	_	Temperature		H		ed Oxygen	Conductivity (µs/cm)	
	Number	`	(°C)		u)	ľ	ng/L)	••	1 1
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
Laboratory Control	AT1-697	22.0	22.4	7.2	8.4	6.9	8.8	327	353
SC21-MR06-SURF	AT1-862	22.0	22.5	7.1	8.4	5.9	8.6	344	395
SC21-MRREF-SURF	AT1-863	22.0	22.5	7.2	8.3	4.3	8.1	356	389
SC21-SC01-SURF	AT1-864	22.0	22.5	7.3	8.3	4.0	8.3	342	376
SC21-SC05-SURF	AT1-865	22.0	22.4	7.3	8.3	5.1	8.3	344	388
SC21-SC11-SURF	AT1-866	22.0	22.4	7.3	8.2	5.4	8.3	339	386
SC21-SC14-SURF	AT1-867	22.0	22.4	7.3	8.2	5.1	8.1	348	413
SC21-SC18-SURF	AT1-868	22.0	22.5	7.3	8.2	5.8	8.0	352	400
SC21-SC21-SURF	AT1-869	22.0	22.6	7.3	8.2	6.0	7.9	371	435
SC21-SC27-SURF	AT1-870	22.0	22.5	7.3	8.1	5.5	8.0	354	400
SC21-SC30-SURF	AT1-871	22.0	22.5	7.4	8.1	4.9	8.2	351	400
SC21-SC33-SURF	AT1-872	22.0	22.4	7.4	8.1	6.3	8.2	352	405
SC21-SCREF-SURF	AT1-873	22.0	22.4	7.4	8.1	5.8	8.2	358	408

TABLE 4 CONTINUED

EA Test Number: TN-21-771

Test Initiation: 3 December 2021 Test Termination: 13 December 2021

Sample Identification	EA Accession Number		Alkalinity (mg/L)		dness g/L)	Conductivity (µs/cm)		Ammonia (mg/L)	
		Day 0	Day 10	Day 0	Day 10	Day 0	Day 10	Day 0	Day 10
Laboratory Control	AT1-697	56	70	88	104	329	352	1.0	0.7
SC21-MR06-SURF	AT1-862	92	82	124	116	428	373	1.4	1.1
SC21-MRREF-SURF	AT1-863	86	82	120	120	393	380	1.3	0.6
SC21-SC01-SURF	AT1-864	78	76	112	116	394	375	< 0.1	0.1
SC21-SC05-SURF	AT1-865	90	70	128	128	413	378	0.4	0.3
SC21-SC11-SURF	AT1-866	78	78	128	120	400	369	1.2	0.6
SC21-SC14-SURF	AT1-867	92	84	116	120	428	377	4.1	1.0
SC21-SC18-SURF	AT1-868	76	78	120	112	421	372	1.5	1.4
SC21-SC21-SURF	AT1-869	100	86	116	128	442	391	1.2	1.3
SC21-SC27-SURF	AT1-870	86	90	120	120	417	384	1.8	2.0
SC21-SC30-SURF	AT1-871	94	80	112	124	420	381	4.2	1.6
SC21-SC33-SURF	AT1-872	90	82	116	120	423	374	2.9	1.4
SC21-SCREF-SURF	AT1-873	88	76	120	116	421	372	2.0	1.0

TABLE 5 WATER QUALITY PARAMETERS MEASURED DURING Hyalella azteca 10-DAY TOXICITY TESTING

EA Test Number: TN-21-788

Test Initiation: 10 December 2021 Test Termination: 20 December 2021

Sample Identification	EA Accession Number	Temperature (°C)		p] (s:		Dissolved Oxygen (mg/L)		Conductivity (µs/cm)	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
Laboratory Control	AT1-697	22.0	22.4	7.5	8.1	6.4	9.2	327	362
SC21-MR06-SURF	AT1-862	22.0	22.2	7.4	8.0	6.9	8.8	342	371
SC21-MRREF-SURF	AT1-863	22.0	22.2	7.4	8.0	7.1	8.5	335	372
SC21-SC01-SURF	AT1-864	22.0	22.1	7.4	8.0	7.3	8.7	330	370
SC21-SC05-SURF	AT1-865	22.0	22.3	7.4	8.0	7.5	8.6	345	370
SC21-SC11-SURF	AT1-866	22.0	22.2	7.4	8.0	7.3	8.7	351	371
SC21-SC14-SURF	AT1-867	22.0	22.2	7.5	8.0	7.3	8.6	354	382
SC21-SC18-SURF	AT1-868	22.0	22.1	7.5	8.0	7.2	8.7	339	376
SC21-SC21-SURF	AT1-869	22.0	22.2	7.5	8.0	7.2	8.5	339	378
SC21-SC27-SURF	AT1-870	22.0	22.1	7.5	8.0	5.7	8.4	338	372
SC21-SC30-SURF	AT1-871	22.0	22.1	7.5	7.9	7.3	8.6	343	378
SC21-SC33-SURF	AT1-872	22.0	22.3	7.5	7.9	7.3	8.5	346	374
SC21-SCREF-SURF	AT1-873	22.0	22.1	7.5	7.9	7.3	8.9	337	390

TABLE 5 CONTINUED

EA Test Number: TN-21-788

Test Initiation: 10 December 2021 Test Termination: 20 December 2021

Sample Identification	EA Accession Number		Alkalinity (mg/L)		dness g/L)		uctivity /cm)	Ammonia (mg/L)	
		Day 0	Day 10	Day 0	Day 10	Day 0	Day 10	Day 0	Day 10
Laboratory Control	AT1-697	64	62	88	104	326	350	1.7	<0.1
SC21-MR06-SURF	AT1-862	94	100	120	144	417	417	3.3	0.8
SC21-MRREF-SURF	AT1-863	100	86	124	128	403	389	1.6	1.2
SC21-SC01-SURF	AT1-864	80	76	124	120	408	369	< 0.1	< 0.1
SC21-SC05-SURF	AT1-865	100	84	128	120	421	371	0.6	0.6
SC21-SC11-SURF	AT1-866	82	80	112	120	404	372	2.2	0.2
SC21-SC14-SURF	AT1-867	84	88	120	128	424	386	3.5	0.3
SC21-SC18-SURF	AT1-868	82	100	124	152	409	452	1.8	1.0
SC21-SC21-SURF	AT1-869	114	90	128	120	492	394	2.6	0.9
SC21-SC27-SURF	AT1-870	102	88	128	128	445	380	3.6	2.5
SC21-SC30-SURF	AT1-871	110	90	128	124	484	396	6.6	1.0
SC21-SC33-SURF	AT1-872	126	88	120	120	445	382	5.0	1.0
SC21-SCREF-SURF	AT1-873	110	78	208	116	400	372	1.2	0.1

TABLE 6 WATER QUALITY PARAMETERS MEASURED DURING *Lumbriculus variegatus* 28-DAY BIOACCUMULATION TESTING

EA Test Number: TN-21-787

Test Initiation: 8 December 2021 Test Termination: 5 January 2022

Sample Identification	EA Accession Number	Temperature (°C)		pH (su)			ed Oxygen ng/L)	Conductivity (µs/cm)	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
Laboratory Control	AT1-697	22.0	24.0	7.6	8.5	2.6	7.8	319	382
SC21-SC11-SURF	AT1-866	22.0	23.4	7.5	8.5	4.0	7.0	331	409
SC21-SC14-SURF	AT1-867	22.0	23.2	7.5	8.4	4.0	6.5	330	421
SC21-SC18-SURF	AT1-868	22.0	23.3	7.5	8.4	4.0	6.3	332	410
SC21-SCREF-SURF	AT1-873	22.0	23.3	7.5	8.4	3.7	6.4	333	420

Sample Identification	EA Accession Number	Alkalinity (mg/L)		Hardness (mg/L)		Conductivity (µs/cm)		Ammonia (mg/L)	
		Day 0	Day 28	Day 0	Day 28	Day 0	Day 28	Day 0	Day 28
Laboratory Control	AT1-697	70	66	112	108	339	362	1.1	0.3
SC21-SC11-SURF	AT1-866	76	88	120	116	386	381	0.9	< 0.1
SC21-SC14-SURF	AT1-867	90	82	116	120	406	384	3.2	0.3
SC21-SC18-SURF	AT1-868	76	78	120	112	390	390	1.1	0.1
SC21-SCREF-SURF	AT1-873	80	80	112	120	393	392	1.1	0.1

TABLE 7 RESULTS OF ELUTRIATE BIOASSAY TESTING WITH Daphnia magna

			48-Hour Survival (%)						
				Percent Elutriate 48-hour LC50 (% elutriate)					
Sample Identification	EA Accession Number	Test Number	Lab Control	100%	50%	25%	12.5%	6.25%	(
SC21-SC-WAT	AT1-853	TN-21-750	100	95					>100
SC21-COMP-01	AT1-854	TN-21-733	95	100	100	100	100	100	>100
SC21-COMP-02	AT1-855	TN-21-734	100	100	100	100	100	100	>100
SC21-COMP-03	AT1-856	TN-21-735	100	100	100	100	100	100	>100
SC21-COMP-04	AT1-857	TN-21-736	100	100	95	100	100	100	>100
SC21-COMP-05	AT1-858	TN-21-737	100	100	100	100	100	100	>100
SC21-COMP-06	AT1-859	TN-21-738	100	100	100	100	100	100	>100
SC21-COMP-07	AT1-860	TN-21-739	100	95	95	95	100	100	>100
SC21-COMP-08	AT1-861	TN-21-740	100	100	100	100	100	100	>100

TABLE 8 RESULTS OF ELUTRIATE BIOASSAY TESTING WITH Pimephales promelas

			96-Hour Survival (%)						
				Percent Elutriate					
Sample Identification	EA Accession Number	Test Number	Lab Control	100%	50%	25%	12.5%	6.25%	96-hour LC50 (% elutriate)
SC21-SC-WAT	AT1-853	TN-21-749	100	98					>100
SC21-COMP-01	AT1-854	TN-21-786	96	92	100	86	92	98	>100
SC21-COMP-02	AT1-855	TN-21-742	98	100	100	100	100	98	>100
SC21-COMP-03	AT1-856	TN-21-743	98	98	100	98	100	100	>100
SC21-COMP-04	AT1-857	TN-21-744	100	94	100	100	100	98	>100
SC21-COMP-05	AT1-858	TN-21-745	92	96	100	98	100	100	>100
SC21-COMP-06	AT1-859	TN-21-746	98	90	98	98	98	92	>100
SC21-COMP-07	AT1-860	TN-21-747	94	46	100	100	100	96	96.1
SC21-COMP-08	AT1-861	TN-21-748	100	98	100	100	100	100	>100

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TABLE 9 RESULTS OF Chironomus dilutus 10-DAY TOXICITY TESTING

EA Test Number: TN-21-771

Test Initiation: 3 December 2021 Test Termination: 13 December 2021

Sample Identification	EA Accession Number	10-Day Survival (percent)	Mean Ash Free Dry Weight as mg/Organism (±SD)
Laboratory Control	AT1-697	90	1.156 (±0.168) ^(c)
SC21-MR06-SURF	AT1-862	35 ^(abc)	$0.713 \ (\pm 0.209)^{(abc)}$
SC21-MRREF-SURF	AT1-863	84	1.280 (±0.398) ^(c)
SC21-SC01-SURF	AT1-864	89	1.065 (±0.391) ^(c)
SC21-SC05-SURF	AT1-865	88	1.487 (±0.605)
SC21-SC11-SURF	AT1-866	83 ^(a)	1.827 (±0.331)
SC21-SC14-SURF	AT1-867	90	1.658 (±0.379)
SC21-SC18-SURF	AT1-868	3 ^(abc)	0.750 (±1.047)
SC21-SC21-SURF	AT1-869	90	1.905 (±0.422)
SC21-SC27-SURF	AT1-870	84 ^(a)	1.392 (±0.356)
SC21-SC30-SURF	AT1-871	79 ^(a)	$0.714 \ (\pm 0.182)^{(abc)}$
SC21-SC33-SURF	AT1-872	76 ^(abc)	1.493 (±0.409)
SC21-SCREF-SURF	AT1-873	85	1.621 (±0.190)

⁽a) Significantly different (p=0.05) from laboratory control.

⁽b) Significantly different (p=0.05) from SC21-MRREF-SURF (AT1-863).

⁽c) Significantly different (p=0.05) from SC21-SCREF-SURF (AT1-873).

EA Test Number: TN-21-788

Test Initiation: 10 December 2021 Test Termination: 20 December 2021

Sample Identification	EA Accession Number	10-Day Survival (percent)	Mean Dry Weight as mg/Organism (±SD)
Laboratory Control	AT1-697	91	0.125 (±0.020)
SC21-MR06-SURF	AT1-862	56 ^(abc)	0.066 (±0.014) ^(ab)
SC21-MRREF-SURF	AT1-863	90	$0.099 (\pm 0.007)^{(a)}$
SC21-SC01-SURF	AT1-864	80 ^(ab)	$0.079 (\pm 0.018)^{(ab)}$
SC21-SC05-SURF	AT1-865	36 ^(abc)	$0.066 (\pm 0.022)^{(ab)}$
SC21-SC11-SURF	AT1-866	49 ^(abc)	$0.064 (\pm 0.023)^{(ab)}$
SC21-SC14-SURF	AT1-867	55 ^(abc)	$0.056 (\pm 0.035)^{(ab)}$
SC21-SC18-SURF	AT1-868	59 ^(abc)	$0.052 (\pm 0.009)^{(ab)}$
SC21-SC21-SURF	AT1-869	74 ^(abc)	0.029 (±0.013) ^(abc)
SC21-SC27-SURF	AT1-870	74 ^(abc)	$0.031 (\pm 0.010)^{(abc)}$
SC21-SC30-SURF	AT1-871	83 ^(ab)	0.043 (±0.008) ^(abc)
SC21-SC33-SURF	AT1-872	74 ^(abc)	0.053 (±0.014) ^(ab)
SC21-SCREF-SURF	AT1-873	85 ^(a)	$0.065 \ (\pm 0.022)^{(ab)}$

⁽a)

Significantly different (p=0.05) from laboratory control. Significantly different (p=0.05) from SC21-MRREF-SURF (AT1-863). (b)

Significantly different (p=0.05) from SC21-SCREF-SURF (AT1-873). (c)

TABLE 11 RESULTS OF Lumbriculus variegatus 28-DAY BIOACCUMULATION TESTING

EA Test Number: TN-21-787

Test Initiation: 8 December 2021 Test Termination: 5 January 2022

				Organism V	Weight Red	covered (g)	
Sample Identification	EA Accession Number	Organism Weight Loaded (g)	A	В	C	D	E
Laboratory Control	AT1-697	15	15	15	15	15	15
SC21-SC11-SURF	AT1-866	15	15	15	15	15	15
SC21-SC14-SURF	AT1-867	15	10	10	12	11	15
SC21-SC18-SURF	AT1-868	15	10	8	10	8	8
SC21-SCREF-SURF	AT1-873	15	11	12	10	13	10

TABLE 12 RESULTS OF REFERENCE TOXICANT TESTING

Test Species	Reference Toxicant	EA Test Number	Test Result	Acceptable Control Chart Limits
Daphnia magna (water flea)	Potassium Chloride (KCl)	RT-21-205	48-Hour LC50: 818 mg/L KCl	502 – 910 mg/L KCl
Pimephales promelas (fatehead minnow)	Potassium Chloride (KCl)	RT-21-202	48-Hour LC50: 1,146 mg/L KCl	564 – 1,245 mg/L KCl
Chironomus dilutus (midge)	Sodium dodecyl sulfate (SDS)	RT-21-216	48-Hour LC50: 67 mg/L SDS	17 – 74 mg/L SDS
Hyalella azteca (amphipod)	Copper sulfate (CuSO ₄)	RT-21-179	96-Hour LC50: 126 μg/L Cu	$0-306~\mu g/L~Cu$
Lumbriculus variegatus (oligochaete)	Copper chloride (CuCl ₂)	RT-21-219	96-Hour LC50: 58 μg/L Cu	$8-134~\mu g/L~Cu$

ATTACHMENT I

Chain-of-Custody Record (4 pages)



Page 1 of 1

EA Engineering - Swan Creek 1583406

CarrierName: AirbillNo: DateShipped:

CHAIN OF CUSTODY RECORD

Contact Name: Michael Durbano Site #: 49759

Contact Phone: 6093320534

No: 5-111521-125309-0053

Lab: EA Ecotoxicology Lab Phone:

EPA 2021.0, EPA 2000.0 Description Preservative Lab QC z 10 5 gallon carboy Numb Container Cont Sample Time 14:10 11/10/2021 Sample Date Matrix Water Analyses Toxicity SC21-SC-WAT Sample # Lab#

			S	SAMPLES TRANSFERRED FROM	ERRED FROM
Special Instructions:	18:		 5	CHAIN OF CUSTODY #	#
Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Miller Miller St.	1/2/2/2	M	0521 12 31 11	Goo A

Page 1 of 1

EA Engineering - Swan Creek 1583406

DateShipped:

CarrierName: AirbillNo:

CHAIN OF CUSTODY RECORD

Site #: 49759

Contact Name: Michael Durbano Contact Phone: 6093320534

No: 5-111521-123508-0052 Cooler #: Lab: EA Ecotoxicology

Lab Phone:

	ed Material	∍d Material	3d Material	ed Material	∍d Material	ed Material	∋d Material	ed Material					:	
Description	Great Lakes Dredged Material													
Preservative Description														
Numb Container Cont	3 gal bucket													
Numb	-	_		-	-	-	_	-						
Sample Time	14:15	10:45	12:20	08:30	08:30	14:20	15:00	11:15						
Sample Date	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/10/2021	11/11/2021	11/11/2021						-
Matrix	Sediment													
Analyses	Standard Elutriate Preparation													
Sample #	SC21-COMP-01	SC21-COMP-02	SC21-COMP-03	SC21-COMP-04	SC21-COMP-05	SC21-COMP-06	SC21-COMP-07	SC21-COMP-08						
Lab#														
e minus	AT1-854	885	<i>6.</i> 50,	857	85\$	858 158	038	198						

Special Instructions:	ons:		S C	SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #	RRED FROM
Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

Page 1 of 1

EA Engineering - Swan Creek 1583406

DateShipped: CarrierName:

AirbillNo:

CHAIN OF CUSTODY RECORD

Site #: 49759 Contact Name: Michael Durbano Contact Phone: 6093320534

No: 5-111521-123210-0051

Cooler #:

Lab: EA Ecotoxicology Lab Phone:

	Lab #	Sample #	Analyses	Matrix	Sample	Sample	Numb	Numb Container	Preservative Description	Description
					Date	Time	Cont			
ATI-862		SC21-MR06- SURF	Tox Sed - Azteca, Dilutus	Sediment	11/8/2021	14:45	_	5 gal bucket		EPA 100.1, EPA 100.2
843		SC21-MRREF- SURF	Tox Sed - Azteca, Dilutus	Sediment	11/8/2021	15:35	_	5 gal bucket		EPA 100.1, EPA 100.2
३ ७५	<u> </u>	SC21-SC01-SURF	Tox Sed - Azteca, Dilutus	Sediment	11/9/2021	10:30	-	5 gal bucket		EPA 100.1, EPA 100.2
865		SC21-SC05-SURF	Tox Sed - Azteca, Dilutus	Sediment	11/9/2021	11:30	-	5 gal bucket		EPA 100.1, EPA 100.2
20%		SC21-SC11-SURF	Tox Sed - Azteca, Dilutus, Variegatus	Sediment	11/9/2021	12:20	_	5 gal bucket		EPA 100.1, EPA 100.2, EPA 100.
COR		SC21-SC14-SURF	SC21-SC14-SURF Tox Sed - Azteca, Dilutus, Variegatus	Sediment	11/9/2021	13:00	_	5 gal bucket		EPA 100.1, EPA 100.2, EPA 100.
898		SC21-SC18-SURF	SC21-SC18-SURF Tox Sed - Azteca, Dilutus, Varlegatus	Sediment	11/9/2021	13:45	_	5 gal bucket		EPA 100.1, EPA 100.2, EPA 100.
800		SC21-SC21-SURF	SC21-SC21-SURF Tox Sed - Azteca, Dilutus	Sediment	11/9/2021	14:20	~	5 gal bucket		EPA 100.1, EPA 100.2
01.8		SC21-SC27-SURF	SC21-SC27-SURF Tox Sed - Azteca, Dilutus	Sediment	11/9/2021	15:00	Ψ-	5 gal bucket		EPA 100.1, EPA 100.2
128		SC21-SC30-SURF	SC21-SC30-SURF Tox Sed - Azteca, Dilutus	Sediment	11/9/2021	15:25	-	5 gal bucket		EPA 100.1, EPA 100.2
613		SC21-SC33-SURF	Tox Sed - Azteca, Dilutus	Sediment	11/8/2021	16:00	-	5 gal bucket		EPA 100.1, EPA 100.2
\$73		SC21-SCREF- SURF	Tox Sed - Azteca, Dilutus, Variegatus	Sediment	11/9/2021	10:00	-	5 gal bucket		EPA 100.1, EPA 100.2, EPA 100.
_										

				SAMPLES TRANSFERRED FROM	ERRED FROM
Special Instructions:	ns:			CHAIN OF CUSTODY #	#.
Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time Si	Sample Condition Upon Receipt

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ATTACHMENT II

Data Sheets and Statistical Analyses from *Daphnia magna* Toxicity Tests (63 pages)





TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70019.TOX

Client: Swan Creek

QC Test Number: TN-21-750

TESTORGAN	VISM INFORMATION
Common Name: Water flea	Adults Isolated (Time, Date):
Scientific Name: D. magna	Neonates Pulled & Fed (Time, Date): 11 つましょ 0945
Lot Number: N/A	Acclimation: <u><24hrs</u> Age: <u><24 hrs</u>
Source: EA	Culture Water (T/S): 209 °C 0 ppt

		TEST INITIATIO	N
<u>Date</u>	<u>Time</u>	<u>Initials</u>	<u>Activity</u>
11/33/31	1017	Alg	Dilutions Made
		$\mathcal{T}_{\mathcal{L}}$	Test Vessels Filled
	1113	Uto	Organisms Transferred
	1155	<u>5</u> L	Head Counts

	TEST SET-UP	
Sample Number: <u>AT1-853</u> Dilution Number: <u>LD1- 788</u>		
Test Concentration	Volume Test Material	Final Volume
Control	0 ml	200 ml
Site Water (AT1-853)	200 ml	



11 35 21 Time: 1113 Time: Non-renewal (Static) Flowthrough 11/25/21 Renewal / mg/L Test Container: 30 ml cup Test Volume: 25 ml Test Duration: 48 hrs Beginning Date: Ending Date: TEST TYPE: ACUTE TOXICITY TEST DATA SHEET ppt Light Intensity: 50 - 100 fc Salinity: 0 DO: >4.0 Scientific Name: D. magna Common Name: Water flea S Photoperiod: 16 l, 8 d TEST ORGANISM pH: 6.0 - 9.0 TARGET VALUES Temp: 20±1 Accession Number: LD1-70℃ Accession Number: AT1-853 ELUTRIATE QC Test Number: IN-21-750 Project Number: 70019.TOX Dilution Water: Mod Hard Client: Swan Creek Test Material:

			Z	Number of	r of			Te	Temperature	ure								vissolv	Dissolved Oxygen	en	20	Conductivity (S/cm)	/S (1) A	(mass
			Live	\sim L	nisms	-			(၃)					Hd				E)	(mg/L)			Salinity (hpt)	CH) A	1
Concentration	Rep	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48 72	96	0	24 48	8 72	96
Control	A	2	S	5			10.3	1,91 0,06 6.06	19.1			1.7	7.9	1			9. 4	8,8	0		5	1		_
	В	5	S	15			5		,				_	-				5	3			164 etc		1
	၁	S	S	5																				
	D	S	P	8									I											
Site Water	А	5	5	S			2.5	21.0 19.0 19.0	0,6		,	18 19	-	0.8			0	0 - 6	00		1		é	
(AT1-853)	В	5	t	+						jį		2	1					_	(1)	1	2000	374 418	Q	
	Ö	2	5	S																				
	D	5	17	V			J.S																	
																			-					
																		1						
Meter Number							(S)	80 C C C C	100		3	5.0	1991 Organ Organ	160			(A)	1.91	1		3	0, 10		
Time		3	155 1033 1114	HIL			MID	MII 560, 0111	HIII		=		PIII 255 CIII	3			100 000 000 000 000 000 000 000 000 000	3 15	7 3		on Can Com	ad uso oo		
Initials		3	388	3			(B)	CA!	3			8	-4	Q.			TA TA	- 4	1 4		2 5	13 2		
		5)	2	0			2		2	1	4	25	2	2		1	子田田		

EPA Test Method: EPA 821-R-02-012 (CHECK ONE) Ceriodaphnia: 2002.0 Magna/pulex: 2021.0 X

Fathead: 2000.0 Trout: 2019.0

Americamysis: 2007.0 Cyprinodon: 2004.0

OTHER:

Menidia:2006.0

ATS-T01 12/02/08



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-750	
Date/Time/Initials	Comments/Activity



RANDOMIZATION CHART

Project Number: _	70019.TOX	
Client:Swa	nn Creek	
QC Test Number:	TN-21-750	

5	4	1	3	6	2
1	5	3	2	4	6
6	2	4	1	5	3
4	1	2	6	3	5
4		2		3	3



TOXICOLOGY LABORATORY BENCH SHEET -TESTING LOCATION

Project Number: 70019.TOX
Client: Swan Creek
QC Test Number: TN-21-750

Day	Testing Location	Date	Time	Initials
0	51	11/23/21	1159	54
1	ŠÍ	16/24/11	1035	UND
2	51	11/25/21	1115	U O
3				
4				
5				
6				
7				
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12				
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30				



TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number: 70019.TOX
Client: Swan Creek
QC Test Number: TN-21-750
Correction Explanations
(a) Technician Error-Mathematical
(b) Technician Error-Manual Data Recording
(c) Technician Error-Head Count Observation
(d) Technician Error-Overwrite
(e) Technician Error-Missing Data
(f) Technician Error-Lost Organism
(g) Technician Error-Transcription Error
(h) Technician Eπor-Other:
(i) Meter Malfunction



TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70019.TOX

Client: Swan Creek

QC Test Number: TN-21-733

TEST	RGANISM INFORMATION
Common Name: Water flea	Adults Isolated (Time, Date): 11/33/31 1601
Scientific Name: D. magna	Neonates Pulled & Fed (Time, Date): <u>u \23\2) 0 909</u>
Lot Number: N/A	Acclimation: <24hrs Age: <24 hrs
Source: EA	Culture Water (T/S):

Company of the Compan		TEST INITIATION	4
<u>Date</u>	<u>Time</u>	<u>Initials</u>	Activity
11/23/21	1045	Q I	Dilutions Made
	J	L	Test Vessels Filled
	1314	AS	Organisms Transferred
1	1434	Uto	Head Counts

ample Number: <u>AT1-854</u> Dilution Number: <u>LD1-788</u>		
Test Concentration	Volume Test Material	Final Volume
Control	$0 \mathrm{ml}$	200 mI
6.25%	12.5 ml	
12.5%	25 ml	
25%	$50 \mathrm{ml}$	
50%	100 ml	
100%	200 ml	



1303 Time: 124 Time: Renewal / Non-renewal Static / Flowthrough 10/56 Beginning Date: 11/23/21 mg/L Test Container: 30 ml cup Test Volume: 25 ml Test Duration: 48 hrs Ending Date: TEST TYPE: ppt ACUTE TOXICITY TEST DATA SHEET Light Intensity: 50 - 100 fc Salinity: 0 DO: >4.0 Common Name: Water flea Scientific Name: D. magna 00 Photoperiod: 161,8d TEST ORGANISM TARGET VALUES pH: 6.0 - 9.0 Temp: 20±1 Accession Number: LD1- 788 Accession Number: AT1-854 ELUTRIATE QC Test Number: TN-21-733 Project Number: 70019.TOX Dilution Water: Mod Hard Client: Swan Creek Test Material:

		Live	Live Organisms	isms			1 cmperature	mre				į			Di	ssolve	Dissolved Oxygen	gen	ğ	onduct	Conductivity (µS/cm)	Cm)
Rep	0	24	48	72	96	0	24 48	72	96	0	24	pH 48	77	90	1	E .		-		Sali	Salimity (ppt)	
<	4	,	1				+	1		>	17	10	7/	90	0	74	48	17 96	0	24	48 7	72 96
V	0	5	S		. 3	30.1	19.0 19.1			7.60 Ki		0		1	79 101 93	0	~			250	77-1	-
В	S	10	5							9)			01 1 -1	-	?		36	20	717	
C	5	10	9															-				-
D	5	V	5	i get										T							+	+
A	5	5	5		(8	0.61 4.00	1 61 0.6			7.60 8.0		0			92 14				0	21.0	2	+
В	5	S	5							9		3			0.01 0.0	0)	+	548 345	3	368	
ပ	5	~	N									t										ł
D	5	S	V									1	7									4
A	5	S	r		18	30.519,0	3,0 19.5			16 8 N B D	<	6			911 11 11 Q	20			6	_	3	+
В	5	V	5		-		2			9	2.0	2		7	7.0	2			319 576		373	
C	S	15	5									İ				1						
D	5	100	V						T			T		+			+					
					1	1-32 640	190 1801		1	1/402	120 029	1.60		N.	1.81 1.80				1001	da	1	-
	Leh!	350	1303		61	1303 1157			-	-	2 2		1	3 4	MO COC	1 60			100 1000	200	1881	
	247	8	Ogn M			TW TA			>	NA NA	NA 101 (45)	100		3	10 10 100	100	7		/c,, ISO1	1501 /011 150	1354	

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 Magna/pulex: 2021.0

Fathead: 2000.0 Trout: 2019.0

Americanysis: 2007.0 Cyprinodon: 2004.0

Menidia:2006.0 OTHER:

ATS-T01 12/02/08



ACUTE TOXICITY TEST DATA SHEET

TEST ORGANISM

Common Name: Water flea

Scientific Name: D. magna

Ending Date: TEST TYPE:

Static / Flowthrough Renewal

Time: 1303 Time: 1314

19219

Beginning Date: 11/23/21

Non-renewal

mg/L Test Container: 30 ml cup DO: >4.0

Test Volume: 25 ml ppt

Accession Number: LD1- 788 Dilution Water: Mod Hard

Accession Number: AT1-854

ELUTRIATE

Test Material:

QC Test Number: TN-21-733

Client: Swan Creek

Project Number: 70019.TOX

Photoperiod: 161,8 d

Light Intensity: 50 - 100 fc

Salinity: 0

pH: 6.0 - 9.0 Temp: 20±1

ွ

TARGET VALUES

Test Duration: 48 hrs

Conductivity (µS/cm)	Salimity (mnt)
Dissolved Oxygen	(Mø/L)
	Hu
Temperature	(00)
Number of	Live Organisms

Nun Live O	C igh		4	Tem	E	2		č	1		_	101	solved O; (mg/L)	Y			Sal	tivity (
48 72 96		Acres 1	0	24	48 72	96	0	24	48	72	96	0	24 48	2/ 8	96	0	24	48	72 96
S			30.5	19,1	4.91		17	7.7 8.0	0		00	8.5 9.8 9.3	5	~	-	443	443 458 45	15	
5		_																	
2																			
2		_	ì								H								
5	-10	10	30.4 I	19,1	18.7		2.0	7.6 7.9	7.5		80	8.4 9.7	7 9.3	•		295	S63 S85 578	578	
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5																			
5																			
5	78	R	30. i	16.	19,60		76	76 78 7.8	2,8		80	8.3 9.7	7 9			32	327 528 186	186	
2																			
5							1												
2			П								7								
1	+	+	r-32 680		1691		(63)	(B) 691 Les	181		9)	BI 650 LEI	39 0			180)	189 189 1891	1897	
1350 363			1303 1157		1357		1003	FSU 157 123	1357		π	Esel 151 1501	1 (35	7		1001	FS01 LS11 1501	(923)	
ayn			3	MT	B		S	CH MT	eg.			PM TIM 68	5	0		7	\$ 71 (P	OU)	

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 Magna/pulex: 2021.0_

Fathead: 2000.0 Trout: 2019.0

Americamysis: 2007.0 Cyprinodon: 2004.0

Menidia:2006.0 OTHER:

ATS-T01 12/02/08



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-733	 _
Date/Time/Initials	Comments/Activity



RANDOMIZATION CHART

Project Number:70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-733	

5	4	1	3	6	2
1	5	3	2	4	6
6	2	4	1	5	3
4	1	2	6	3	5



TOXICOLOGY LABORATORY BENCH SHEET -TESTING LOCATION

Project Number:	70019.TOX		
Client: Swan Creek			
QC Test Number:TN-21-	-733	- -	

			1	
Day	Testing Location	Date	Time	Initials
0	<u>S </u> S	u 23/21	1429	4/10
1	51	ાં અનુ રા	1352	UND
2	51	1192 31	1300	LAO
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30				



TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number:70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-733	
Correction Explanations	
(a) Technician Error-Mathematical	
(b) Technician Error-Manual Data Recording	
(c) Technician Error-Head Count Observation	
(d) Technician Error-Overwrite	
(e) Technician Error-Missing Data	
(f) Technician Error-Lost Organism	
(g) Technician Error-Transcription Error	
(h) Technician Error-Other:	
(i) Meter Malfunction	



TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70019.TOX

Client: Swan Creek

QC Test Number: TN-21-734

(b) CAD

Common Name: Water flea Scientific Name: D. magna Lot Number: N/A Adults Isolated (Time, Date): 11 33 Neonates Pulled & Fed (Time, Date): 11 33 Acclimation: <24hrs Age: <	<u> </u>	TEST ORGANISM INFORMATION
Scientific Name: D. magna Neonates Pulled & Fed (Time, Date): 11 33 Lot Number: N/A Acclimation: <24hrs Age: <		Common Name: Woter floo
Lot Number: N/A Acclimation: <24hrs Age: <		
G 74	24 hrs	Lot Number: N/A
Culture Water (T/S): VI.O °C	0 ppt	Source: EA

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		TEST INITIATIO	N
<u>Date</u>	<u>Time</u>	Initials	Activity
11/33/21	1028	P	Dilutions Made
	nos	Ay	Test Vessels Filled
	1324	ay	Organisms Transferred
L	1427	UAD	Head Counts

	TEST SET-UP	
Sample Number: AT1-855		
Dilution Number: <u>LD1-789</u>		
Test Concentration	Volume Test Material	Final Volume
Control	0 ml	200 ml
6.25%	12.5 ml	
12.5%	25 ml	
25%	50 ml	
50%	100 ml	
100%	200 ml	
		▼

Project Number: 70019.TOX

Client: Swan Creek

TEST DATA SHEET	
ATA	
LD	
TEST	
TIL	
OXIC	
TE T	
ACUTE TOXICITY 1	
4	

TEST ORGANISM

Scientific Name: D. magna Common Name: Water flea

Beginning Date: 111 3-5 [21] Time: 1306 Ending Date:

16/56/11

Static / Flowthrough

Renewal / Non-renewal

TEST TYPE;

mg/L Test Container: 30 ml cup

Test Volume: 25 ml ppt

Salinity: 0 DO: >4.0

pH: 6.0 - 9.0

Accession Number: LD1- 789

Accession Number: AT1-855 Test Material: ELUTRIATE QC Test Number: TN-21-734

Dilution Water: Mod Hard

S

Temp: 20±1

TARGET VALUES

Photoperiod: 161,8d

Light Intensity: 50 - 100 fc

Test Duration: 48 hrs

			Live	Number of Live Organisms	isms			temp (°	remperaure (°C)	1)			Hu			D	Dissolved Oxygen	d Oxyg	gen	ပိ	nductiv	Conductivity (µS/cm)	(cm)
Concentration	Rep	0	24	48	72	96	0	24 4		72 96	0 9	24	+	72	96	C	0 4c	(mg/L)	70 67		5		-
Control	A	5	V	V,			7.5 G 10 A	+-	-		7	1		+		, ,	<	+	_	_	+7	40 1/2	200
))			60.	Ç	1		7.	1000	ac			X . 3.	XX 10 2.3	3		Silo	2110242 259	20	
	В	5	S	N												9				÷			+
	C	5	S	V							10								+			+	
	D	5	N	5						-								+					#
6.25%	A	5	S	5		,-	20.9 19.0	O PR.3	3		7.1	7.68.1	8			8.48	0	92		0,00	r.01 207 10,7	î	
	В	5	S	5					1		-		5			10		0	-	528	3/6	+0	
	C	5	S	8																	ı		4
	Q	5	5	10			0/6	-									-						4
12.5%	А	5	S	h		-	19.0	291 0	N		1	0.8 01 6	0			011 02	6	-			14.11	(4
	В	5	5	S						-	5	0				F-0	6.	D		2100	Sold Hes	50	
	O	5	5	5								L											
	D	S	V	~																	1		
Meter Number						T	1081 650	3	-		108	180 680 1801	1.80			181	101 1157			1.81	0100		-
Time		437 1354 1306	354	306			JOSU 12021	1300	0		3.5	1301 1202 1200	Ode				77 130	- 3		000 680 00	3000		4
Initials		E & E	3	(A)			MA BAS	F	C		0	103 E	\$			200	2001 2001 200	3		000 101 0001	0 10	2	

77 11/17 VN (P)

Fathead: 2000.0 Trout: 2019.0

Ceriodaphnia: 2002.0_Magna/pulex: 2021.0_

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Americamysis: 2007.0 Cyprinodon: 2004.0

Menidia:2006.0 OTHER:



ACUTE TOXICITY TEST DATA SHEET

TEST ORGANISM

Project Number: 70019.TOX

Client: Swan Creek

Common Name: Water flea

Scientific Name: D. magna

TARGET VALUES Temp: 20±1

Beginning Date: Ending Date:

11/23/21 Time: 1324 16/26/11

Time:

Static / Flowthrough

Non-renewal Renewal /

TEST TYPE:

mg/L Test Container: 30 ml cup

DO: >4.0

C

Test Volume: 25 ml ppt

Salinity: 0 Photoperiod: 161,8 d pH: 6.0 - 9.0

Accession Number: LD1- 739

Accession Number: AT1-855

Dilution Water: Mod Hard

Test Material: ELUTRIATE QC Test Number: IN-21-734

Light Intensity: 50 - 100 fc

Test Duration: 48 hrs

			Z .	Number of	ot .			Ien	Temperature	ıre							D	ssolve	Dissolved Oxygen	gen		Cond	Conductivity (µS/cm)	(uS/c)	m)
			Live	Live Organisms	isms				(C)					μd				<u>ш</u>)	(mg/L)				•	,	
Concentration	Rep	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48 7	72 9	96	0 24	4 48	72	96
25%	A	S	S	5			21.0 19.0	19.0	19.			J.b. 9.C		0.0		Ş	84 9,3 93	3	N		7	U12 555 1.m	1 Jan		
	В	2	S	5								r		2)			0	3		
	O	S	V	5								I, I													
	D	5	8	V																-	-				
%05	А	2	5	S			20.919.0	19.0	2.61		1	7.5	7.57.979	19		~	9.0 a.u.	3	93		1,2	23 717 773	7 773		
	В	5	5	5										+					6	-	9	6	3		
	C	5	S	S							11									-			1		
	D	5	S	5																					
100%	A	5	5	V			2007	19.0	19.3		1	15	7579 79	19		OX.	8.4 9.5	-	93	-	0	922 977 92	2 97,		
	В	5	S	8			,							1				-	0			00	7		
	C	5	N	V														-		-					
	Q	5	W	V																					
Meter Number							189	080	189		3	181	(81 680 48)	(8)		2)	189 189 (80)	39 18	-		105	18) (80)	189)		
Time		LEH	435 1354	1366			1306 1202	2021	1300			306	DOE 1202 190K1	300		1 77	008 2021 9061	XI 20	2		13	1306 1207 1300	1 1300		
Initials		3	8 P	B			M	MMT	(M)			A.	AN THE WA	Q			M MT /A)	11 /1	43		, ,	という	8		

Fathead: 2000.0 Trout: 2019.0 EPA Test Method: EPA 821-R-02-012 (CHECK ONE) Ceriodaphnia: 2002.0 Magna/pulex: 2021.0

Americamysis: 2007.0 Cyprinodon: 2004.0

Menidia:2006.0 OTHER:



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-734	
Date/Time/Initials	Comments/Activity



RANDOMIZATION CHART

Project Number: _	70019.TOX	
Client:Sw	an Creek	
QC Test Number:	TN-21-734	

5	4	1	3	6	2
1	5	3	2	4	6
6	2	4	1	5	3
4	1	2	6	3	5
					:



TOXICOLOGY LABORATORY BENCH SHEET - TESTING LOCATION

Project Number:	70019.TOX	
Client: Swan Creek		
QC Test Number:TN-21	-734	

Day	Testing Location	 Date	Time	Initials
0	51	11 93/21	1429	
1	51	1961	1354	CAD
2	51	1192171		Uno
3		(1979)	1306	CAO
4		_		
5				
6				-
7				
8				
9				
10			-	
11				
12		-		
13				
14				
15				
16		-		_
17		-		
18				
19				
20				-
21				<u> </u>
22				
23				
24		-		
25				
26				
27				
28			-	
29				
30				



TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number: 70019.TOX
Client: Swan Creek
QC Test Number: TN-21-734
Correction Explanations
(a) Technician Error-Mathematical
(b) Technician Error-Manual Data Recording
(c) Technician Error-Head Count Observation
(d) Technician Error-Overwrite
(e) Technician Error-Missing Data
(f) Technician Error-Lost Organism
(g) Technician Error-Transcription Error
(h) Technician Error-Other:
(i) Meter Malfunction



TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70019.TOX

Client: Swan Creek

QC Test Number: TN-21-735

TEST OR	GANISM INFORMATION
Common Name: Water flea	Adults Isolated (Time, Date): 11 22 121 1401
Scientific Name: D. magna	Neonates Pulled & Fed (Time, Date): 0932 11) 23 121
Lot Number: N/A	Acclimation: <24hrs Age: <24 hrs
Source: EA	Culture Water (T/S): 20 · 2 _ °C ppt

		TEST INITIATION	ON
<u>Date</u>	<u>Time</u>	<u>Initials</u>	<u>Activity</u>
11/23/21	1030	GP	Dilutions Made
	n08	Ì	Test Vessels Filled
	1200	\downarrow	Organisms Transferred
J	1256	NY	Head Counts

Sample Number: <u>AT1-856</u> Dilution Number: <u>LD1- 789</u>		
Test Concentration	Volume Test Material	Final Volume
Control	0 ml	200 ml
6.25%	12.5 ml	
12.5%	25 ml	
25%	50 ml	
50%	100 ml	
100%	200 ml	

ACUTE TOXICITY TEST DATA SHEET

Project Number: 70019.TOX	TEST ORGANISM		Beginning Date: 11193 [2] Time: [2]
Client: Swan Creek	Common Name: Water flea	ea	Ending Date: $(1 35)$ Time: 11
QC Test Number: IN-21-735	Scientific Name: D. magna	na	TEST TYPE: Static / Flowthrough
Test Material: ELUTRIATE	TARGET VALUES		Renewal / Mon-renewal
Accession Number: AT1-856	Temp: 20±1 °C	DO: >4.0	mg/L Test Container: 30 ml cup
Dilution Water: Mod Hard	pH: 6.0-9.0	Salinity: 0	ppt Test Volume: 25 ml
Accession Number: LD1- 789	Photoperiod: 161,8 d	Light Intensity: 50 - 100 fc	Test Duration: 48 hrs

	Oursing our			The state of the state of	2112						-	1		0	-	1	CHARLE	Common viry Charles	1
Rep Rep O C S S S S S S S S S S S S S S S S S S	Organisms			(a)					Hd				(mg/L)	(L)		J	Sali	Salimity (ppt)	
B A D C B S S S S S S S S S S S S S S S S S S	48 72	96	0	24 48	72	96	0	24	48	72	96	0 2	24 4	48 72	96	0	24 48	_	72 96
C C S S S B S S S S S S S S S S S S S S	S		21.0	6.91 0.91			8.0	7.9	6.3		X	8.59.9	9.7	+		330	HE THE 000	344	
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D 5 5 5 B 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	M																		
A 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	∨						Ē	H										Ħ	
5	7		21.0	19.0 19.1			7.9	1.9	8.1		40	8.5 9.8		<i>ა</i> ე		384	354 320	3,40	
	P																		
ر د د	5																		
D 5 S	7		5																
12.5% A 5 S	h		20.9	P.O 19.3			79 7.9		178		(XX)	8.5 9.7	7 9.0	0		33	33 400 400	200	
B 5 S	6																		
c s S	V																		
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Meter Number			T-20 160	130 039			180	180 Les 1801	100		3	(80) WAS (180)	ر ا			89	(03) WO WE	198	
Time 1246 164 1,054	15011			1011 1011			1113	1113 JOHN 1041	120			1113 104 1041	五子	_		1113	1112 1044 1041	1201	
Initials AP UTD UPP	CAS		7	SAN CAN			the	多多	3			多多多	So Ch	0		2	By the to	CF)	

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 Magna/pulex: 2021.0 X

Fathead: 2000.0_ Trout: 2019.0_

Americamysis: 2007.0 Cyprinodon: 2004.0

Menidia:2006.0 OTHER:



Time: [320] 1103 Time: Renewal / Mon-renewal (Static /) Flowthrough Beginning Date: 111,031,01 (13E/1) mg/L Test Container: 30 ml cup Test Volume: 25 ml Test Duration: 48 hrs Ending Date: TEST TYPE: ppt Light Intensity: 50 - 100 fc ACUTE TOXICITY TEST DATA SHEET Salinity: 0 DO: >4.0 Scientific Name: D. magna Common Name: Water flea C Photoperiod: 161,8d TEST ORGANISM pH: 6.0 - 9.0 TARGET VALUES Temp: 20±1 Accession Number: AT1-856 ELUTRIATE Accession Number: LD1-QC Test Number: TN-21-735 Project Number: 70019.TOX Dilution Water: Mod Hard Client: Swan Creek Test Material:

			Z	Number of	Jo			Ten	Temperature	re							D	issolv	Dissolved Oxygen	gen		Conductivity (µS/cm)	tivity ((µS/cn	A
			Live	Live Organisms	isms				(a)					Hd				n)	(mg/L)				Salimity (ppt)	abt	
Concentration	Rep	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48 7	72 9	0 96	0 24	48	72	96
25%	A	5	S	is			2009	0.91 9:08	7.5		1	1.9	7.9	0.8		45	4.94.8		9,1		ή	447 469	954		
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Meter Number							27	J20 08-J	139		_	186	180 180	1891			(2) (3) (B)	00%	189		9	189 Dan 1891	188		
Time	o .	13 81	Poll 2011 32 61	11091			[157]	1157 10H	1001			6111	1401 MOJ GIVE	1201			1 poly 4401 6111	外外	14		11	1113 pay 1041	1401		
Initials		4	\$4 00 PE	3			3	£	2			\$	多多多	圣			27	Ay CAO VAD	CA)	1 1	(,	87 PE 120	B		

 EPA Test Method:
 EPA 821-R-02-012 (CHECK ONE)

 Ceriodaphnia:
 2002.0

 Magna/pulex:
 2021.0

Trout: 2019.0

Americamysis: 2007.0 Cyprinodon: 2004.0

2007.0 Men 04.0 OTHI

Menidia:2006.0 OTHER:



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-735	
Date/Time/Initials	Comments/Activity



RANDOMIZATION CHART

Project Number: _	70019.TOX
Client:Swa	nn Creek
QC Test Number:	TN-21-735_

5	4	1	3	6	2
1	5	3	2	4	6
6	2	4	1	5	3
4	1	2	6	3	5



TOXICOLOGY LABORATORY BENCH SHEET - TESTING LOCATION

Project Number:	70019.TOX
Client:Swan Creek	
QC Test Number:TN-21-	735

Day	Testing Location	Date	Time	Initials
0	51	11/2/21	1519	(A
1	51	ાનિનના	107	UPS
2	51	11/25/21	1109	Uno
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TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

·
Project Number:
Client: Swan Creek
QC Test Number: TN-21-735
Correction Explanations
(a) Technician Error-Mathematical
(b) Technician Error-Manual Data Recording
(c) Technician Error-Head Count Observation
(d) Technician Error-Overwrite
(e) Technician Error-Missing Data
(f) Technician Error-Lost Organism
(g) Technician Error-Transcription Error
(h) Technician Error-Other:
(i) Meter Malfunction



TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70019.TOX

Client: Swan Creek

QC Test Number: TN-21-736

TEST ORGA	ANISM INFORMATION
Common Name: Water flea	Adults Isolated (Time, Date): パーショーショー (しゃり)
Scientific Name: <u>D. magna</u>	Neonates Pulled & Fed (Time, Date): 11-13-71 0858
Lot Number: N/A	Acclimation: <24hrs Age: <24 hrs
Source: EA	Culture Water (T/S):

		TEST INITIATIO	N
<u>Date</u>	<u>Time</u>	<u>Initials</u>	Activity
11123/21	0917	P	Dilutions Made
	0951	Als	Test Vessels Filled
	9701	uAo	Organisms Transferred
	1155	P	Head Counts

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	TEST SET-UP	
Sample Number: <u>AT1-857</u> Dilution Number: <u>LD1-787</u>		
Test Concentration	Volume Test Material	Final Volume
Control	0 ml	200 ml
6.25%	12.5 ml	
12.5%	25 ml	
25%	50 ml	
50%	100 ml	
100%	200 ml	

ACUTE TOXICITY TEST DATA SHEET

Time: 1048

1043

Time:

Project Number: 70019.TOX	TEST ORGANISM	GANISM	Beginning Date: 11/93/91 Time:
Client: Swan Creek	Common Name: Water flea	ea	Ending Date: $\sqrt{ \partial S } / S $ Time:
QC Test Number: <u>IN-21-736</u>	Scientific Name: D. magna	na	TEST TYPE: (Static / Flowthrough
Test Material: ELUTRIATE	TARGET VALUES		Renewal / Mon-renewal
Accession Number: AT1-857	Temp: 20±1 °C	DO: >4.0	mg/L Test Container: 30 ml cup
Dilution Water: Mod Hard	pH: 6.0 - 9.0	Salinity: 0	ppt Test Volume: 25 ml
Accession Number: LD1-787	Photoperiod: 161,8 d	Light Intensity: 50 - 100 fc	Test Duration: 48 hrs

	9							- 4	- (
(Ell)	96							4-1					
(had)	72	0								7			
Conductivity (µS/cm)	48	376				396				437			
onduc		295				398				6Ch			
0	0	335 347 370				354 396 396				381 439			
	96				1 01								
tygen	72												
Dissolved Oxygen (mg/L)	48	9.				8.3				8.3			
rlossi(24	8.7 10.1 8.4				8.5 1003 8.3		T		0.0			
П	0	8.7				8.5				8.4 10.0			
	96									.,,			
	72												
Hd	48	3.1				0				0.0			
	24	8.1 6.1 8.1				8-1 8.1 8.0				8.0 8.0 8.0			
	0	1.8				1				00			
		8		1		0,0				80			
	96 7												
Temperature (°C)	72	10				20				1			
empera (°C)	48	5.0E C				5,06,0				1,060			
E	24	21.0 19.0				31.0 19.0				20.8 19.0			
	0	31.6				3.6				20.8			
	96												
of isms	72												
Number of Live Organisms	48	S	8	5	N	5	h	5	2	5	5	5	ريا
Live	24	S	S	S	S	S	S	S	5	5	S	S	S
	0	5	5	5	2	2	5	5	5	5	2	5	2
	Rep	А	В	C	D	A	В	C	D	A	В	ر د	D
	Concentration	Control				6.25%				12.5%			

Americamysis: 2007.0 Cyprinodon: 2004.0

ATS-T01 12/02/08

09(3/105/ 1035 多多多

PAS3 1051 1235

89 Sol 125

253 1201 5501

Meter Number

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Initials Time

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189 040 189

Fathead: 2000.0 Trout: 2019.0 Ceriodaphnia: 2002.0 Magna/pulex: 2021.0 X

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Menidia:2006.0 OTHER:



ACUTE TOXICITY TEST DATA SHEET

TEST ORGANISM

Common Name: Water flea

Scientific Name: D. magna

TARGET VALUES Temp: 20±1

11/25/11 Time: (043 Ending Date:

Beginning Date: 11 | 03 | 01 Time: 1548

Static / Flowthrough

TEST TYPE:

Renewal / Mon-renewal

mg/L Test Container: 30 ml cup

Test Volume: 25 ml ppt

Photoperiod: 161,8 d pH: 6.0 - 9.0

Light Intensity: 50 - 100 fc

Salinity: 0 DO: >4.0

Oo

Accession Number: AT1-857

Accession Number: LD1-

Dilution Water: Mod Hard

ELUTRIATE

Test Material:

QC Test Number: TN-21-736

Project Number: 70019.TOX

Client: Swan Creek

Test Duration: 48 hrs

				/
Number of	Temperature		Dissolved Oxygen	Conductivity (µS/cm)
Live Organisms	(°C)	Hd	(mg/L)	Salinity (ppt)

Concentration Rep 0 24 48 72 96 0 24 48 72 96 0 24 48 48 72 96 0 24 48 48 72 96 0 24 48 35 35 35 35 35 35 35 3			Ni Live	Number of Live Organisms	of isms			Tem	Temperature (°C)	e e				Hd			Di	ssolve (mį	Dissolved Oxygen (mg/L)	gen	V	Conduc	Conductivity (µS/cm), Salinity (ppt)	LS/cm	0
25% A 5 5 5 2 200 19,0 20,0 8,0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.		0	24	48	72	96	0				96			None	-			24 4	48 7	72 96	0	24	48	72	96
B 5 5 5		5	S	N			26.9	0'61	30,05		~	3.0 8	3.0 8	0.		80	3	න	2		44	443 487 500	2005		
C 5 5 5 5 6 6 6 6 6 6	В	5	5	S																					
50% A 5 S S DA PLO PLU TIP 1.9 1.0 1.00% B 5 S Y DAN PLO PLU TIP 1.9 1.00% A 5 S S DAN PLO PLU TIP 1.9 1.00% A 5 S S DAN PLU PLU TIP 1.9 1.00% A 5 S S DAN PLU PLU TIP 1.9 1.00% B S S S S DAN PLU PLU TIP 1.9 1.00% B S S S S DAN PLU PLU TIP 1.9 1.00% B D 5 S S DAN PLU PLU TIP 1.00% B D 5 S S DAN PLU PLU TIP 1.00% B D 5 S S DAN PLU PLU TIP 1.00% B D 5 S S DAN PLU PLU TIP 1.00% B D 5 S S DAN PLU PLU TIP 1.00% B D 5 S S DAN PLU TIP 1.00% B D 5 DAN PLU TIP 1.00%	D	5	S	5																					
50% A 5 S S H DO R. W 7.9 7.9 7.9 7.9 7.9 7.9 7.9 7.9 7.9 7.9	D	5	5	5																					
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C 5 5 5	В	5	S	+																					
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B 5 5 5 5 6 6 6 6 6 6		2	6	N			21.0		16		4	787	6	છ.		8	39	7	6		184	243 aug 836	968		
C S S S S S S S S S	В	5	5	5																					
Number	၁	2	5	h																					
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1155 1039 1043 1050 1550 1050 1035	т Number						100-1	000	180		ر.	J 180	0%	180		Ç)	31 6	9 09	18		188	197 037 1897	(99)		
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EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 Magna/pulex: 2021.0

Fathead: 2000.0__ Trout: 2019.0_

Americamysis: 2007.0 Cyprinodon: 2004.0

Menidia:2006.0



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-736	
Date/Time/Initials	Comments/Activity



RANDOMIZATION CHART

Project Number: _	70019.TOX	·
Client: Swa	an Creek_	
QC Test Number:	TN-21-736	

5	4	1	3	6	2
1	5	3	2	4	6
6	2	4	1	5	3
4	1	2	6	3	5



TOXICOLOGY LABORATORY BENCH SHEET -TESTING LOCATION

Project Number:	70019.TOX	
Client: Swan Creek		
QC Test Number:TN-21-	736	

				
Day	Testing Location	Date	Time	Initials
0	<u>ଟି।</u> ଚା	11/23/21	1569	UAO
11	SI	المالحل	(107-	Uto
2	51	16/26/11	1042	UAD
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TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number:70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-736	
Correction Explanations	
(a) Technician Error-Mathematical	
(b) Technician Error-Manual Data Recording	
(c) Technician Error-Head Count Observation	
(d) Technician Error-Overwrite	
(e) Technician Error-Missing Data	
(f) Technician Error-Lost Organism	
(g) Technician Error-Transcription Error	
(h) Technician Error-Other:	
(i) Meter Malfunction	



TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70019.TOX

Client: Swan Creek

QC Test Number: TN-21-737

TEST ORGAN	ISM INFORMATION
Common Name: Water flea	Adults Isolated (Time, Date): 11/22/21 1601
Scientific Name: D. magna	Neonates Pulled & Fed (Time, Date): W123121 0858
Lot Number: N/A	Acclimation: <24hrs Age: <24 hrs
Source: EA	Culture Water (T/S): $\frac{20.9}{}$ °C 0 ppt

	The Marian	TEST INITIATION	
<u>Date</u>	<u>Time</u>	<u>Initials</u>	Activity
11/23/21	0922	Ce	Dilutions Made
E. C.	100 ST	DY	Test Vessels Filled
To the second se	1055	P	Organisms Transferred
	1153	UAD	Head Counts

	TEST SET-UP	
Sample Number: <u>AT1-858</u> Dilution Number: <u>LD1-785</u>	· .	
<u>Test Concentration</u>	Volume Test Material	Final Volume
Control	$0\mathrm{ml}$	200 ml
6.25%	12.5 ml	
12.5%	25 ml	
25%	50 ml	
50%	100 ml	
100%	200 ml	
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THE TOXICITY TEST DATA	1
E)
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Project Number: 70019,TOX	TEST ORGANISM		Beginning Date: 11/975/01 Time: 1055
Client: Swan Creek	Common Name: Water flea	r flea	Ending Date: 1055 Time: 1055
QC Test Number: <u>TN-21-737</u>	Scientific Name: D. magna	agna	TEST TYPE: Static / Flowthrough
Test Material: ELUTRIATE	TARGET VALUES		Renewal / Mon-renewal
Accession Number: AT1-858	Temp: 20±1	°C DO: >4.0	mg/L Test Container: 30 ml cup
Dilution Water: Mod Hard	pH: 6.0 - 9.0	Salinity: 0	ppt Test Volume: 25 ml
Accession Number: LD1-785	Photoperiod: 161,8 d	Light Intensity: 50 - 100 fc	Test Duration: 48 hrs

ntration Rep	·.b			ž	Number of	jo			Ten	Temperature	Te						Dis	solve	Dissolved Oxygen	SII	TO ₂	Conductivity (µS/cm)	ty (µS/	cm
ntration Rep				Live	Organ	usms				(၁)					Ha			(m)	(T/)		1	Salmt	y (ppt)	-
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B 5 5 5 5 6 6 6 6 6 6	Control	А	5	5	5			30.00	19.0	13.1			8.2 8		1.8	-	69	6	t		3363	5034	3	
C 5 C 5 C 5 C S C S C C C C C C		В	2	S	5																			
25% A 5 5 5 100 R.O R.O R.O R.O B.O B.O R.O B.O R.O R.O B.O R.O R.O R.O R.O R.O R.O R.O R.O R.O R		O	5	V	N								171											
25% A 5 5 5		D	2	S	V																			
B 5 5 5 5 6 6 6 6 6 6	6.25%	А	5	V	10			308	19.0	6,9			8.18	3,0	0	7	9	7	2		3543	83 37	_	
C 5 5 5 6 8.0 8.0 8.0 7-8 9.0 9.0 8.0 8.0 7-8 9.0 8.0 8.0 8.0 7-8 9.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8		В	5	5	V								2											
D 5 5 5 31.0 19.0 9.3 8.1 8.0 8.0 7-8 9.4 9.4 9.4 9.4 9.4 9.5		C	5	S	n																			
Short A S S S Al-D QQD QQB BQD BQD PQD QQB	D	2	V	8																				
B 5 5 5 6 6 6 6 6 6 6	12.5%	А	S	S	S					19.3			8.1 8	3.0 8	Q	7	8 8	9	و		389	13 4	5	
C 5 5 5 S Mumber D 5 5 S Mumber [68] [68] [69] [69] [69] [69] [69] [69] [69] [69		В	2	V	V			1					,						1					
D 5 5 5 5		O	S	V	S																			
Number (183 1.097 1.096 1.091 (1831 1.008 1.110 1.098 1.110 1.110 1.110 1.110 1.110 1.110 1.110 1.110 1.110 1.110 1.110 1.110		D	5	S	S													===						
1153 1697 1654 169 1698 1110 1698 1110 1698 1110 1698 1110 1698 1110 1698 1690 1690 1690 1690 1690 1690 1690 1690	Meter Number							189)	OQ*,	109			180)	n 033	181	9)	181 Let	20	-		189	30 080	_	
(2) (2) (3) (3) (3) (4) (3) (3) (4) (4) (3) (4)	Time		5511		20			8001	0111	3/61			1003	071	500	\preceq	JN 800	2	4		(003)	10 10	5	
	Initials		3	ST.	8			な	B	&			M	M PH	3	,	1 Th	B 0	0		ALC	A CH	0	

EPA Test Method: EPA 821-R-02-012 (CHECK ONE) Ceriodaphnia: 2002.0 Magna/pulex: 2021.0 X

Fathead: 2000.0_____Trout: 2019.0____

Americamysis: 2007.0 Cyprinodon: 2004.0

Menidia:2006.0 OTHER:



	ACUTE TOXICITY TEST DATA SHEET	DATA SHEET	1 132 131 T 1055	132131	Ė	350
Project Number: 70019.TOX	TEST ORGANISM		Beginning Date:	1000	Time:	60
Client: Swan Creek	Common Name: Water flea		Ending Date: (1) 25/21 Time: /055	11 35/31	Time:	1853
QC Test Number: IN-21-737	Scientific Name: D. magna		TEST TYPE: Stat	Static / Flowthrough	hguc	1
Test Material: ELUTRIATE	TARGET VALUES		Re	Renewal / Nor	Non-renewal	\cap
Accession Number: AT1-858	Temp: <u>20±1</u> °C DO: >4.0	0: >4.0	mg/L Test Container: 30 ml cup	30 ml cup		
Dilution Water: Mod Hard	pH: 6.0 - 9.0 Sal	Salinity: 0	ppt Test Volume: 25 ml	25 ml		
Accession Number: LD1- 785	Photoperiod: 16 l, 8 d Light 1	Light Intensity: 50 - 100 fc	Test Duration: 48 hrs	8 hrs		

			Z:	Number of	rof			Te	Temperature	ıture				117				Dissol	Dissolved Oxygen	/gen		Ü	Conductivity (µS/cm)	ity (μ	S/cm)	۵
			LIVE	Orga	= L	-	+	-			-	1		pH	-				\sim L	-			Salini	\overline{a}	-	
Concentration	Rep	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24 7	48	72	96
25%	A	2	S	n			21.0	0.61	5'6	10		8-0	8-0 7.9	0,8			19	4.4 9.4	4,4)	1hl	441 409 4ste	25		
	В	5	S	V																						
	C	S	8	V																						
	D	5	5	8																						
%0\$	A	2	S	5			21.0	0,9	19,5			7.9	79	1.9			8.0	9,3 9.3	9.3		V1	88 i	585 Eth 585	15		
	В	5	S	V)									
	၁	2	2	8													H									
	D	5	S	S							JAY											3				
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	В	2	S	11										1												
	C	2	S	4																						
	D	5	5	12																						
Meter Number							(88)	187 080 180	189			(80)	189 CM (80	139			180	(A) (40)	180			18	181 000 181	100		
Time		153	SSU 1201 ES11	185			(CO)	UCOS 1115	1000			1003	9/11	11 out			8001	1003 JULY 1049	1949		_	1008	1 pol 2111 800)	いて		
Initials		P	2x	M3 (M			W.	of the	8			N	an an the	Che Che			12	多多多	B			The State of the S	M B M	g	ii	

Fathead: 2000.0_ Trout: 2019.0_ EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 Magna/pulex: 2021.0 X

Americamysis: 2007.0__Cyprinodon: 2004.0__

Menidia:2006.0 OTHER:



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-737	
	Comment / Anti-ite
Date/Time/Initials	Comments/Activity



RANDOMIZATION CHART

Project Number: _	70019.TOX	· .
Client: Swa	an Creek	
QC Test Number:	TN-21-737	

5	4	1	3	6	2
1	5	3	2	4	6
6	2	4	1	5	3
4	1	2	6	3	5



TOXICOLOGY LABORATORY BENCH SHEET - TESTING LOCATION

Project Number:	70019,TOX
Client: Swan Creek	
QC Test Number:TN-21	-737

Day	Testing Location	Date	Time	Initials
0	5	11/23/21	1200	36
1	51 51	11 124 121	1027	AL
2	51	11 124 121	1056	cau
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TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number:
Client: Swan Creek
QC Test Number: TN-21-737
Correction Explanations
(a) Technician Error-Mathematical
(b) Technician Error-Manual Data Recording
(c) Technician Error-Head Count Observation
(d) Technician Error-Overwrite
(e) Technician Error-Missing Data
(f) Technician Error-Lost Organism
(g) Technician Error-Transcription Error
(h) Technician Error-Other:
(i) Meter Malfunction



TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70019.TOX Client: Swan Creek

QC Test Number: TN-21-738

@ 856 1211/24 22 TEST ORGANISM INFORMATION 1/12/12/ 160/ Common Name: Water flea Adults Isolated (Time, Date): Neonates Pulled & Fed (Time, Date): 11/23/21 0658 Scientific Name: D. magna Age: <24 hrs Acclimation: <24hrs ____

Lot Number: N/A Source: EA

°C ppt

1,47		TEST INITIATIO	DN
<u>Date</u>	<u>Time</u>	<u>Initials</u>	Activity
11/23/21	0908	P	Dilutions Made
<u> </u>	0933	RY	Test Vessels Filled
	1100	G	Organisms Transferred
\downarrow	1128	LAD	Head Counts

TEST SET-UP

Sample Number: AT1-859

Dilution Number: <u>LD1- /8/</u>		
Test Concentration	Volume Test Material	Final Volume
Control	0 ml	200 ml
6.25%	12.5 ml	
12.5%	25 ml	
25%	50 ml	
50%	100 ml	
100%	200 ml	1

ACUTE TOXICITY TEST DATA SHEET
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Project Number: 70019.TOX	TEST ORGANISM	Beginning Date: 11,0391 Time: 1100
Client: Swan Creek	Common Name: Water flea	Ending Date: (1) 35/3/ Time: 105 &
QC Test Number: TN-21-738	Scientific Name: D. magna	TEST TYPE: (Static / Flowthrough
Test Material: ELUTRIATE	TARGET VALUES	Renewal / Non-renewal
Accession Number: AT1-859	Temp: 20±1 °C DO: >4.0	mg/L Test Container: 30 ml cup
Dilution Water: Mod Hard	pH: 6.0 - 9.0 Salinity: 0	ppt Test Volume: 25 ml
Accession Number: LD1- 787	Photoperiod: 16 l. 8 d Light Intensity: 50 - 100 fc	100 fc Test Duration: 48 hrs

			Ž;	Number of	to Jo			Ie	Temperature	ture				11				Disso	Dissolved Oxygen	xygen		Con	ductivi	Conductivity (µS/cm)	(III)
			Live	Orga	Live Organisms				() ()					Нd					(mg/L)			,	劃.	1	1
Concentration	Rep	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0 2	24 48	3 72	96
Control	A	5	S	5			30.8	0,91 0,91 8.06	19,0			8	8-1 7.9	63			8.8	3.8 9.0	176			326 341 367	1 36	1	
	В	5	S	1																					
	Ö	2	N	5																					
	Q	2	S	V																				_	
6.25%	А	5	5	50			306	0,91 0,91 19.08	19,0			8.1	1.9	1.8			8.4	8.49.3	90			38471510	7151	0	
	В	5	S	S																					
	U	S	S	N																					
	D	S	S	5																					
12.5%	A	2	S	S			21.0	19,0	0,19,0	^		8.0	8.0 1.9	0,0			8.H	84 9.5	(358 503 555	33 ES	5	
	В	S	S	N)						
	O	S	S	V																					
	D	S	N	5																					
Meter Number							7-52	38	89			189	180 180	189			8	(A) (A)	(%)			P W 1897	(F)		
Time		1158	138	6501 Dell			100	1050 1136	Sall			BAR	8011 JE 11105	5011			833	2011 2/21) 05.00	1105			0986 134 1105	34 110	10	
Initials		B	BE	Sy.			9	B	3			3	李百百百	圣			2	多(B) 多	CEN			教号 尼	The Company	0	

(C) RS6 12/3/21 For LAO

Menidia:2006.0 OTHER:

ATS-T01 12/02/08

Fathead: 2000.0_ Trout: 2019.0_ Ceriodaphnia: 2002.0 Magna/pulex: 2021.0 X

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Americamysis: 2007.0___Cyprinodon: 2004.0__



	ACUTE TOXICITY TEST DATA SHEET	ST DATA SHEET		
Project Number: 70019.TOX	TEST ORGANISM		Beginning Date: 11/03 101 Time: 1103	
Client: Swan Creek	Common Name: Water flea		Ending Date: 11/35/31 Time: 465/058	
QC Test Number: TN-21-738	Scientific Name: D. magna		TEST TYPE: (Static / Flowthrough (b) Mo	
Test Material: ELUTRIATE	TARGET VALUES		Renewal / Mon-renewal	D
Accession Number: AT1-859	Temp: 20±1 °C	DO: >4.0	mg/L Test Container: 30 ml cup	
Dilution Water: Mod Hard	pH: 6.0 - 9.0	Salinity: 0	ppt Test Volume: 25 ml	
Accession Number: LD1- 787	Photoperiod: 161,8 d Lig	Light Intensity: 50 - 100 fc	Test Duration: 48 hrs	

			Ź	Number of	Jo			Ter	Temperature	ıre							I	Vissolv	Dissolved Oxygen	gen		Condu	Conductivity (µS/cm)	(uS/cr	A
	Н		Live	Live Organisms	isms				(0°)					Hd				(r	(mg/L)		V	S	Salimity (ppt)	ppt)	1
Concentration	Rep	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48 7	72 9) 96	0 24	48	72	96
25%	A	5	S	N			21.0	0,910.12	0,9			80	7.9	0'8			8.3 9.5	5%	9.1		140	447 555 TWT	5 TWZ	64	
	В	5	V	S																					
	ပ	2	N	10														-							
	D	5	S	5																					
%05	A	2	S	M			21.0	19.0	(9.0			19	79 7.8 7.9	7.9			8.3	8.296591	41		S	592746 848	848		
	В	2	5	V							71				10 1										
	ပ	2	S	15																					
	D	S	5	W																					
100%	A	S	S	V			210	19,0 19.3	19.3			il	2,5	7.7			8.3	8.2 9.5 8.3	5.3		8	853 1011 BOVE	306		
	В	2	5	V																					
	Ü	5	V	V																					
	D	2	1	8																					
Meter Number							7-22	OG ³)	100			189	180 CEN 180	1891			189	USI LEC 1881) दुर		Ò	130 030 180	137 0		
Time		85V	641	9501			0501	1136	105			0880	0936 136 1105	Soll			ORBio	OBS/01/36 1105	501		8	BAY 1132 1105	15011		
Initials		23	8	B			7	F	CES.			7	多品多	E			\$	李色 医	F	Н	*	\$ 50 Je	a Ma		

EPA Test Method: EPA 821-R-02-012 (CHECK ONE) Ceriodaphnia: 2002.0 Magna/pulex: 2021.0 X

Fathead: 2000.0_ Trout: 2019.0_

Americamysis: 2007.0_Cyprinodon: 2004.0

Menidia:2006.0 OTHER:



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-738	
Date/Time/Initials	Comments/Activity



RANDOMIZATION CHART

Project Number: _	70019.TOX	
Client:Swa	n Creek	
QC Test Number:	TN-21-738	

5	4	1	3	6	2
1	5	3	2	4	6
6	2	4	1	5	3
4	1	2	6	3	5
					<u> </u>



TOXICOLOGY LABORATORY BENCH SHEET - TESTING LOCATION

Project Number:	70019.TOX	
Client: Swan Cro	eek	. <u>.</u>
QC Test Number:T	N-21-738	

0 51 11/23/21 1200 32 1 51 11/35 1 11/35 1 1059 (A) 3 4		 	<u> </u>			
1	tials	Init	Time	Date	Testing Location	Day
1	-	32	1200	11/23/21	51	0
4 5 6 7 8 9 10 11 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	0	LAC		11/2/12/	St	
4 5 6 7 8 9 10 11 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	UAD	(1023	1192 91		2
5 6 7 8 9 10 11 11 12 13 13 14 15 16 17 18 19 20 21 22 23 24 25 26						
6 7 8 9 10 11 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26						
7 8 9 10 11 11 12 13 13 14 15 16 17 18 19 20 21 22 23 24 25 26						
8 9 10 11 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26						6
9 10 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						7
10 11 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26						8
11 12 13 3 14 4 15 5 16 6 17 18 19 9 20 21 22 23 24 25 26 6						9
12 13 14 15 15 16 17 18 19 20 21 22 23 24 25 26						10
13 14 15 16 17 18 19 20 21 22 23 24 25 26						11
14 15 16 17 18 19 20 21 21 22 23 24 25 26						12
15 16 17 18 19 19 20 21 22 23 24 25 26 26		,				13
16 17 18 19 20 21 21 22 23 24 25 26						14
17 18 19 20 21 22 23 24 25 26		,				15
18 19 20 20 21 22 23 24 25 26	_					16
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27						26
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28			<u>,</u>			28
29					·	29
30						30



TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number: 70019.TOX
Client: Swan Creek
QC Test Number: TN-21-738
Correction Explanations
(a) Technician Error-Mathematical
(b) Technician Error-Manual Data Recording
(c) Technician Error-Head Count Observation
(d) Technician Error-Overwrite
(e) Technician Error-Missing Data
(f) Technician Error-Lost Organism
(g) Technician Error-Transcription Error
(h) Technician Error-Other:
(i) Meter Malfunction



TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70019.TOX		
Client: Swan Creek	<i>3</i> ,	र्यट्या करा (बे)
OC Test Number: TN-21-739		

	(60)
TEST ORGAL	NISM INFORMATION
Common Name: Water flea	Adults Isolated (Time, Date):
Scientific Name: D. magna	Neonates Pulled & Fed (Time, Date): 11 23 1 0858
Lot Number: N/A	Acclimation:<24hrs Age:<24 hrs
Source: EA	Culture Water (T/S):O

5.7		TEST INITIATION	
<u>Date</u>	Time	<u>Initials</u>	Activity
11123121	0900	40	Dilutions Made
]	0913	Ø J	Test Vessels Filled
	1102	LAO	Organisms Transferred
	1202	Ay	Head Counts

Sample Number: <u>AT1-860</u> Dilution Number: <u>LD1- 787</u>		
Test Concentration	Volume Test Material	Final Volume
Control	0 ml	200 ml
6.25%	12.5 ml	
12.5%	25 ml	
25%	50 ml	
50%	100 ml	
100%	200 ml	



ACITTE TOXICITY TEST DATA SHEET

	ACOLE IOMICII I IEST DATA SHEET	
Project Number: 70019.TOX	TEST ORGANISM	Beginning Date: $ 1 23 2 $ Time: $ 10 $
Client: Swan Creek	Common Name: Water flea	Ending Date: $(1 35 3)$ Time: $1 3$
QC Test Number: TN-21-739	Scientific Name: D. magna	TEST TYPE: Static / Flowthrough
Test Material: ELUTRIATE	TARGET VALUES	Renewal / Mon-renewal
Accession Number: AT1-860	Temp: 20±1 °C DO: >4.0	mg/L Test Container: 30 ml cup
Dilution Water: Mod Hard	pH: 6.0 - 9.0 Salinity: 0	ppt Test Volume: 25 ml
Accession Number: LD1- 787	Photoperiod: 16 l, 8 d Light Intensity: 50 - 100 fc	fc Test Duration: 48 hrs

Num Live Or	0.5		-	Ten	五				-		3	1	lved Ox (mg/L)			cti	(μS/cr	1)
48 72 96		9	0	24	48	72 96	0	24	48	72	96	0 24	48	72 96	0	24 48	72	96
M			70.7	4.61	R.o		7-8	83	837.7			84 9.1 9.0	9,0		3343	334357 347		
S		-								E								
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5																		
S		_^	20.7	194	19,1		29	8.3	7,7			859293	9.3		365381	31 38		- 1
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5	8	7	30.8	19.4	6,91		79	79 8.2 7.6	7.6			849.294	2		401 4	och heh loh		
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\$																		
7-	7	7	16-6	180	\Q0)		.89	129 189 180	1001			189) 1897	130 180)		(98)	189 1891		
501 1991 (133			150	1035 1130	1130		31160	2501 0	0511 5501 21190			OSUS 500 9160	0611		091610	0916 1035 130		. 11
R.			8	M	(F	0.1	7	7	太 多 路			多多多	CFN		the state of the s	多多多		

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 Magna/pulex: 2021.0 X

Fathead: 2000.0 Trout: 2019.0

Americamysis: 2007.0 Cyprinodon: 2004.0

Menidia:2006.0 OTHER:



	ACUTE TOXICITY	ACUTE TOXICITY TEST DATA SHEET		
Project Number: 70019.TOX	TEST ORGANISM		Beginning Date: 11 03 01	Time: [10]
Client: Swan Creek	Common Name: Water flea	lea	Ending Date: $11 \beta 5 \beta_1$	Time: 1133
QC Test Number: <u>TN-21-739</u>	Scientific Name: D. magna	zna	TEST TYPE: Static / Flowthrough	ugh
Test Material: ELUTRIATE	TARGET VALUES		Renewal / Nor	Non-renewal
Accession Number: AT1-860	Temp: <u>20±1</u> °C	DO: >4.0	mg/L Test Container: 30 ml cup	
Dilution Water: Mod Hard	pH: 6.0 - 9.0	Salinity: 0	ppt Test Volume: 25 ml	
Accession Number: LD1-787	Photoperiod: 161,8 d	Light Intensity: 50 - 100 fc	Test Duration: 48 hrs	

			Z;	Number of	jo .			Ten	Temperature	ıre				1			Di	Dissolved Oxygen	1 Oxyg	cen	_	Conductivity (µS/cm)	tivity (uS/cn	n)
C	,	c	Live	Live Organisms	Smsir				(၃)	0	,			-	1			()		-	-		- 1		
Concentration	Kep	0	74	48	7.7	96	0	24	48	72	96	0	24	48	72	96	0	24 4	48 72	96 2	0	24	48	72	96
25%	А	5	S	61			20.4	19.3	19.4		,	8.6	7.8 8.2 7.7	17			8.3 9.2 9.3	29	3		787	US) 498 SO	580		
	В	5	5	M										M							9		I		
	C	5	S	N																					
	D	5	S	y																					
%05	A	2	5	160			20,6 19.2		P.H.		1	7.8 8.1	8.1	١٩			829294	3	<u> </u>		854	944 420 8ch	513		
	В	2	S	S																					
	Ö	5	S	5																					
	D	S	S	7																					
100%	А	5	S	5			20,4 19.0	-	19.4		1	3 6	8.1	2.0		-46	8.19.19.4	1.	ブ		927	927 950 933	933		
	В	5	S	N																					
	S	S	8	h																					
	D	2	S	7																					
Meter Number							167	189)	1099			180	189 180 180	180			100	180 180)	_		600	08 1 60 180) 39		
Time		BUS	1034	1133			1501	188	321			1016	06/18/130	130			Off 1035 130	35 13	0		2160	0611 1035 1130	(130		
Initials		St.	3	R.			P.	7	R.			A A	别的方	Q.			30 W SE	\$ 1×	0		Z	3 4 4	SAS.		

Fathead: 2000.0 Trout: 2019.0 EPA Test Method: EPA 821-R-02-012 (CHECK ONE) Ceriodaphnia: 2002.0 Magna/pulex: 2021.0 X

Americamysis: 2007.0 Cyprinodon: 2004.0

Menidia:2006.0 OTHER:



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-739	
Date/Time/Initials	Comments/Activity



RANDOMIZATION CHART

Project Number: _	70019.TOX	
Client: Swa	n Creek	
QC Test Number:	TN-21-739	

5	4	1	3	6	2
1	5	3	2	4	6
6	2	4	1	5	3
4	1	2	6	3	5



TOXICOLOGY LABORATORY BENCH SHEET - TESTING LOCATION

Project Number:	70019.TOX
Client: Swar	ı Creek
QC Test Number: _	TN-21-739

Day	Testing Location	Date	Time	Initials
0	51	11/23/21	1517	490
1	\$1	11124121	1040	AH UND
2	51	11/92/91	1134	UND
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TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number:
Client: Swan Creek
QC Test Number: TN-21-739
Correction Explanations
(a) Technician Error-Mathematical
(b) Technician Error-Manual Data Recording
(c) Technician Error-Head Count Observation
(d) Technician Error-Overwrite
(e) Technician Error-Missing Data
(f) Technician Error-Lost Organism
(g) Technician Error-Transcription Error
(h) Technician Error-Other:
(i) Meter Malfunction



TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70019.TOX

Client: Swan Creek

QC Test Number: TN-21-740

TEST ORGANISM INFORMATION

Common Name: Water flea

Adults Isolated (Time, Date): 1/33/31 (1/61)

Scientific Name: D. magna

Neonates Pulled & Fed (Time, Date): 1/33/31 (2/90)

Lot Number: N/A

Acclimation: <24hrs

Age: <24 hrs

Culture Water (T/S): 20.4 °C 0 ppt

100 B TEST INITIATION <u>Date</u> <u>Time</u> **Initials Activity** 1040 11/23/2 Dilutions Made Test Vessels Filled 1305 Organisms Transferred 1318 MT **Head Counts**

ample Number: <u>AT1-861</u> ilution Number: <u>LD1- 788</u>		
Test Concentration	Volume Test Material	Final Volume
Control	$0~\mathrm{ml}$	200 ml
6.25%	12.5 ml	
12.5%	25 ml	
25%	50 ml	
50%	100 ml	
100%	200 ml	



	ACOLE IOMICITI LEST DATA SHEET		Live
Project Number: 70019.TOX	TEST ORGANISM	Beginning Date: (1/33/3)	(1939) Time: (505)
Client: Swan Creek	Common Name: Water flea	Ending Date: $(1/2 \beta)$ Time:	Time: (35/
QC Test Number: IN-21-740	Scientific Name: D. magna	TEST TYPE: (Static /) Flowthrough	dig.
Test Material: ELUTRIATE	TARGET VALUES	Renewal / Mon-r	Non-renewal
Accession Number: AT1-861	Temp: 20±1 °C DO:	DO: >4.0 mg/L Test Container: 30 ml cup	
Dilution Water: Mod Hard	pH: 6.0 - 9.0 Salii	Salinity: 0 ppt Test Volume: 25 ml	
Accession Number: LD1-788	Photoperiod: 16 l, 8 d Light In	Light Intensity: 50 - 100 fc Test Duration: 48 hrs	

Fathead: 2000.0____Trout: 2019.0____ EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Americamysis: 2007.0 Cyprinodon: 2004.0

Menidia:2006.0 OTHER:



AND HOLD TO THE STATE OF THE ST	ACUTE TOXICITY	ACUTE TOXICITY TEST DATA SHEET		16/86/11	Ė	~
rioject inumber: 70019.10A	LEST ORGAINISM		Beginning Date:	1616111	1me: (303	000
Client: Swan Creek	Common Name: Water flea	ea	Ending Date:	11 35 31	135 31 Time: 1251	150
QC Test Number: <u>IN-21-740</u>	Scientific Name: D. magna	na	TEST TYPE: (Sta	Static / Flowthrough	ough	,
Test Material: ELUTRIATE	TARGET VALUES		I &	Renewal / No	Non-renewal	\cap
Accession Number: AT1-861	Temp: 20±1 °C	DO: >4.0	mg/L Test Container: 30 ml cup	30 ml cup		
Dilution Water: Mod Hard	pH: 6.0 - 9.0	Salinity: 0	_ppt Test Volume: 25 ml	. 25 ml		
Accession Number: LD1- 788	Photoperiod: 161,8 d	Light Intensity: 50 - 100 fc	Test Duration: 48 hrs	8 hrs		

			Live	Number of Live Organisms	of isms		Τε	Temperature (°C)	ture			Hd	н		-	Diss	Dissolved Oxygen (mg/L))xygen			fuctivii Salinits	Conductivity (µS/cm)	(m)
Concentration	Rep	0	24	48	72	96	0 24	48	72	96	0 2	24 48	48 72	2 96	0 9	24		72	96	0 2	45	3 72	96
25%	Ą	5	S	N			20.010.02	30.3			7682	2 80	0		0	2	2,8 6.9 1.			OND OLD SON	25 Q	0	
	В	5	n	S																			
	Ö	5	S	h																			
	D	2	M	5																			
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	D	5	S	n																			
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	D	5	5	N																			
Meter Number							189 089	1991			189 189 089	- 68			8	180 089	100			180/89 181/89	81 18	_	
Time		1316	1314	150			01/01 /1/11				8461 aboy 1741	YCI OF	8		ווח	SKC1 OK1 (21)	Sper 1			8461 0401 Anil	40 94	50	
Initials		TV	of S	Offi	Ī		4 A				の 多 を の	きた	0	-	3	SI 44 B	8			30 By UB	五大	0	

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 Magna/pulex: 2021.0 X

Fathead: 2000.0 Trout: 2019.0

Americamysis: 2007.0 Cyprinodon: 2004.0

Menidia:2006.0 OTHER:



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-740	<u> </u>
Date/Time/Initials	Comments/Activity



RANDOMIZATION CHART

Project]	Number: _	70019.TOX	ζ
Client:	Sw	an Creek	
QC Test	t Number:	TN-21-740	

5	4	1	3	6	2
1	5	3	2	4	6
6	2	4	1	5	3
4	1	2	6	3	5



TOXICOLOGY LABORATORY BENCH SHEET -TESTING LOCATION

Project Numb	er: 70019.TOX
Client:	Swan Creek
QC Test Num	ber:TN-21-740

Day	Testing Location	Date	Time	Initials
0	5(11 23 21	1517	UPO
1	51	ભારુપાંટા હોર્સ્ટા	1040	NY
2	51	16/25/11	1254	"MO
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TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number: 70019.TOX
Client: Swan Creek
QC Test Number: TN-21-740
Correction Explanations
(a) Technician Error-Mathematical
(b) Technician Error-Manual Data Recording
(c) Technician Error-Head Count Observation
(d) Technician Error-Overwrite
(e) Technician Error-Missing Data
(f) Technician Error-Lost Organism
(g) Technician Error-Transcription Error
(b) Tachnician Error Other
(h) Technician Error-Other:
(i) Meter Malfunction

ATTACHMENT III

Data Sheets and Statistical Analyses from *Pimephales promelas* Toxicity Tests (72 pages)





TOXICITY TEST SET-UP BENCH SHEET

Project Number:	<u> </u>
Client: Swan Creek	
QC Test Number: TN-21-749	
TEST C	RGANISM INFORMATION
Common Name: Fathead minnow	Adults Isolated (Time, Date):
Scientific Name: P. promelas	Neonates Pulled & Fed (Time, Date):
Lot Number: FH 566	Acclimation: < 24hr Age: 2 days
Source: ABS	Culture Water (T/S): 25.1 °C 0 ppt

<u>Date</u>	<u>Time</u>				CENTRATION SERIES	
11123121	1351	Initials Co UNO	Activity Dilutions Made Test Vessels Filled Organisms Transferred	Test Concentration Control Site Water	Volume Test Material 0 ml 1000 ml 1250	Final Volume 1250 ml

<u> </u>	DIL	UTION PRE	PARATION			ATION AND FEEL	FEEDING	
<u>Day</u> 0	<u>Date</u>	<u>Time</u> 1025	Initials	Sample / Diluent ATI- 853 UDI- 789	Food: <u>A</u> <u>Day</u> 0	rtemia Time, Initials, Amount	Time, Initials, Amount	Time, Initials, Amount [6(1 M7) 3 drops
1 2 3 4	ulaslaj	0936	(Ao	AT1-853 Wi-792	1 2 3 4	OBUSAT 3 drops OBUSATO 3 drops OTHER 3 drops OBUSATO 0 00000000000000000000000000000000000		3 drops 3 drops 3 drops 3 drops 3 drops
5					5	3 drops		



ACUTE TOXICITY TEST DATA SHEET - OLD SOLUTIONS

Client: Swan Creek OC Test Number: T								7
OC Test Number:	n Cree	k	Common Name: F	Fathead minnow	Ή	Ending Date: 11127121	121 Time: 1357	1
1		TN-21-749		P. promelas		TEST TYPE: Static	Flourthrough	
Test Material:	S	SITE WATER				/\~	1 -	
Accession Number:	ber: _	AT1-853	Temp: 25±1 °c	°C DO: >	>4.0 m	mg/L Test Container:	5	
Dilution Water:	Mc	Mod Hard	pH: 6.0 - 9.0	Salinity:	0 ppt		250 ml	
Accession Number:	ber:	LD1-788	Photoperiod: 161,8 d	Light Intensity: 50 - 100 fc	50 - 100 fc		96 hrs	
		Number of Live Organis	Temperatu (°C)	Hd		Dissolved Oxygen (mg/L)	Conductivity (µS/cm)	n)
Concentration	Rep	0 24 48 72	96 0 24 48 72 96	0 24 48 7	72 96	0 24 48 72 96	0 24 48 72	96
Control			145 J.47 14. C.HE	4 12 13	2.8 6.5	7.5 6.5 7.1 78	337 535 342	338
Site Water			2 KG 6.11 & W. 1 WG	016 016	2, 79	72	V E	001
			-				110 cad c+2	200
							7	
Meter Number			1801 0801	139 / 801 ()60	189	180 (24) (A.)	3	1,01
Time			1000 1.32		13	(10,00)	120 180 180 180 180 180 180 180 180 180 18	300
Initials			1 8 8 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1	_	2	8 18 18 P	2001 2001 2001 2001 2001 2001 2001 2001	1

Project Number:			700	X019.TOX	X		TES	TEST OR	GANISM	M						Д	156 111 and animinal	5		0	7		j	ū	Ū
Client: S	Swan Creek	sek						Comm	Common Name:	me:	H	Fathead minnow	minno	11/		4 P	egum.	ing Da	5	117711	200		Time: (32)	10	100
QC Test Number:		TN-21-749	49					Scient	Scientific Name:	me:	P	P promolas	las			1	Ending Date:	Date:	1 10	100	5	I	Time: 125/	2	n
Test Material: ELUTRIATE	UTRIA	CTE					TAI	TARGET VALUES	VALU	ES						1	4	1 1 2	IESI IYEE:	Static	all -	Flo	Flowthrough	dg ,	
Accession Number:	ımber:		AT1-853	53				Temp:	Temp: 25±1	5±1	ပိ		.00	DO: >40		£	1/2	-		Kenewal	\all	Non	Non-renewal	a l	
Dilution Water:		Mod Hard						PH:	06-09	0 0			- Inite	Salimite:			7/8m.	- 1	rest container:	ntaine		I-L	I-L BEAKER	K.	
Accession Number:	ımber:		LD1-	788	2			Photor	Photoperiod: 16 l, 8 d	161,8	p s	, 1	ight Ir	Light Intensity: 50 - 100 fc	7. 50 -	100 fc	10		Test Volume: _	lume:		250	250 ml		
			Live	Number of ve Organisr	Number of Live Organisms			Ţ	Temperature (°C)	ture				` ‡			Di	ssolve	Dissolved Oxygen	ien i	_	OTT OC	QII.	ME	
Concentration	Rep	0	24	48	72	96	0 9	24	48	72	96	0	24	48	72	96	0	24 mg	(mg/L)	96 3	0	Condu	Conductivity (µS/cm)	(µS/c	(m)
CONTROL	A	10	0.1	2	2	2	34.D	-	74.1			00		2		0	0	-		+	L	+		_	2
	В	10	2	2	5	3						3		2			-	Ð	17	-	\$	_	214		
	C	10	2	0	2	3											1			+					
	D	10	9	0	2	0		L.									-	-			-	+			
	E	10	2	0	2	2											+				1				
																	+	H	+			1			
Site Water	A	10	2	5	3	0	JU.D		747			28		7		C	0	8	-		ĉ				
(AT1-853)	В	10	2	2	2	0	3		× ×			0/1		3		< <u></u>	-	si Si		+	838	0	<u>w</u>		
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	D	10	2	9	2	2												-							
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EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 Magna/pulex: 2021.0

Fathead: 2000.0 X Trout: 2019.0

Americamysis: 2007. Cyprinodon: 2004.0

Menidia:2006.0 OTHER:



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70019.TOX	
Client: Swan Creek	
QC Test Number:TN-21-749	
Date/Time/Initials	Comments/Activity



TOXICOLOGY LABORATORY BENCH SHEET - TESTING LOCATION

Project Number:	70019.TOX
Client: Swan Creek	
QC Test Number:TN-21-	-749

O					
3 16 1/4 1070	Day	Testing Location	Date	Time	Initials
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3 16 1/4 1070	11	0			(#A)
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5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	3	lb	11/26/21		4-
5			11127121	1357	To
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 20	5				
8 9 10 11 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 27	6_				
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11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 27	9				
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19 20 21 22 23 24 25 26 27	17		_		
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21 22 23 24 25 26 27	19				
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TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number:70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-749	
Correction Explanations	
(a) Technician Error-Mathematical	
(b) Technician Error-Manual Data Recording	
(c) Technician Error-Head Count Observation	
(d) Technician Error-Overwrite	
(e) Technician Error-Missing Data	
(f) Technician Error-Lost Organism	
(g) Technician Error-Transcription Error	
(h) Technician Error-Other:	
(i) Meter Malfunction	



Source: _

ABS

TOXICITY TEST SET-UP BENCH SHEET

Culture Water (T/S): ___

Project Number: 70019.TOX Client: Swan Creek	
QC Test Number: TN-21-786	
	TEST ORGANISM INFORMATION
Common Name: Fathead minnow Scientific Name: P. promelas Lot Number: FI+-567	Adults Isolated (Time, Date): Neonates Pulled & Fed (Time, Date): Acclimation: 2 days Age: 2 days

	7	TEST INITIAT	TION	CON	CENTRATION SERIE	S
<u>Date</u>	Time	Initials TP	Activity	Test Concentration Control	Volume <u>Test Material</u> 0 ml	Final <u>Volume</u> 1250 ml
		ĺ	Dilutions Made	6.25% 12.5%	78.125 ml 156.25 ml	
		P	Test Vessels Filled	25% 50%	312.5 ml 625 ml	
	0930		Organisms Transferred	100%	1250 ml	↓
	0939	Hy	Head Counts			

	DI	LUTION PREP	ARATION				FEEDING	
Day 0	<u>Date</u>	<u>Time</u>	Initials	Sample / <u>Diluent</u> <u>ATI-854</u>	Food: A	Artemia Time, Initials, Amount	Time, Initials, Amount	Time, Initials, Amount 6/1//\[3 drops
1		7 7 7			1	0833MT 3 drops		1620 MT 3 drops 530MT
2	1214121	0913	P	A71-854	2	0930 TP 3 drops 0833 St		3 drops
3					3	3 drops		3 drops
4					4	3 drops	1	
5					5			
6					6			

ACUTE TOXICITY TEST DATA SHEET - OLD SOLUTIONS

Project Number:		70	X01.91007	XC		T	TEST ORGANISM	JANIS	M						Begi	Beginning Date:		12/2/21	101		Time:		06430
Client: Swa	Swan Creek	¥				1	Commo	ion Name:	me:	Fati	Fathead minnow	mont			Endi	Ending Date:	65	12/	12/01		Time:	C	0828
QC Test Number:		TN-21-786	-786			Ŷ	Scient	Scientific Name:	me:	P. 1	P. promelas	r.				TEST	TEST TYPE:		Static	/ Flo	Flowthrough	lgh	
Test Material:	Ш	ELUTRIATE	IATE			T T	TARGET VALUES	VALU	ES									Ren	Renewal	/ Non	Non-renewal	'al	
Accession Number:	nber:	A	AT1-854			Í	Temp:		25±1	S	DO:		>4.0	0	_mg/L		Test	Test Container:	ner:		L Beaker	aker	
Dilution Water:	M	Mod Hard	ф			Ŷ	pH:	6.0 - 9.0	9.0		Sali	Salinity:		0	_ppt		Test	Test Volume:	e:		250 ml		
Accession Number:	nber:	LI	LD1- 80	808			Photo	Photoperiod: 161,8d	161,8	8 d	Lig	Light Intensity: 50 - 100 fc	ısity: 5	50 - 100	of C		Test	Test Duration:	:uc		96 hrs	_	
			Nu Live (Number of Live Organisms	of sms		T	Temperature (°C)	ture			Hd	н			Disso	Dissolved Oxygen (mg/L)	xygen		Cond	Conductivity (µS/cm)	/Sп) у	cm)
Concentration	Rep	0	24	48		96	0 24	48	72	96	0 2	24 48	3 72		0	24	48	72	96	0 24	4 48	72	96
Control							P.49		CYS 3K3	243	8.2	2 8.3	3 8.1	0.0	į.	2.8	8.0	7.4	7.5	37.	325 334		336 342
6.25%							25.0		15.7 25.2 W.S	S.172	8	1 8.2	2 8.0	8.9		F	7.1	23	7.6	198	1 363	396	108 8%
12.5%							72.		1.56 7.52	16.0	8.1	1.8.1	1 8.0	5.90	9	1.8	7.0	6.7	7.7	33	345 348	s ua	you 40%
25%							29,4		25.1 95.0 15.1	197	3.1	1.8		7.9 6.8	9.	2.8	6.7	6.5 6.8	8.9	9h	HLH 69h		92.HUh
20%							25.0		P. WE 12.42	133.	8	3.0 8.0	7.9	9.96	2	2.8	7.8 7.0 6.8		7.1	0/0	000	200	610 1008 1003
100%						7	24.9		25.0 JUG	751	2	200	010	2019 69		7.8	7.7	(4)	7.	3%	156 358 545 h38	3 8 8	152,2
Meter Number							099	1.75	080 USD (SS)	189	3	680 68	0,0	C20 (B) (B)		089	089	80 89	350	68	680 681 180	180 N	8
Time							अरि	, जिल्ल	1000	多	8	Oal6 0939	9 100	1009 POUL	20	Ollo	0916 6939	1800 MM	100	160	१५१० १८७०		**************************************
Initials							IMT	TW T		M 77	2	MT MT	- 1	M 51		J.W.	IMT IMT	多ろ	2	2	LM TIM		なって

Project Number:			70019.TOX	XOT.		E	TEST ORGANISM	RGA	NISM							Begin	ning De	Beginning Date: 12/2/21	1212	121		Time:	0	
Client: Sw	Swan Creek	ķ				1	Coı	nmon	Common Name:	1	Fathe	ead mi	Fathead minnow		1	Endin	Ending Date:		17/	17/0/71		Time:		0858
QC Test Number: TN-21-786	Z	-21-78	9			Î	Sci	entific	Scientific Name:	,;	P. pr	P. promelas	S		Ī	į,	TEST TYPE:	YPE:	St	atic /	Flo	Static / Flowthrough	q	
Test Material: ELUTRIATE	JTRIA	Œ				T	ARGE	TVA	TARGET VALUES										Renewal	-	Non	Non-renewal	-	
Accession Number:	nber:	A	AT1-854			í	Ter	Temp:	25±1		o _c	DC	DO: >4.0	4.0		mg/L		Test Container:	ontaine	i:	1-L	1-L BEAKER	~	1
Dilution Water:	Mod Hard	Hard					pH:		6.0 - 9.0			Sal	Salinity: 0	0		ppt		Test Volume:	olume		2	250 ml		
Accession Number:	nber: _	I	LD1- 808	300		ĺ	Phc	toper	Photoperiod: 16 l, 8 d	61,86	7	Lig	Light Intensity: 50 - 100 fc	sity: 50	- 100	ဥ		Test Duration:	uratio		96 hours	urs		
			Nu Live	Number of Live Organisms	of sms			Teml	emperature (°C)	e e	-		Hd	1			Dissolv (r	Dissolved Oxygen (mg/L)	/gen		Cond	Conductivity (µS/cm)	mS/cπ	3
Concentration	Rep	0	24	24 48 72	72	96	0 24		48	72 9	96	0 24	24 48	48 72 96	96	0	24	48	72 9	0 90	24	0 24 48 72 96 0 24 48 72 96	72	96
CONTROL	A	10	10	2	0	10 343	93	7	0, LZ		ox	8.7	8.3			76	4	50		ES.	_	330		

			N. Live	Number of Live Organisms	of isms			Tem (Temperature (°C)	ø	-		Ф	Hd			Diss	olved (mg/	Dissolved Oxygen (mg/L)	ue	0	onduc	Conductivity (µS/cm)	/cm)
Concentration	Rep	0	24	48	72	96	0	24	48	72 9	96	0 2	24 4	48 7	72 9	0 96		. 48	72	96	0	24	48 7	72 96
CONTROL	A	10	10	2	02	01	343	7	01/12		80	8.3	8.3	2		16	2	5.0			331		330	
	В	10	2	0	2	9				=														
	U	10	9	2	3	9							-											
	D	10	9	0	0	5																		
	E	10	9	U	0	0																		
6.25%	A	10	ь	5	0	2	345	1	0.HZ	1	80	1 63	8	8.3		8.0	0	2.5	.0		356		358	
	В	10	9	9	3	0											1							
	O	10	01	2	3	2																		
	D	10	0	2	2	01		F					Ħ											
	Э	10	9	2	9/	2																		
Meter Number						<u> </u>	109		05-20		ē.	189	9	0.99		(89)	3	૧૭∮	چر		189		089	
Time		9939	06130	2101	01150 1360 1003 6001 5610 15610	555	0//0	0	hhbo		0	0160	00	hhbo		06/16	91.	hhbo	b.		0110		hhlso	
Initials		3	A WT MT	-124	3	15 W	2	1	TIM		1	2	3	1-12		7	d-	17	1-		4		11/1	H

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0_ Magna/pulex: 2021.0_

Fathead: 2000.0 X Trout: 2019.0

Americamysis: 2007. Cyprinodon: 2004.0

Menidia:2006.0 OTHER:

Project Number:			7001	XOT.91007		Ì	TEST	TEST ORGANISM	MSI							Begir	I guim	Jate:	Beginning Date: 2 11 2	7		Tim	Time: 6435	3
Client: Sw	Swan Creek	sk k					Ŭ	Common Name:	Name:		Fathe	Fathead minnow	Mon		Ì	Endi	Ending Date: _	e:	17/0/11	17]		Tim	ie:	Time: 0208
QC Test Number: TN-21-786	AL	-21-78	98			1	S	Scientific Name:	Name:		P. pre	P. promelas			1		TEST	TEST TYPE:		Static / Flowthrough	/ Fi	owthro	ngh	
Test Material: ELUTRIATE	UTRIA	TE					TARGET		VALUES										Rene	Renewal	/ Non-renewal	n-rene	wal	
Accession Number:	mber:	A	AT1-854	4			Ţ	Temp:	25±1		ွ	DO:	DO: >4.0	4.0		mg/L		Test	Test Container:	er:	1-1	1-L BEAKER	KER	
Dilution Water:	Mod	Mod Hard				I	pl	pH: 6.0 - 9.0	0.6-(7	Sali	Salinity: 0	0		ppt		Test	Test Volume:	45		250 ml	1	Î
Accession Number:	L		CD1-	LD1-868		1	PI	Photoperiod: 16 l, 8 d	od: 16	1.8 d	1	Ligh	Light Intensity: 50 - 100 fc	sity: 5	0 - 100	oj_		Test	Test Duration:	n:	96 h	96 hours		
			Live	Number of Live Organisms	r of nisms			Temp (°	Temperature (°C)	0	-		Hd				Disso	Dissolved Oxygen (mg/L)	xygen		Con	ductiv	Conductivity (µS/cm)	/cm)
Concentration	Rep	0	24	48	72	96	0	24 4	48 72	72 96	0 9	24	48	72	96	0	24	48	72	96	0	24 4	48 7	72 96
12.5%	A	10	9	0	∞	8	She	24.0	0.		8.3	7	3.3			00		8.5		23	392	162	=	
	В	10	9	10	93	9		III I																
	O	10	0	0	0	6																		
	Д	10	9	0)	3	01																		
	Э	10	0)	(1)	0	0										Ļ								
											+											-		
25%	A	10	2	10	2	6	34.6	12	24.0		00	82	3.7	~ \		00		2.6		2	994	I	453	
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EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

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0 10 10

Ceriodaphnia: 2002.0_ Magna/pulex: 2021.0_

Fathead: 2000.0 X Trout: 2019.0

Americamysis: 2007._ Cyprinodon: 2004.0

Menidia:2006.0 OTHER:

Beginning Date: (2/2/2)		1	<u> </u>	- ewal	Test Container: 1-L BEAKER	'olume:	ration: 96 hours	xygen	Conductivity (µS/cm)	47 0 06 7/	3.6 618 581				000	D.O 888 546			
Beginning	Fathead minnow	FIRM			ng/L	Salinity: 0 ppt Light Intensity: 50 - 100 &		Dissol	72 96 0 74		0.7				- F	6.0			
TEST ORGANISM	Common Name:	Scientific Name:	TARGET VALUES	Temp: 25±1	.JH.	Pri: 0.0 - 9.0 Photoperiod: 16 <i>l</i> . 8 <i>d</i>		Temperature (°C)	72	16 24.5		0/	0.1	6	9 247 ZUD		0.0		
70019.TOX	sek	TN-21-786	ATE	AT1-854	Mod Hard	LD1- 808	M	Live Organisms	-	10 10 10 10	10 (0 (0			10 (0 (0 (0)	0/ 0/ 0/ 01	10 9 9 9	10 (0 (0 0)	10 (0 9 9	1
Number	Client: Swan Creek	QC Test Number: TN	Test Material: ELUTRIATE	Accession Number:	Dilution Water: Mod	日日			Concentration Rep	50% A	В	C	D	E	100% A	В	C	D	

 EPA Test Method:
 EPA 821-R-02-012 (CHECK ONE)

 Ceriodaphnia:
 2002.0

 Fathead:
 2000.0

 Trout:
 2010.0

Americamysis: 2007.
Cyprinodon: 2004.0

<u>vsis</u>: 2007. <u>Mer</u>

Menidia:2006.0 OTHER:



TOXICOLOGY LABORATORY BENCH SHEET

Project Number:	
Client: Swan Creek	
QC Test Number: TN-21-786	
Date/Time/Initials	Comments/Activity



TOXICOLOGY LABORATORY BENCH SHEET - TESTING LOCATION

Project Number:	70019.TOX	
Client: Swan Creek		
QC Test Number:TN-21-	-786	

Day	Testing Location	Date	Time	Initials
0	7B	12/2/21	0911	To
1	7 <u>8</u> 78	12/3/21	0930	147
_ 2	7B	1214121	1205	TOP
3	78 78			MT TOP BY SC
44	78	12/6/21	0900	30
5				
6		_		-
7_				
8				
9				
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25				
26				
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28			_	
29				
30				



TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number:70019.TOX
Client: Swan Creek
QC Test Number: TN-21-786
Correction Explanations
(a) Technician Error-Mathematical
(b) Technician Error-Manual Data Recording
(c) Technician Error-Head Count Observation
(d) Technician Error-Overwrite
(e) Technician Error-Missing Data
(f) Technician Error-Lost Organism
(g) Technician Error-Transcription Error
(h) Technician Error-Other:
(i) Meter Malfunction



Lot Number: _

Source:

TOXICITY TEST SET-UP BENCH SHEET

Acclimation: <u>424 ho</u> Age: <u>2 days</u>

Culture Water (T/S): <u>24.4</u> °C <u>0</u> ppt

Project Number: 70019.TOX	
Client: Swan Creek	
QC Test Number:TN-21-742	
TEST	ORGANISM INFORMATION
Common Name: <u>Fathead minnow</u>	Adults Isolated (Time, Date):
Scientific Name: P. promelas	

		TEST INITIA	TION	CON	CENTRATION SERIE	ingles.
<u>Date</u> 23/2	Time 1028	<u>Initials</u>	<u>Activity</u>	Test Concentration Control	Volume <u>Test Material</u> 0 ml	Final <u>Volume</u> 1250 ml
	•		Dilutions Made	6.25% 12.5%	78.125 ml 156.25 ml	
			Test Vessels Filled	25% 50%	312.5 ml 625 ml	
	1415	V	Organisms Transferred	100%	1250 ml	↓
Ø_	1445	Ay	Head Counts	İ		

Y435 (84)	DILU	JTION PRE	NTERMEDIA PARATION	TE DILUTION F	REPAR.	ATION AND FEEL		in the state of th
Day 0 1 2 3	Date 1123/71	Time LO28	Initials UND	Sample / Diluent ATI- 855 (1)1-798 ATI-855 (0)-192	Food: A Day 0 1 2 3		FEEDING Time, Initials, Amount	Time, Initials, Amount IGI) M7 3 drops 1043 SL 3 drops 1751000 3 drops
5					5	3 drops		3 drops

ACUTE TOXICITY TEST DATA SHEET - OLD SOLUTIONS

			MICH TOTAL		Degiming Date:	TIME.
Client: Sv	Swan Creek		Common Name: Fath	Fathead minnow		Timo
QC Test Number:		TN-21-742		P. promelas	VPE.	
Test Material:	H	ELUTRIATE			1 2	/ Non-renewal
Accession Number:	ımber:	AT1-855	Temp: 25±1 °C	DO: >4.0	mg/L Test Container:	1 I Beater
Dilution Water:	Mo	Mod Hard	pH: 6.0 - 9.0			750 ml
Accession Number:	mber:	LD1-788	Photoperiod: 161,8 d	ensity: 50 - 100		96 hrs
Concentration	D	Number of Live Organisms	Temperature (°C)	Hď	Dissolved Oxygen (mg/L)	Conductivity (µS/cm)
Concentration	dev	0 24 48 72 96	0	0 24 48 72 96	0 24 48 72 96	0 24 48 72 96
Control			24.9 24.0 24.1 24.0	7.8 7.8 7.8 9.7	77 1.4 1.7 0.7	337 240 247 333
6.25%			251 240 M.1 2M.1	7.8 7.7 7.7 8.3	7.1 7.2 2.1 7.7	374 376 378 371
12.5%			15.1 24.3 24.2 14.2	7.8 4.4 0,6 8.7	7.0 7.3 7.0 7.5	413 414 716 414
25%			25.1 24,5 24.4 24.3	7.8 4.4 2.7 8.7	677,3 7.075	584746 CGH NPH
%05			25.1 24.3 21.1 24.2	7.7 7.5 7.4 80	6.7 7.1 6.9 74	645 643 151 637
100%			24.6 24.3 27.7 24.3	7.6 74 7.5 7.9	64 6,9 6572	952 919 926 896
Meter Number			(A) 1.691 (A)	120/ (20)	(A) 1.01 Le. 1.01	4)
Time			1201 1651	1501 1661	1331	1436 (23) (23) (24)
Initials			MT TA			

releely had

Time: 1415 Time: 1413 / Flowthrough 1-L BEAKER Renewal / Non-renewal 250 ml 96 hours Beginning Date: 11/03/01 Static Test Duration: Test Container: Test Volume: TEST TYPE: Ending Date: mg/L ppt Light Intensity: 50 - 100 fc >4.0 Salinity: 0 Fathead minnow DO: P. promelas ၁ Photoperiod: 16 l, 8 d Common Name: Scientific Name: Temp: 25±1 pH: 6.0-9.0 TEST ORGANISM TARGET VALUES 788 70019.TOX LD1- 789 AT1-855 QC Test Number: TN-21-742 Mod Hard Test Material: ELUTRIATE Swan Creek Accession Number: Accession Number: Dilution Water: Project Number: Client:

			N	Number of Live Organisms	r of nisms			Теп	Temperature (°C)	ure				Hu			Di	ssolve	Dissolved Oxygen	gen				i	
Concentration	Ren	C	24	48	77	90	0	21	10	7.7	20	0	70	40	0	, ,	h		~	-		Condu	-	ns/cm	1)
	da			-	-	00	-	4.7	40	71	20	0	47	48	7/	96	0	24	48 7	72 96	0	24	48	72	96
CONTROL	A	10	9	0	10	01	1.58		Siks			200		2.6	Ā		7.7	192	0,0	-	216		310		
	В	10	2	0	21	3															5		2		
	C	10	2	0	10	0]																			
	D	10	10	6	0	0																		1	
	田	10	2	0	20	3						n													
6.25%	A	10	489	0	6	0	Sugar		2.5			7.60		7.10			n &	2	5		203	2	21.19		
	В	10	2)	9	2	2					F	+		2			2:1				22		146		
	C	10	0)	0	2	0																			
	D	10	01	2	2	2																			
	E	10	0	2	2	2																			
Meter Number							4-32		1801			186	~	1651		-	180	189	1%		1001		101		
Time		Shhi	1445 1405/25/ 1215 1413	1351	1315	1413	1403	-	FroS			300		Sour		7 13	1200	3	1 V K V	-	250		رو ا		
Initials		82	BY MIT UPO	8	1	2	T		SE SE			\$		3			S S S	3) 2		35		(8)		
		7	Carrie Landa.	1011			,					77.7					Dis	5			せん		5	1	

(a) Mr 11/24/21

Fathead: 2000.0 X Trout: 2019.0 EPA Test Method: EPA 821-R-02-012 (CHECK ONE) Ceriodaphnia: 2002.0 Magna/pulex: 2021.0

Americanysis: 2007. Cyprinodon: 2004.0

Menidia:2006.0



velsello

Project Number:	70019.TOX	TEST ORGANISM			Beginning Date: 11/23/21	11/23/21	Time: 1415
Client: Swan Creek		Common Name:	Fathead minnow	WC	Ending Date:	11127121	Time: 1413
QC Test Number: TN-21-742	42	Scientific Name:	P. promelas		TEST TYPE:(E: Static	Flowthrough
Test Material: ELUTRIATE		TARGET VALUES				Renewal /	Non-renewal
Accession Number:	AT1-855	Temp: 25±1 °C		DO: >4.0	mg/L Tes	Test Container:	1-L BEAKER
Dilution Water: Mod Hard		pH: 6.0 - 9.0	Salinity:	y: 0	_ppt Tes	Test Volume:	250 ml
Accession Number:	181-784-189	Photoperiod: 16 l, 8 d		Light Intensity: 50 - 100 fc		Test Duration:	96 hours
	Number of	Temperature	-		O First		

			Live	Number of Live Organisms	of risms			Тет	Temperature (°C)	ure				Hd			I	Jissol (1	Dissolved Oxygen (mg/L)	ygen		CO	nduct	Conductivity (uS/cm)	S/cm)	
Concentration	Rep	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24		72	96	0	24	48	72	96
12.5%	А	10	Dr. Pa	0	0	0	8-h8		たる			7.6		2,6			7.8		6.8			3810	(393		
	В	10	2	0	0)	0			F													2				
	C	10	9	2	51	2																				
	D	10	9)	Q	5	2																				H
	П	10	2	5	2	2																				
																		I								
25%	А	10	2	0	0	01	8-hE		7.14			9		7,5			7.		6.3			472		00)		1
	В	10	0)	2	2	10																				
	C	10	9	9	2	91																				
	D	10	9	01	0	01																				
	E	10	2	10	2	oj																				
			Ī																							
				1								1						1				1				1

12/ mal 11/24/51

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 Magna/pulex: 2021.0

Fathead: 2000.0 X Trout: 2019.0

Americamysis: 2007. Cyprinodon: 2004.0

Menidia:2006.0 OTHER:



(8 कर्ड Mas 121

Project Number:			70019.TOX	XOT.	H	1	TEST	TEST ORGANISM	NISM							Regi	Ting	oto.	Beginning Date: 111 72 171	C		i	יוחו	1
Client: Sw	Swan Creek	ek		H	H		ပိ	mmon	Common Name:		Fathe	Fathead minnouv	Work			Deg.	l d	alc.	100	717		Time: 1 16 3	11 11 0	2
QC Test Number:		TN-21-742	2			7	S	entific	Scientific Name.		D n	D mondas	M OTH			Endi	Enumg Date:		1=	101101	T	Time: 1415	75	
Fest Material: ELUTRIATE	UTRIA'	TE					TARGET	T VA	VALUES		1. 1	omera					IESI TYPE	IYPE	Sta	Static	Flowt	Flowthrough		
Accession Number:	nber:		AT1-855			1	Ţ		Temn: 25±1		0	2	,				18		Renewal	7	Non-renewal	newal		
Dilution Water	Mod	5						i.i.	TC7		اد		DO: 24.0	0.4		_mg/L	Tes	Test Container:	iner:		1-L BEAKER	AKER		
Judicou Watel.	DOIM	Mod Hard			(ī	hd	pH: 6.	0.6 - 0.9		1	Sali	Salinity: 0	0		_ppt		Test V	Test Volume:		25(250 ml		
Accession Number:	nber:	Ll	K-101	786 J 388	88		Ph	otoperi	Photoperiod: 16 l, 8 d	1,84		ight In	Light Intensity: 50 - 100 fc	: 50 -	00 fc		est Dur	Test Duration:		5	96 hours			
			Nu Live (Number of Live Organisms	J(Temp	emperature	0	-						Dissol	Dissolved Oxygen	/gen	-				
Concentration	Ren	0	76	48	-	90	+		-	-	+	H			1			(mg/L)			Conductivity (uS/cm)	ivity (1	(S/cm)	
	de	V				20	0	47	48 /	17 96	9	24	48	72	96	0	24	48	72 96	0	24	48	72	96
%05	A	10	0)	0	10	2	8.20	7	34,5		2.5	V	2,5			0		C 88	+	1		2.0	- 1	
	В	10	0)	0) 01	0						>		L		1.0		0.0	+	\$		ars		
	C	10	0	0]	2	0						-							+					1
	D	10	0	0	0.1	0													+					
	E	10	0)	0	2	0												+						
												-						H	+					Ĭ
100%	A	10	0	0	01	0	24.7	14. b	2		75	50	12			0		0		į		0		
	В	10	0	0	2	2					-)				7.0		1		252		50		
	C	10	0)	Q	0	2																	1	
	D	10	01	0) 01	3											T						+	
	Ш	10	0	3	2	2						-							-			1		
		-	7																					

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 Magna/pulex: 2021.0

Fathead: 2000.0 X Trout: 2019.0

Americamysis: 2007. Cyprinodon: 2004.0

Menidia:2006.0 OTHER:



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70019.TOX		
Client: Swan Creek		
QC Test Number: TN-21-742		
Date/Time/Initials	Comments/Activity	



TOXICOLOGY LABORATORY BENCH SHEET - TESTING LOCATION

Project Number:	70019.TOX
Client: Swan Creek	
QC Test Number:TN-21-	742

Day	Testing Location	Date	Time	Initials
0	IHB	11196 121	1405 1436 1352	Ay
1	14B	11/24/21	1436	MT
2	140	11125121	1352	IAn
3	143	11/24/24	1071	LAD
4	14B	11/22/21	104	9
5				
6				
7				
8				
9				<u> </u>
10			_	
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16			_	
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TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number:70019.TOX
Client: Swan Creek
QC Test Number: TN-21-742
Correction Explanations
(a) Technician Error-Mathematical
(b) Technician Error-Manual Data Recording
(c) Technician Error-Head Count Observation
(d) Technician Error-Overwrite
(e) Technician Error-Missing Data
(f) Technician Error-Lost Organism
(g) Technician Error-Transcription Error
(h) Technician Error-Other:
(i) Meter Malfunction



TOXICITY TEST SET-UP BENCH SHEET

Project Number:70019.TOX	
Client: <u>Swan Creek</u>	
QC Test Number: TN-21-743	
TEST ORGAN	JISM INFORM ATTION
Common Name: Fathead minnow	
Scientific Name: P. promelas	Adults Isolated (Time, Date):
Lot Number: PH- SCOLO	Neonates Pulled & Fed (Time, Date):
Source: APS	7
	Culture Water (T/S): 24.8 °C 0 ppt

		TEST INITIAT	rion	CON	CENTRATION SERIE	S
<u>Date</u>	<u>Time</u> 103い	<u>Initials</u>	Activity	Test Concentration Control	Volume <u>Test Material</u> 0 ml	Final <u>Volume</u> 1250 ml
		·	Dilutions Made	6.25%	78.125 ml	
-	l W8	Al	Toot Wassell, Park 1	12.5%	156.25 ml	
		0	Test Vessels Filled	25%	312.5 ml	
	1450	\mathcal{L}		50%	625 ml	
			Organisms Transferred	100%	1250 ml	↓
	1458	Ala	Head Counts			

	DILU	TION PRE	PARATION			ATION AND FEEL	DING FEEDING	
Day 0 1 2 3 4 5 6	<u>Date</u> 23 21 45 21	Time IO30 IO15	Initials (PO	Sample / Diluent ATI - 856 COI - 789 ATI - 8.54 (D) - 772	Day 0 1 2 3 4 5 6	Time, Initials, Amount OS2547 3 drops OCOUND 3 drops Offor 3 drops Ob074 3 drops	Time, Initials, Amount	Time, Initials, Amount ICAMT 3 drops ILFU SC 3 drops 3 drops 1 600 / 3 drops



ACUTE TOXICITY TEST DATA SHEET - OLD SOLUTIONS

tific Name: Fathead minnow Friding Date: 11/2/121 Time: 1/5 rific Name: P. Promelas Test Type: Static Flowthrough Non-renewal Solution: 25±1 °C DO: 24.0 mg/L Test Container: 1L Beaker 250.90 Ppt Test Volume: 250 ml Period: 161.8 d Light Intensity: 50 - 100 fc Test Duration: 96 hrs. emperature pH 72 96 0 24 48 72 96 96 92 96 96 92 96 96 92 96 92 96 96 92 96 9	Swan C	eek		1 minnow		
Number N	vr:	27.01.01				. Ime:
Non-tenevral Non-	Number	1N-21-/43		nelas	YPE:	Flowthrough
Temp: 32±1 O O O O O O O O O	Jumper	ELU			Renewal	Non-renewal
Contraction Rep 0 24 48 72 96 0 24 84 72 96 0 24 84 72 96 0 24 84 72 96 0 24 84	Jumper		25±1 °C	>4.0		1 L Beaker
Number of Temperature		TD1-	6.0 - 9.0	0	pt	250 ml
Number Live Organisms Temperature Te				Light Intensity: 50 - 100 f		96 hrs
345 34, 34, 34, 34, 34, 34, 34, 34, 34, 34,		Number of Live Organisms 0 24 48 72	Temperature (°C)	Hd	Dissolved Oxygen (mg/L)	Conductivity (µS/cm)
345 341 341 342 342 342 342 342 343 343 343 343 343		7)	24 48 12 96	48 72	24 48 72 96	24 48 72
34.5 34.3 14.5 24.2 1.2 1.6 4.5 8.7 1.3 1.0 2.4 76 11.3 13.4 11.4 11.4 11.4 11.4 11.4 11.4			My 27.c	7.9 2.9	7.6 7.2	335 334
Number Namber Nat. Sal. Sal. Sal. Sal. Sal. Sal. Sal. Sal	6.25%		ć			
Number 1.8 7.8 7.4 8.7 7.0 7.1 7.5 41.3 41.4 41.4 41.4 41.4 41.4 41.4 41.4			5.419 E1/X	1.87.	7.0 2.1	str
Number Number Number Number	12.5%		V 100 - 100 - 100	0	(
Number Number Number Number Number			4.18 1.18 1.18 1.18 1.18 1.18 1.18 1.18	1.2 7.0	70 7.1	مالم مالم
Number Number Number Number	25%		24.1	7.7 3.6	7,0 7,1	478 752
Number (12) 14 15 17 16 16 16 16 16 16 16 16 16 16 16 16 16	20%			r		
Number Number Number Number Number Number Number Number Number			M.1 14.5	7.6 7.5	17 17	(N7 622
Number (a) (a) (a) (a) (a) (a) (a) (a) (a) (a)	100%		7r., ad 4	7	(
Number (ph. 1081 1030 1021 1030 1021 1081 1080 1081 1080 1081 1080 1081 1081 1080 1081 108			17.5 47.7	10 40	1.4 1.7	819 839
1019 1030 1020 1010 1030 1020 1010 1030 1020 1030 103	Meter Number		197	100		
(M) (M) 1030 1020 1030 1020 1030 1030 1030 1030	Time		(CO) (C) (O)	139 (25)	जु (139 190
	Initials		3 3	1000 10%	250	1030 1020

Project Number: 70019.TOX	TEST ORGANISM		Beginning Date: 11 23 21	1931 Time: 1455
Swan Creek	Common Name:	Fathead minnow	Ending Date: 1147121	M Time: 1502
TN-21-743	Scientific Name:	P. promelas	YPE	Static Flowthrough
Test Material: ELUTRIATE	TARGET VALUES		Renewal	7
AT1-856	Temp: 25±1	°C DO: >4.0	mg/L Test Container:	
Mod Hard	pH: 6.0 - 9.0	Salinity: 0	ppt Test Volume;	250 ml
Accession Number: LD1- 789	Photoperiod: 16 l, 8 d	3 d Light Intensity: 50 - 100 fc		4 96 h
Number of Live Organisms	Temperature (°C)	Ha	Dissolved Oxygen	Conductivity ()
20 00 00	07 70		(mg/m)	Conductivity (µ3/cm)

			Z .	Number of	r of			Ter	Temperature	ıre							Д	issolv	Dissolved Oxygen	ygen					
	,		LIVE	Live Organisms	nisms				(C)					Hd				π)	(mg/L)	ľ		Con	ductiv	Conductivity (uS/cm)	cm)
Concentration	Rep	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24		72 9	96	0	24 4	48 72	96
CONTROL	А	10	10	0	2	2	O-he		かぶ			8.0		17			8.5		17	H	CC	23	2.5	(
	В	10	2	9	2	2)				3	3	5)	1
	Ü	10	0	Q	2	5															H				
	D	10	9	9	2	2															-				
	田	10	0	0	2	3																			
6.25%	A	10	Q1	0	2	0	OH		S		Ĺ	79		1			V	1	79		60	350	7111.		
	В	10	0)	0	9	3											2			H	Ó	2	5	9	
	O	10	0	Q	2	21										1	Ī		t		ŀ	-		-	
	D	10	9	0	2	2														-		F			
	E	10	0)	B	2	5															-	+			
Meter Number							1801		109			180		1991			(ng)	1.9	1.90	H	89	- X	1631	E	
Time		Bhl	02/1	1537	1951 HZO 1337 1355 1902	1051	MA	T	0601			113	-	Can			()		17.7		3 =	50	1	1	
Initials		AN	文文	180	1	4	To		8			3		3			3	1	3 3	-	4	ML	F 5) (

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 Magna/pulex: 2021.0

Fathead: 2000.0 X Trout: 2019.0

Americamysis: 2007. Cyprinodon: 2004.0

Menidia:2006.0 OTHER:

Numbo terial:] ession] nuration nuration Num %%	Project Number:	Swan Creek	17	7001	70019.TOX	×		TEST	ORG.	TEST ORGANISM	Į	ļ					В	Beginning Date: 111 93191	ng Dat	7	1 32	1010		Time:	1455	2
TNS-11-743 Scientific Name: P. promelas TRN-11-743 Promelas TRN-11		vall CIC	Ch				Ī	ر	ommc	n Nan	le:	Fat	head n	ounin	Α		Щ	nding	Date:	=	1171	2	ì	Time:	1505	~
TRIATE Section Sellinity: O D D D D D D D D D	C Test Number:		-21-74	43				Ś	cientif	ic Nan	le:	P. 1	promel	as				T	YT TY	PF.	Sto	F	Flore	1		
Mod Hard Mod Hard	st Material: EL	UTRIA	TE					TARC	ETV	ALUE	S						ľ				enew	1	Non	lanoura Iomeme	-	
Mod Hard Mod Hard	Accession Nu	mber:	A.	T1-85	9		ĺ	H	emp:	25	17	ွ		Ö	>4.0		E	1/0	E	1) 2	toin t	1	I-IIONI	Silewal		
Total Part Total Puration: lution Water:		Hard					Id	. H	5.0 - 9.	0	7		- Inity	0) 	i F	st Vol	lamer.		I-L BI	AKE			
Number of Itive Organisms	cession Number	E	Ī	LD1-	789		1	PI	otope	riod:	161,8	d	Ľ	ght In	tensity	: 50 -	of 100		Ĭ	st Dur	ation:		cz Inou 90	S mi		
Rep 0 24 48 72 96 0 24 48 24 24 24 24 24 24				N	lumber Organ	of nisms			Ten	nperati (°C)	ıre				Ha		-	Dis	ssolved	Oxyg	E G				i	
A 10 (10 to 10 due part 7.9 1.7 8.5 8.1 389 B 10 (10 to 10	Concentration	Rep	0	24	48	72	96	0	24	48		96	_	24		-	-		4 4		-	0	onauc 24	uvity (uS/cm	06
B 10 1/0 10 10 10 10 10 10 10 10 10 10 10 10 10	12.5%	A	10	01		0	2	O.he		アデ		1	7.9	Ť	1		©X	~	00	+	+	14		2 5	1	3
C 10 (LO 10 10 10 10 10 10 10 10 10 10 10 10 10		В	10	2	0	0	3								-)	2	Š			8		I		
D 10 (D (D 1) 1/2 D D D D D D D D D		C	10	2	Q	0	0									H	T		-	-						
E 10 (O D 10 10 P 94.1 A.3 7-9 7-9 8-4 8.3 447) B 10 (O 10 10 10 10 10 10 10 10 10 10 10 10 10		D	10	03	2	0	3										t	-		-						ME
A 10 (0 10 10 10 10 M3 7-9 7.0 8.4 8.3 447 C 10 10 10 10 10 10 10 10 10 10 10 10 10		E	10	0)	0	2	2																			
A 10 (to 10 10 10 M3 7-9) A. O 10 10 10 10 10 10 10 10 10 10 10 10 10													-				+								1	
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10 10 10 10 10 10 10 10 10 10 10 10 10 1		В		0)	9	2	67											-	000			12		101		
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01 00 01 01		D	10	19	9	2	2						F			h		-	-						i	
		Э	10	10	0	2	9									-	-								1	1
															100	F		-	1						1	

EPA Test Method: EPA 821-R-02-012 (CHECK ONE) Ceriodaphnia: 2002.0 Magna/pulex: 2021.0

Fathead: 2000.0 X Trout: 2019.0

Americamysis: 2007. Cyprinodon: 2004.0

Menidia:2006.0 OTHER:

Project Number:			7001	XOT.61007			TEST	ORG/	TEST ORGANISM	I						-	Begint	uing Da	ate:	Beginning Date: 111,23,21	13/0	-	Time:	Time: 1455	2
Client: Sv	Swan Creek	sk				Ī	Ö	ommo	Common Name:	.e.	Fat	Fathead minnow	ninnov	N		1	Ending	Ending Date:		1/10	1713	1137121	Time:	Time: 1502	7
QC Test Number:		TN-21-743	13			Ť	Š	sientif	Scientific Name:	ie:	P. 1	P. promelas	as				I	TEST TYPE:	YPE:		Static	Flo.	Flowthrough	gh	
Test Material: ELUTRIATE	UTRIA	TE				1	TARC	ET V.	TARGET VALUES	S										Renewal	7	Non	Non-renewal	Te.	
Accession Number:	mber:		AT1-856	2			Í	Temp:	25±1	±1	O _o		ö	DO: >4.0			mg/L	Test	Test Container:	iner:		1-T	1-L BEAKER	R	
Dilution Water:	1	Mod Hard				Î	p	pH:(0.6 - 0.9	0		S	alinity	Salinity: 0			ppt		Test V	Test Volume:		2	250 ml		
Accession Number:	mber:	I	LD1-739	138		1	P	iotope	riod:	Photoperiod: 16 l, 8 d	q	Light	Inten	Light Intensity: 50 - 100 fc	0 - 10	o J C	Te	Test Duration:	ation:			96 hours	IIIS		1
			Live	Number of Live Organisms	of risms			Ten	Temperature (°C)	ıre				Hd				Dissolved Oxygen (mg/L)	lved Ox (mg/L)	ygen		Condi	ıctivity	Conductivity (µS/cm)	(u
Concentration	Rep	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24		72 9	0 96	0 24	48	72	96
20%	A	10	0)	2	10	10	34.3		24.4			7.8		2)			8.5		83		SP	9	578		
	В	10	(i)	9	10	00																			Ш
	O	10	0	2	0.1	0)											T			H					
	D	10	0)	0	10	(0							Ŧ												
	E	10	0	0	10	2)				11															
																								Ш	
100%	A	10	9	0	(0	3	842		74.4		1	17		7.5			8.5	Oeo	60		38i		8 29		
	В	10	2	0	10	2																			
	O	10	0	Q	0	0/			H																
	О	10	0)	9	10	0									L										
	ш	10	0	0	5	b																			
				F																	-				

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 Magna/pulex: 2021.0

Fathead; 2000.0 X Trout: 2019.0

Americamysis: 2007. Cyprinodon: 2004.0

Menidia:2006.0 OTHER:



TOXICOLOGY LABORATORY BENCH SHEET

Project Number:70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-743	
Date/Time/Initials	Comments/Activity



TOXICOLOGY LABORATORY BENCH SHEET - TESTING LOCATION

Project Number:	70019.TOX	
Client: Swan C	reek	
QC Test Number:	TN-21-743	

		<u> </u>	<u> </u>	
Day	Testing Location	Date	Time	Initials
0	lle	W 23 121	1108	SL UD
1	[6	11/24/21	1418	SL
2	16	11/2/21	1548	an
3)6		1418 1548 102 102	
4	16 16	11/20/4	1510	To
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30				



TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number:
Client: Swan Creek
QC Test Number: TN-21-743
Correction Explanations
(a) Technician Error-Mathematical
(b) Technician Error-Manual Data Recording
(c) Technician Error-Head Count Observation
(d) Technician Error-Overwrite
(e) Technician Error-Missing Data
(f) Technician Error-Lost Organism
(g) Technician Error-Transcription Error
(h) Technician Error-Other:
(i) Meter Malfunction



TOXICITY TEST SET-UP BENCH SHEET

Common Names	Fothand minnous	Adulta Igalated (Time Date):
	TES	FORGANISM INFORMATION
QC Test Number:	TN-21-744	
Client: Swan C	reek	
Project Number:	70019.TOX	

TESTORGA	ANISM INFORMATION
Common Name: Fathead minnow	Adults Isolated (Time, Date):
Scientific Name: P. promelas	Neonates Pulled & Fed (Time, Date):
Lot Number: PH-566	Acclimation: 24Mo Age: 2days
Source: ABS	Culture Water (T/S): 243 °C 0 ppt

		TEST INITIAT	ION	CON	CENTRATION SERIE	S
<u>Date</u> 2312	<u>Time</u> 0917	Initials	<u>Activity</u>	Test <u>Concentration</u> Control	Volume <u>Test Material</u> 0 ml	Final <u>Volume</u> 1250 ml
			Dilutions Made	6.25% 12.5%	78.125 ml 156.25 ml	
TA TOMATAY AND THE	0951	AY	Test Vessels Filled	25%	312.5 ml	
na - gyvysa amilya yn Mindrif i	1330	YP	Organisms Transferred	50% 100%	625 ml 1250 ml	ļ
1	1433	H	Head Counts			

1 2 3 B	A 7 1/4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	II	NTERMEDIA	ATE DILUTION P	REPAR	ATION AND FEEL)ING	
	DILU	JTION PRE	PARATION	• "			FEEDING	
<u>Day</u> 0	<u>Date</u>]]]23]2]	<u>Time</u> 0917	<u>Initials</u> <i>U</i>	Sample / <u>Diluent</u> (N - 85) (D) - 787	Food: A <u>Day</u> 0	Irtemia Time, Initials, Amount	Time, Initials, Amount	Time, Initials, Amount (6/11/17) 3 drops
1			<u> </u>		1	<u>0627</u> MT 3 drops		1425 52 3 drops
2	וואשאם	1415	UAD	AT1-857 UN-754	2	080440 3 drops		735070 3 drops
3	()			-	3	3 drops		3 drops
4					4	630 740 3 drops		
5					5		_	
6		\overline{j}			6			,

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154 July 21.19 24.19

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P

J.A.

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Meter Number

100%

Initials

Time

ACUTE TOXICITY TEST DATA SHEET - OLD SOLUTIONS

Project Number:		7	70019.TOX	XO.			TEST	TEST ORGANISM	ANISI	A						B	ginnir	Beginning Date:		11 (23/21)	131	1	Time: 1330	1335	
Client: Sw	Swan Creek	3k				T	0	Common Name:	n Nan	1e:	Fat	Fathead minnow	ninnov	Λ		五	Ending Date:	Date:		11/27/21	21	1	Time: 1245	12%	'n
QC Test Number:		TN-21-744	-744			Ī	S	Scientific Name:	ic Nar	ne:	P.	P. promelas	las			Ī	TE	TEST TYPE:	PE: (Static	ic)	Flowt	Flowthrough		
Test Material:		ELUTE	ELUTRIATE			1	TARC	TARGET VALUES	ALUE	S										Renewal	À	Non-renewal	newal		
Accession Number:	umber:		AT1-857	7		1	I	Temp:	25±1	£1	၁		DO: _	///	>4.0	m	mg/L	Ĥ	est Cor	Test Container:		11	1 L Beaker	ı	Ī
Dilution Water:	M	Mod Hard	p			1	p.	pH: 6.0 - 9.0	6-0.9	0.	1	S	Salinity:		0	ppt	4	Ĭ	Test Volume:	lume:		250	250 ml		1
Accession Number:	umber:	7	LDI- 7	187			Ь	hotope	riod:	Photoperiod: <u>16 l, 8 d</u>	p	J	ight In	tensity	Light Intensity: 50 - 100 fc	100 fc		Í	Test Duration:	ration:		96 hrs	nrs		I
			Live	Number of Live Organisms	of isms			Тег	Temperature (°C)	ure				Hd			Di	Dissolved Oxygen (mg/L)	1 Oxyg	ten		Conductivity (µS/cm)	tivity (μS/cm	(1
Concentration	Rep	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0 2	24 4	48 72	96 7	0	24	48	72	96
Control								247	0.18	24.0 27.1 246	24.6		82	7.9	7.5	C 8	8		7,0 7,	7.4 83		345	345 351 353 356	353	35%
6.25%								320	9 7	24,6 24.7 34.0	34.0		7.8	7,7	00	8.3	7	10 2	9	75 5.1 6.2 78		376	576 yet 275 dr	334	385
12.5%								12.1	4.7	0.45 24.0	34.0		7.8	215	2.6 8.2	3.2	9	7.9 1.h q.g	1 6.7	1.6		IIh	यर वर्भ	2	924
25%								12.5	0.	24.4 242	24.2		E	7.	2.6 8.2	3.2	9	6.6 5.0 6.4	3	1 74		194	440 468 467	9	467
20%								253	21.42.7	27.7	74.4		7.7 7.4		7.5 81	150	9	5.4.2.9	6	6.3		612 LOT		200 019	200
														-	-			_			1				

Test Material: ELUTRIATE Accession Number: A Dilution Water: Mod Hard	Swan Creek	Common Name:	Fathead minnow	Ending Date: [118]	11127121 Time: 1245
Accession Number:	五 五	Scientific Name: TARGET VALUES	P. promelas	TEST TYPE: Sta	Flowthrough
	AT1-857 fard	Temp: 25±1	°C DO: >4.0	mg/L Test Container:	al Non-renewal
Accession Number:	LDI-787	Photoperiod: 16 <i>l</i> , 8 <i>d</i>	Salinity: 0 pl Light Intensity: 50 - 100 fc	ppt Test Volume:	
Concentration	Number of Live Organisms	Temperature (°C)	Ħ	Dissolve	1
Kep	0 24 48 72 96	0 24 48 72 96	0 24 48 72	(mg/L) 96 0 24 48 72 06	tivity (µS/cm)
CONTROL A	01 01 01 01	C'AC	7 7 2	1	0 74 48 72 96
В	0 0 0 0		27/	7.1	331
O	01 01 01 01				
D	01 0 0 01				
E 1	10 (D (O) 01				
6.25% A 1	01 01 01	(3)			
B 1	0) 0) 01		0.1	8.5 8.1	354 341
C 1	0) 01 01 01				
D 1	01 01 01 01 01				
E 10	0 0 0				
Meter Number		100			
Time	423 410 while 123, 1945 A		120	1891 1891	189
Initials	7	045 440		OEM	0963 (430
			DE CE	Sh UP	AN UPS

 EPA Test Method:
 EPA 821-R-02-012 (CHECK ONE)

 Ceriodaphnia:
 2002.0

 Fathead:
 2000.0

 Trout:
 2019.0

Americamysis: 2007. Cyprinodon: 2004.0

is: 2007. Menic 2004.0 OTHE

<u>Menidia</u>:2006.0 OTHER:

Project Number:			700	70019.TOX	×		TEST	TEST ORGANISM	ANISI	Z						B	eginni	Beginning Date: 11135 101	-	1138	1010		Time: 1330	12	20
Client: Sw	Swan Creek	ek					0	Common Name:	n Nan	ne:	Fat	Fathead minnow	ninnov	Α		Щ	nding	Ending Date:		=	11127121		Time:	1245	
QC Test Number:		TN-21-744	44				S	Scientific Name:	ic Nar	ne:	P.	P. promelas	las			Î	T	TEST TYPE:	PE: (Sta	tic) Flow	Static Flowthrough		
Test Material: ELUTRIATE	UTRIA	TE					TARGET	BET V	VALUES	S									U	Renewal	E	Non-1	Non-renewal		
Accession Number:	mber:		AT1-857	2.7			Т	Temp:	25±1	<u>±1</u>	o°		Ö	DO: >4.0		B	mg/L	H	est Co	Test Container:		1-LB	1-L BEAKER	~	
Dilution Water:		Mod Hard					d	pH:	6.0 - 9.0	0.	1	S	alinity	Salinity: 0		ppt)t	I	Test Volume:	lume:	4	25	250 ml		
Accession Number:	u		LD1-	20		1	Д	Photoperiod: 16 <i>l</i> , 8 <i>d</i>	eriod:	161,8	p	T	ight In	tensity	.: 50 -	Light Intensity: 50 - 100 fc		Н	est Du	Test Duration:		96 hours	TS		1
			Liv	Number of ve Organisı	Number of Live Organisms			Ter	Temperature (°C)	ure				Ha			Di	Dissolved Oxygen (mg/L)	lved Oxyg	cen		Condu	Conductivity (u.S/cm)	u.S/cm	_
Concentration	Rep	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24 4	48 72	96 2	0	24	48	72	96
12.5%	A	10	0	01	(0)	10	34.0		S.Co			8.0		٢,		000	4.8	93	- (-)		338	-	334		
	В	10	0	0)	(0	01																	-		
	C	10	10	10	10	2																			
	D	10	0	01	5	0)																			
	E	10	0	0)	10	3																H			
25%	A	10	0	0	5	10	1-108		24,0			8.0		1,7		(%)	8.3	∞			244	0	455		
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EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 Magna/pulex: 2021.0

Fathead: 2000.0 X Trout: 2019.0

Americamysis: 2007. Cyprinodon: 2004.0

Menidia:2006.0 OTHER:



Project Number:			7001	70019.TOX			TEST	TEST ORGANISM	ANISA	I						щ	3eginn.	ing Da	te:	Beginning Date: 11/03/01	191	Ĩ	Time:	1330	Q.
Client: Sv	Swan Creek	ek				1	0	Common Name:	n Nan	le:	Fat	Fathead minnow	ninnov	×		7	Ending Date:	; Date:		2112/11	3		Time:	Time: 1245	
QC Test Number:	60	TN-21-744	44			-	S	Scientific Name:	ic Nan	1e:	P.1	P. promelas	las			I	H	TEST TYPE:(YPE:(Static	tic) Flow	/ Flowthrough	h	
Test Material: ELUTRIATE	UTRIA	TE				1	TARC	TARGET VALUES	ALUE	S									V	Renewal	(IE)	Non-1	Non-renewal	-	
Accession Number:	mber:		AT1-857	7			I	Temp:	25±1	±1	°C		DO: _	>4.0		q	mg/L	Test	Test Container:	ner:		1-LB	1-L BEAKER	~	1
Dilution Water:	Mod	Mod Hard					Д	pH:(0.6 - 0.9	0	Ì	Š	alinity	Salinity: 0		d	ppt		Test V	Test Volume:		25	250 ml		1
Accession Number:	mber:	T	LD1-	187			Ь	Photoperiod: 16 <i>l</i> , 8 <i>d</i>	riod:	161,8	p	Ligh	t Inten	Light Intensity: 50 - 100 fc	0 - 100	of [Tes	Test Duration:	tion:			96 hours	rs		
			Live	Number of Live Organisms	r of nisms			Ter	Temperature (°C)	ure				Hd			D	vissolv (n	Dissolved Oxygen (mg/L)	/gen		Condu	ctivity	Conductivity (µS/cm)	
Concentration	Rep	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24		72 96	0	24	48	72	96
20%	A	10	İb	0	5	10	34.0		34,0		1	79		7,5			83	1	1,6		888	S	1611		
	В	10	0)	Q	0	2)											,								
	C	10	0)	0	2	2									F							Н	Ц		
	D	10	01	9	2	2																			
	Ш	10	01	9	0	2																			
100%	A	10	Q	5	0	5	34.0		07		1	1.8		7,4			8.3	Ļ	2,3		343	-00	750		
	В	10	0	0)	0	2																=			-4,
	၁	10	9)	0	2	5					13														
	D	10	25	10	0	9																			
	ш	10	2	0	2	2																			
															F										

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 Magna/pulex: 2021.0

Fathead: 2000.0 X Trout: 2019.0

Americamysis: 2007. Cyprinodon: 2004.0

Menidia:2006.0 OTHER:



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-744	
Date/Time/Initials	Comments/Activity



TOXICOLOGY LABORATORY BENCH SHEET - TESTING LOCATION

Project Number:	70019.TOX
Client: Swan Creek	
QC Test Number: TN-21	-744

		1 -	<u>.</u>	
Day	Testing Location	Date	Time	Initials
0	146	11123121	0952	Ay
1	14C	11/24/21	1857	61
2	140	11/24/21	1435	CAO
3	146	Wkln		m
4	14C 14C 14C 14C 14C	11/27/21	1250	CAO
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TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number: 70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-744	
	_
Correction Explanations	
(a) Technician Error-Mathematical	
(b) Technician Error-Manual Data Recording	
(c) Technician Error-Head Count Observation	
(d) Technician Error-Overwrite	
(e) Technician Error-Missing Data	
(f) Technician Error-Lost Organism	
(g) Technician Error-Transcription Error	
(h) Technician Error-Other:	
(i) Meter Malfunction	



Source: _

TOXICITY TEST SET-UP BENCH SHEET

Culture Water (T/S):

Project Number: 70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-745	
TEST ORGA	NISM INFORMATION
Common Name: Fathead minnow	Adults Isolated (Time, Date):
Scientific Name: P. promelas	Neonates Pulled & Fed (Time, Date):
Lot Number: FH-566	Acclimation: 49ho Age: 2days

		TEST INITIAT	ION	CON	CENTRATION SERIE	S
<u>Date</u> 1/2312/	<u>Time</u> 0922	Initials Co	<u>Activity</u>	Test <u>Concentration</u> Control	Volume <u>Test Material</u> 0 ml	Final <u>Volume</u> 1250 ml
, -	••		Dilutions Made	6.25%	78.125 ml	
•	200J	M		12.5%	156.25 ml	
	VVC 3	N.J.	Test Vessels Filled	25%	312.5 ml	
	020	P		50%	625 ml	
1	1350	d.	Organisms Transferred	100%	1250 ml	↓
	1940	AY	Head Counts			

W. E. W.		in	TERMEDIA	TE DILUTION F	REPAR	ATION AND FEEL)ING	
		TION PREPA					FEEDING	
<u>Day</u> 0	<u>Date</u> Z3/2	<u>Time</u> OJ2D	<u>Initials</u> H	Sample / <u>Diluent</u> ATI-858 LD1-785	Food: A	rtemia Time, Initials, Amount	Time, Initials, <u>Amount</u>	Time, Initials, Amount 16/147 3 drops
1 2	1172/31	1358	um.	A11-850	2	3 drops 0 80 JUTO 3 drops	-	1445 94 3 drops 1 75 UPO 3 drops
3					3	3 drops		3 drops
5		.,			4 5	086770 3 drops		
6					6		 -	

ACUTE TOXICITY TEST DATA SHEET - OLD SOLUTIONS

Project Number:	70019.TOX	TEST ORGANISM			Beginning Date: 11/03/01	11/03/10	1350 Time: 1350
Client: Swan Creek	X	Common Name:	Fathead minnow		Ending Date:	1717711	Time: (38)
QC Test Number:	TN-21-745	Scientific Name:	P. promelas		TEST TYPE: (Static	Flowthrough
Test Material: E	ELUTRIATE	TARGET VALUES			0	Renewal)/	Non-renewal
Accession Number:	AT1-858	Temp: 25±1	°C DO:	>4.0	mg/L Test Co	Test Container:	1 L Beaker
Dilution Water: Mc	Mod Hard	pH: 6.0 - 9.0	Salinity:	0	ppt Test Volume:	lume:	250 ml
Accession Number:	28L -101	Photoperiod: 161,8 d		Light Intensity: 50 - 100 fc		ration:	96 hrs
	Number of	Temperature			Dissolved Oxygen		Conductivity (uS/cm)

		Number of Live Organisms	Temperature (°C)	Hd	Dissolved Oxygen (mg/L)	Conductivity (µS/cm)
Concentration R	Rep	0 24 48 72 96	0 24 48 72 96	0 24 48 72 96	0 24 48 72 96	0 24 48 72 96
Control			247243 14.2240	7.7 7.8 2.8 8.2	6979 3.282	344 387 341 349
6.25%			15.0 July 14.7 24.0	2777 32 83	69 7,7 7,1 8.0	377 384 386 386
12.5%			26.1 244 24.2 243	7.77.7 22 82	9212 2169	416 418 412
25%			23345 244 aya	18 22 21 17	67 6.9 6.9 74	12h 72h 12h 18h
%05			23345 M. 5944	7.6 J.F 2.6 0.7	6.7 6.10 6.2 7.3	620 107 122 608
100%			252 2416 245 244	7674 2079	27 2.0 d.a. 40	896 687 FF8 398
Meter Number			(30 LB) (28)	189 181 181	120 (8)	196 1.91 651
Time			1402,409 1035 1003	1402 1409 1 105/ 1003	1035	1035
Initials			Sc 100 / 2	SL 40 ~ To	20 m m 76	50 25

Project Number:			700	X019.TOX	X		TE	ST OR	TEST ORGANISM	SM							Begi	nnino	Beginning Date: 11 123 131		72	7	Ė	.01	Time: 1250
Client: Sv	Swan Creek	ek						Com	Common Name:	ame:		Fathea	Fathead minnow	MOL			Fndi	Endino Date:	i	Ξ	11/2/12/	-	1 :	Time.	1381
QC Test Number:		TN-21-745	45					Scien	Scientific Name:	ame:		P. promelas	melas					TEST	TEST TYPE.	-	Statio	>	Flourthmough	ne.	
Test Material: ELUTRIATE	UTRIA	TE					TA	RGET	TARGET VALUES	JES									_	12	Renewal	17	r townmough	ougu	
Accession Number:	mber:	A	AT1-858	8				Temp:		25±1		S	DO:		>4.0		mg/L		Test	Test Container	Jet.	1.1	1-I BEAKER	KFR	
Dilution Water:	Mod	Mod Hard						pH:	0.6 - 0.9	0.6			Salin		c		tua 1		Tect	Test Volume.			750	1	
Accession Number:	mber:		LD1-	280	10			Photo		: 16	1,84		Light	0,1	sity: 50	- 100	fc J		Test	Test Volume.	on:	196	2001 96 hours	.	
			Liv	Number of Live Organisms	er of	S		T	Temperature (°C)	ature)				Hd				Disso	Dissolved Oxygen	xygen		ع ا	duo ti	(mo/Sil) vitivition	(2007)
Concentration	Rep	0	24	48	72	96 7	9	24	48	72	96	0	24		72	96	0	24	48	72	96	0	24	48	72 96
CONTROL	А	10	01	0	5	2	350	_	77.7			X	-	2,0			7.10		-5		4	231	14	120	
	В	10	2	9	5	2	7.1		,								-		9.		2	3	Š	2	
	C	10	7	4	-	-																			
	D	10	0)	2	0	2																			
	Э	10	0	Q	2	3																			
																						F			
6.25%	А	10	0	2	2	0	300	0	SIX			8.1		7.4			7.7		19		Q	250	.23	۲, ۲	-
	В	10	10	9	0	2													1 1		.3	70	3	7	
	Ö	10	0	9	0	2															-	-			
	D	10	10	9	3	01																	-		
	Э	10	P	0	2	2																			
Meter Number							1801		1001			(R)		1,001			1801		100		,	181	10	2.1	
Time		3-1-10	1440 141 1447 DUP!	147	11.50	138		~	Soll	\		Z.		5	V		1000		3 =	t	9 5	(00)	00 1	- \	
Initials		W	5	2	Ĩ	2			\$			M		8			Ale		3		2	33	8	68	
														0			0.7			1	-	6	5		

EPA Test Method: EPA 821-R-02-012 (CHECK ONE) Ceriodaphnia: 2002.0_ Magna/pulex: 2021.0_

Fathead: 2000.0 X Trout: 2019.0

Americamysis: 2007. Cyprinodon: 2004.0

Menidia:2006.0 OTHER:

Project Number:			700	XOT.61007	~		TEST	TEST ORGANISM	ANISN	1						Щ	Beginning Date: 11 23 31	1g Date		10	1019		Time: 1350	135	0
Client: S	Swan Creek	sek					O	Common Name:	n Nam	ie:	Fat	Fathead minnow	vonnin	Λ		Н	Ending Date:	Date:	_	1112712	121		Time: 1387	138	_
QC Test Number:	Circ.	TN-21-745	45			1	Š	Scientific Name:	c Nam	je:	P. 1	P. promelas	as			ĺ	b H	TEST TYPE)F./	Static	1	Flour	Flourthrough		
Test Material: ELUTRIATE	UTRIA	TE				1	TARG	TARGET VALUES	ALUE	S						î		•	/\	Renewal		Non-r	Non-renewal	4	
Accession Number:	ımber:	A	AT1-858	8		Ĭ	Ĭ	Temp: 25±1	25-	±1	S		ö	DO: >4.0		4	mg/L	E	Test Confamer.	/amer		I-I BI	1-I REAVED		
Dilution Water:		Mod Hard				1	pH:	T: 6	0.6 - 0.9	0	1	Sa	linity:	Salinity: 0	61	tad) jo =	į [<u>.</u>	Test Volume.	me.		350	250 ml		
Accession Number:	ii.		LD1-	101-185		ĺ	PI	otope	riod:	Photoperiod: 161,8d	p	Li	ght In	Light Intensity: 50 - 100 fc	. 50 -	100 fc		Te	Test Duration:	ation:		96 hours	S		
			Live	Number of Live Organisms	r of nisms			Tem	Temperature (°C)	ıre				Ha			Dis	Dissolved Oxygen	Oxyge	ц		-		ò	
Concentration	Rep	0	24	48	72	96	0	24		72	96	0	24		72	96	0 2	24 48	72	96	0	24	24 48 72	72	96
12.5%	А	10	QJ	QI	10	01	34.0	CA	97			×.		7.4		1	17	9			300		500		
	В	10	0	0)	10	01												0			3		=		
	υ	10	0)	0	2	5																			THE
	D	10	2	10	0)	0]												-						t	W.
	Ε	10	0	0)	0/	3					-								-						
												1					-								
25%	A	10	10	0)	2	2	34.0	(1)	5		4	8.0		プイ		1	2.9	9.0			in/i		Ç		
	В	10	Q	9	0)	2															5		7		
	C	10	8	9	0	6																			
	D	10	(0)	(0)	0)	0												-							
	Э	10	0	Ql	10	R				7															

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 Magna/pulex: 2021.0

Fathead: 2000.0 X Trout: 2019.0

Americamysis: 2007. Cyprinodon: 2004.0

Menidia:2006.0 OTHER:

Project Number:			70015	70019.TOX			TEST ORGANISM	ORGA	NISM							Be	ginning	Beginning Date: 11103101	1	108	10	I	Time: 1350	135	0
Client: Sw	Swan Creek	3k				1	ŭ	Common Name:	Name	*	Fathe	Fathead minnow	mouu			En	ding L	Ending Date:	=	11127121	7	1	Time: 1351	1381	
QC Test Number:		TN-21-745	5				Sc	Scientific Name:	Name	85	P. pr	P. promelas	S				TES	TEST TYPE: (Static	1	Flowt	Flowthrough		
Test Material: ELUTRIATE	UTRIA	IE					TARGET VALUES	ETVA	LUES										Mal Market	Renewal	I	Non-renewal	newal		
Accession Number:	mber:	A	AT1-858			1	Te	Temp:	25±1	-	o,C	DO	DO: >4.0	>4.0		mg/L		Test Container:	ntaine			-L BE	1-L BEAKER		
Dilution Water:	Mod	Mod Hard				Ĭ	pE	pH: 6.0 - 9.0	0-9.0		Î	Sal	Salinity: 0	0		ppt		Te	Test Volume:	ime:		250	250 ml		
Accession Number:	mber:	Г	LD1-	286		1	Ph	otoper	iod: 1	Photoperiod: 16 l, 8 d		Light I	Light Intensity: 50 - 100 fc	ty: 50	- 100 f	,o	Test I	Test Duration:	- :u		96	96 hours			Ī
			N. Live	Number of Live Organisms	of isms			Tem	Temperature (°C)	e			ď	Hd			Dis	Dissolved Oxygen (mg/L)	Oxyge L)	п	Ŭ	onduct	Conductivity (uS/cm)	. IS/cm	
Concentration	Rep	0	24	48	72	96	0	24	48	72 9	96	0 2	24 4		72 9	96	0 24		72	96	0	24	48	72	96
20%	A	10	10	0	0	2	040	(7	かる		1	62	(P/C		c×	3.0	25		Ш	588	I	384		
	В	10	01	0	2	2														Ц					
	C	10	10	10	0!	07															117,				
	D	10	[O	01	10	2		Ŧ	7														i		
	П	10	<u>O</u>	0	0	3																			
100%	A	10	0	2	0.	10	1.12	6	ナデス		r	13	7	+		8-0	0	1			thy		853		
	В	10	0)	0	0	2	,																		
	С	10	(0)	Q	01	6																			
	D	10	(0)	9	01	6			1																
	H	10	(0	2	io	ાં																	1		

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 Magna/pulex: 2021.0

Fathead: 2000.0 X Trout: 2019.0

Americamysis: 2007. Cyprinodon: 2004.0

Menidia:2006.0 OTHER:



TOXICOLOGY LABORATORY BENCH SHEET

Project Number:70	0019.TOX		
Client: Swan Cree	ek		
QC Test Number:	TN-21-745		
Date/Time/Initials		Comments/Activity	



TOXICOLOGY LABORATORY BENCH SHEET - TESTING LOCATION

Day	Testing Location	Date	Time	Initials
0	146	11123/21	1005	14 5C
1	14C	11/24/21	1411	54
2		1/25/1		(A)
3	14C	11/24/21	1035	~
4	140	11127121	1357 1035 1355	9
5			"	
6				
7				
8			_	
9				
10			""	
11				
12				
13				
14				
15				
16				
17				
18	·			
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				



TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number: 70019.TOX
Client: Swan Creek
QC Test Number: TN-21-745
Correction Explanations
(a) Technician Error-Mathematical
(b) Technician Error-Manual Data Recording
(c) Technician Error-Head Count Observation
(d) Technician Error-Overwrite
(e) Technician Error-Missing Data
(f) Technician Error-Lost Organism
(g) Technician Error-Transcription Error
(h) Technician Error-Other:
(i) Meter Malfunction



TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-746	
TEST ORGAN	ISMINFORMATION
Common Name: Fathead minnow	Adults Isolated (Time, Date):
Scientific Name: P. promelas	Neonates Pulled & Fed (Time, Date):
Lot Number: FH - SQU	Acclimation: LQU HOVIS Age: 2 DOGS
Source:ABS	Culture Water (T/S): Sq. 8 °C 0 ppt

<u> </u>		TEST INITIA	IION	CON	CENTRATION SERIE	S
<u>Date</u> 1123121	<u>Time</u> 0908	<u>Initials</u> W	<u>Activity</u>	Test Concentration Control	Volume <u>Test Material</u> 0 ml	Final <u>Volume</u> 1250 ml
,		0	Dilutions Made	6.25% 12.5%	78.125 ml	
	0933 1417	AL	Test Vessels Filled	25%	312.5 ml	
	1411	36	Organisms Transferred	50% 100%	625 ml 1250 ml	
\mathcal{V}_{\cdot}	1419	AY	Head Counts			i

(49.0) ///	DILU	JTION PREF	NTERMEDIA PARATION	TE DILUTION I	ŘEPAR.	ATION AND FEEL		
Day 0 1 2 3 4 5 6	Date 11/23/21 [1]25/21	Time 0908	Initials P	Sample / <u>Diluent</u> <u>A71-859</u> <u>UD1-787</u> <u>A71-859</u> <u>UD1-759</u>	Food: A Day 0 1 2 3 4 5	Time, Initials, Amount OSCIPT 3 drops OSCILATO 3 drops O740 3 drops O307 7 3 drops	FEEDING Time, Initials, Amount	Time, Initials, Amount 16/147 3 drops 14343 3 drops 173047 3 drops 170047 3 drops 3 drops

ACUTE TOXICITY TEST DATA SHEET - OLD SOLUTIONS

Cueint. Swan Creek					1 me: 1 / /
	reek	Common Name: Fathe	Fathead minnow	Ending Date: 11/27/21	Time: 1453
QC Test Number:	TN-21-746	Scientific Name: P. pr	P. promelas	TEST TYPE: Static	Flourthrough
Test Material:	ELUTRIATE			Renewall	Non-renewal
Accession Number:	:: AT1-859	Temp: 25±1 °C	DO: >4.0		1 I Rester
Dilution Water:	Mod Hard	pH: 6.0 - 9.0			1 L DCanci
Accession Number:	: LD1-787	d	ensity: 50 - 100 i	i.	250 ml
	Number of Live Organisms		Hď		Conductivity (µS/cm)
Concentration Rep	p 0 24 48 72 96	0 24 48 72 96	0 24 48 72 96	0 24 48 72 96 0	24 48 72 96
Control		250 The 24-7 W.C 022	77 77 7.7 7.6 8.1	6.3 4.7 20 8.6	340 345 1.11 355
6.25%		1.45 24.7 t.4C 0.50	7.67.6 7.6 8.1	7.0 6.8 2.0 8.0	578 383 377 382
12.5%		25.0 245 24.5 24.2	7,67.6 7.6 80	7.0 Co.7 7.0 7.0	416 419 71 41S
25%		12.1 24.5 24.c 244	7.6 7.6 2. 86	7.1 6.8 7.1 76	482 484 455 476
20%		25.1 245 14.4 243	7.5 7,5 7.5 7.9	42 ct 0.7 2.7	629 (37 627
100%		25.1 24.6 27.4 24.3	7.6 7.5 75 7.8	6,667.79	788 864 869 865
Meter Number		(640 (49) 661 (68)	1867 123 1201 189	(8) (8)	191 191 191
Time		4101	417 LESI	500 100 100 CES	120 00
Initials		MT UPS 1 - TM	1	7 1 8	1 3

Project Number:			7001	X019.TOX	X		TE	TEST ORGANISM	GANI	SM							Regin	Ting T	Jate.	1	22	2	F	17/	117	1
Client: Sv	Swan Creek	ek						Comr	Common Name:	ıme:	14	Fathead minnow	1 minn	MC			Fndin	Fnding Date:		Ending Date: 1112 7121	7/2	5 _	7 F	T. T.	1453	
QC Test Number:	4	TN-21-746	46					Scien	Scientific Name:	me:	I	P. promelas	relas					TEST	TEST TVPE.		1	6	7 4 1 5	me:	3	
Test Material: ELUTRIATE	UTRIA	TE					TAI	TARGET	VALUES	ES						1		1571	7117		Ponoural	+ -	Flowthrough	Flowthrough		
Accession Number:	mber:	A	AT1-859	6				Temp:		25±1	o o	ွ	DO:	>4.0	0		mo/L		Teet	Test Container	Dor.		1 r Draven	lewal Trrn		
Dilution Water:		Mod Hard						.Hu	0 9	0 0			Colinit	1			19.			Collian	101.	<u>-</u>	LBEA	INEK		1
Accession Number:	mber:		LD1-	787				Photo	Photoperiod: 161,8d	161,	8 4		Light J	Light Intensity: 50 - 100 fc	ty: 50	. 100 f	ıdd-		Test	Test Volume:		90	250 ml	E I		1
			Live	Number of Live Organisms	r of			T	Temperature	ıtıre				F			17	Dissol	Dissolved Oxygen	tygen			CHIO		Ш	
Concentration	Rep	0	24	48	72	96	0 9	24		72	96	0	24	48	72	96	0	24	(mg/L)	72	96	S C	nducti 24	Conductivity (µS/cm)	(S/cm)	96
CONTROL	A	10	2	0)	5	10	Sho	Q	CKC			8.1		75			80		7			5	7.		1	2
	В	10	9	5	3	0						9					0-0				(o	700	3	R	i	
	C	10	10	(0)	5	5	0																	Ť		
	D	10	10	Q	0	0.1	^																			1
	H	10	4.19	9	0	0																				
																									r	
6.25%	A	10	P	00	30	8	343	50	D K			X		2			JX		-			200	1/4	×		
	В	10	01	0	2	3						9		2			5		3		10	200)	-		
	C	10	0)	0	5	Q											F									
	D	10	0)	0(2	0																				
	E	10	e	0	2	2																				
Meter Number							(80)		180			181		1.00			120				1.0) (1	1	t	
Time		bib!	IUL	1426 1510	1317	53		0	55			£36		15.15			Marson.	1,2	8 0		9 6	100	5 6	3 3		
Initials		N.	OF TW	2	1	4	₹		8			3		3			*		100		0	Z Z		CFC 4	1	
			1									57		2			101.		1	1		A	7	25		

(2/h2/11 JM(a)

EPA Test Method: EPA 821-R-02-012 (CHECK ONE) Ceriodaphnia: 2002.0 Magna/pulex: 2021.0

Fathead: 2000.0 X Trout: 2019.0

Americamysis: 2007. Cyprinodon: 2004.0

Menidia:2006.0 OTHER:

Project Number:		70019.TOX	TEST ORGANISM		Reginging Dates 111 22 121	0100111	
Client: Swa	Swan Creek		Common Name:	Fathead minnow	Ending Date:	121/2111	Time: 1453
QC Test Number:		TN-21-746		P. promelas	TEST TVPR	Statio	Flourthrough
Test Material: ELUTRIATE	TRIA		TARGET VALUES		У	Renewal	Non-renewal
Accession Number:	nber:	AT1-859	Temp: 25±1	°C DO: >4.0	mg/L Test Co		1-I BEAKER
Dilution Water:	Mod Hard	Hard	pH: 6.0 - 9.0	Salinity: 0			250 ml
Accession Number:		LDI-187	Photoperiod: 16 <i>l</i> , 8 <i>d</i>	Light Intensity: 50 - 100 fc			96 hours
		Number of Live Organisms	Temperature (°C)	Hd	Dissolved Oxygen (mg/L)	gen	Conductivity (118/cm)
Concentration	Don	70 01 00	0, 00		(10)		Conductivity (p.5/CIII)

			Live	Number of Live Organisms	er of unisms			Τέ	Temperature (°C)	ature				Ha				Diss	Dissolved Oxygen	Oxyge	n		oo	(me / S m) management of the control	70
Concentration	Rep	0	24	48	72	96	0	24	48	72	96	0	24	-	72	96 7	0	24		48 72	96	0	24	48	72
12.5%	A	10	0	9	3	9	30.3		0			8.15		2			Ü,		66			300		S S	7
	В	10	2	Q	. 2	5													5			200		8	
	C	10	2	2	2	3																			
	D	10	9	0	2	3																			
	E	10	0	0	-	2												-							
																	V								T
25%	A	10	2	2	5	0	34.3		0,40			8.0		73			8 6	-0	000			CIII		2	
	В	10	9	٥	2	0)											2		3			122		2	
	C	10	2	9	2	0																			
	D	10	2	6	5	0																	Ī		
	E	10	2	0	2	9																			
																	-							Ì	

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 Magna/pulex: 2021.0

Fathead: 2000.0 X Trout: 2019.0

Americamysis: 2007. Cyprinodon: 2004.0

Menidia:2006.0 OTHER:

Common Name: Fathead minnow Common Name: Fathead minnow	Project Number:			7001	70019.TOX	7		TES	TEST ORGANISM	BANI	SM							Begi	nning	Date:		113	3 0	1	Beginning Date: 1417	417
TN-21-746 Scientific Name: P. prome as	Cree	¥						Comm	ion Na	ıme:	Н	athead	1 minr	MOI			End	Ending Date:	te:		11127121	1/2		Time. 1453	153	
TARGET VALUES TARGET VALUES Temps: 25±1 °C DO: >4.0	QC Test Number:		-21-74	16			1		Scient	ific N	ame:	I	P. pron	relas					TEST	TEST TYPE	1	Static	>	Flowth	Flowthrough	
Mod Hard Mod Hard	Test Material: ELUT	RIAT	Œ				1	TAR	GEL	VALL	IES										X	Renewal	X	Non-renewal	newal	
Mod Hard Mod Hard PH: 6.0 - 9.0 Salinity: O	Accession Numb	er:	A	T1-85	6		I		Temp:		;5±1	0		DO:	7	1.0		mg/L		Test Container:	tainer	 	1	1-L BEAKER	AKER	
Number: LD1- 787 Photoperiod: 161,8 d Light Intensity: 50 - 100		Mod	Hard					_		- 0.9	9.0			Salini	ty:	0		ppt		Test	Test Volume:	ne:		250 ml	m	
Number of Live Organisms	Accession Numb	er:	T	D1-	787			_	Photop	eriod	161	,8 d	Lig	sht Int	ensity:	50 - 1	00 fc		est Du	Test Duration;			96	96 hours		
Rep 0 24 48 72 96 0 24 48 72 96 0 24 48 72 96 0 24 48 72 96 0 24 48 72 96 0 24 48 72 A 10				Live	fumber Organ	of nisms			Te	(°C)	ature				На				Disso	Dissolved Oxygen)xyger		5	tother	(mol Out of initial Come)	(000)
A 10 (b (c) 10 34,2 35,1 7,9 B 10 (c) 10 10 10 40 C 10 (b, 10 10 10 D 10 q q q q q q q q q q q q q q q q q q		Rep	0	24	48	72	96		24	48			_	24	48	72	96	0	24	48	72	96	0	24	48 72	2 96
B 10 (6 (0 10 10 10 C) C 10 (6 (0 10 10 10 C) D 10 q q q q q q E 10 (6 (0 10 10 Q) A 10 (0 10 10 Q) C 10 (0 10 10 7 E 10 (0 10 10 7 E 10 (0 10 10 10 7 E 10 (0 10 10 10 7	20%	A	10	9	9	2	5	34.2		8			79		23			8		000			47		ه اده)	
C 10 16 10 10 10 10 10 10 10 10 10 10 10 10 10		В	10	9	2		0											2		5			2		*	
D 10 q q q q q q q q q q q q q q q q q q		C	10	3	Q	0	01																			
E 10 (6 10 10 10 10 10 10 10 10 10 10 10 10 10		D	10	0	5	5	0																			
A 10 (0 10 10 9 343 355 177 C 10 (0 10 10 7 P 10 10 10 10 7 P 10 10 10 10 10 10 10 10 10 10 10 10 10		Ξ	10	2	0	2	3																Ī			
A 10 (0 10 10 9 34.3 35.5 1.7 C 10 10 10 10 10 10 10 7 C 10 10 10 10 7 C 10 10 10 10 10 10 10 10 10 10 10 10 10																										
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10 (0 (0 10 10 10 10 10 10 10 10 10 10 10 10 10		Ü	10	0	10	2	1																Ī			
10 (0 (0 10		D	10	0	(0)	0)	6																			
		ш	10	0)	9	2	5																			
					- 1																					

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0_ Magna/pulex: 2021.0_

Fathead: 2000.0 X Trout: 2019.0

Americamysis: 2007. Cyprinodon: 2004.0

Menidia:2006.0 OTHER:



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-746	
Date/Time/Initials	Comments/Activity



TOXICOLOGY LABORATORY BENCH SHEET - TESTING LOCATION

Project Number	er:70019.TOX
Client:	Swan Creek
QC Test Numb	per:TN-21-746

Day	Testing Location	Date	Time	Initials
0	17	M/28/12/	0933	gy
1	17	16 Del Ju		(A)
2	17	แอรอ	1534	UAD LAND
3	17		1012	/sc
4	17	11/20/21	1524 1524 1617 1800	~
5				
6		_		
7				
8				
9				<u> </u>
10				
11			_	
12				
13				
14			_	
15			-	
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20				
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24				=
25				
26				
27				
28				
29				
30				



TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number:70019.TOX
Client: Swan Creek
QC Test Number: TN-21-746
Correction Explanations
(a) Technician Error-Mathematical
(b) Technician Error-Manual Data Recording
(c) Technician Error-Head Count Observation
(d) Technician Error-Overwrite
(e) Technician Error-Missing Data
(f) Technician Error-Lost Organism
(g) Technician Error-Transcription Error
(h) Technician Error-Other:
(i) Meter Malfunction



TOXICITY TEST SET-UP BENCH SHEET

Project Number:70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-747	
TES	T ORGANISM INFORMATION
Common Name: Fathead minnow	Adults Isolated (Time, Date):
Scientific Name: P. promelas	Neonates Pulled & Fed (Time, Date):
Lot Number: FH-566	Acclimation: <u>LZ4h</u> Age: <u>Zdaus</u>
Source: ABS	Culture Water (T/S):

	, , , , , , , , , , , , , , , , , , ,	TEST INITLAT	ION	CON	CENTRATION SERIE	S
Date 1123121	Time O9OV	Initials	Activity	Test Concentration Control	Volume <u>Test Material</u> 0 ml	Final <u>Volume</u> 1250 ml
·			Dilutions Made	6.25% 12.5%	78.125 ml 156.25 ml	
Shared special states of the s	6923	Alf	Test Vessels Filled	25% 50%	312.5 ml 625 ml	
	1342	3 L	Organisms Transferred	100%	1250 ml	↓
Y	1413	AY	Head Counts			

			TERMEDIA PARATION	TE DILUTION P	REPARA	ATION AND FEED	ING FEEDING	
<u>Day</u> 0	<u>Date</u> 1/23/2	<u>Time</u> 09 <i>5</i> 0	<u>Initials</u> G	Sample / Diluent ATi -#6	Food: A	I <i>rtemia</i> Time, Initials, Amount	Time, Initials, Amount	Time, Initials, Amount (I MT) 3 drops
1 2	แปรมา	1241	lto	A71-860	2	0628M7 3 drops 0900 (AD 3 drops		3 drops 173070 3 drops
3	(1,05,05)	100 (3	3 drops 0 20 7 70 3 drops		3 drops
5					5	<i>5</i> 4.0po		

ATS-T2 06/21/06

fic Name: Fathead minnow fic Name: P. promelas 25±1 °C DO: >4.0 6.0 - 9.0 Salinity: 0 16.1.8 d Light Intensity: 50 - 100 f appearature (°C) 34,0 24.0 24.0 7.4 7.8 7.7 7.8 34,2 24.1 24.1 7.4 7.8 2.7 78 34,2 24.1 24.1 7.4 7.8 2.7 7.8 34,2 24.2 24.4 7.4 7.8 2.7 7.7 34,2 24.2 24.4 7.4 7.6 7.7 7.7 7.7 34,2 24.2 24.4 7.4 7.6 7.7 7.7 34,2 24.2 24.4 7.4 7.6 7.7 7.7 34,2 24.2 24.4 7.4 7.6 7.7 7.7 34,2 24.2 24.4 7.4 7.6 7.7 7.7 34,2 24.2 24.4 7.4 7.6 7.7 7.7 34,2 24.2 24.4 7.4 7.6 7.7 7.7 34,3 24.2 24.4 7.6 7.7 7.7 34,4 24.4 7.6 7.7 7.7 34,5 24.2 24.4 7.7 34,7 24.4 7.7 34,7 24.4 7.7 34,7 24.4 7.7 34,7 24.4 7.7 34,7 24.4 7.7 34,7 24.4 7.7 34,7 24.4 7.7 34,7 24.4 7.7 34,7 24.4 7.7 34,7 24.4 7.7 34,7 7.	Project Number:		70019.TOX	TEST ORGANISM		Beginning Date:	e: 111,32,121	1 Time: 1342
Scientific Name: P. prometas Naterial: ELUTRIATE TARGET VALUES Accession Number: ATI-860 Temp: 25±1 °C DO: >4.0 Number: Live Organisms Centration Rep 0 24 48 72 96 0 24 48 72 96 Ol		n Creel	K		lead minnow	Ending Date:		
Number: ATI-860 Temp: 25±1 °C DO: >±40 ion Water: Mod Hard Photoperiod: 161.8 d Light Intensity: 0 DO: >±40 Accession Number: Live Organisms Photoperiod: 161.8 d Light Intensity: 50 - 100 Centration Rep 0 24 48 72 96 0 24 48 72 96 ol Photoperiod: 161.8 d 12 48 72 96 0 24 48 72 96 ol Photoperiod: 161.8 d 12 48 72 96 0 24 48 72 96 ol Photoperiod: 161.0 24 48 72 96 0 24 48 72 96 ol Photoperiod: 161.0 24 48 72 96 162.0 24 48 72 96 ol Photoperiod: 162.0 24 48 72 96 162.0 24 48 72 96 ol Photoperiod: 162.0 24 48 72 76 77 77 77 77 77 77	QC Test Number:		TN-21-747		romelas	TEST TYPE:	TE: Static)/	Flowthrongh
Number ATI-860 Temp: 25±1 °C DO: 24.0	Test Material:	П	LUTRIATE	TARGET VALUES			Renewal	Non-renewal
ion Water: Mod Hard Photoperiod: 161.8 d Light Intensity: 50-100 Recession Number: LD1-787 Number of Temperature Courtains Col 1.	Accession Numb	ber: _	AT1-860	25±1		mg/L Te	Test Container:	1 L Beaker
Accession Number: LD1-787 Photoperiod: 161.8 d Light Intensity: 50-100 fc Temperature CC) ALVE 34,0 D4.0 24 48 72 96 O 2	Dilution Water:	Mo	od Hard				Test Volume:	250 ml
Centration Rep 0 24 48 72 96 0 24 48 72 96 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Accession Numb	ber:	LD1-187	Photoperiod: 161,8d	Light Intensity: 50 - 1		Test Duration:	96 hrs
ol M. B. D. C. D. D. C. D. C. D. C. D. C. D. C. D. C. D. C. D. C. D. C. D. C. D. D. C. D.		,		Temperature (°C)		Dissolved Oxygen (mg/L)	1 Oxygen	Conductivity (µS/cm)
6 256 24,0 22,0 23,0 24,0 24,0 7,2 7,4 7,5 7,4 7,5 7,7 7,5 7,7 7,5 7,7 7,5 7,7 7,5 7,7 7,5 7,7 7,7		Кер	24 48	24 48 72 96	24 48 72	96 0 24 48	8 72 96 0	24 48 72 96
66 60 125.0 24,0 24,1 241 7.4 7.8 24,1 2.4 7.8 24,1 2.4 7.8 24,1 2.4 7.4 7.8 24,1 2.4 7.4 7.4 7.8 24,1 2.4 7.4 7.4 7.8 24,1 2.4 7.4 7.4 7.4 7.4 7.4 7.4 7.4 7.4 7.4 7	Control			0. ps 0. pc	4	e'L 8'L 8:	28 rt e	346 351 342 355
66 Ship 241 241 241 74 78 241 241 241 241 241 241 241 241 241 241	6.25%			1.42 CHG	7,8 7,5	8 7.67.3	3 7.5 7.8	36 386 386 385
Number Number	12.5%			12/1 221	78 29	8 7.67.3	3 7.2 7.7	456 435 111 424
15534,3 24.2 24.4 7.4 7.6 7.6 7.6 7.6 7.8 15534,3 24.2 24.4 7.5 7.6 7.6 7.6 7.8 16.5 24.4 7.5 7.6 7.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1	25%			313	1.4	7 737.3	4277	516 517 51, 503
Number (550/13) 1000 041 154/130 1000	20%				7,6 7.1	7 7669	5.6.74	670 008 (11 658
Number (50/18) (50/18) (50/18) (50/18)	100%				76 F.x	7 7.1 6.7	1 6.5 73	959 959 HYPOTP
3001 KE1/1661	Meter Number			129 1801	500	181189	100/ 169	126 1.81 (6)
	Time			1334 1000	3001		200	1
16 - 4 - 3/1 (F)	Initials			(A)	2 F F L		2	3

ACUTE TOXICITY TEST DATA SHEET - OLD SOLUTIONS

Project Number:			7001	XOT.91007	X		TES	TEST ORGANISM	ANIS	M						щ	Beginning Date:	ing De	ite:	111	23/0	_	Tin	.e.	Time: 1342	N
Client: Sv	Swan Creek	sek						Common Name:	on Na	me:	F	Fathead minnow	minno	M		H	Ending Date:	Date:		11127121	11/21		Ti.	je.	310	1
QC Test Number:		TN-21-747	47					Scientific Name:	fic Na	me:	P.	P. promelas	elas) F	ESTI	YPI	S	tatic	_	Flowthrough	— danc		
Test Material: ELUTRIATE	UTRIA	(TE				I	TAR	TARGET V	VALUES	ES									L	Renewal	wal		Non-renewal	wal		
Accession Number:	ımber:		AT1-860	0		ĺ		Temp: 25±1	2	5±1	٥°		:00	DO: >4.0	0	п	mg/L		Test	Test Container:	er:	1-1	1-L BEAKER	KER		
Dilution Water:		Mod Hard						pH:	6.0 - 9.0	0.6	1	0,1	Salinit	Salinity: 0	(d	ppt		Test V	Test Volume:	25		250 ml	-		
Accession Number:	mber:		LD1-	187				Photop	eriod:	Photoperiod: <u>16 l, 8 d</u>	<i>b</i> 8	1	Light I	ntensit	y: 50 -	Light Intensity: 50 - 100 fc			Test I	Test Duration:	:00	96 h	96 hours			1
			Live	Number of ve Organisr	Number of Live Organisms			Te	Temperature (°C)	ture				Ha			D	vissolv	Dissolved Oxygen	ygen	H	5	Conductivity (u.S/cm)	, t	(00)	
Concentration	Rep	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24		72	96	0 0	24 4	48 7	72 96	9
CONTROL	A	10	0	2	5	5	o-he		デる			7.8		8			7.8		0		75	2261	337			
	В	10	0/	0	5	0	10.77														5	7			+	
	C	10	01	2	2	0																				
	D	10	41	0	2	0																				
	H	10	6	5	5	0																				
																							H			
6.25%	A	10	0	0	2	9	J.h.C		3			1.0		0			× ×		0		7	2.5	31.75	7		
	В	10	2	9	σ	0											0		9		7	2)	1		
	C	10	01	9	2	2																		-		
	D	10	0	2	2	Ь																				
	H	10	0	0	2	2																				1
Meter Number							180)		189			180		000			189	3	139		180		8	-	-	
Time		143	-	1 mm	247 CM/ 1282	1310			130			OAK		NA NA			OFILE		- NA		3	ofele	3 5	1/2	H	1
Initials		The state of	8	Class	1	9	35		8			F.		3			The state of the s	2	3		1	to	3	0		
		0								1				1		-	5.	1				5				

16/26/11 OND (3)

Americamysis: 2007. Cyprinodon: 2004.0

Fathead: 2000.0 X Trout: 2019.0

Ceriodaphnia: 2002.0 Magna/pulex: 2021.0

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Menidia:2006.0 OTHER:

Project Number:			7001	70019.TOX	7		TEST	ORG	TEST ORGANISM	×						7	Beginning Date: (1) 23/3	ng Date	in	[]	23/2		Time. 1342	7	2/
Client: Sv	Swan Creek	ek					0	Commo	Common Name:	ne:	Fa	Fathead minnow	ninno	W			Ending Date:	Date:		M	MINN		Time	Time. 1816	0
QC Test Number:		TN-21-747	47				O)	cienti	Scientific Name:	ne:	P.	P. promelas	las				, <u>H</u>	TEST TYPE:	PE:	Static	atic	Flo	Flowthrongh	4	
Test Material: ELUTRIATE	UTRIA	TE					TAR	BET V	TARGET VALUES	S										Renewal	Var.	Non	Non-renewal	al al	
Accession Number:	mber:	A	AT1-860	0		Ī	Г	emp:	Temp: 25±1	Œ.	°		90:	DO: >4.0	_	4	mg/L	Ĥ	Test Container:	ntaine) <u>.</u> .	1-T	1-L BEAKER	, _K	
Dilution Water:		Mod Hard					р	pH:	6.0 - 9.0	0.		S	alinity	Salinity: 0		0	ppt	Ĥ	Test Volume:	lume:		2	250 ml		
Accession Number:	u		LDI- 787	787		1	Д	hotop	Photoperiod: <u>16 <i>l</i>, 8 <i>d</i></u>	161,8	8 9	T	ight Ir	Light Intensity: 50 - 100 fc	y: 50 -	100 fc	1 20	Ī	Test Duration:	ration		96 hours	urs		
			N Live	Number of Live Organisms	r of nisms			Tei	Temperature (°C)	ure	(=			Ha			Di	Dissolved Oxygen	1 Oxyg	cen	-	Cond	Conductivity (1.0/2m)	6/5/1)	7
Concentration	Rep	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24 4	48 72	96 7	-	0 24	48	72	96
12.5%	А	10	10	0	0	9	an-p		N.Co			29		000			N. C.	∞ \/	V		i,		3		
	В	10	22	Õ	2	0											-	i i	,		2		3		
	C	10	01	0	2	0														-					
	D	10	0)	2	01	91																			
	Щ	10	91	9	0	2				1										H					
																				-					
25%	A	10	91	2	9	2	SHIZ		7			1-8		7.9			2.8	Ø.	I		1817	15	1167		
	В	10	10	10	01	0							MI					5	-	-	29		tak		
	С	10	10	Q	2	0)									Ī							-	-		
	D	10	01	01	2	9																-			
	Э	10	2	0)	2	2														-		1			
																						-			

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 Magna/pulex: 2021.0

Fathead: 2000.0 X Trout: 2019.0

Americamysis: 2007. Cyprinodon: 2004.0

Menidia:2006.0 OTHER:

Project Number:	70019.TOX	TEST ORGANISM		Beginning Date: 11/33/21	11 Time: 1342
Client: Swan Creek	K	Common Name: F	Fathead minnow	Ending Date: 1117712)	Time: 1812
QC Test Number: TN-	TN-21-747	Scientific Name: P	P. promelas	TEST TYPE: Static	Static / Flowthrough
Test Material: ELUTRIATE	Ξ	_ TARGET VALUES		Renewal	Non-renewal
Accession Number:	AT1-860	Temp: 25±1 °C	C DO: >4.0	mg/L Test Container:	1-L BEAKER
Dilution Water: Mod Hard	Hard	pH: 6.0 - 9.0	Salinity: 0	ppt Test Volume:	250 ml
Accession Number:	78L -1Q1	Photoperiod: 161,8d	Light Intensity: 50 - 100 fc	Test Duration:	96 hours
	Mimber of	Terratura		Diggs trod Owner	

			N Live	Number of ive Organism	Number of Live Organisms			Teı	Temperature (°C)	ıre				Hd			Ī	Jissoly (I	Dissolved Oxygen (mg/L)	/gen		Con	Conductivity (µS/cm)	ty (µS/	cm)
Concentration	Rep	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0 2	24 48	8 72	96
20%	A	10	9	9	0	0	54.2		34.8			2.8		7.8			8		7.00		9	88	(63)	0	
	В	10	Ĵρ	0	2	0)																			
	C	10	10	0	5	0)																			
	D	10	.0	2	2	0.)															-				
	Э	10	01	0	2	2					П														
																			10-4						
100%	A	10	0	5	6	N	1 mg		24.7			1.7		9			8.1		500		0	937	954	.5	
	В	10	01	5	5	3																			
	C	10	6	1	٦	co																F			
	О	10	0	~	_	n										M.	Ш								
	Е	10	0	9	0	00			Ē																

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 Magna/pulex: 2021.0

Fathead: 2000.0 X Trout: 2019.0

Americamysis: 2007.__Cyprinodon: 2004.0

Menidia:2006.0 OTHER:



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-747	
Date/Time/Initials	Comments/Activity



TOXICOLOGY LABORATORY BENCH SHEET TESTING LOCATION

Project Number:	70019.TOX
Client: Swan Creek	
QC Test Number:TN-21	<u>-747</u>

				1
Day	Testing Location	Date	Time	Initials
0	17	11/23/21	0923	sej
1	17	11/24/21	1341	52
2	17	1472/91	1456	LAD
3	17	11/21/21	1003	7.50
4	17	W127121	1310	P
5				
6				
7				
8		_		
9				
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11		_		
12				_
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_27				
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TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

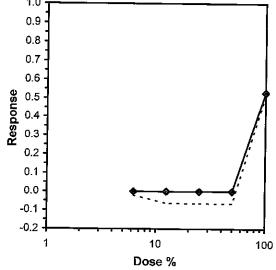
Project Number: 70019.TOX
Client: Swan Creek
QC Test Number: TN-21-747
Correction Explanations
(a) Technician Error-Mathematical
(b) Technician Error-Manual Data Recording
(c) Technician Error-Head Count Observation
(d) Technician Error-Overwrite
(e) Technician Error-Missing Data
(f) Technician Error-Lost Organism
(g) Technician Error-Transcription Error
(h) Technician Error-Other:
(i) Meter Malfunction

				Ā	cute Fish Test-96	Hr Survival	
Start Date: End Date: Sample Date: Comments:	11/23/202 11/27/202	-	Lab ID:	TN-21-747 AT1-860 EPAF 91-I	EPA Freshwater	Sample ID: Sample Type: Test Species:	Swan Creek Elutriate PP-Pimephales promelas
Conc-%	1	2	3	4	5		· · · · · · · · · · · · · · · · · · ·
Control	0.9000	1.0000	0.9000	1.0000	0.9000		
6.25	1.0000	0.9000	1.0000	0.9000	1.0000		
12.5	1.0000	1.0000	1.0000	1.0000	1.0000		
25	1.0000	1.0000	1.0000	1.0000	1.0000		
50	1.0000	1.0000	1.0000	1.0000	1.0000		
100	0.5000	0.3000	0.2000	0.5000	0.8000		

		_	Tr	ansform:	Arcsin So	quare Roo	t	Rank	1-Tailed	Number	Total
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	_ Sum	Critical		Number
Control	0.9400	1.0000	1.3142	1.2490	1.4120	6.792	5			3	50
6.25	0.9600	1.0213	1.3468	1.2490	1.4120	6.628	5	30.00	16.00	2	50 50
12.5	1.0000	1.0638	1.4120	1.4120	1.4120	0.000	5	35.00	16.00	2	
25	1.0000	1.0638	1.4120	1.4120	1.4120	0.000	5	35.00	16.00	0	50
50	1.0000	1.0638	1.4120	1.4120	1.4120	0.000	5	35.00	16.00	0	50
*100	0.4600	0.4894	0.7442	0.4636	1.1071		_			U	50
.00	5.⊸000	0.7034	0.7442	0.4030	1.1077	32.975	5	15.00	16.00	27	50

Auxiliary Tests				-	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates nor	n-normal dis	stribution	(p <= 0.01)		0.82168	0.9		6.17841
Equality of variance cannot be co	nfirmed							0.17011
Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	<u> </u>		**	
Steel's Many-One Rank Test	50	100	70.7107	2		-		

		······································	Trimmed Spearman-Karber	
Trim Level	EC50	95% CL		
0.0%				
5.0%				
10.0%			1.0	
20.0%			1.0	7
Auto-46.9%	96.080	80.755 114.313	0.9 -	
		1111010	—— _{0.8}]	



Reviewed by: <u>JR</u>



TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70019.TOX	<u>. </u>
Client: Swan Creek	# ¹
QC Test Number: TN-21-748	
TEST ORGAN	IISM INFORMATION
Common Name: <u>Fathead minnow</u>	Adults Isolated (Time, Date):
Scientific Name: P. promelas	Neonates Pulled & Fed (Time, Date):
Lot Number: FH 566	Acclimation: <24 hr Age: 2 days
Source: ABS	Culture Water (T/S): 24.1 °C ppt

		TEST INITIA	IION	CON	CENTRATION SERIE	S
<u>Date</u> [1] 231 간]	<u>Time</u> J0Y○	Initials	<u>Activity</u>	Test <u>Concentration</u> Control	Volume <u>Test Material</u> 0 ml	Final <u>Volume</u> 1250 ml
			Dilutions Made	6.25%	78.125 ml	
	1200	TM		12.5%	156.25 ml	
	1500	MI	Test Vessels Filled	25%	312.5 ml	
	1302	Yp		50%	625 ml	
	1000		Organisms Transferred	100%	1250 ml	↓
1	13 SW	AY	Head Counts			

the second	Mary Mary 1		TERMEDIA	ATE DILUTION F	REPAR	ATION AND FEEL	DING	The Margo Cond.
-	DILU	TION PREP	PARATION				FEEDING	
Day 0 1 2 3 4 5 6	Date	Time LOYO	Initials V	Sample / Diluent ATI-861 LDI-788 ATI-861 LDI-788	Food: A Day 0 1 2 3 4 5	Time, Initials, Amount OSLIGHT 3 drops OFFICE 3 drops OFFICE 3 drops OFFICE 3 drops OFFICE 3 drops	Time, Initials, Amount	Time, Initials, Amount 1611/17 3 drops 1442 M7 3 drops 3 drops 2 600 600 3 drops

ACUTE TOXICITY TEST DATA SHEET - OLD SOLUTIONS

Common Name; Eathead minnow Eathea	Project Number:		70019.TOX	XOI.			LEST	TEST ORGANISM	IISM						Begin	uning D	ate:	Beginning Date: 111,035 101	10	Tin	Time: 1303	800
The continue of the continue		an Creel				Ì	ŭ	mmon]	Vame:	H	athead	minno	W		Endi	ng Date.		11271	12	Tin		237
Figure Tremp: 25±1 °C DO: 34.0 mg/L Test Container 1L Beaker 1L Beaker 1 L	QC Test Number:		FN-21-748			1	Sc	ientific	Name:	P	. prom	elas				TEST]	FYPE:	Stati	>	lowthre	qgnc	
Amod Hard Photoperiod: 16.1.8 d C DO: 24.0 mgL Test Container 11.Beater Mod Hard pH: 6.0.90 Salinity: 0 ppt Test Volume: 250 ml Number: LD1-7.85 Test Volume: 250 ml 1 74 kl 1 1 250 ml Rep Live Organisms Temperature pH Test Volume: 250 ml 250 ml Rep 0 24 48 72 96 0 24 48 72 96 0 24 48 72 96 0 24 48 72 96 0 24 48 72 96 0 24 48 72 96 0 24 48 72 96 0 24 48 72 96 0 24 48 72 96 0 24 48 72 96 0 24 48 72 96 0 24 48 72 96 0 24 48 72 96 0 24 48 72 96 0 24 48 72 96 0 24 48 72 96 0 0 0 0 0 0	Test Material:	H	LUTRIAT	ĪП			TARG	ET VAI	UES									Renewa	_	lon-rene	wal	
Mod Hard pH: 6.0-9.0 Salinity: 0 ppt Test Volume: 250 ml Aumber: LD1-7.88 Photoperiod: 16.4.8 d Light Intensity: 30 - 100 fc Test Duration: 96 fns Rep Live Organisms COA 1 48 72 96 24 48 72 Rep Live Organisms PH	Accession Nu	mber:	AT1-8	61			Te	mp:	25±1	0		DO: _	X	4.0	mg/L		Test Co	intainer:		1LB	eaker	
The period 16 L & decision Number of Temperature Conductivity (InStantation Rep 0 24 48 72 96	Dilution Water:	Me	d Hard			ĺ	pF	I: 6.0	- 9.0			Salinity		0	_ppt		Test Vo	olume:		250 n	10	
Number of Temperature PH PH PH PH PH PH PH P	Accession Nu	mber:	LD1-	188		ĺ	PL	otoperic	d: 16	1,84		Light I1	ntensity	7: 50 - 100	o <u>J</u> [c		Test Du	rration:	1	96 hrs	10	
Author Rep			Liv	Numbe ve Orga	r of nisms			Temp (°	erature C)				Hd			Dissolv (n	red Oxy	gen	ပိ	nductiv	ity (µS	(mo/s
4, 15, 24, 24, 24, 24, 24, 24, 24, 24, 24, 24	Concentration	Rep		1 48	72	96	0	_				24	48				1		0			
477 4 7.9 5.2 8.2 8.2 7.27.3 3.7 81 868 403 344 34.6 7.4 7.9 5.28.1 7.3 7.3 7.3 7.3 7.3 7.3 7.3 7.3 7.3 7.3	Control							-	13 24.	4 240					2				1,7,9	1.00		
1251 247 247 274 7.9 8-28-11 7.3 7-3 7-17 7-8 268 402 402 402 253 24-21-14-15-14-16 7.4 7.8 7-6.17-17 7-17 7-17 7-17 7-17-17-17-17-17-17-17-17-17-17-17-17-17	6.25%							M.53	.324.	1 24.6		2.3		5.8 5.3		7.2	7.3 7		42			
1553 243 141, 241 7.4 7.8 7.6 8.1 7.4 7.1 7.1 7.5 445 446 471 605 7.2 7.4 7.1 7.1 7.1 8.0 6.8 7.0 7.1 7.4 645 602 602 602 7.2 7.1 7.4 645 7.2 7.1 7.4 645 7.2 7.1 7.4 645 7.2 7.1 7.4 645 7.2 7.1 7.4 645 7.2 7.1 7.4 645 7.2 7.1 7.4 645 7.2 7.1 7.4 645 7.2 7.1 7.4 645 7.2 7.1 7.4 645 7.2 7.1 7.4 645 7.2 7.1 7.4 645 7.2 7.1 7.4 645 7.2 7.1 7.4 645 7.2 7.1 7.4 7.4 7.4 7.4 7.5 7.5 7.0 7.0 7.1 7.3 8237 8.1 7.1 7.1 7.1 7.1 7.1 7.1 7.1 7.1 7.1 7	12.5%								327	3.24.0				8.08.1		1 1		7 7.8	,13			
Taylog 72, 24, 27, 17, 17, 18, 18, 18, 17, 17, 17, 18, 18, 18, 18, 18, 18, 18, 18, 18, 18	25%								77					7.68.1							47	
TELLING 271, 281, 4 74 7.7 7.7 7.5 7.0 4.0 7.3 82837 861, 861 621 681 621 681 681 681 681 681 681 681 681 681 68	20%									343		4.5		7.68.6		é	7.07		- \$	367	09 60	3
The contract of the contract o	100%							75134		7 24.4		۲ï	10-5	b. t. t				7.3	3	22	37 81	1000
1317 1317 1012 0955 1317 1012 0955 1317 1012 0955 1317 1012 1015 1015 1015 1015 1015 1015 1015	Meter Number													121 (88)		186)			0			1 - V
50 m - 20	Time							-	101 101	2005		1317	FIG	200 2101	\ <u>\</u>	1317	317 10	12 6955		317131		
	Initials								_	1		2	CHO	1		3	3	7	43			

6)3L 142H21

Project Number:			7001	XOT.91007	1.2		TEST	ORGA	TEST ORGANISM							Begi	guiun	Date:	Beginning Date: 11103 3	801		Tir	Time: 1809	300
Client: Sv	Swan Creek	ek				1	ŭ	ommo	Common Name:	**	Fathe	Fathead minnow	мопп			Endi	Ending Date:	ë.	1112	11127/21		Tir	Time: 1237	137
QC Test Number:		TN-21-748	18				Sc	ientifi	Scientific Name:	65	P. pr	P. promelas	S				TEST	TEST TYPE:		Static	E	Flowthrough	ygno	
Test Material: ELUTRIATE	UTRIA	TE					TARG	ET V	TARGET VALUES	44										Renewal	Ž \	Non-renewal	swal	
Accession Number:	mber:	A	AT1-861	1		1	Te	Temp:	25±1	_	S	DO:		>4.0		_mg/L		Test	Test Container:	ner:	Ξ	1-L BEAKER	KER	
Dilution Water:	Mod	Mod Hard					Id	pH: _6	0.6 - 0.9		Í	Sali	Salinity:	0		ppt		Test	Test Volume:	e:		250 ml	la	
Accession Number:	ımber:		LD1.	788		1	P	otopei	iod: 1	Photoperiod: 16 <i>l</i> , 8 <i>d</i>	1	Ligl	Light Intensity: 50 - 100 fc	ısity:	0 - 10	o J C		Test	Test Duration:	ion:	196	96 hours		
			Live	Number of Live Organisms	of nisms			Tem	Temperature (°C)	<u>5</u>			Hd	F			Disso	lved Oy (mg/L)	Dissolved Oxygen (mg/L)		Cor	ıductiv	Conductivity (µS/cm)	(cm)
Concentration	Rep	0	24	48	72	96	0	24		72 5	96	0 2	24 48	8 72	96 7	0	24		72	96	0	24	48 7	72 96
CONTROL	A	10	2	0	2	10	0HD		35,0		7	7.0	7.9	5		6		ر هن			300	c	335	
	В	10	91	6	01	jo																Ħ		
	U	10	2	0)	2	10																		
	D	10	2	0	21	10																		
	E	10	9	0	13	ίÒ																		
													-							61	381			
6.25%	A	10	2	2	2	0)	0.M	-13	35.0		7	7.0	7.9	1	-	9,1		8.4			2	4)	380	
	В	10	9	0	0	2																		
	C	10	2	0	2	(0	Ħ				H							F						
	D	10	9	9	51	10																		
	щ	10	B	10	2	0)						H												
Meter Number			ph El				99		(89)		9	989	(88)	31		88	^) 8m		2)	0%	ع	187	
Time		1351	1356 HATHA133	41333	122	1337	III		HC		17	7	HIM	7		TUN		1314			(11)	CO	Hel	
Initials		\$10	B IN CA	8	ł	4	S		rup (B	۲	(A)	2		4		8		1-	35	5	OF.	
			(G)	(6)MT 11/024/17	12/			K												17/82/11	1/23	(5)		
																				0	200			

Fathead: 2000.0 X Trout: 2019.0 EPA Test Method: EPA 821-R-02-012 (CHECK ONE) Ceriodaphnia: 2002.0 Magna/pulex: 2021.0

Americamysis: 2007. Cyprinodon: 2004.0

Menidia:2006.0 OTHER:

Project Number:			70019.TOX	XOT.		Ī	TEST ORGANISM	ORGA	NISM							Be	ginnin	g Date	Beginning Date: 11 03 01	133	10	Ī	Time: 1308	087	0
Client: Sw	Swan Creek	sk				ĵ	ပိ	mmor	Common Name:	45	Fath	ead m	Fathead minnow			En	Ending Date:	Jate:	Ξ	1127121	-1	ı	Time:	1431	
QC Test Number:		TN-21-748	8			Î	Sci	entifi	Scientific Name:	ë	P. p.	P. promelas	S				TE	TEST TYPE:	PE:	Static	iii	Flow	Flowthrough		
Test Material: ELUTRIATE	UTRIA	TE				_	TARGET VALUES	ET VA	TUE	7.0										Renewal		Non-1	Non-renewal		
Accession Number:	mber:		AT1-861		H	i	Te	Temp:	25±1	-	o	D	DO:	>4.0		mg/L	T	T	Test Container:	tainer		1-T B	1-L BEAKER		1
Dilution Water:		Mod Hard					pH:	- 1	0.6 - 0.9		Ť	Sa	Salinity:	0		ppt		H	Test Volume:	nme:		25	250 ml		
Accession Number:			LD1- 188	188		T	Ph	otopei	riod: 1	Photoperiod: 16 <i>l</i> , 8 <i>d</i>	7	Lig	Light Intensity: 50 - 100 fc	ensity:	50 - 10)0 fc		T	Test Duration:	ation:		96 hours	S		-11
			ž	Number of	Jo			Tem	emperature	re	-						Dis	solve	Dissolved Oxygen	en	_				
			Live	Live Organisms	isms				(oc)				Ĭ	pH				(mg/L)	(T)			Condu	Conductivity (µS/cm)	uS/cm	
Concentration	Rep		0 24 48 72	48	72	96	0 24	5.5	48	72	96	0 24	_	48	72 5	96	0 2	4 4	24 48 72	96	-	24	0 24 48	72	96
12.5%	A	10		01 01 01 01	01	0	SHO	- 13	5-12		1	9.	7	8,0		6		83	3		388	~	390		
	В	10	4	(2)		to							Ī			i									

			Live	Number of Live Organisms	of			Ter	Temperature (°C)	ure				Hd				Dissol)	Dissolved Oxygen (mg/L)	tygen		Co	nductiv	Conductivity (µS/cm)	(cm)
Concentration	Rep	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24 48	48 7	72 96
12.5%	A	10	2	0	0	01	OND		32.9			7.6		2,8			=		83			368	Ö	390	
	В	10	9	2	0	(0																			
	C	10	9	2	51	01									H										
	D	10	2	0	2	01																			
	E	10	2	0	2	01																		7	
										Ī															
25%	A	10	9	0	3	2	SH.O		34.8			75		2.6			4		8.3			45%	5	453	
	В	10	9	0	01	01			I																
	O	10	9	Q	2	0)																	1		
	D	10	01	9	110	0														Ī					
	Э	10	2	0	2	9																			
			1																	Ī					

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 Magna/pulex: 2021.0

Fathead: 2000.0 X Trout: 2019.0

Americamysis: 2007._ Cyprinodon: 2004.0

Menidia:2006.0 OTHER:

Project Number:			7001	70019.TOX			TEST ORGANISM	JRGA	NISM							Be	ginning	Beginning Date: 11/03/01	1	103	10	T	Time:	1300	
Client: Sw	Swan Creek	sk k				Î	ŏ	Common Name:	Name	*	Fath	ead mi	Fathead minnow			E	Ending Date:	ate:	_	11/27/21	2	T	Time: 1,337	337	
QC Test Number:		TN-21-748	81				Sc	Scientific Name:	Nam	65	P. pi	P. promelas	Si				TES	TEST TYPE:	Ë	Static	9	Flowthrough	rough		
Test Material: ELUTRIATE	UTRIA	TE				I	TARGET VALUES	ET VA	TUES										A	Renewal	1	Non-renewal	newal		
Accession Number:	mber:		AT1-861		13	1	Te	Temp:	25±1	1	o°	DO	DO: >4.0	>4.0		mg/L		Test Container:	ntaine	u		1-L BEAKER	AKER		- 11
Dilution Water:	- 1	Mod Hard				í	pH:		0.6 - 0.9		i	Sal	Salinity: 0	0		ppt		Te	Test Volume:	me:		250 ml	ml		
Accession Number:	mber:	L	LD1-	788		Ť	Ph	Photoperiod: 16 l, 8 d	iod: 1	61,80		Light	Light Intensity: 50 - 100 fc	ty: 50	100	,o	Test 1	Test Duration:	::		6	96 hours	1		- 71
			N Live	Number of Live Organisms	of isms			Tem (Temperature (°C)	e e			φ.	Hd			Dis	Dissolved Oxygen (mg/L)	Oxyge L)	п	0	onduct	Conductivity (µS/cm)	S/cm)	
Concentration	Rep	0		48	72	96	0	24	48	72	96	0	24 4	48 7	72 9	96	0 24	48	72	96	0	24 48	48	72 9	96
20%	A	10	9)	0	2	10	AD	10	34,7		J	75		11		89	0.	83	~		8	12	573		
	В	10	9	2	10	0					F														
	Ö	10	2	0)	10	0]																			
	Д	10	9	0	2	0)																			
	E	10	9	(0)	5	2																			
		Ш													Ħ									Ħ	
100%	A	10	0)	0	10	10	94.0	(7)	さる		7	hi.	1	-		B	8.9	8.3			913		85		
	В	10	9	5	9	9								T											
	C	10	0)	2	10	10		1									-								
	D	10	2	0	01 0	10									H										

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

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Ceriodaphnia: 2002.0 Magna/pulex: 2021.0

Fathead: 2000.0 X Trout: 2019.0

Americamysis: 2007. Cyprinodon: 2004.0

Menidia:2006.0 OTHER:



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-748	
Date/Time/Initials	Comments/Activity



TOXICOLOGY LABORATORY BENCH SHEET - TESTING LOCATION

Project Number:	70019.TOX
Client: Swan Cree	ζ
QC Test Number:TN	21-748

Day	Testing Location	Date	Time	Initials
0	142	1123121	1358	Alg
1	14A	11/24/21	1358 1349	MT
2	14A	เปลรโลเ	633	uno
3	144	11/26/4	1012	
4	144	11127121	1240	Sp
5				
6	"			
7				
8				
9				
10				
11				
12				
13				
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19		!		1
20				
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22				
23				
24				
25				
26				
27				
28				
29				
30				



TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number: 70019.TOX					
Client: Swan Creek					
QC Test Number: TN-21-748					
Correction Explanations					
(a) Technician Error-Mathematical					
(b) Technician Error-Manual Data Recording					
(c) Technician Error-Head Count Observation					
(d) Technician Error-Overwrite					
(e) Technician Error-Missing Data					
(f) Technician Error-Lost Organism					
(g) Technician Error-Transcription Error					
(h) Technician Error-Other:					
(i) Meter Malfunction					



ATTACHMENT IV

Data Sheets and Statistical Analyses from *Chironomus dilutus* Toxicity Tests (100 pages)





SEDIMENT TOXICITY TEST SET-UP BENCH SHEET

Project Number:	70019.TOX	<u> </u>		
Client:Swan Cree				
QC Test Number:T	N-21-771			
	* 14 Table	TEST ORGANISM INFO	ORMATION	
Common Name: <u>M</u>			solated (Time, Date):	
Scientific Name:(es Pulled (Time, Date):	
Lot Number: <u>CH-</u>		Acclima	ation: 24 hrs Age: 14 days	
Source: ARO	·		Water (T/S):22.5	_ ppt
				<u> </u>
Doto	TT:		ION	100
<u>Date</u> 12\2\3\	<u>Time</u> 1430	Initials MACIMAT	Activity	_
12/2/01		AT 100 POLICE	Sediment Added to Chambers	
	1503	CAD	Overlying Water Added to Chambers	
V 1213121	1115	P	Organisms Transferred	ļ
	- A	en v		
		TEST SET-U	P	
Sample Number(s): AT	1-697 (Con	trol), AT1-862 873		
Overyling Water Number	er:			
012/41 vd (2) Me	2/11/22			
Treatment	•	Volume Test Sediment	Volume Overlying Water	
Pretty Boy Control (AT)	l- 697)	100 ml	175 ml	
AT1-862				
				,
↓				
AT1-873				
		↓	\downarrow	
			•	



Project Number:70019.TOX	TEST ORGANISM
Client: Swan Creek	Common Name:Midge
QC Test Number:TN-21-771	Scientific Name: C. dilutus
Organisms Recovered (date, time, initials):17/124	1400 pm

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered
AT1-697	A	10	cq
(Lab Control)	В	10	9
	С	10	9
	D	10	9
	Е	10	9
	F	10	9
	G	10	9
	H	10	9
T1-862	A	10	2
_	В	10	3
	C	10	3
-	D	10	3
	E	10	3
	F	10	<u></u>
	G	10	<u> </u>
	Н	10	<u> </u>
T1-863	A	10	
	B	10	8
	C	10	q
	D	10	7
	E	10	9
	F	10	8
	G	10	<u> </u>
	H	10	<u> </u>
<u> </u>	п	10	



Project Number:70019.TOX	TEST ORGANISM
Client:Swan Creek	Common Name: Midge
QC Test Number: TN-21-771	Scientific Name: C. dilutus
Organisms Recovered (date, time, initials):	121 1700 mm

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered
AT1-864	A	10	9
	В	10	9
	C	10	8
	D	10	9
	E	10	9
	F	10	9
	G	10	9
	Н	10	9
AT1-865	A	10	-
	В	10	3
	C	10	9
	D	10	<u>'</u>
	E	10	9
	F	10	9
	G	10	9
	H	10	8
AT1-866	A	10	
	В	10	8
	$\frac{1}{C}$	10	9
	D	10	7
	E	10	9
	F		
	G	10	<u> </u>
	H	10	8
	n n	10	8



Project Number: 70019.TOX	TEST ORGANISM
Client: Swan Creek	Common Name: Midge
QC Test Number: TN-21-771	Scientific Name: C. dilutus
Organisms Recovered (date, time, initials):	4 1 you m

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered
AT1-867	A	10	10
	В	10	9
-	С	10	9
	D	10	9
	Е	10	ÿ
	F	10	9
	G	10	10
	Н	10	8
AT1-86 γ η	A	10	9
	В	10	9
	C	10	9
	D	10	8
	Е	10	9
	F	10	10
	G	10	9
	Н	10	٩
AT1-86 9 §	A	10	•
	В	10	\
	C	10	0
	D	10	0
	E	10	ð
	F	10	Õ
	G	10	8
	Н	10	0

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Project Number: 70019.TOX	TEST ORGANISM	
Client: Swan Creek	Common Name:	Midge
QC Test Number: TN-21-771	Scientific Name:	C. dilutus
Organisms Recovered (date, time, initials):	3/21 17W m	

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered
AT1-870	A	10	8
	В	10	8
	C	10	8
	D	10	8
	Е	10	9
	F	10	9
	G	10	9
	Н	10	9
AT1-871	A "	10	8
-	В	10	7
	C	10	8
	D	10	9
	Е	10	8
	F	10	7
	G	10	2
	Н	10	8
AT1-872	A	10	7
	В	10	
	C	10	8
	D	10	7
	Е	10	8
	F	10	8
	G	10	8
***	Н	10	8
			*



Project Number: 70019,TOX	TEST ORGANISM
Client: Swan Creek	Common Name: Midge
QC Test Number: TN-21-771	Scientific Name: C. dilutus
Organisms Recovered (date, time, initials):12/13/	

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered
T1-873	A	10	10
	В	10	9
	C	10	9
	D	10	9
	E	10	ပ်ပ
	F	10	ర
	G	10	7
	Н	10	9
	 		
<u> </u>			
<u> </u>			
		·	· · · · · · · · · · · · · · · · · · ·

C. dilutus

<u>Initials</u> ž TN-21-771 527 Time 000 585 QC Test Number: P0115825 27/8 2/2/2 Date 28/08/1 5,50 Balance Number:(TS-L-225.) Loaded pans out furnace: Loaded pans in furnace: Loaded pans weighed: Furnace Temp (°C): Swan Creek Initials 쑹 \cong Client: Oven Number: BLM-01 (64-00964) (5) LN 14/13/21 009/ Time 13.0 1530 12/11/21 12 14 3021 Date 70019.TOX Loaded pans out oven: Loaded pans weighed: Loaded pans in oven: Oven Temp (°C): Project Number:

						\		
			A	B	C	B-C	D	(B-C)/D
				Weight of Pan and	Weight of Pan and	Total Ash-Free	Number of	Mean Ash-Free Dry
Test			Weight of Pan	Oven-Dried Organisms	Furnace-Dried Organisms	Dry Weight	Organisms	Organism Weight
Concentration	Rep	Pan #	(mg)	(mg)	(mg)	(mg)	Weighed	(mg)
Control	А	300	4646.80	4661.37	4651.31	10,06	6-	1.118
(AT1-697)	В	122	4656.27	88'0L9\n	46.59.60	11.28	<u></u>	1.253
ŧ	C	346		bo'welh	4721.30	7,89	· 6	0.877
	D	179	1249.41	45CH234	4535.18	9.16	6	1.018
	Ŧ	787	たて、七・つか	W.P391/	4626.10	13.07	6	1,452
	F	4 2	78 5634.94	5648.77	5638.36	115'01	9	1.157
	G	212	tk716 h 712	61 192h	4750.63	10,57	6 -	1.174
	Н	37	32 5323.81	3340.16	5329,38	10,78	<u>;</u>	1.198
AT1-862	A	165	165 Sook, 23	52.16035	5007.81	194	~	0.647
	В	166	16 5420,80	5424,59	5422.08	153	مہ	0.503
	၁	97	28 5132.64	5137 32	5135.53	08'1	~	C) (600)
	D	268	4444.00	45.544) ²	445,74	1,58	ندأ	0,527
	E	263	4195,95	4000.57	માવજી. ાવ	238	-	0.595
	F	288	5029.03	5034,72	5030,97	3.75	5-	0,438
	G	301	301 4055,94	4860.95	4857.69	3,26	2-	0,815
	Н	373	323 4690.61	4696.86	469253	4.33) -	1.083

Dry wt. calculations checked (date, initials): 2/2/22, KSB

Ash-Free calculations checked (date, initials): 1/1/1/1/ / 056

C. dilutus

Mean Ash-Free Dry Organism Weight Initials 1.234 0.836 G172 1.177 0.900 7.67 1.639 0.31D 1,139 (B-C)/D 1.453 1.293 Z 0.614 1.319 1.391 161.1 1.771 TN-21-77] Time 527 000/ Number of Organisms 500 Weighed σ 3 σ Ć Ō QC Test Number: / P0115825 Date 71/2/ 18/21 Total Ash-Free 14.66 Dry Weight 550 198(29 695 10,25 3.64 1.13 60,09 670 10.5A 5.53 ロボロ 15.11 1102 1.62 S E 9.05 183 Balance Number: (TS-L-225.C) Loaded pans out furnace: Loaded pans in furnace: Furnace-Dried Organisms Loaded pans weighed: Furnace Temp (°C): Weight of Pan and 4259.76 4810,69 4523.95 433330 3657.80 4847.00 5359.96 4783,69 4787.49 4729.90 4614.84 4717,56 4608.5 4950, 01 1741,41 4233.9 Swan Creek Oven-Dried Organisms Initials Weight of Pan and Z 4535.08 5366,65 쏫 4886,05 4803.15 4340.35 462037 4740,92 JS'CE87 4731.73 366845 4793.94 4268.12 4752,3 4271.38 4235.70 4617.15 Client: 1317 500 Time 002 4859.74 4757.55 4782.40 4709.40 4255,70 Weight of Pan 4843.23 3624,64 5336.94 4806.69 96, P3F4 4192.77 4520, 38 4329,21 81.7177 オン・ロナカ 4589.55 (mg) CE4-009646 VEGE/H/CI 12/5(17) 100/2/10 Date 70019.TOX 98 2 <u>ي</u> اه ا 6 Pan# 325 せんこ 190 у 0 0 255 67 3 Oven Number: BLM-01 Rep Loaded pans out oven: Loaded pans weighed: Loaded pans in oven: Ö \mathbb{H} ⋖ М \circ Д ĮΤÌ G Щ Ω [1] Ţr. \mathbf{m} \mathbf{C} Oven Temp (°C): Project Number: Concentration Test AT1-864 AT1-863

Dry wt. calculations checked (date, initials): 2/2/22, LSB

Ash-Free calculations checked (date, initials):

date, initials):

C. dilutus

Initials ž TN-21-771 527 Time 000/ 8 QC Test Number: P0115825 18/22 1/8/12 Date 550 Lee |00 |1 Balance Number TS-L-225.C Loaded pans out furnace: Loaded pans in furnace: Loaded pans weighed: Furnace Temp (°C): Swan Creek Initials ك 쑭 Client: _ 9 Time 530 J600 12 | 14 | seat 1506/21/51 17/51/7) Oven Number: BLM-01 < G4-009646 Date 70019.TOX <u>م</u> Loaded pans out oven: Loaded pans weighed: Loaded pans in oven: Oven Temp (°C): Project Number:

			A	В	D	B-C	Q	(B-C)/D
				Weight of Pan and	Weight of Pan and	Total Ash-Free	Number of	Mean Ash-Free Dry
Test			Weight of Pan	Oven-Dried Organisms	Furnace-Dried Organisms	Dry Weight	Organisms	Organism Weight
Concentration	Rep	Pan #	(mg)	(mg)	(mg)	(mg)	Weighed	(mg)
AT1-865	A	156	5229,00	5243.71	5234.67	9,14	b	1,016
	В	313	4474.92	4492.93	4483,09	9,84	8	1.230
	ဌ	780	4676.72	4689.85	4683.03	6.83	G	0.759
	D	7 ± 7	272 4507,35	4530.11	4509.46	10,65	Ь	1, [83
	Ħ	230	230 4859.08	49.06.60	4887.54	19.06	6-	2.118
	ഥ	185	185 4832,09	4873.80	4863.63	10,23	5	1.137
	G	337	4489.28	4534.85	4513.50) P6,112	Ь	2.366
	Н	17	4804.45	4865.27	4848.59	16.68	2	2.085
AT1-866	А	Z	3680.38	3716.37	3695.19	15.18	2	1.898
-	В	Ø	3650,20	3678,29	3665.94	12.35	6	1.372
	ပ	h	3638,87	3658.017	3645.19	12.28	+	1,754
	D	343	4612,54	4629.88	4615.72	14,66	6	153
	E	26	4708.91	4729.90	4716,19	13.71	ع	1.523
į	Ħ	Į	3808,12	3846,94	3838,75	18.19	ઝ	3.274
	G	305	5123.29	5145,80	5129,99	15.81	<u>ئ</u>	-1.976
	Н	193	193 4616.62	4667,97	4650.03	17.94	∞.	2.243

Dry wt. calculations checked (date, initials): 2412 (138

Ash-Free calculations checked (date, initials): $\frac{\mathcal{L}_{L_1}}{\mathcal{L}_{L_2}}$

C. dilutus

<u>Initials</u> ¥ TN-21-771 1000 57.4 285/ Time QC Test Number: P0115825 14/21 525 Date ee/0e/1 Balance Number: TS-L-225 Loaded pans out furnace: Loaded pans in furnace: Loaded pans weighed: Furnace Temp (°C): Swan Creek <u>Initials</u> 岑 Ž Client: 53 Time 13.13 600 13/14/2001 17/13/11 VEOCHHICO Oven Number: BLM-01 / Q4-00964 Date 70019.TOX Loaded pans out oven: Loaded pans weighed: Loaded pans in oven: Oven Temp (°C): Project Number:

			Ą	В	၁	B-C	Q ·	(B-C)/D
				Weight of Pan and	Weight of Pan and	Total Ash-Free	Number of	Mean Ash-Free Dry
Test			Weight of Pan	Oven-Dried Organisms	Furnace-Dried Organisms	Dry Weight	Organisms	Organism Weight
Concentration	Rep	Pan#	(mg)	(mg)	(mg)	(mg)	Weighed	(mg)
AT1-867	A	f3 (19'18th	18,5084	4.792.00	1801	c)	1.08
	В	126		19.00174	4.781.43	15,18	6	1,687
	C	hy		4671.56	4655.51	15.99	G	irri
	D	27	4600,92	4618,26	4605.89	1237	5	1,374
. ,	E	767	4963.13	4905.53	4888,49	17.64	80	2,130
	F	18	4986,38	4913,69	4896.43	17.27	đ	1,919
,	G	12	4818,27	4835.3A	4832.68	12.71	10	1.27)
	Н	113	5002,21	5023.18	5006.98	16.30	8	2,025
AT1-868	A	348	721544	44°18°9S	4477.40	149		1.490
	В	119	5061,73	5062.41	506246	O,01		0,010
•	C	1					Õ	•
	D	J					0	
`\	Œ	}					0	
	F	ı					0	
	G	J					o (
	Н	J		:			၁	

Dry wt. calculations checked (date, initials):

Ash-Free calculations checked (date, initials): $L | L | L^2$, RS



C. dilutus

<u>Initials</u> É TN-21-771 5221 Time 1000 8 QC Test Number: P0115825 18/25 255 Date 1/30/23-33 Balance Number: 48-L-225. Loaded pans out furnace: Loaded pans in furnace: Loaded pans weighed: Furnace Temp (°C): Swan Creek Initials ₹ ¥ Client: Time /60° 1313 55 Oven Number: BLM-01 //G4-009646 12/(1)/21 16/14/61 10/11/01 Date 70019.TOX Loaded pans out oven: Loaded pans weighed: Loaded pans in oven: Oven Temp (°C): Project Number:

			¥	В	D	B-C	O	(B-C)/D
				Weight of Pan and	Weight of Pan and	Total Ash-Free	Number of	Mean Ash-Free Dry
Test			Weight of Pan	Oven-Dried Organisms	Furnace-Dried Organisms	Dry Weight	Organisms	Organism Weight
Concentration	Rep	Pan#	(mg)	(mg)	(mg)	(mg)	Weighed	(mg)
AT1-869	A	6.4	11.8724	4794,28	47.75.37	16.00	٦	2,323
	В	304	4961.43	4986.37	496999	16.38	σ	1.820
	၁	ς٥	भवाम, ६०	499447	4925.63	30.84	<u>_</u>	2,316
	D	11	4817,64	76.44817	4825.16	19,80	۵۰	2.475
	田	∢	3729.51	3748.26	3736,40	11.86	σ-	1318
	Ħ	Ļ	5705,53	5731.13	5714.30	17.43	01	1.743
	G	(न्व	5092,06	5115,51	5099.59	1592	ø-	1.769
	H	202	202 4881.18	4899,90	4886.60	08,80	ō	1.478
AT1-870	A	20%	200 4924.15	4836.02	4830.40	5,62	· &	6.703
	щ	320		4733, 33	4721.37	11.96	S	1,495
	၁	7	4592.76	11408.48	4546.75	11.73	8	1.466
	Д	256	256 5017,81	5632,88	5021.65	11.23	8	1.404
	田	342	342 4932,00	4,952.32	4938,16	91141	6	1.573
	Ľή	(30	30 S123.61	5149.74	5134, 15	15,59	6	1.732
	G	_	3731.18	3145.05	3736.19	8.26	8	1,033
	H	75	75 So21.02	5043.18	5027.69	15,59	9	1.732

Dry wt. calculations checked (date, initials): ___

Ash-Free calculations checked (date, initials):



C. dilutus

<u>Initials</u> TN-21-771 527 000/ Time 1500 QC Test Number: P0115825 13/22 Date 55 (B) Balance Number: TS-L-225 Loaded pans out furnace: Loaded pans in furnace: Loaded pans weighed: Furnace Temp (°C): Swan Creek Initials Z Z ¥ Client: Time 1312 1520 60.5 reae/HI/ei Oven Number: <u>BLM-01 KG4-00964</u> 17 (11)21 read/HICI Date 70019.TOX Loaded pans weighed: Loaded pans out oven: Loaded pans in oven: Oven Temp (°C): Project Number:

			A	В	C	B-C	D	(B-C)/D
				Weight of Pan and	Weight of Pan and	Total Ash-Free	Number of	Mean Ash-Free Dry
Test	ļ	;	Weight of Pan	Oven-Dried Organisms	Furnace-Dried Organisms	Dry Weight	Organisms	Organism Weight
Concentration	Kep	Pan #	(mg)	(mg)	(mg)	(mg)	Weighed	(mg)
AT1-871	A	119	4463,13	4471/22	4465.10	モクラ	8	O. 828
	В	31	4828.67	4837.41	4831.78	5.63	ستما	D.807
	ပ	S	S189.16	ई। जिल्	5193.59	5.67	حن	0.709
	D	293	293 5058.69	5073,56	5064.70	8,86	8	r86 \$
	闰	91	5324.50	5331,09	5327.32	377	حتن	0,471
	F	154	154 4638,42	4(47.30	4643,92	3,38	۲۴-	0,483
	G	277	4802163	4810.01	4805,60	19,6	ॐ	0.836
	Н	794	53/6.26	53,43,33	5318,48	4.85	ò	0,606
AT1-872	A		3608.70	3620,92	3612.40	65,8	4	1.27
	В	243	5015.8F	5,040,33	50:4.77	5401	ب	(1493
	C	<u> </u> 25	5359,0L	5380.80	5365.48	15,38	∞	1.923
	D	8	S450,75	5474.85	9460.CG	14,79	ι,	2.(13
	Ħ	بع 1	£1 4 535	5568.62	50/1959	7.57	≫	0.446
	н	0	4920.95	4932,35	4924.49	8,36	8	1.045
	ŋ	(B)	8044,18	5114.00	5101.54	12.46	\$	1.558
	Н	332	1438691	1456 660	4443,46	13.20	8	1.68

Dry wt. calculations checked (date, initials): 2/2/22, 6Sg

Ash-Free calculations checked (date, initials): ___

C. dilutus

Mean Ash-Free Dry Organism Weight Initials 7 1,660 (B-C)/D 1.54D 1.708 1,4(6 1.391 1959 533 36:1 TN-21-77 1000 1750 Time 88 Number of Organisms Weighed 3 ∞ ϕ Q_ 4 ॐ Œ QC Test Number: Balance Number TS-L-225.C) / P0115825 18/22 Date Total Ash-Free 550 Dry Weight 40 oc/1 13.88 1961 12.25 1233 16,6D 15.37 **L.S.** Loaded pans out furnace; Loaded pans in furnace: Loaded pans weighed: Furnace-Dried Organisms Furnace Temp (°C): Weight of Pan and 3660,00 3626.33 5231.85 4399,90 5402.55 (mg) 27 70,82 4650,61 5108,34 Swan Creek Oven-Dried Organisms G) is littles **Initials** Weight of Pan and Z ¥ 3783.34 3673,88 5253,00 4662,86 3642.82 5120,67 5413,88 4.365.57 Client: ずれるや 555 600 Time 2614,36 TOTY STOT るチャル・テト Weight of Pan 4294.09 . . 3655,27 5101,42 523197 (mg) 5397 13/14/2031 12(1)12 Oven Number: <u>BLM-01</u> /64:009646 Date lead HILE 70019.TOX <u>م</u> 73 ナケー 5 ک ح Rep Loaded pans out oven: Loaded pans weighed: Loaded pans in oven: ¥ Щ \mathbf{B} \mathbf{C} ſΞ G Η Oven Temp (°C): Project Number: Concentration Test AT1-873

Dry wt. calculations checked (date, initials): 2/2/L2 / MSB

Ash-Free calculations checked (date, initials): てレレンし 人 人 し 人 人 人 人

TOXICITY TEST WATER QUALITY DATA SHEET - NEW SOLUTIONS

<u> </u>	Time: 1200				9			-	-							<u> </u>	_						
Time:	me	1	ç	(,cm)	4		-					-	-	-	-					\dashv			
Ħ l	Ξ	i I	100	lty (µS	3								+	+			-						<u> </u>
			y: 50	Conductivity (µS/cm)	2	 			;			<u> </u>		+									
121	7,7		itensit	- 5 - 5	-			 .			-	-		<u> </u>			_			-			
1213121	12/	-	Light Intensity; 50 - 100 fc		0	38	384	370	17.8	376	386	393	388	419	342	389	88	396	_		180	Sooi	2
			\overline{d} L	<u>.</u>	9	ėt.)		(L)	60	50	100	100	203	2	100	(4.)	101	547		1	0	2	1
Beginning Date:	Date:		Photoperiod: 16 <i>l.</i> 8 <i>d</i>	[]	2		-									-				1	••		
ginni	Ending Date:)	iod: 1	Dissolved Oxygen (mg/L)	4	T						1	1-										
Be	H		otoper	Oxyge	8										1					_			
			Pho	olved (2		<u> </u>								†								
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			0		0	88	© ∞	- -	93	63	63		98	7.9	28	2.8	28	3.8		\dagger	189	3001	2
	7.	lutus			9	Γ									4				-	Ť	<u></u>		
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RGAI	ו Nam	c Nan	>4.0		2														-	1			
TEST ORGANISM	Common Name:	Scientific Name:	DO: >4.0 mg/L Salinity:		-															1			
Ħ	ටි	Sc			0	200	8.4	83	63	8	ہے	2,%	2,8	8,7	4.1	3	8.1	3			$\overline{\mathscr{C}}$	5001	13=
		-	6.0 - 9.0		9																		
					5																		
		ļ	°C pH:	(°C)	4																		
X		71	1	Temperature (°C)	3																		
XOT.9100Z		TN-21-771	23±1	Tem	7																		
700	eķ	Ä	Temp:		-	_	_	_								_							
	Swan Creek				0	33. b	22.0	23.0	o, eg	્રંફ	99.O	22.1	3D.2	22.2	33.2	सं	લ	다 왕		<u> </u>	3	Time 1/00\$	7
er:	Swa	iber:	LUE		Rep																lumber 	Time	Initials
Project Number:	Client:	QC Test Number:	TARGET VALUES		Test Conc	Control (AT1-697)	AT1-862	AT1-863	AT1-864	AT1-865	AT1-866	AT1-867	AT1-868	AT1-869	AT1-870	AT1-871	AT1-872	AT1-873			Meter Number 68		

TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: Swa	r: 70019.TOX Swan Creek	ORGANISM	Beginning Date:	12 13121 Time: 1115
t Numb	TN-21-771	Scientific Name: Midge	Ending Date:	12/13/24 Time: 1400
TARGET VALUES	S Temp: 23±1 °C pH: 6.0 - 9.0	DO: >4.0 mg/L Sal	0 ppt Photoperiod: 161,8 d	Light Intensity: 50 - 100 fc
	Temperature (°C)	Hď	Dissolved Oxvoen (mall.)	Conductivity (µS/cm)
Test Conc Rep	1 2 3 4 5 6 7	1 2 3 4 5 6 7	Some onygen (mg/L)	
Control (AT1-697)	224 78.5 22 0 320 272 D.N 22.2	77 80 80 10	7 5 6 7	2
	22 220 22	7.7	50 67 79 15 79 13 78	表
		8.1 76 80 80 7.8	101010121313	343 330 374 367 367 365 344
		73 41 76 40 90 70	70 15 0	387 383 382374 383 301 356
	2.4 2.50 2.51 P. O. 21 0.55 0.55 W.S	73 81 75 85 76 -0 7/	112101111111111111111111111111111111111	5/6 369 360 310 365 353 342
	24 370 922 923 720 320 320	8.175 90 GV 10 7.	77/10/02/11/11	17 388 307 375 36 367 360 34
	21.4 30 322 22 1 22 1 23 0 32 1-15	80 75 86 90 20 76	8.0000000000000000000000000000000000000	386 362 363 357 340 357339
	72.4 520 12.1 92.5 12.1 23.0 23.0	0.0 7 8 90 91 - 7 75	2/ 1/1 // 1/1 //	398 413 376385 375 20 348
	22.0 32.1	7500000	かつ ヘノ から	400 337381 878 374 364 352
	22.0 22.)	7.0 00 00 07	11 62 1473	
	G.CC 0.CC	77 12 87 18	1462 61 60	372 380
		00740100000	19 11 65 13 1461	232 376 33 375 26835)
	11.4 32.6 32.6 32.6 32.6 32.8	92 1 2 0 8 1 8 5 1 0 8	07.5.1.5.7 2.0 1.0 1.7	468 383 892 372 380 372 352 468 383 892 372 390 359 859
Meter Number	101	0 1 10 10 10 10 10 10 10 10 10 10 10 10		
Time	CYAN ONE CAND ONE	100 000 000 000 000 000 000 000 000 000	(18) (18) (20) (10) (20) (18) (18) (18) (18)	(180 CB (180 CB) (180 CB)
Initials MT	180 and and and and and and and and and and	180 0189 CHO 180	28-13 0810 b745 0810	60348 0810 024S 6810 0817 GBB
	F 27 5	The second second	1 2 5 5 10 10 ST	1 20 1

TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number:		X019.TOX	X			Î	I	TESTO	ORGANISM	NISM							Be	innig	Beginning Date:	9	1213121	121		T	Time:	2111
Client: Sv	Swan Creek						ŭ	ommo	Common Name:	je:		Midge	О				En	Ending Date:	Date:		12/	12/13/21		j . I	Time.	1700
QC Test Number:		TN-21-771	71				Sc	ientif	Scientific Name:	ne:		C. d	C. dilutus					0								
TARGET VALUES	TES Temp:	: 23±1		°C 1	pH:	0.6 - 0.9	0.6	DO:	>4.0	mg	L S	mg/L Salinity:		0	_ ppt		toper	iod: 1	Photoperiod: 161,8 d		Light Intensity: 50 - 100 fc	tensity	. 50	. 100 f	,ç	
		Temp	Temperature (°C)	(),) a						Hd					Disso	lved C	xygen	Dissolved Oxygen (mg/L)	7			Condu	uctivit	Conductivity (µS/cm)	cm)	1=1
Test Conc Re	Rep 8 9	01 0	111	12	13	14	8	6	10	=	12	13	41	∞	6	10	11	12	13 1	14	8	10	Ξ	1 12	13	14
Control (AT1-697)	11.3 12	220 220					8.2	82	7.7					8,3 7	7195	N			-	72	0/12 2/12 9/15	23/4	2		-	1
AT1-862	II. I	20.22.0					2,8	2.8 7.0	7.0					6.17363	1.36	i		-		2	360 352 360	136	. 0	-		
AT1-863	-	0.22.0					2.2	7.8	87.6					6.7 7.0 4.3	10%	6.7				8	30136	28	Cr.			
AT1-864		12.012.0					2.8	0.28%	2.6					2.0 6.8 4.0	30	0,				36	365 353 360	336	0			
AT1-865	2.7	27.0 27.0					2.2	7.8	76			70		58 7.2 5.1	22	7.7				36	367 36334	138	7			
AT1-866	22.3 2.0	0 22.0					7.8	7.8	9.2					176 176 189	グログ	5.				33	357 851862	136	2			
AT1-867	2.3 72.0	0.72 0.					8.2	82	976					67 74 51	がか	12				36	362 290 214	623	-			
AT1-868	22.3 22.D	0.77 0.					8.7	912 81	2,6				/ _ !	71 6058	S S	8				36	361 267 361	136				
AT1-869	0720220	0.720					82	2.87.6	2				J	6,97.36.0	30	0				38	380 378 381	828				
AT1-870	U.3 7.0120	0170			I		2.8	11	921				40	5.5 6.36.0	30	Q				3	1. 37	2371	2			
AT1-871	ur U	2020					21%	7.87.6	7.6				3	6.3 85 4.9	がプロ	5.				35	उद्धा भूप भूभ	22	-			
AT1-872	. 4	0720					2.2	27	17.6				9	6.3 70 6.3	100	S.				36	368 34 360	138				
AT1-873	77 4.22	77.0 27.0					7.8	7.7	77.6				G	6.16	69 69	7.				m	37,358 362	362	2.7			
								T																		
Meter Number 680	oer 680 (Jp)	8					989	199	B				9	089 189 189	200	8				68	OS) (S) (S9)	39		_		
niT	Time 6919 1636 0632	% CV62L					8160	16360	7590				0	280 950 81po	38 0	33				160	5918 1038 0832	50832				
Initia	Initials MT SL	25					Mr Sc	35	35					MT 96 36	5	7				Σ	MT 56 36	35				



TOXICOLOGY LABORATORY BENCH SHEET - RENEWAL RECORD

Project Number: _	70019.TOX	
Client: Swar	ı Creek	
QC Test Number: _	TN-21-771	

Day	Date	Time	Initials
0	1213121	AM 1000	TP
	1415141	PM	
1	12/4/21	AM 0815	Ep Co
	121912	PM 150S	Co
2	101 (101	AM 0830	py
	1215121	PM 1315	31
3	10 11-(2)	AM 0755	Co
	12/6/21	PM 1410	Alg
4	1217131	AM 0716	P
		PM 1540	AY
5	1218121	AM 0800	To
		PM 1404	AL
6	12/9/21	AM 08W	AŽ
	tolet or	PM 1356	H
7	12/10/21	AM 0748	F
		PM /1600	M
8	12/11/21	AM 0830	- 6
_	· .	PM 1880	V
9	17/11/21	AM 0958	<i>3</i> L
	12/12/21	PM 1440	AY
10	12/13/21	AM 0815	SL
	[VII VI = 1	PM 1158	LAD



TOXICOLOGY LABORATORY BENCH SHEET - FEEDING RECORD

Project Number: 70019.TOX	_
Client: Swan Creek	_
QC Test Number:TN-21-771	-

Food: 1.5 ml Tetramin Slurry

Day	Date	Time	Initials
0	12/3/4	1700	M
1	12/4/21	1520	4
_ 2	1215/21	13760	31
3	12/6/21	142 (Ay Ay
4	1217121	1550	Ay
5	1218121	1550	AL
6	1219121	140	J.
7	12/10/21	1627	KS B SS B SV
8	12110/21	1605	P
9	12/12/12/	1500	Hy.
10			
11			
12			
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21			
22			
23			
24			
25			
26			
27	<u> </u>		
28	***		



TOXICOLOGY LABORATORY BENCH SHEET - TESTING LOCATION

Project Number:	70019.TOX
Client: Swan Creek	
QC Test Number:TN-2	1-771

Dox	Togting I apption	D.1.	m:	T 1
Day	Testing Location	Date	Time	Initials
0	<u> 556</u>	16/8/61	1355	UAO
1	SSB	1214121	1506	4
2	55B 55B	1215/21	0800 0800	fly
3	<u>55B</u>	1216/21	0800	fly W
4	SSB	12/7/21	0745	P
5	<u> </u>	1313131	1404	My
6	558	1219/21	6814	AY
7	55 0		1605	NO
8	55B	12/11/21	1605	4
9	55 B	12/12/21	1004	54
10	553	12/13/21	0815	5L 5L
11				
12				
13				
14				
15				
16				
17				
18				
19				
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24				
25	,			
26				
27				
28				
29				· · · · · · · · · · · · · · · · · · ·
30				



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-7	71
Date/Time/Initials	Comments/Activity



TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number:70019.TOX
Client: Swan Creek
QC Test Number: TN-21-771
Correction Explanations
(a) Technician Error-Mathematical
(b) Technician Error-Manual Data Recording
(c) Technician Error-Head Count Observation
(d) Technician Error-Overwrite
(e) Technician Error-Missing Data
(f) Technician Error-Lost Organism
(g) Technician Error-Transcription Error
(h) Technician Error-Other:
(i) Meter Malfunction

				Gro	wth and	Survival	Test-Survi	val			
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID);	Swan Creek		
End Date:	12/13/202	1	Lab ID:				Sample Ty	/pe:	Sediment		
Sample Date:			Protocol:				Test Spec	ies:	CT-Chironor	nus dilutus	
Comments:											
Conc-	1	2	3	4	5	6	7	8			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000			
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000			
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000			
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000			
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000			
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000			
AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000			
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000			
AT1-872	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000			
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000			
			Tı	ransform:	Arcsin Sc	uare Ro	ot	Rank	1-Tailed		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
Control	0.9000	1.0000	1.2490	1.2490	1.2490	0.000	8				
*AT1-862	0.3500	0.3889	0.6322	0.5796	0.6847	8.885	8	36.00	47.00		
AT1-863	0.8375	0.9306	1.1636	0.9912	1.2490	8.502	8	52.00	47.00		
AT1-864	0.8875	0.9861	1.2313	1.1071	1.2490	4.074	8	64.00	47.00		
AT1-865	0.8750	0.9722	1.2136	1.1071	1.2490	5.413	8	60.00	47.00		
AT1-866	0.8250	0.9167	1.1459	0.9912	1.2490	8.205	8	48.00	47.00		
AT1-867	0.9000	1.0000	1.2543	1.1071	1.4120	9.198	8	68.00	47.00		
*AT1-868	0.0250	0.0278	0.1995	0.1588	0.3218	37.811	8	36.00	47.00		
AT1-869	0.9000	1.0000	1.2517	1.1071	1.4120	6.521	8	68.00	47.00		
AT1-870	0.8375	0.9306	1.1604	1.1071	1.2490	6.329	8	48.00	47.00		
*AT1-871	0.7875	0.8750	1.0959	0.9912	1.2490	7.399	8	40.00	47.00		
*AT1-872	0.7625	0.8472	1.0637	0.9912	1.1071	5.644	8	36.00	47.00		
AT1-873	0.8500	0.9444	1.1840	0.9912	1.4120	11.040	8	56.00	47.00		
Auxiliary Tes							Statistic		Critical	Skew	Kurt
Kolmogorov D	Test indica	ites norm	nal distribu	tion (p > 0.	01)		1.00328		1.035	0.08845	0.3640
Equality of var	iance cann	ot be cor	nfirmed								

				Gro	wth and \$	Survival	Test-Survi	val			
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID);	Swan Creek	(
End Date:	12/13/202		Lab ID:				Sample Ty		Sediment		
Sample Date:			Protocol:				Test Spec		CT-Chironoi	mus dilutus	
Comments:							'				
Conc-	1	2	3	4	5	6	7	8			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-862		0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000			
AT1-863		0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000			
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-865		0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000			
AT1-866		0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000			
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000			
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000			
AT1-870		0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000			
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000			
AT1-872		0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000			
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000			
				ransform:	Arcsin Sc	uare Ro	ot	Rank	1-Tailed		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
Control	0.9000	1.0000	1.2490	1.2490	1.2490	0.000	8				
*AT1-862	0.3500	0.3889	0.6322	0.5796	0.6847	8.885	8	36.00	51.00		
AT1-863	0.8375	0.9306	1.1636	0.9912	1.2490	8.502	8				
AT1-864	0.8875	0.9861	1.2313	1.1071	1.2490	4.074	8				
AT1-865	0.8750	0.9722	1.2136	1.1071	1.2490	5.413	8				
AT1-866	0.8250	0.9167	1.1459	0.9912	1.2490	8.205	8				
AT1-867	0.9000	1.0000	1.2543	1.1071	1.4120	9.198	8				
AT1-868	0.0250	0.0278	0.1995	0.1588	0.3218	37.811	8				
AT1-869	0.9000	1.0000	1.2517	1.1071	1.4120	6.521	8				
AT1-870	0.8375	0.9306	1.1604	1.1071	1.2490	6.329	8				
AT1-871	0.7875	0.8750	1.0959	0.9912	1.2490	7.399	8				
AT1-872	0.7625	0.8472	1.0637	0.9912	1.1071	5.644	8				
AT1-873	0.8500	0.9444	1.1840	0.9912	1.4120	11.040	8				
Auxiliary Test							Statistic		Critical	Skew	Kurt
Shapiro-Wilk's				stribution (p	<= 0.01)		0.81997		0.844	0	-0.9066
Equality of var	iance cann	ot be con	firmed								

				Gro	wth and \$	Survival 1	est-Survi	val			
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID);	Swan Creek	**	
End Date:	12/13/2021	1	Lab ID:				Sample Ty	/pe:	Sediment		
Sample Date:			Protocol:				Test Spec	ies:	CT-Chironom	us dilutus	
Comments:							•				
Conc-	1	2	3	4	5	6	7	8			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000			
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000			
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000			
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000			
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000			
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000			
AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000			
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000			
AT1-872	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000			
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000			
			Tr	ansform: A				Rank	1-Tailed	· <u>-</u>	
Conc-	Mean l	N-Mean [°]	Mean	Min	Max	CV%	N	Sum	Critical		
Control	0.9000	1.0000	1.2490	1.2490	1.2490	0.000	8				
AT1-862	0.3500	0.3889	0.6322	0.5796	0.6847	8.885	8				
AT1-863	0.8375	0.9306	1.1636	0.9912	1.2490	8.502	8	52.00	51.00		
AT1-864	0.8875	0.9861	1.2313	1.1071	1.2490	4.074	8				
AT1-865	0.8750	0.9722	1.2136	1.1071	1.2490	5.413	8				
AT1-866	0.8250	0.9167	1.1459	0.9912	1.2490	8.205	8				
AT1 - 867	0.9000	1.0000	1.2543	1.1071	1.4120	9.198	8				
AT1-868	0.0250	0.0278	0.1995	0.1588	0.3218	37.811	8				
AT1-869	0.9000	1.0000	1.2517	1.1071	1.4120	6.521	8				
AT1-870	0.8375	0.9306	1.1604	1.1071	1.2490	6.329	8				
AT1-871	0.7875	0.8750	1.0959	0.9912	1.2490	7.399	8				
AT1-872	0.7625	0.8472	1.0637	0.9912	1.1071	5.644	8				
AT1-873	0.8500	0.9444	1.1840	0.9912	1.4120	11.040	8				
Auxiliary Test							Statistic		Critical	Skew	Kurt
		1			± 0.04)	****	0.04220		0.044	0.7004	4.07000
Shapiro-Wilk's Equality of vari				tribution (p	<= 0.01)		0.84338		0.844	-0.7831	1.67986

	10/0/0001		T (10)				est-Survi				
tart Date:	12/3/2021			TN-21-771			Sample ID		Swan Creek		
ind Date:	12/13/202		Lab ID:				Sample Ty		Sediment		
Sample Date:			Protocol:				T e st Spec	ies:	CT-Chironomi	us dilutus	
Comments:	4										
Conc-	1	2	3	4	5	6	7	8			
Control		0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-862		0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000			
AT1-863		0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000			
AT1-864		0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1 - 865		0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000			
AT1-866		0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000			
AT1-867		0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000			
AT1-868		0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
AT1-869		0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000			
AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000			
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000			
AT1-872	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000			
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000			
			Tra	ansform:	Arcsin Sc	uare Roc	ot .	Rank	1-Tailed		
Conc-	Mean	N-Mean ⁻	Mean	Min	Max	CV%	N	Sum	Critical		
Control	0.9000	1.0000	1.2490	1.2490	1.2490	0.000	8				
AT1-862	0.3500	0.3889	0.6322	0.5796	0.6847	8.885	8				
AT1-863	0.8375	0.9306	1.1636	0.9912	1.2490	8.502	8				
AT1-864	0.8875	0.9861	1.2313	1.1071	1.2490	4.074	8	64.00	51.00		
AT1-865	0.8750	0.9722	1.2136	1.1071	1.2490	5.413	8				
AT1-866	0.8250	0.9167	1.1459	0.9912	1.2490	8.205	8				
AT1-867	0.9000	1.0000	1.2543	1.1071	1.4120	9.198	8				
AT1-868	0.0250	0.0278	0.1995	0.1588	0.3218	37.811	8				
AT1-869	0.9000	1.0000	1.2517	1.1071	1.4120	6.521	8				
AT1-870		0.9306	1.1604	1.1071	1.2490	6.329	8				
AT1-871	0.7875	0.8750	1.0959	0.9912	1.2490	7 .399	8				
AT1-872		0.8472	1.0637	0.9912	1.1071	5.644	8				
AT1-873		0.9444	1.1840	0.9912	1.4120	11.040	8				
uxiliary Test							Statistic		Critical	Skew	Kur
				tribution (p			0.4689		0.844	-3.5489	13.504

						urvival	est-Survi	val			
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID		Swan Creek		
End Date:	12/13/202	1	Lab ID:				Sample Ty	•	Sediment		
Sample Date:			Protocol:				Test Speci	ies:	CT-Chironomu	s dilutus	
Comments:											
Conc-	1	2	3	4	5	6	7	8	<u> </u>		
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000			
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000			
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000			
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000			
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000			
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000			
AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000			
AT1 - 871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000			
AT1-872	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000			
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000			
	·.·		Tra	ansform:	Arcsin Sq	uare Ro	ot	Rank	1-Tailed		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
Control	0.9000	1.0000	1.2490	1.2490	1.2490	0.000	8				
AT1-862	0.3500	0.3889	0.6322	0.5796	0.6847	8.885	8				
AT1-863	0.8375	0.9306	1.1636	0.9912	1.2490	8.502	8				
AT1-864	0.8875	0.9861	1.2313	1.1071	1.2490	4.074	8				
AT1-865	0.8750	0.9722	1.2136	1.1071	1.2490	5.413	8	60.00	51.00		
AT1-866	0.8250	0.9167	1.1459	0.9912	1.2490	8.205	8				
AT1-86 7	0.9000	1.0000	1.2543	1.1071	1.4120	9.198	8				
AT1-868	0.0250	0.0278	0.1995	0.1588	0.3218	37.811	8				
AT1-869	0.9000	1.0000	1.2517	1.1071	1.4120	6.521	8				
AT1-870		0.9306	1.1604	1.1071	1.2490	6.329	8				
AT1-871	0.7875	0.8750	1.0959	0.9912	1.2490	7.399	8				
AT1-872	0.7625	0.8472	1.0637	0.9912	1.1071	5.644	8				
AT1-873	0.8500	0.9444	1.1840	0.9912	1.4120	11.040	8				
Auxiliary Test							Statistic		Critical	Skew	Kurt
	T (atoo non r	omal diet	ribution (r	<= 0.01)		0.67657		0.844	-1.807	2.8296
hapiro-Wilk's	i Lest Indica	ates non-i	ionnai uisi	u ibuutii (p	, 0.01 <i>)</i>		0.01001		0.011	1.001	

							est-Survi		_		
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID		Swan Creek		
End Date:	12/13/202		Lab ID:				Sample Ty		Sediment		
Sample Date:			Protocol:				Test Speci	es:	CT-Chironomu	s dilutus	
Comments:											
Conc-	1	2	3	4	5	6	7	8			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000			
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000			
AT1 -8 64	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1 -8 65	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000			
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000			
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000			
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000			
AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000			
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000			
AT1-8 7 2	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000			
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000			
			Tra	ansform:	Arcsin Sc	uare Roc	ot .	Rank	1-Tailed		
Conc-	Mean	N-Mean ⁻	Mean	Min	Max	CV%	N	Sum	Critical		
Control	0.9000	1.0000	1.2490	1.2490	1.2490	0.000	8				
AT1-862	0.3500	0.3889	0.6322	0.5796	0.6847	8.885	8				
AT1-863	0.8375	0.9306	1.1636	0.9912	1.2490	8.502	8				
AT1-864	0.8875	0.9861	1. 2 313	1.1071	1.2490	4.074	8				
AT1-865	0.8750	0.9722	1.2136	1.1071	1.2490	5.413	8				
*AT1-866	0.8250	0.9167	1.1459	0.9912	1.2490	8.205	8	48.00	51.00		
AT1-867	0.9000	1.0000	1.2543	1.1071	1.4120	9.198	8				
AT1-868	0.0250	0.0278	0.1995	0.1588	0.3218	37.811	8				
AT1-869	0.9000	1.0000	1.2517	1.1071	1.4120	6.521	8				
AT1-870	0.8375	0.9306	1.1604	1.1071	1.2490	6.329	8				
AT1-871	0.7875	0.8750	1.0959	0.9912	1.2490	7.399	8				
AT1-872	0.7625	0.8472	1.0637	0.9912	1.1071	5.644	8				
AT1-873	0.8500	0.9444	1.1840	0.9912	1.4120	11.040	8				
uxiliary Test	s						Statistic		Critical	Skew	Kurt
				tribution (p			0.8252		0.844	-0.1837	1.6901

Equality of variance cannot be confirmed

Hypothesis Test (1-tail, 0.05)

Wilcoxon Two-Sample Test indicates significant differences

ent Data:	12/3/2021		Test ID:				Fest-Survi Sample ID		Swan Creek		
tart Date:	12/3/2021		Lab ID:				Sample Ty		Sediment		
End Date: Sample Date:	12/13/202		Protocol:				Sample Ty Test Speci	•	CT-Chironomu	a dilutua	
Sample Date. Comments:			FIOLOCOI.				rest Speci	es.	C1-CHROHOINU	s dilutus	
Conc-	1	2	3	4	5	6	. 7	8			
Control		0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-862		0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000			
AT1-863		0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000			
AT1-864		0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-865		0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000			
AT1-866		0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000			
AT1-867		0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000			
AT1-868		0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
AT1-869		0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000			
AT1-870		0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000			
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000			
AT1-872		0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000			
AT1-873		0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000			
7111 070	1.0000	0.0000		ansform:				Rank	1-Tailed		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
Control		1.0000	1.2490	1.2490	1.2490	0.000	8				
AT1-862	0.3500	0.3889	0.6322	0.5796	0.6847	8.885	8				
AT1-863		0.9306	1.1636	0.9912	1.2490	8.502	8				
AT1-864		0.9861	1.2313	1.1071	1.2490	4.074	8				
AT1-865		0.9722	1.2136	1.1071	1.2490	5.413	8				
AT1-866		0.9167	1.1459	0.9912	1.2490	8.205	8				
AT1-867	0.9000	1.0000	1.2543	1.1071	1.4120	9.198	8	68.00	51.00		
AT1-868		0.0278	0.1995	0.1588	0.3218	37.811	8				
AT1-869	0.9000	1.0000	1.2517	1.1071	1.4120	6.521	8				
AT1-870	0.8375	0.9306	1.1604	1.1071	1.2490	6.329	8				
AT1-871	0.7875	0.8750	1.0959	0.9912	1.2490	7.399	8				
	0.7625	0.8472	1.0637	0.9912	1.1071	5.644	8				
AT1-872	0.8500	0.9444	1.1840	0.9912	1.4120	11.040	8				
AT1-872 AT1-873	0.0000										
							Statistic		Critical	Skew	Kurt

						Survival 1	Test-Survi	val			
Start Date:	12/3/2021	,	Test ID:	TN-21-771			Sample ID):	Swan Creek		
End Date:	12/13/202	1	Lab ID:				Sample Ty	/pe:	Sediment		
Sample Date:			Protocol:				Test Speci	ies:	CT-Chironom	us dilutus	
Comments:											
Conc-	1	2	3	4	5	6	7	8			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000			
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000			
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000			
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000			
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000			
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000			
AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000			
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000			
AT1-872	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000			
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000			
			Tr	ansform:	Arcsin So			Rank	1-Tailed		
Conc-	Mean	N-Mean	Меап	Min	Max	CV%	Ñ	Sum	Critical		
Control	0.9000	1.0000	1.2490	1.2490	1.2490	0.000	8				
AT1-862	0.3500	0.3889	0.6322	0.5796	0.6847	8.885	8				
AT1-863	0.8375	0.9306	1.1636	0.9912	1.2490	8.502	8				
AT1-864	0.8875	0.9861	1.2313	1.1071	1.2490	4.074	8				
AT1-865	0.8750	0.9722	1.2136	1.1071	1.2490	5.413	8				
AT1-866	0.8250	0.9167	1.1459	0.9912	1.2490	8.205	8				
AT1-867	0.9000	1.0000	1.2543	1.1071	1.4120	9.198	8				
*AT1-868	0.0250	0.0278	0.1995	0.1588	0.3218	37.811	8	36.00	51.00		
AT1-869	0.9000	1.0000	1.2517	1.1071	1.4120	6.521	8				
AT1-870	0.8375	0.9306	1.1604	1.1071	1.2490	6.329	8				
AT1-871	0.7875	0.8750	1.0959	0.9912	1.2490	7.399	8				
AT1-872	0.7625	0.8472	1.0637	0.9912	1.1071	5.644	8				
AT1-873	0.8500	0.9444	1.1840	0.9912	1.4120	11.040	8				
Auxiliary Test	s						Statistic		Critical	Skew	Kurt
Shapiro-Wilk's		ates non-r	normal dis	tribution (p	<= 0.01)		0.67657		0.844	1.80702 2	.8296
Equality of var											
		A A = \									
Hypothesis To	est (1-tail,	0.05)									

Start Date:	12/3/2021		Test ID:	TN-21-771			Test-Survi Sample ID		Swan Creek		
End Date:	12/13/2021	I	Lab ID:	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			Sample Ty		Sediment		
Sample Date:	izi ioizoz i		Protocol:				Test Speci		CT-Chironomu	e dilutus	
Comments:			1 10100011				Tool Opco		O TOTAL OTTO THE	io dilatao	
Conc-	1	2	3	4	5	6	7	8		The Paris of the P	
Control	0.9000	0.9000		0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-862	0.3000	0.3000		0.3000	0.4000	0.4000	0.4000	0.4000			
AT1-863	0.8000	0.9000		0.9000	0.8000	0.8000	0.9000	0.9000			
AT1-864	0.9000	0.9000		0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-865	0.9000	0.8000		0.9000	0.9000	0.9000	0.9000	0.8000			
AT1-866	0.8000	0.9000		0.9000	0.9000	0.8000	0.8000	0.8000			
AT1-867	1.0000	0.9000		0.9000	0.8000	0.9000	1.0000	0.8000			
AT1-868	0.1000	0.1000		0.0000	0.0000	0.0000	0.0000	0.0000			
AT1-869	0.9000	0.9000		0.8000	0.9000	1.0000	0.9000	0.9000			
AT1-870	0.8000	0.8000		0.8000	0.9000	0.9000	0.8000	0.9000			
AT1-871	0.8000	0.7000		0.9000	0.8000	0.7000	0.8000	0.8000			
AT1-872	0.7000	0.7000		0.7000	0.8000	0.8000	0.8000	0.8000			
AT1-8 7 3	1.0000	0.9000		0.9000	0.8000	0.8000	0.7000	0.8000			
				ansform: A				Rank	1-Tailed		
Conc-	Mean I	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
Control	0.9000	1.0000	1.2490	1.2490	1.2490	0.000	8				
AT1-862	0.3500	0.3889	0.6322	0.5796	0.6847	8.885	8				
AT1-863	0.8375	0.9306		0.9912	1.2490	8.502	8				
AT1-864	0.8875	0.9861	1.2313	1.1071	1.2490	4.074	8				
AT1-865	0.8750	0.9722		1.1071	1.2490	5.413	8				
AT1-866	0.8250	0.9167		0.9912	1.2490	8.205	8				
AT1-86 7	0.9000	1.0000		1.1071	1.4120	9.198	8				
AT1-868	0.0250	0.0278		0.1588	0.3218	37.811	8				
AT1-869	0.9000	1.0000		1.1071	1.4120	6.521	8	68.00	51.00		
AT1-8 7 0	0.8375	0.9306		1.1071	1.2490	6.329	8				
AT1-871	0.7875	0.8750		0.9912	1.2490	7.399	8				
AT1-872	0.7625	0.8472		0.9912	1.1071	5.644	8				
AT1-873	0.8500	0.9444	1.1840	0.9912	1.4120	11.040	8				
							Statistic		Critical	Skew	Kurt
	Test indica	tes non-		tribution (p	<= 0.01)		0.52841		0.844	0.48455	7.5996
hapiro-Wilk's											
Auxiliary Test Shapiro-Wilk's Equality of vari Typothesis Te	ance canno		nfirmed								

Reviewed by:

 -				Gro	wth and	Survival [*]	Test-Survi	val	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID	:	Swan Creek		
End Date:	12/13/202		Lab ID:				Sample Ty	/pe:	Sediment		
Sample Date:			Protocol:				Test Speci	ies:	CT-Chironomu	ıs dil u tus	
Comments:							-				
Conc-	1	2	3	4	5	6	7	8			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000			
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000			
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000			
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000			
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000			
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000			
AT1-870		0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000			
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000			
AT1-872		0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000			
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000			
			Tı	ansform:	Arcsin Sc	uare Ro	ot	Rank	1-Tailed		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
Control	0.9000	1.0000	1.2490	1.2490	1.2490	0.000	8				
AT1-862	0.3500	0.3889	0.6322	0.5796	0.6847	8.885	8				
AT1-863	0.8375	0.9306	1.1636	0.9912	1.2490	8.502	8				
AT1-864	0.8875	0.9861	1.2313	1.1071	1.2490	4.074	8				
AT1-865	0.8750	0.9722	1.2136	1.1071	1.2490	5.413	8				
AT1-866	0.8250	0.9167	1.1459	0.9912	1.2490	8.205	8				
AT1-867	0.9000	1.0000	1.2543	1.1071	1.4120	9.198	8				
AT1-868	0.0250	0.0278	0.1995	0.1588	0.3218	37.811	8				
AT1-869	0.9000	1.0000	1.2517	1.1071	1.4120	6.521	8				
*AT1-870	0.8375	0.9306	1.1604	1.1071	1.2490	6.329	8	48.00	51.00		
AT1-871	0.7875	0.8750	1.0959	0.9912	1.2490	7.399	8				
AT1-872	0.7625	0.8472	1.0637	0.9912	1.1071	5.644	8				
AT1-873	0.8500	0.9444	1.1840	0.9912	1.4120	11.040	8				
Auxiliary Tes	ts						Statistic		Critical	Skew	Kurt
Shapiro-Wilk's	Test indic	ates non-r	normal dis	tribution (p	<= 0.01)		0.7856		0.84 4	0.80812	-0.1593
Equality of var	iance cann	ot be cont	firmed								

Equality of variance cannot be confirmed

Hypothesis Test (1-tail, 0.05)

Wilcoxon Two-Sample Test indicates significant differences

Reviewed by: 🔏

				Grov	wth and S	Survival	Test-Survi	val			
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID	:	Swan Creek		
End Date:	12/13/202	1	Lab ID:				Sample Ty	/pe:	Sediment		
Sample Date:			Protocol:				Test Spec	ies:	CT-Chironom	us dilu tu s	
Comments:							-				
Conc-	1	2	3	4	5	6	7	8			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000			
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000			
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000			
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000			
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000			
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000			
AT1-870		0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000			
AT 1-87 1	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000			
AT1-872		0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000			
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000			
				ransform:				Rank	1-Tailed		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
Control	0.9000	1.0000	1.2490	1.2490	1.2490	0.000	8				
AT1-862	0.3500	0.3889	0.6322	0.5796	0.6847	8.885	8				
AT1-863	0.8375	0.9306	1.1636	0.9912	1.2490	8.502	8				
AT1-864	0.8875	0.9861	1.2313	1.1071	1.2490	4.074	8				
AT1-865	0.8750	0.9722	1.2136	1.1071	1.2490	5.413	8				
AT1-866	0.8250	0.9167	1.1459	0.9912	1.2490	8,205	8				
AT1-867	0.9000	1.0000	1.2543	1.1071	1.4120	9.198	8				
AT1-868	0.0250	0.0278	0.1995	0.1588	0.3218	37.811	8				
AT1-869	0.9000	1.0000	1.2517	1.1071	1.4120	6.521	8				
AT1-870	0.8375	0.9306	1.1604	1.1071	1.2490	6.329	8				
*AT1-871	0.7875	0.8750	1.0959	0.9912	1.2490	7.399	8	40.00	51.00		
AT1-8 7 2	0.7625	0.8472	1.0637	0.9912	1.1071	5.644	8				
AT1-873	0.8500	0.9444	1.1840	0.9912	1.4120	11.040	8				
Auxiliary Test	ts						Statistic		Critical	Skew	Kurt
Shapiro-Wilk's				stribution (p	<= 0.01)		0.67553		0.844	0.58372	4.66035
Equality of var	iance cann	ot he con	firmed								

					wtn and t		est-Survi				
Start Date:	12/3/2021	_		TN-21-771			Sample ID		Swan Creek		
End Date:	12/13/2021	ĺ	Lab ID:				Sample Ty		Sediment		
Sample Date:			Protocol:				Test Spec	ies:	CT-Chironomu	s dilutus	
Comments:											
Conc-	1	2	3	4	5	6	7	8			
Control		0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-862		0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000			
AT1-863		0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000			
AT1-864		0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-865		0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000			
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000			
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000			
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000			
AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000			
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000			
AT1-872	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000			
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000			
			Tr	ansform:	Arcsin Sc	uare Ro	ot	Rank	1-Tailed		
Conc-	Mean I	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
Control	0.9000	1.0000	1.2490	1.2490	1.2490	0.000	8				
AT1-862	0.3500	0.3889	0.6322	0.5796	0.6847	8.885	8				
AT1-863	0.8375	0.9306	1.1636	0.9912	1.2490	8.502	8				
AT1-864	0.8875	0.9861	1.2313	1.1071	1.2490	4.074	8				
AT1-865	0.8750	0.9722	1.2136	1.1071	1.2490	5.413	8				
AT1-866	0.8250	0.9167	1.1459	0.9912	1.2490	8.205	8				
AT1-867	0.9000	1.0000	1.2543	1.1071	1.4120	9.198	8				
AT1-868	0.0250	0.0278	0.1995	0.1588	0.3218	37.811	8				
AT1-869	0.9000	1.0000	1.2517	1.1071	1.4120	6.521	8				
AT1-870	0.8375	0.9306	1.1604	1.1071	1.2490	6.329	8				
AT1-871	0.7875	0.8750	1.0959	0.9912	1.2490	7.399	8				
*AT1-872		0.8472	1.0637	0.9912	1.1071	5.644	8	36.00	51.00		
AT1-873		0.9444	1.1840	0.9912	1.4120	11.040	8				
							Statistic		Critical	Skew	Kurt
Auxiliary Test	เฮ										

				Gro	wth and S	Survival	Test-Surv	rival				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II	D:	Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample T		Sediment	:		
Sample Date:			Protocol:				Test Spec	cies:	CT-Chiro	nomus dilı	utus	
Comments:							•					
Сопс-	1	2	3	4	5	6	7	8				
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000				
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000				
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000				
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000				
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000				
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000				
AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000				
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000				
AT1-872	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000				
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000				
			Tr	ansform:	Arcsin Sc	uare Ro	ot		1-Tailed			
Сопс-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control	0.9000	1.0000	1.2490	1.2490	1.2490	0.000	8					
AT1-862		0.3889	0.6322	0.5796	0.6847	8.885	8					
AT1-862 AT1-863	0.3500 0.8375		0.6322 1.1636	0.9912	0.6847 1.2490	8.885 8.502						
AT1-863 AT1-864	0.3500 0.8375 0.8875	0.3889 0.9306 0.9861	1.1636 1.2313	0.9912 1.1071	0.6847 1.2490 1.2490	8.885 8.502 4 .07 4	8					
AT1-863 AT1-864 AT1-865	0.3500 0.8375 0.8875 0.8750	0.3889 0.9306 0.9861 0.9722	1.1636 1.2313 1.2136	0.9912	0.6847 1.2490 1.2490 1.2490	8.885 8.502 4 .07 4 5.413	8 8 8					
AT1-863 AT1-864 AT1-865 AT1-866	0.3500 0.8375 0.8875 0.8750 0.8250	0.3889 0.9306 0.9861 0.9722 0.9167	1.1636 1.2313 1.2136 1.1459	0.9912 1.1071 1.1071 0.9912	0.6847 1.2490 1.2490 1.2490 1.2490	8.885 8.502 4.074 5.413 8.205	8 8 8 8					
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000	0.3889 0.9306 0.9861 0.9722 0.9167 1.0000	1.1636 1.2313 1.2136 1.1459 1.2543	0.9912 1.1071 1.1071 0.9912 1.1071	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120	8.885 8.502 4.074 5.413 8.205 9.198	8 8 8 8 8					
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250	0.3889 0.9306 0.9861 0.9722 0.9167 1.0000 0.0278	1.1636 1.2313 1.2136 1.1459 1.2543 0.1995	0.9912 1.1071 1.1071 0.9912 1.1071 0.1588	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218	8.885 8.502 4.074 5.413 8.205 9.198 37.811	8 8 8 8 8					
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000	0.3889 0.9306 0.9861 0.9722 0.9167 1.0000 0.0278 1.0000	1.1636 1.2313 1.2136 1.1459 1.2543	0.9912 1.1071 1.1071 0.9912 1.1071	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120	8.885 8.502 4. 07 4 5.413 8.205 9.198 37.811 6.521	8 8 8 8 8					
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375	0.3889 0.9306 0.9861 0.9722 0.9167 1.0000 0.0278 1.0000 0.9306	1.1636 1.2313 1.2136 1.1459 1.2543 0.1995	0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490	8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329	8 8 8 8 8 8					
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875	0.3889 0.9306 0.9861 0.9722 0.9167 1.0000 0.0278 1.0000 0.9306 0.8750	1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959	0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490	8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399	8 8 8 8 8 8 8					
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375	0.3889 0.9306 0.9861 0.9722 0.9167 1.0000 0.0278 1.0000 0.9306	1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604	0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490	8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329	8 8 8 8 8 8					
AT1-863 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875	0.3889 0.9306 0.9861 0.9722 0.9167 1.0000 0.0278 1.0000 0.9306 0.8750	1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959	0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490	8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399	8 8 8 8 8 8 8 8 8 8 8 8	1.408	1.895	0.0876		
AT1-863 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.8500	0.3889 0.9306 0.9861 0.9722 0.9167 1.0000 0.0278 1.0000 0.9306 0.8750 0.8472 0.9444	1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.1840	0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.1071 1.4120	8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8	1.408	1.895 Critical	0.0876	Skew	Kurt
AT1-863 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-872 AT1-873 Auxiliary Test Shapiro-Wilk's	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.8500	0.3889 0.9306 0.9861 0.9722 0.9167 1.0000 0.0278 1.0000 0.9306 0.8750 0.8472 0.9444	1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.1840	0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.1071 1.4120	8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8	1.408		0.0876	Skew 0.44503	
AT1-863 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-873 Auxiliary Test Shapiro-Wilk's Equality of var	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.8500 ts	0.3889 0.9306 0.9861 0.9722 0.9167 1.0000 0.0278 1.0000 0.9306 0.8750 0.8472 0.9444	1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.1840	0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.1071 1.4120	8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8 8 8 0.87107		Critical 0.844		0.44503	2.94491
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test Shapiro-Wilk's	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.8500 ts Test indications cannot can	0.3889 0.9306 0.9861 0.9722 0.9167 1.0000 0.0278 1.0000 0.9306 0.8750 0.8472 0.9444 ates norm of be cont	1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.1840	0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 0.9912	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.1071 1.4120	8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 0.87107	1.408 MSDp 0.06487	Critical 0.844 MSB	MSE	0.44503 F-Prob	

				Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II):	Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample Ty	уре:	Sediment			
Sample Date:			Protocol:				Test Spec	ies:	CT-Chiror	nomus dilu	ıtus	
Comments:												
Conc-	1	2	3	4	5	6	7	8		S.D.		
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978		0.16814		
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825		0.20946		
AT1-863	1. 45 25	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722		0.39779		
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600		0.39088		
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850		0.60483		
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425		0.33126		
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250		0.37863		
AT1-868	1.4900	0.0100								1.04652		
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778		0.42221		
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322		0.35563		
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063		0.18157		
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500		0.4094		
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163		0.18969		
				Transform	n: Untran				1-Tailed			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control		1.0000	1.1558	0.8767	1.4522	14.547	8					
AT1-862		0.6172	0.7133	0.5033	1.0825	29.363	8	2.365	2.701	0.5054		
AT1-863	4 0000											
AT1-864		1.1077	1.2803	0.6144	1.7713	31.070	8	-0.665	2.701	0.5054		
	1.0645	0.9210	1.0645	0.3100	1.6789	31.070 36.718	8 8	-0.665 0.488	2.701 2.701	0.5054 0.5054		
AT1-865	1.0645 1.4866	0.9210 1.2862	1.0645 1.4866	0.3100 0.7589	1.6789 2.3656	31.070 36.718 40.686	8 8 8	-0.665 0.488 -1.768	2.701 2.701 2.701	0.5054 0.5054 0.5054		
	1.0645 1.4866 1.8266	0.9210 1.2862 1.5804	1.0645 1.4866 1.8266	0.3100 0.7589 1.3722	1.6789 2.3656 2.2738	31.070 36.718 40.686 18.135	8 8 8	-0.665 0.488 -1.768 -3.586	2.701 2.701 2.701 2.701	0.5054 0.5054 0.5054 0.5054		
AT1-865	1.0645 1.4866 1.8266 1.6580	0.9210 1.2862 1.5804 1.4344	1.0645 1.4866 1.8266 1.6580	0.3100 0.7589 1.3722 1.0810	1.6789 2.3656 2.2738 2.1300	31.070 36.718 40.686 18.135 22.837	8 8 8 8	-0.665 0.488 -1.768 -3.586 -2.684	2.701 2.701 2.701 2.701 2.701	0.5054 0.5054 0.5054 0.5054 0.5054		
AT1-865 AT1-866	1.0645 1.4866 1.8266 1.6580 0.7500	0.9210 1.2862 1.5804 1.4344 0.6489	1.0645 1.4866 1.8266 1.6580 0.7500	0.3100 0.7589 1.3722 1.0810 0.0100	1.6789 2.3656 2.2738 2.1300 1.4900	31.070 36.718 40.686 18.135 22.837 139.536	8 8 8 8 2	-0.665 0.488 -1.768 -3.586 -2.684 1.372	2.701 2.701 2.701 2.701 2.701 2.701	0.5054 0.5054 0.5054 0.5054 0.5054 0.7990		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750	31.070 36.718 40.686 18.135 22.837 139.536 22.161	8 8 8 8 2 8	-0.665 0.488 -1.768 -3.586 -2.684 1.372 -4.006	2.701 2.701 2.701 2.701 2.701 2.701 2.701	0.5054 0.5054 0.5054 0.5054 0.5054 0.7990 0.5054		
AT1-865 AT1-866 AT1-867 AT1-868	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544	8 8 8 8 2 8 8	-0.665 0.488 -1.768 -3.586 -2.684 1.372 -4.006 -1.264	2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701	0.5054 0.5054 0.5054 0.5054 0.5054 0.7990 0.5054 0.5054		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 8 2 8 8	-0.665 0.488 -1.768 -3.586 -2.684 1.372 -4.006 -1.264 2.362	2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701	0.5054 0.5054 0.5054 0.5054 0.5054 0.7990 0.5054 0.5054		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 2 8 8 8	-0.665 0.488 -1.768 -3.586 -2.684 1.372 -4.006 -1.264 2.362 -1.802	2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701	0.5054 0.5054 0.5054 0.5054 0.5054 0.7990 0.5054 0.5054 0.5054		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 8 8 8 8 8	-0.665 0.488 -1.768 -3.586 -2.684 1.372 -4.006 -1.264 2.362	2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701	0.5054 0.5054 0.5054 0.5054 0.5054 0.7990 0.5054 0.5054		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Tes	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 2 8 8 8 8 8 8	-0.665 0.488 -1.768 -3.586 -2.684 1.372 -4.006 -1.264 2.362 -1.802	2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701	0.5054 0.5054 0.5054 0.5054 0.5054 0.7990 0.5054 0.5054 0.5054	Skew	Kurt
AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Tes Kolmogorov D	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 ts	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 2 8 8 8 8 8 S S S S S S S S S S	-0.665 0.488 -1.768 -3.586 -2.684 1.372 -4.006 -1.264 2.362 -1.802	2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701 Critical	0.5054 0.5054 0.5054 0.5054 0.5054 0.7990 0.5054 0.5054 0.5054	Skew -0.0263	Kurt -0.2071
AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-872 AT1-873 Auxiliary Tes Kolmogorov D Bartlett's Test	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 ts	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 2 8 8 8 8 8 Statistic 0.58535 26.0406	-0.665 0.488 -1.768 -3.586 -2.684 1.372 -4.006 -1.264 2.362 -1.802 -2.487	2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701 Critical 1.035 26.217	0.5054 0.5054 0.5054 0.5054 0.5054 0.7990 0.5054 0.5054 0.5054	-0.0263	-0.2071
AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Tes Kolmogorov D	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 ts Test indicates e	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025 ates norm qual varia 0.05)	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 tion (p > 0.	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 2 8 8 8 8 8 Statistic 0.58535 26.0406 MSD u	-0.665 0.488 -1.768 -3.586 -2.684 1.372 -4.006 -1.264 2.362 -1.802 -2.487	2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701 2.701 Critical 1.035 26.217 MSB	0.5054 0.5054 0.5054 0.5054 0.5054 0.7990 0.5054 0.5054 0.5054	-0.0263 F-Prob	

				Gro	wth and	Survival	Test-Grov	wth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II		Swan Cre	ek		
End Date:	12/13/202		Lab ID:				Sample T		Sediment			
Sample Date:			Protocol:				Test Spec		CT-Chiro	nomus dilu	utus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
A T 1-867		1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
				Transform	ı: Untran	sformed			1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	ÇV%	N	t-Stat	Critical	MSD		
Control		N-Mean 1.0000	Mean 1.1558	Min 0.8767	1.4522	CV% 14.547	N 8	t-Stat	Critical	MSD		
	1.1558				1.4522 1.0825			t-Stat 4.660	1.761	MSD 0.1673		
Control	1.1558 0.7133	1.0000	1.1558	0.8767 0.5033 0.6144	1.4522 1.0825 1.7713	14.547	8					
Control *AT1-862	1.1558 0.7133 1.2803 1.0645	1.0000 0.6172 1.1077 0.9210	1.1558 0.7133 1.2803 1.0645	0.8767 0.5033 0.6144 0.3100	1.4522 1.0825 1.7713 1.6789	14.547 29.363	8 8 8 8					
Control *AT1-862 AT1-863 AT1-864 AT1-865	1.1558 0.7133 1.2803 1.0645 1.4866	1.0000 0.6172 1.1077 0.9210 1.2862	1.1558 0.7133 1.2803 1.0645 1.4866	0.8767 0.5033 0.6144 0.3100 0.7589	1.4522 1.0825 1.7713 1.6789 2.3656	14.547 29.363 31.070 36.718 40.686	8 8 8 8					
Control *AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738	14.547 29.363 31.070 36.718 40.686 18.135	8 8 8 8 8					
Control *AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300	14.547 29.363 31.070 36.718 40.686 18.135 22.837	8 8 8 8 8					
Control *AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900	14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536	8 8 8 8 8 8					
Control *AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750	14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161	8 8 8 8 8 8 2					
Control *AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322	14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544	8 8 8 8 8 8 2 8					
Control *AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161	8 8 8 8 8 8 2 8 8					
Control *AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322	14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544	8 8 8 8 8 8 2 8					
Control *AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 8 8 8 8 8 8		1.761			
Control *AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 8 2 8 8 8		1.761		Skew	Kurt
Control *AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test Shapiro-Wilk's	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 ts	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 8 2 8 8 8 8 8 8 8 8 8 8		1.761 Critical 0.844		Skew 0.56801	Kurt -0.2811
Control *AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test Shapiro-Wilk's F-Test indicate	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 ts Test indicases equal va	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 2 8 8 8 8 8 8 8 8 8 8 8 1.55182	4.660	1.761 Critical 0.844 8.88539	0.1673	0.56801	-0.2811
Control *AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 ts Test indices equal values (1-tail,	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025 attes norm	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 2 8 8 8 8 8 8 Statistic 0.96228 1.55182 MSDu		1.761 Critical 0.844 8.88539 MSB			

				Gro	wth and	Survival	lest-Grov	vth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID):	Swan Cre	ek		
End Date:	12/13/202		Lab ID:				Sample T		Sediment			
Sample Date:			Protocol:				Test Spec		CT-Chiror		ıtus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
AT1-862		0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866		1.3722	1,7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3 7 44	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1,4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
***				Transforn					1-Tailed			
Сопс-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control	1.1558	1.0000	1.1558	0.8767	1.4522	14.547	8					
AT1-862	0.7133	0.6172	0.7133	0.5033	1.0825	29.363	8					
AT1-863	1.2803	1.1077	1.2803	0.6144	4 7749	24 070			4 704	0.2689		
AT1-864					1.7713	31.070	8	-0.815	1.761	0.2009		
	1.0645	0.9210	1.0645	0.3100	1.6789	36.718	8	-0.815	1.761	0.2003		
AT1-865	1.0645 1.4866	0.9 2 10 1.2862	1.0645 1.4866	0.3100 0.7589	1.6789 2.3656	36.718 40.686	8 8	-0.815	1.761	0.2009		
	1.0645 1.4866 1.8266	0.9210 1.2862 1.5804	1.0645 1.4866 1.8266	0.3100 0.7589 1.3722	1.6789 2.3656 2. 2 738	36.718 40.686 18.135	8 8 8	-0.815	1.701	0.2009		
AT1-865 AT1-866 AT1-867	1.0645 1.4866 1.8266 1.6580	0.9210 1.2862 1.5804 1.4344	1.0645 1.4866 1.8266 1.6580	0.3100 0.7589 1.3722 1.0810	1.6789 2.3656 2.2738 2.1300	36.718 40.686 18.135 22.837	8 8 8	-0.815	1.761	0.2069		
AT1-865 AT1-866 AT1-867 AT1-868	1.0645 1.4866 1.8266 1.6580 0.7500	0.9210 1.2862 1.5804 1.4344 0.6489	1.0645 1.4866 1.8266 1.6580 0.7500	0.3100 0.7589 1.3722 1.0810 0.0100	1.6789 2.3656 2.2738 2.1300 1.4900	36.718 40.686 18.135 22.837 139.536	8 8 8 8 2	-0.815	1.761	0.2009		
AT1-865 AT1-866 AT1-867	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750	36.718 40.686 18.135 22.837 139.536 22.161	8 8 8 8 2 8	-0.815	1.761	0.2069		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	0.9210 1.2862 1.5804 1.4344 0.6489	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322	36.718 40.686 18.135 22.837 139.536 22.161 25.544	8 8 8 2 8	-0.815	1.761	0.2069		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 2 8 8 8	-0.815	1.761	0.2009		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129	36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 2 8 8 8	-0.815	1.761	0.2009		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 8 8 8 8 8	-0.815		0.2069		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1,6789 2,3656 2,2738 2,1300 1,4900 2,4750 1,7322 0,9844 2,1129 1,9588	36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 2 8 8 8 8 8 8	-0.815	Critical	0.2009	Skew	Kurt
AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Tes Shapiro-Wilk's	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 ts	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1,6789 2,3656 2,2738 2,1300 1,4900 2,4750 1,7322 0,9844 2,1129 1,9588	36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 2 8 8 8 8 8 Statistic 0.93592	-0.815	Critical 0.844	0.2009	Skew -0.7611	Kurt 0.91206
AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-872 AT1-873 Auxiliary Tes Shapiro-Wilk's F-Test indicate	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 ts	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1,6789 2,3656 2,2738 2,1300 1,4900 2,4750 1,7322 0,9844 2,1129 1,9588	36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 2 8 8 8 8 8 Statistic 0.93592 5.59 7 06	Park at the same of	Critical 0.844 8.88539		-0.7611	0.91206
AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Tes Shapiro-Wilk's	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 ts Test indices equal valuest (1-tail,	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025 attes normariances (p	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 2 8 8 8 8 8 8 Statistic 0.93592 5.59 7 06 MSDu	MSDp	Critical 0.844	MSE	-0.7611 F-Prob	

	·			Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II):	Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample T	ype:	Sediment	Ė		
Sample Date:		*	Protocol:				Test Spec		CT-Chiro	nomus dilı	utus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				. "
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
				Transform	n: Untran	sformed			1-Tailed			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control	1.1558	4 0000	1.1558	0.0707	4 4500							
		1.0000		0.8767	1.4522	14.547	8					
AT1-862	0.7133	0.6172	0.7133	0.5033	1.0825	29.363	8 8					
AT1-863	0.7133 1.2803	0.6172 1.1077	0.7133 1.2803	0.5033 0.6144	1.0825 1.7713	29.363 31.070						
AT1-863 AT1-864	0.7133 1.2803 1.0645	0.6172	0.7133 1.2803 1.0645	0.5033	1.0825 1.7713 1.6789	29.363	8	0.607	1.761	0.2650		
AT1-863 AT1-864 AT1-865	0.7133 1.2803 1.0645 1.4866	0.6172 1.1077 0.9210 1.2862	0.7133 1.2803 1.0645 1.4866	0.5033 0.6144 0.3100 0.7589	1.0825 1.7713 1.6789 2.3656	29.363 31.070 36.718 40.686	8 8 8	0.607	1.761	0.2650		
AT1-863 AT1-864 AT1-865 AT1-866	0.7133 1.2803 1.0645 1.4866 1.8266	0.6172 1.1077 0.9210 1.2862 1.5804	0.7133 1.2803 1.0645 1.4866 1.8266	0.5033 0.6144 0.3100 0.7589 1.3722	1.0825 1.7713 1.6789 2.3656 2.2738	29.363 31.070 36.718 40.686 18.135	8 8 8 8	0.607	1.761	0.2650		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580	0.6172 1.1077 0.9210 1.2862 1.5804 1.4344	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580	0.5033 0.6144 0.3100 0.7589 1.3722 1.0810	1.0825 1.7713 1.6789 2.3656 2.2738 2.1300	29.363 31.070 36.718 40.686 18.135 22.837	8 8 8 8 8	0.607	1.761	0.2650		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500	0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500	0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100	1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900	29.363 31.070 36.718 40.686 18.135 22.837 139.536	8 8 8 8 8	0.607	1.761	0.2650		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178	1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750	29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161	8 8 8 8 8 8 2 8	0.607	1.761	0.2650		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025	1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322	29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544	8 8 8 8 8 2 8	0.607	1.761	0.2650		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 8 8 2 8 8	0.607	1.761	0.2650		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463	1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129	29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 8 8 8 8	0.607	1.761	0.2650		
AT1-863 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 8 8 8 8 8 8 8 8 8	0.607		0.2650		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 2 8 8 8 8 8 8 8	0.607	Critical	0.2650	Skew	Kurt
AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 ts	0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 2 8 8 8 8 8 8 8 8 9 9	0.607	Critical 0.844	0.2650	Skew -0.621	Kurt 3.05668
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-873 Auxiliary Test Shapiro-Wilk's F-Test indicate	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 ts Test indicates equal value	0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025 ates norm	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 2 8 8 8 8 8 8 8 8 8 5 5 5 106 5 106 5 107 106 5 107 107 107 107 107 107 107 107 107 107		Critical 0.844 8.88539		-0.621	3.05668
AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test Shapiro-Wilk's	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 ts Test indicases equal valuest (1-tail,	0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025 ates norm riances (p	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 2 8 8 8 8 8 8 Statistic 0.92106 5.40418 MSDu	MSDp	Critical 0.844	MSE	-0.621 F-Prob	

				Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II);	Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample T	ype:	Sediment	t		
Sample Date:			Protocol:				Test Spec		CT-Chiro	nomus dilu	utus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2,0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
				Transforn	n: Untrar	sformed			1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
					MILLA	U • 70			0110000			
Control		1.0000	1.1558	0.8767	1.4522	14.547	8	· out				
AT1-862	0.7133	1.0000 0.6172	1.1558 0.7133	0.8767 0.5033	1.4522 1.0825	14.547 29.363	8 8	· otat				
	0.7133 1.2803	1.0000 0.6172 1.1077	1.1558 0.7133 1.2803	0.8767 0.5033 0.6144	1.4522 1.0825 1.7713	14.547	8	· oux	<u> </u>			
AT1-862	0.7133	1.0000 0.6172	1.1558 0.7133	0.8767 0.5033	1.4522 1.0825	14.547 29.363	8 8	· oux	01111000			
AT1-862 AT1-863 AT1-864 AT1-865	0.7133 1.2803 1.0645 1.4866	1.0000 0.6172 1.1077 0.9210 1.2862	1.1558 0.7133 1.2803 1.0645 1.4866	0.8767 0.5033 0.6144 0.3100 0.7589	1.4522 1.0825 1.7713 1.6789 2.3656	14.547 29.363 31.070 36.718 40.686	8 8 8 8	-1.490	1.860	0.4127		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	0.7133 1.2803 1.0645 1.4866 1.8266	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738	14.547 29.363 31.070 36.718 40.686 18.135	8 8 8 8 8					
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300	14.547 29.363 31.070 36.718 40.686 18.135 22.837	8 8 8 8 8					
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	0.7133 1.2803 1.0645 1.4866 1.8266	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738	14.547 29.363 31.070 36.718 40.686 18.135	8 8 8 8 8 8					
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300	14.547 29.363 31.070 36.718 40.686 18.135 22.837	8 8 8 8 8					
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900	14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536	8 8 8 8 8 8					
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750	14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161	8 8 8 8 8 8 2					
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322	14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544	8 8 8 8 8 8 2 8					
AT1-862 AT1-863 AT1-864 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 8 8 8 2 8 8					
AT1-862 AT1-863 AT1-864 AT1-865 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129	14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 8 2 8 8				Skew	Kurt
AT1-862 AT1-863 AT1-864 AT1-865 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test Shapiro-Wilk's	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 is	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 8 2 8 8 8 8 8 8 8 8 8 8 9 7		1.860 Critical 0.844		Skew 0.55052	Kurt -0.0104
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-873 Auxiliary Test Shapiro-Wilk's F-Test indicate	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 is Test indicases unequal	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 8 2 8 8 8 8 8 8 8 8 8 8 7 12.9395	-1.490	1.860 Critical 0.844 8.88539	0.4127	0.55052	-0.0104
AT1-862 AT1-863 AT1-864 AT1-865 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test Shapiro-Wilk's	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 is Test indicases unequal	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025 attes norm variances	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 tion (p > 0.	1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 8 2 8 8 8 8 8 8 Statistic 0.95706 12.9395 MSDu	-1.490 MSDp	1.860 Critical 0.844 8.88539 MSB		0.55052 F-Prob	

				Gro	wth and	Survival	Test-Gro	wth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II	D:	Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample T	ype:	Sediment			
Sample Date:			Protocol:				Test Spec	cies:	CT-Chiron	nomus di	lutus	
Comments:							•					
Conc-	1	2	3	4	5	6	. 7	8				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978	· · · · · · · · · · · · · · · · · · ·			
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
				Transform	ı: Untran	sformed			1-Tailed			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control		1.0000	1.1558	0.8767	1.4522	14.547						
AT1-862		0.6172	0.7133	0.5033	1.0825	29.363	8					
AT1-863		1.1077	1.2803	0.6144	1.7713	31.070						
AT1-864		0.9210	1.0645	0.3100	1.6789	36.718	8					
AT1-865		1.2862	1.4866	0.7589	2.3656	40.686	8					
AT1-866		1.5804	1.8266	1.3722	2.2738	18.135	8	-5.107	1.761	0.2313	1	
AT1-867		1.4344	1.6580	1.0810	2.1300	22.837	8					
AT1-868		0.6489	0.7500	0.0100	1.4900	139.536	2					
AT1-869		1.6483	1.9052	1.3178	2.4750	22.161	8					
AT1-870		1.2045	1.3922	0.7025	1.7322	25.544	8					
AT1-871	0.7139	0.6177	0.7139	0.4713	0.9844	25.431	8					
AT1-872	1.4930	1.2917	1.4930	0.9463	2.1129	27.421	8					
AT1-873		1.4025	1.6211	1.3911	1.9588	11.701	8					
Auxiliary Test							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's				tion (p > 0.0	01)		0.97239		0.844		0.13621	-0.3483
F-Test indicate			0.09				3.88145		8.88539			
Hypothesis To							MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedasti	c t Test ind	icates no	significan	t difference	s		0.23133	0.20014	1.79996	0.069	1.6E-04	1, 14

				Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID		Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample T		Sediment			
Sample Date:			Protocol:				Test Spec			nomus dilu	utus	
Comments:												
Conc-	1	2	3	4	5	6	7	8				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
				Transform	n: Untran	sformed			1-Tailed			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control	1.1558	1.0000	1.1558	0.8767	1.4522	14.547	8					
AT1-862	0.7400	0.0470	0.7422	0.5000								
	0.7133	0.6172	0.7133	0.5033	1.0825	29.363	8					
AT1-863	1.2803	1.1077	1.2803	0.6144	1.7713	29.363 31.070	8					
AT1-863 AT1-864		1.1077 0.9210	1.2803 1.0645	0.6144 0.3100		31.070 36.718	8 8					
AT1-863	1.2803	1.1077 0.9210 1.2862	1.2803 1.0645 1.4866	0.6144 0.3100 0.7589	1.7713 1.6789 2.3656	31.070	8 8 8					
AT1-863 AT1-864	1.2803 1.0645 1.4866 1.8266	1.1077 0.9210 1.2862 1.5804	1.2803 1.0645 1.4866 1.8266	0.6144 0.3100 0.7589 1.3722	1.7713 1.6789 2.3656 2.2738	31.070 36.718 40.686 18.135	8 8 8					
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	1.2803 1.0645 1.4866	1.1077 0.9210 1.2862 1.5804 1.4344	1.2803 1.0645 1.4866 1.8266 1.6580	0.6144 0.3100 0.7589	1.7713 1.6789 2.3656 2.2738 2.1300	31.070 36.718 40.686 18.135 22.837	8 8 8 8	-3.428	1.761	0.2580		
AT1-863 AT1-864 AT1-865 AT1-866	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500	1.1077 0.9210 1.2862 1.5804 1.4344 0.6489	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900	31.070 36.718 40.686 18.135	8 8 8 8 2	-3.428	1.761	0.2580		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	1.1077 0.9210 1.2862 1.5804 1.4344	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	0.6144 0.3100 0.7589 1.3722 1.0810	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750	31.070 36.718 40.686 18.135 22.837	8 8 8 8 2 8	-3.428	1.761	0.2580		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322	31.070 36.718 40.686 18.135 22.837 139.536	8 8 8 8 2 8 8	-3.428	1.761	0.2580		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750	31.070 36.718 40.686 18.135 22.837 139.536 22.161	8 8 8 8 2 8 8 8	-3.428	1.761	0.2580		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544	8 8 8 8 2 8 8	-3.428	1.761	0.2580		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	31,070 36,718 40,686 18,135 22,837 139,536 22,161 25,544 25,431	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	-3.428	1.761	0.2580		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129	31,070 36,718 40,686 18,135 22,837 139,536 22,161 25,544 25,431 27,421	8 8 8 8 8 8 8 8 8 8 8	-3.428	1.761	0.2580	Skew	Kurt
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test Shapiro-Wilk's	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	31,070 36,718 40,686 18,135 22,837 139,536 22,161 25,544 25,431 27,421	8 8 8 8 2 8 8 8 8 8 Statistic 0.97582	-3.428	Critical 0.844	0.2580	Skew -0.323	Kurt -0.19
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test Shapiro-Wilk's F-Test indicate	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 ts Test indicates equal va	1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	31,070 36,718 40,686 18,135 22,837 139,536 22,161 25,544 25,431 27,421	8 8 8 8 2 8 8 8 8 8 8 Statistic 0.97582 5.07094		Critical 0.844 8.88539	0.2580	-0.323	-0.19
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test Shapiro-Wilk's	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 ts Test indicases equal valuest (1-tail,	1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025 ates normalizates (p. 0.05)	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 tion (p > 0.	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	31,070 36,718 40,686 18,135 22,837 139,536 22,161 25,544 25,431 27,421	8 8 8 8 2 8 8 8 8 8 Statistic 0.97582	-3.428 MSDp 0.2232	Critical 0.844 8.88539 MSB	0.2580 MSE 0.08582	-0.323 F-Prob	

				Gro	wtn and	Survivai	Test-Grov	NTN				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II	D:	Swan Cre	eek		
End Date:	12/13/202	1	Lab ID:				Sample T	уре:	Sediment	t		
Sample Date:			Protocol:				Test Spec	cies:	CT-Chiro	nomus dil	utus	
Comments:												
Conc-	1	2	3	4	5	6	7	8				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864	1.1767	1,2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2,2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
				Transform	: Untran	sformed			1-Tailed		*************	
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control	1.1558	1.0000	1.1558	0.8767	1.4522	14.547	8					
AT1-862	0.7133	0.6172	0.7133	0.5033	1.0825	29.363	8					
AT1-863	1.2803	1.1077	1.2803	0.6144	1.7713	31.070	8					
AT1-864	1.0645	0.9210	1.0645	0.3100	1.6789	36.718	8					
AT1-865	1.4866	1.2862	1.4866	0.7589	2.3656	40.686	8					
AT1-866	1.8266	1.5804	1.8266	1.3722	2.2738	18.135	8					
AT1-867	1.6580	1.4344	1.6580	1.0810	2.1300	22.837	8					
AT1-868	0.7500	0.6489	0.7500	0.0100	1.4900	139.536	2	0.547	6.314	4.6872		
AT1-869	1.9052	1.6483	1.9052	1.3178	2.4750	22.161	8					
AT1-870	1.3922	1.2045	1.3922	0.7025	1.7322	25.544	8					
AT1-871	0.7139	0.6177	0.7139	0.4713	0.9844	25,431	8					
AT1-872	1.4930	1.2917	1.4930	0.9463	2.1129	27.421	8					
AT1-873	1.6211	1.4025	1.6211	1.3911	1.9588	11.701	8					
Auxiliary Test	:s						Statistic		Critical		Skew	Kurt
Shapiro-Wilk's	Test indica	ates norm	nal distribu	tion (p > 0.0	01)		0.93526		0.781		0.00663	2.1521
F-Test indicate					-		38.7386		16.2356			
Hypothesis Te							MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedast	ic t Test inc	ticates no	o significat	nt difference	20		4 68723	4.05528	0.26352	0.16164	0 23747	1, 8

				Gro	wth and	Survival	Test-Grov	wth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II	D:	Swan Cre	eek		
End Date:	12/13/202	1	Lab ID:				Sample T	уре:	Sedimen	t		
Sample Date:			Protocol:				Test Spec	cies:	CT-Chiro	nomus dil	utus	
Comments:												
Conc-	1	2	3	4	5	6	7	8	10			
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738		2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450		1.6500				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
				Transforn	n: Untran	sformed			1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control	1.1558	1.0000	1.1558	0.8767	1.4522	14.547	8					
AT1-862	0.7133	0.6172	0.7133	0.5033	1.0825	29.363	8					
AT1-863	1.2803	1.1077	1.2803	0.6144	1.7713	31.070	8					
AT1-864	1.0645	0.9210	1.0645	0.3100	1.6789	36.718						
					1.0100	30.710	8					
AT1-865	1.4866	1.2862	1.4866	0.7589	2.3656	40.686	8 8					
AT1-865 AT1-866	1.4866 1.8266	1.2862 1.5804	1.4866 1.8266	0.7589 1.3 722								
					2.3656	40.686	8					
AT1-866	1.8266	1.5804	1.8266	1.3722	2.3656 2.2738	40.686 18.135	8 8					
AT1-866 AT1-867 AT1-868 AT1-869	1.8266 1.6580 0.7500 1.9052	1.5804 1.4344 0.6489 1.6483	1.8266 1.6580	1.3 722 1.0810	2.3656 2.2738 2.1300	40.686 18.135 22.837	8 8 8	-4.664	1.761	0.2830		
AT1-866 AT1-867 AT1-868	1.8266 1.6580 0.7500	1.5804 1.4344 0.6489	1.8266 1.6580 0.7500	1.3 722 1.0810 0.0100	2.3656 2.2738 2.1300 1.4900	40.686 18.135 22.837 139.536	8 8 8 2	-4.664	1.761	0.2830		
AT1-866 AT1-867 AT1-868 AT1-869	1.8266 1.6580 0.7500 1.9052	1.5804 1.4344 0.6489 1.6483	1.8266 1.6580 0.7500 1.9052	1.3722 1.0810 0.0100 1.3178	2.3656 2.2738 2.1300 1.4900 2.4750	40.686 18.135 22.837 139.536 22.161	8 8 8 2 8	-4.664	1.761	0.2830		
AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	1.8266 1.6580 0.7500 1.9052 1.3922	1.5804 1.4344 0.6489 1.6483 1.2045	1.8266 1.6580 0.7500 1.9052 1.3922	1.3722 1.0810 0.0100 1.3178 0.7025	2.3656 2.2738 2.1300 1.4900 2.4750 1.7322	40.686 18.135 22.837 139.536 22.161 25.544	8 8 8 2 8	-4.664	1.761	0.2830		
AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	1.5804 1.4344 0.6489 1.6483 1.2045 0.6177	1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 2 8 8	-4.664	1.761	0.2830		
AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873	1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917	1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463	2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129	40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 2 8 8 8	-4.664	1.761	0.2830	Skew	Kurt
AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873	1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 2 8 8 8 8	-4.664		0.2830	Skew 0.10625	Kurt -0.1465
AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test Shapiro-Wilk's	1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 s	1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 2 8 8 8 8 8 8	-4.664	Critical	0.2830		
AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872	1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 s	1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 2 8 8 8 8 8 Statistic 0.97122	-4.664 MSDp	Critical 0.844	0.2830 MSE		

				Gro	wth and	Survival	Test-Gro	wth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II		Swan Cre	eek		
End Date:	12/13/202	1	Lab ID:				Sample T	ype:	Sediment	t		
Sample Date:			Protocol:				Test Spe	cies:	CT-Chiro	nomus dili	utus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				***************************************
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-8 7 1	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
				Transform	: Untran	sformed			1-Tailed			·
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control	1.1558	1.0000	1.1558	0.8767	1. 4 522	14.547	8					
AT1-862	0.7133	0.6172	0.7133	0.5033	1.0825	29.363	8					
AT1-863	1.2803	1.1077	1.2803	0.6144	1.7713	31.070	8					
AT1-864	1.0645	0.9210	1.0645	0.3100	1.6789	36.718	8					
AT1-865	1.4866	1.2862	1.4866	0.7589	2.3656	40.686	8					
AT1 - 866	1.8266	1.5804	1.8266	1.3722	2.2738	18.135	8					
AT1-867	1.6580	1.434 4	1.6580	1.0810	2.1300	22.837	8					
AT1-868	0.7500	0.6489	0.7500	0.0100	1.4900	139.536	2					
AT1-869	1.9052	1.6483	1.9052	1.3178	2.4750	22.161	8					
AT1-870	1.3922	1.2045	1.3922	0.7025	1.7322	25.544	8	-1.700	1.761	0.2450		
AT1-871	0.7139	0.6177	0.7139	0.4713	0.9844	25.431	8					
AT1-8 7 2	1.4930	1.2917	1.4930	0.9463	2.1129	27.421	8					
AT1-873	1.6211	1.4025	1.6211	1.3911	1.9588	11.701	8					
Auxiliary Test					,		Statistic		Critical		Skew	Kurt
Shapiro-Wilk's	Test indica	ates norm	al distribu	tion (p > 0.0	01)		0.90862		0.844		-1.123	1.74117
F-Test indicate	s equal va	riances (p	0 = 0.07	·			4.47343		8.88539			
Hypothesis Te	est (1-tail,	0.05)					MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic	ctTestind	icates no	significan	t difference	s		0.24496	0.21193	0.22352	0.07737	0.11129	1, 14

				Gro	wth and	Survival	Test-Grov	wth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II		Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample T		Sediment			
Sample Date:			Protocol:				Test Spec	7 1	CT-Chiro	nomus dilu	utus	
Comments:												
Conc-	1	2	3	4	5	6	7	8				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864	1.1767	1.2244	0.8363	1,1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
				Transform	ı: Untran	sformed			1-Tailed			
Сопс-	Меал	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control	1.1558	1.0000	1.1558	0.8767	1.4522	14.547	8					
AT1-862	0.7133	0.6172	0.7133	0.5033	1.0825	29.363	8					
AT1-863	4.0000			0.0444								
AT4 004	1.2803	1.1077	1.2803	0.6144	1.7713	31.070	8					
AT1-864	1.0645	0.9210	1.0645	0.3100	1.6789	36.718	8					
AT1-865	1.0645 1.4866	0.9210 1.2862	1.0645 1.4866	0.3100 0.7589	1.6789 2.3656		8 8					
AT1-865 AT1-866	1.0645 1.4866 1.8266	0.9210 1.2862 1.5804	1.0645 1.4866 1.8266	0.3100 0.7589 1.3722	1.6789 2.3656 2.2738	36.718 40.686 18.135	8 8 8					
AT1-865	1.0645 1.4866 1.8266 1.6580	0.9210 1.2862 1.5804 1.4344	1.0645 1.4866 1.8266 1.6580	0.3100 0.7589 1.3722 1.0810	1.6789 2.3656 2.2738 2.1300	36.718 40.686 18.135 22.837	8 8 8					
AT1-865 AT1-866 AT1-867 AT1-868	1.0645 1.4866 1.8266 1.6580 0.7500	0.9210 1.2862 1.5804 1.4344 0.6489	1.0645 1.4866 1.8266 1.6580 0.7500	0.3100 0.7589 1.3722 1.0810 0.0100	1.6789 2.3656 2.2738 2.1300 1.4900	36.718 40.686 18.135 22.837 139.536	8 8 8 8					
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750	36.718 40.686 18.135 22.837 139.536 22.161	8 8 8 8 2 8					
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322	36.718 40.686 18.135 22.837 139.536 22.161 25.544	8 8 8 8 2 8					
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 *AT1-871	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750	36.718 40.686 18.135 22.837 139.536 22.161	8 8 8 8 2 8 8	5.051	1.761	0.1541		
AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 *AT1-871 AT1-872	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129	36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 8 8	5.051	1.761	0.1541		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 *AT1-871	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 8 8 8 8 8	5.051		0.1541		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 *AT1-871 AT1-872 AT1-873	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 2 8 8 8 8 8 8	5.051	Critical	0.1541	Skew	Kurt
AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 *AT1-871 AT1-872 AT1-873	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 8 8 8	5.051	Critical 0.844	0.1541	Skew -0.0296	Kurt -0.4818
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 *AT1-871 AT1-872 AT1-873	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 2 8 8 8 8 8 8 Statistic 0.95854 1.16607		Critical 0.844 8.88539		-0.0296	-0.4818
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 *AT1-871 AT1-872 AT1-873 Auxiliary Test	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 ts Test indices equal values (1-tail,	0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025 ates normances (p. 0.05)	1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 tion (p > 0.4	1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 2 8 8 8 8 8 8 Statistic 0.95854	MSDp	Critical 0.844	MSE		

•				Gro	wth and	Survival	Test-Grov	wth	*			
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II):	Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample T	ype:	Sediment	Ì		
Sample Date:			Protocol:				Test Spec		CT-Chiro	nomus dilu	utus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978		****		
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865		1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866		1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1 - 867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870		1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
				Transform	ı: Untran	sformed			1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control	1.1558	1.0000	1.1558	0.8767	1.4522	14.547	8					
AT1-862		0.0470	0.7422	0.5033	4.000	00 000						
A11-002	0.7133	0.6172	0.7133	0.0000	1.0825	29.363	8					
AT1-863	0.7133 1.2803	1.1077	1.2803	0.6144	1.7713	29.363 31.070	8 8					
AT1-863	1.2803	1.1077	1.2803	0.6144	1.7713 1.6789 2.3656	31.070	8 8 8					
AT1-863 AT1-864	1.2803 1.0645	1.1077 0.9210	1.2803 1.0645	0.6144 0.3100	1.7713 1.6789	31.070 36.718	8 8 8					
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	1.2803 1.0645 1.4866	1.1077 0.9210 1.2862 1.5804 1.4344	1.2803 1.0645 1.4866 1.8266 1.6580	0.6144 0.3100 0.7589	1.7713 1.6789 2.3656 2.2738 2.1300	31.070 36.718 40.686	8 8 8 8					
AT1-863 AT1-864 AT1-865 AT1-866	1.2803 1.0645 1.4866 1.8266	1.1077 0.9210 1.2862 1.5804	1.2803 1.0645 1.4866 1.8266	0.6144 0.3100 0.7589 1.3722	1.7713 1.6789 2.3656 2.2738	31.070 36.718 40.686 18.135	8 8 8 8 2					
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	1.2803 1.0645 1.4866 1.8266 1.6580	1.1077 0.9210 1.2862 1.5804 1.4344	1.2803 1.0645 1.4866 1.8266 1.6580	0.6144 0.3100 0.7589 1.3722 1.0810	1.7713 1.6789 2.3656 2.2738 2.1300	31.070 36.718 40.686 18.135 22.837	8 8 8 8					
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500	1.1077 0.9210 1.2862 1.5804 1.4344 0.6489	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900	31.070 36.718 40.686 18.135 22.837 139.536	8 8 8 8 2					
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750	31.070 36.718 40.686 18.135 22.837 139.536 22.161	8 8 8 8 2 8					
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544	8 8 8 8 2 8	-2.155	1.761	0.2756		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 8 2 8 8	-2.155	1.761	0.2756		
AT1-863 AT1-865 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 2 8 8 8	-2.155	1.761	0.2756	Skew	Kurt
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 2 8 8 8 8	-2.155	Critical 0.844	0.2756		Kurt 0.24958
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 2 8 8 8 8 8 Statistic 0.97259 5.92843		Critical 0.844 8.88539			
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test Shapiro-Wilk's	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 ts	1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 2 8 8 8 8 8 S S S S S S S S S S	MSDp	Critical 0.844 8.88539 MSB	0.2756 MSE 0.09794	0.13711 F-Prob	

				Gro	owth and	Survival	Test-Gro	wth	· .			
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II		Swan Cre	eek		
End Date:	12/13/202		Lab lD:				Sample T		Sedimen			
Sample Date:			Protocol:				Test Spe	* .		- nomus dil	utus	
Comments:									• • • • • • • • • • • • • • • • • • • •			
Conc-	1	2	3	4	5	6	7	8				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744					
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656					
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
		_		I ranstorn	n: Untrar	sformed			1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	n: Untrar Max	sformed CV%	N	t-Stat	1-Tailed Critical	MSD		
Control	1.1558	1.0000					N 8	t-Stat		MSD		
Control AT1-862	1.1558 0.7133	1.0000 0.6172	Mean 1.1558 0.7133	Min 0.8767 0.5033	Max 1.4522 1.0825	CV%		t-Stat		MSD		-
Control AT1-862 AT1-863	1.1558 0.7133 1.2803	1.0000 0.6172 1.1077	Mean 1.1558	Min 0.8767 0.5033 0.6144	Max 1.4522 1.0825 1.7713	CV% 14.547	8 8 8	t-Stat		MSD		
Control AT1-862 AT1-863 AT1-864	1.1558 0.7133 1.2803 1.0645	1.0000 0.6172 1.1077 0.9210	Mean 1.1558 0.7133 1.2803 1.0645	Min 0.8767 0.5033	Max 1.4522 1.0825 1.7713 1.6789	CV% 14.547 29.363	8 8 8 8	t-Stat		MSD		
Control AT1-862 AT1-863 AT1-864 AT1-865	1.1558 0.7133 1.2803 1.0645 1.4866	1.0000 0.6172 1.1077 0.9210 1.2862	Mean 1.1558 0.7133 1.2803 1.0645 1.4866	Min 0.8767 0.5033 0.6144 0.3100 0.7589	Max 1.4522 1.0825 1.7713 1.6789 2.3656	CV% 14.547 29.363 31.070 36.718 40.686	8 8 8 8	t-Stat		MSD		-
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804	Mean 1.1558 0.7133 1.2803 1.0645 1.4866 1.8266	Min 0.8767 0.5033 0.6144 0.3100 0.7589 1.3722	Max 1.4522 1.0825 1.7713 1.6789 2.3656 2.2738	CV% 14.547 29.363 31.070 36.718 40.686 18.135	8 8 8 8 8	t-Stat		MSD		
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344	Mean 1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580	Min 0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810	Max 1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300	CV% 14.547 29.363 31.070 36.718 40.686 18.135 22.837	8 8 8 8 8	t-Stat		MSD		
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489	Mean 1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500	Min 0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100	Max 1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900	CV% 14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536	8 8 8 8 8 8	t-Stat		MSD		
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483	Mean 1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	Min 0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178	Max 1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750	CV% 14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161	8 8 8 8 8 8 8	t-Stat		MSD		
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045	Mean 1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	Min 0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025	Max 1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322	CV% 14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536	8 8 8 8 8 8 2 8	t-Stat		MSD		
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177	Mean 1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	Min 0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	Max 1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	CV% 14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 8 8 8 2 8 8	t-Stat		MSD		
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917	Mean 1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	Min 0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463	Max 1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129	CV% 14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 8 2 8 8	t-Stat	Critical	MSD		
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177	Mean 1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	Min 0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	Max 1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	CV% 14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 8 8 8 8 8 8 8 8 8 8	t-Stat -5.192	Critical	MSD 0.1578		
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	Mean 1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	Min 0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	Max 1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	CV% 14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 2 8 8 8 8 8 8		1.761 Critical		Skew	Kurt
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test Shapiro-Wilk's	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 s	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	Mean 1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 al distribut	Min 0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	Max 1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	CV% 14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 8 2 8 8 8 8 8 8 8 8 8 8 8		1.761 Critical 0.844		Skew 0.33151	Kurt -0.1233
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test Shapiro-Wilk's F-Test indicate	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 s	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025	Mean 1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 al distribut	Min 0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	Max 1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	CV% 14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 8 2 8 8 8 8 8 8 8 8 8 1.27276	-5.192	1.761 Critical 0.844 8.88539	0.1578	0.33151	-0.1233
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test Shapiro-Wilk's	1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 s Test indicases equal values (1-tail,	1.0000 0.6172 1.1077 0.9210 1.2862 1.5804 1.4344 0.6489 1.6483 1.2045 0.6177 1.2917 1.4025 eates normariances (p	Mean 1.1558 0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 al distribut = 0.76)	Min 0.8767 0.5033 0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 tion (p > 0.	Max 1.4522 1.0825 1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	CV% 14.547 29.363 31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 8 2 8 8 8 8 8 Statistic 0.96945 1.27276 MSDu		1.761 Critical 0.844 8.88539			

				Gre	owth and	Survival 1	Test-Surv	rival			-
Start Date:	12/3/202		Test ID:	TN-21-77	1		Sample II		Swan Cre	ek	 -
End Date:	12/13/20:	21	Lab ID:				Sample T		Sediment		
Sample Date:			Protocol:				Test Spec			nomus dilutus	
Comments:									OT OTHEOR	ionius unutus	
Conc-	1	2	3	4	5	6	7	8			
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000			
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000			
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000			
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000			
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000			
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000			
AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000			
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000			
AT1-872	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000			
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
		<u> </u>		ansform:		uare Roo	ot.5000	Rank	1-Tailed		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-863	0.8375	1.0000	1.1636	0.9912	1.2490	8.502	8				_
*AT1-862	0.3500	0.4179	0.6322	0.5796	0.6847	8.885	8	36.00	47.00		
AT1-864	0.8875	1.0597	1.2313	1.1071	1.2490	4.074	8	80.50	47.00		
AT1-865	0.8750	1.0448	1.2136	1.1071	1.2490	5.413	8	77.00	47.00		
AT1-866	0.8250	0.9851	1.1459	0.9912	1.2490	8.205	8	64.50	47.00		
AT1-867	0.9000	1.0746	1.2543	1.1071	1.4120	9.198	8	81.00	47.00		
*AT1-868	0.0250	0.0299	0.1995	0.1588	0.3218	37.811	8	36.00	47.00		
AT1-869	0.9000	1.0746	1.2517	1.1071	1.4120	6.521	8	82.50	47.00		
AT1-870	0.8375	1.0000	1.1604	1.1071	1.2490	6.329	8	66.50	47.00		
AT1-871	0.7875	0.9403	1.0959	0.9912	1.2490	7.399	8	55.50	47.00		
AT1-872	0.7625	0.9104	1.0637	0.9912	1.1071	5.644	8	50.00	47.00		
AT1-873	0.8500	1.0149	1.1840	0.9912	1.4120	11.040	8	70.00	47.00 47.00		
Control	0.9000	1.0746	1.2490	1.2490	1.2490	0.000	8	84.00	47.00		
uxiliary Tests				•			Statistic	0-7.00	Critical	Skew	V····
olmogorov D T	est indica	tes norma	l distributi	on (p > 0.0)1)		1.00328	·	1.035		Kurt
quality of varia	nce cann	ot be confi	rmed	(,- 010	,				1.033	0.08845	0.36405
ypothesis Tes	st (1-tail, (0.05)									

Wilcoxon Rank Sum Test indicates no significant differences

				Gro	wth and	Survival	Test-Survi	val			
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID);	Swan Cree	k	
End Date:	12/13/202	21	Lab ID:				Sample Ty	ype:	Sediment		
Sample Date:			Protocol:				Test Spec	ies:	CT-Chirono	omus dilutus	
Comments:							•				
Conc-	1	2	3	4	5	6	7	8			
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000			•
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000			
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000			
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000			
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000			
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000			
AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000			
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000			
AT1-872	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000			
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
				ansform:	Arcsin Sc	uare Ro	ot	Rank	1-Tailed		
Conc-	Mean	N-Mean	Me an	Min	Max	CV%	N	Sum	Critical		
AT1-863		1.0000	1.1636	0.9912	1.2490	8.502	8				
*AT1-862	0.3500	0.4179	0.6322	0.5796	0.6847	8.885	8	36.00	51.00		
AT1-864		1.0597	1.2313	1.1071	1.2490	4.074	8				
AT1-865	0.8750	1.0448	1.2136	1.1071	1.2490	5.413	8				
AT1-866	0.8250	0.9851	1.1459	0.9912	1.2490	8.205	8				
AT1-867	0.9000	1.0746	1.2543	1.1071	1.4120	9.198	8				
AT1-868	0.0250	0.0299	0.1995	0.1588	0.3218	37.811	8				
AT1-869	0.9000	1.0746	1.2517	1.1071	1.4120	6.521	8				
AT1-870	0.8375	1.0000	1.1604	1.1071	1.2490	6.329	8				
AT1-871	0.7875	0.9403	1.0959	0.9912	1.2490	7.399	8				
AT1-872	0.7625	0.9104	1.0637	0.9912	1.1071	5.644	8				
AT1-873	0.8500	1.0149	1.1840	0.9912	1.4120	11.040	8				
Control	0.9000	1.0746	1.2490	1.2490	1.2490	0.000	8				
Auxiliary Test	ts						Statistic		Critical	Skew	Kurt
Shapiro-Wilk's	Test indic	ates non-	normal dis	tribution (p	<= 0.01)		0.83131		0.844	-0.515	-0.4607
F-Test indicate	es equal va	ariances (p	0 = 0.16	**	,		3.10192		8.88539		
Hypothesis To	est (1-tail.	0.05)									

Reviewed by: _____

				Gro	wth and	Survival	Test-Sur	vival				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample	D:	Swan Cr	eek		_
End Date:	12/13/202	1	Lab ID:				Sample	Гуре:	Sedimer			
Sample Date:			Protocol:				Test Spe			onomus di	lutus	
Comments:			_				•					
Conc-	1	2	3	4	5	6	7	8				
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000		-		
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000					
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000					
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000					
AT1 - 866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000						
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000						
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000						
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000						
AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000		0.9000				
AT1- 871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000						
AT1-872	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000						
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000						
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000		0.9000				
	···-		Tr	ansform:					1-Tailed			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	0.8375	1.0000	1.1636	0.9912	1.2490	8.502	8					
AT1-862	0.3500	0.4179	0.6322	0.5796	0.6847	8.885	8					
AT1-864	0.8875	1.0597	1.2313	1.1071	1.2490	4.074		-1.727	1.761	0.0691		
AT1-865	0.8750	1.0448	1.2136	1.1071	1.2490	5.413	8					
AT1-866	0.8250	0.9851	1.1459	0.9912	1.2490	8.205	8					
AT1-867	0.9000	1.0746	1.2543	1.1071	1.4120	9.198	8					
AT1-868	0.0250	0.0299	0.1995	0.1588	0.3218	37.811	8					
AT1-869	0.9000	1.0746	1.2517	1.1071	1.4120	6.521	8					
AT1-870	0.8375	1.0000	1.1604	1.1071	1.2490	6.329	8					
AT1-871	0.7875	0.9403	1.0959	0.9912	1.2490	7.399	8					
AT1 -87 2	0.7625	0.9104	1.0637	0.9912	1.1071	5.644	8					
AT1-873	0.8500	1.0149	1.1840	0.9912	1.4120	11.040	8					
Control	0.9000	1.0746	1.2490	1.2490	1.2490	0.000	8					
Auxiliary Tests				-		•	Statistic		Critical		Skew	Kurt
Shapiro-Wilk's	Test indica	tes norm	al distribut	ion (p > 0.0	01)	-	0.86777		0.844	-	-0.8839	0.42101
F-Test indicates	s equal var	iances (p	0.09	·•	•		3.88814		8.88539		2.5550	5. IL 101
Hypothesis Te						_	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic	t Test indi	cates no	significant	difference	s					0.00615		1, 14

				Grov	wth and S	Survival 1	rest-Survi	val				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID	:	Swan Cre	ek		
End Date:	12/13/2021		Lab ID:				Sample Ty	pe:	Sediment			
Sample Date:			Protocol:				Test Speci	es:	CT-Chiron	omus dilu	tus	
Comments:							<u> </u>					
Conc-	1	2	3	4	5	6	7	8				
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000				
AT1-862		0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000				
AT1-864		0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-865		0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000				
AT1-866		0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000				
AT1-867		0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000				
AT1-868		0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
AT1-869		0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000				
AT1-870		0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000				
AT1-871		0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000				
AT1-872		0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000				
AT1-873		0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000				
Control		0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
			Tı	ransform:	Arcsin Sc		ot		1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	0.8375	1.0000	1.1636	0.9912	1.2490	8.502	8					
AT1-862	0.3500	0.4179	0.6322	0.5796	0.6847	8.885	8					
AT1-864	0.8875	1.0597	1.2313	1.1071	1.2490	4.074	8					
AT1-865	0.8750	1.0448	1.2136	1.1071	1.2490	5.413	8	-1.190	1.761	0.0739		
AT1-866	0.8250	0.9851	1.1459	0.9912	1.2490	8.205	8					
AT1-867	0.9000	1.0746	1.2543	1.1071	1.4120	9.198	8					
AT1-868		0.0299	0.1995	0.1588	0.3218	37.811	8					
AT1-869		1.0746	1.2517	1.1071	1.4120	6.521	8					
AT1-870		1.0000	1.1604		1.2490	6.329	8					
AT1-871	0.7875	0.9403	1.0959	0.9912	1.2490	7.399	8					
AT1-872	0.7625	0.9104	1.0637		1.1071	5.644						
AT1-873	0.8500	1.0149	1.1840	0.9912	1.4120	11.040	8					
Contro	0.9000	1.0746	1.2490	1.2490	1.2490	0.000						161
Auxiliary Tes							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's				tion (p > 0.	.01)		0.86348		0.844		-0.7586	-0.5012
	to a could vo	riances (r	a = 0.30				2.26808		8.88539			
F-Test indicat			<i>J</i> 0.00)						HADD	MCE	F D	46
F-Test indicat Hypothesis 1 Homoscedast	ſest (1-tail,	0.05)			· w-		MSDu 0.05733	MSDp 0.068	MSB	MSE 0.00705	F-Prob	df 1, 14

	_			Grov	vth and S	Survival 1	Test-Survi	val				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID):	Swan Cre	ek		
End Date:	12/13/2021		Lab ID:				Sample Ty	/pe:	Sediment			
Sample Date:			Protocol:				Test Spec	ies:	CT-Chiron	omus dilu	tus	
Comments:												
Conc-	1	2	3	4	5	6	7	8				
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000				
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000				
AT1-864		0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-865		0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000				
AT1-866		0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000				
AT1-867		0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000				
AT1-868		0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
AT1-869		0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000				
AT1-870		0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000				
AT1-871		0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000				
AT1-872		0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000				
AT1-873		0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000				
Control		0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
			T	ransform: /	Arcsin Sc				1-Tailed			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863		1.0000	1.1636	0.9912	1.2490	8.502	8					
AT1-862		0.4179	0.6322	0.5796	0.6847	8.885	8					
AT1-864	0.8875	1.0597	1.2313	1.1071	1.2490	4.074	8					
AT1-865	0.8750	1.0448	1.2136	1.1071	1.2490	5.413	8					
AT1-866		0.9851	1.1459	0.9912	1.2490	8.205	8	0.368	1.761	0.0850		
AT1-867		1.0746	1.2543		1.4120	9.198	8					
AT1-868	0.0250	0.0299	0.1995	0.1588	0.3218	37.811	8					
AT1-869		1.0746	1.2517		1.4120	6.521	8					
AT1-870		1.0000	1.1604	1.1071	1.2490	6.329	8					
AT1-871		0.9403	1.0959	0.9912	1. 2490	7.399	8					
	0.7625	0.9104	1.0637	0.9912	1.1071	5.644	8					
AT1-872	0.1020											
AT1-872 AT1-873		1.0149	1.1840	0.9912	1.4120	11.040	8					
	0.8500		1.1840 1.2490		1.4120 1.2490	11.040 0.00 <u>0</u>	8					
AT1-873	0.8500 0.9000	1.0149					8 Statistic		Critical		Skew	Kurt
AT1-873 Contro	0.8500 0.9000 ts	1.0149 1.0746	1.2490	1.2490	1.2490		8 Statistic 0.84717		0.844		Skew -0.3583	Kurt -1.0052
AT1-873 Control Auxiliary Tes	0.8500 0.9000 ets s Test indica	1.0149 1.0746 ates nom	1.2490 nal distrib	1.2490	1.2490		8 Statistic 0.84717 1.10719		0.844 8.88539		-0.3583	-1.0052
AT1-873 Control Auxiliary Tes Shapiro-Wilk's	3 0.8500 i 0.9000 its s Test indica es equal va est (1-tail,	1.0149 1.0746 ates nom riances (0.05)	1.2490 nal distrib p = 0.90)	1.2490 ution (p > 0.	1,2490 01)		8 Statistic 0.84717 1.10719 MSDu	MSDp	0.844	MSE		

		***		Grov	wth and S	Survival 7	Test-Survi	val	·			
Start Date:	12/3/2021	· · · ·	Test ID:	TN-21-771			Sample ID):	Swan Cre	ek		
End Date:	12/13/2021		Lab ID:				Sample Ty	/pe:	Sediment			
Sample Date:			Protocol:				Test Spec	ies:	CT-Chiron	nomus dilu	tus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000			·	
AT1-862		0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000				
AT1-864		0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-865		0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000				
AT1-866		0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000				
AT1-867		0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000				
AT1-868		0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
AT1-869		0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000				
AT1-870		0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000				
AT1-871		0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000				
AT1-872		0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000				
AT1-873		0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000				
Control		0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
			T	ransform:	Arcsin Sc				1-Tailed			
Conc-	Mean	N-Mean	Меап	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	0.8375	1.0000	1.1636	0.9912	1.2490	8.502	8					
AT1-862	0.3500	0.4179	0.6322		0.6847	8.885	8					
AT1-864	0.8875	1.0597	1.2313	1.1071	1.2490	4.074	8					
AT1-865	0.8750	1.0448	1.2136	1.1071	1.2490	5.413	8					
AT1-866		0.9851	1.1459	0.9912	1.2490	8.205	8					
AT1-867	0.9000	1.0746	1.2543	1.1071	1.4120	9.198	8	-1.688	1.761	0.0946		
AT1-868												
A11-000		0.0299	0.1995	0.1588	0.3218	37.811	8					
AT1-869	0.9000	1.0746	1.2517	1.1071	1.4120	37.811 6.521	8 8					
	0.9000 0.8375	1.0746 1.0000	1.2517 1.1604	1.1071 1.1071	1.4120 1.2490	37.811 6.521 6.329	8 8 8					
AT1-869	0.9000 0.8375 0.7875	1.0746 1.0000 0.9403	1.2517 1.1604 1.0959	1.1071 1.1071 0.9912	1.4120 1.2490 1.2490	37,811 6,521 6,329 7,399	8 8 8					
AT1 - 869 AT1 - 870	0.9000 0.8375 0.7875	1.0746 1.0000 0.9403 0.9104	1.2517 1.1604 1.0959 1.063 7	1.1071 1.1071 0.9912 0.9912	1.4120 1.2490 1.2490 1.1071	37.811 6.521 6.329 7.399 5.644	8 8 8 8					
AT1-869 AT1-870 AT1-871	0.9000 0.8375 0.7875 0.7625 0.8500	1.0746 1.0000 0.9403 0.9104 1.0149	1.2517 1.1604 1.0959 1.063 7 1.1840	1.1071 1.1071 0.9912 0.9912 0.9912	1.4120 1.2490 1.2490 1.1071 1.4120	37.811 6.521 6.329 7.399 5.644 11.040	8 8 8 8 8					
AT1-869 AT1-870 AT1-871 AT1-873 AT1-873 Contro	0.9000 0.8375 0.7875 0.7625 0.8500 0.9000	1.0746 1.0000 0.9403 0.9104	1.2517 1.1604 1.0959 1.063 7	1.1071 1.1071 0.9912 0.9912	1.4120 1.2490 1.2490 1.1071	37.811 6.521 6.329 7.399 5.644	8 8 8 8 8				<u> </u>	
AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Contro Auxiliary Tes	0.9000 0.8375 0.7875 0.7625 0.8500 0.9000	1.0746 1.0000 0.9403 0.9104 1.0149 1.0746	1.2517 1.1604 1.0959 1.063 7 1.1840 1.2490	1.1071 1.1071 0.9912 0.9912 0.9912 1.2490	1.4120 1.2490 1.2490 1.1071 1.4120 1.2490	37.811 6.521 6.329 7.399 5.644 11.040	8 8 8 8 8 8 8 Statistic		Critical		Skew	Kurt
AT1-869 AT1-870 AT1-871 AT1-873 Contro Auxiliary Tes Shapiro-Wilk's	0.9000 0.8375 0.7875 0.7625 0.8500 1 0.9000 ts	1.0746 1.0000 0.9403 0.9104 1.0149 1.0746	1.2517 1.1604 1.0959 1.063 7 1.1840 1.2490	1.1071 1.1071 0.9912 0.9912 0.9912 1.2490	1.4120 1.2490 1.2490 1.1071 1.4120 1.2490	37.811 6.521 6.329 7.399 5.644 11.040	8 8 8 8 8 8 8 Statistic 0.93202	.,-	0.844		Skew -0.116	Kurt -0.8 7 57
AT1-869 AT1-870 AT1-871 AT1-873 Contro Auxiliary Tes Shapiro-Wilk's	9 0.9000 0 0.8375 0.7875 2 0.7625 3 0.8500 1 0.9000 its s Test indicates equal va	1.0746 1.0000 0.9403 0.9104 1.0149 1.0746 ates normances (programments)	1.2517 1.1604 1.0959 1.063 7 1.1840 1.2490	1.1071 1.1071 0.9912 0.9912 0.9912 1.2490	1.4120 1.2490 1.2490 1.1071 1.4120 1.2490	37.811 6.521 6.329 7.399 5.644 11.040	8 8 8 8 8 8 8 Statistic 0.93202 1.3600 7		0.844 8.88539	MOS	-0.116	-0.8 7 57
AT1-869 AT1-870 AT1-871 AT1-873 Contro Auxiliary Tes Shapiro-Wilk's	9 0.9000 0 0.8375 0.7875 2 0.7625 3 0.8500 1 0.9000 its s Test indicates equal values (1-tail,	1.0746 1.0000 0.9403 0.9104 1.0149 1.0746 ates normances (100.05)	1.2517 1.1604 1.0959 1.063 7 1.1840 1.2490 nal distribut 0 = 0.70)	1.1071 1.1071 0.9912 0.9912 0.9912 1.2490 ution (p > 0.	1.4120 1.2490 1.2490 1.1071 1.4120 1.2490	37.811 6.521 6.329 7.399 5.644 11.040	8 8 8 8 8 8 Statistic 0.93202 1.36007 MSD u	MSDp	0.844	MSE	-0.116 F-Prob	

					wtn and S		Test-Survi			·	
tart Date:	12/3/2021			TN-21-771			Sample ID		Swan Creek	(
nd Date:	12/13/202		Lab ID:				Sample Ty		Sediment	. 19 4 -	
Sample Date:			Protocol:				Test Speci	es:	CT-Chirono	mus allutus	
Comments:											
Conc-	1	2	3	4	5	6	7	8			
AT1-863		0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000			
AT1-862		0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000			
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000			
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000			
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000			
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000			
AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000			
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000			
AT1-872	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000			
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000			
Control		0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000		<u> </u>	
			Tr	ansform:	Arcsin So	uare Ro		Rank	1-Tailed		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical	·	
AT1-863	0.8375	1.0000	1.1636	0.9912	1.2490	8.502	8				
AT1-862	0.3500	0.4179	0.6322	0.5796	0.6847	8.885	8				
		1.0597	1.2313	1.1071	1.2490	4.074	8				
AT1-864	0.8875	1.0007									
AT1-864 AT1-865		1.0448	1.2136	1.1071	1.2490	5.413	8				
	0.8750		1.2136 1.1459	1.1071 0.9912	1.2490 1.2490	8.205	8				
AT1-865	0.8750 0.8250	1.0448									
AT1-865 AT1-866	0.8750 0.8250 0.9000	1.0448 0.9851	1.1459	0.9912	1.2490	8.205	8	36.00	51.00		
AT1-865 AT1-866 AT1-867	0.8750 0.8250 0.9000 0.0250	1.0448 0.9851 1.0746	1.1459 1.2543	0.9912 1.1071	1.2490 1.4120	8.205 9.198	8 8	36.00	51.00		
AT1-865 AT1-866 AT1-867 *AT1-868 AT1-869	0.8750 0.8250 0.9000 0.0250 0.9000	1.0448 0.9851 1.0746 0.0299	1.1459 1.2543 0.1995	0.9912 1.1071 0.1588	1.2490 1.4120 0.3218	8.205 9.198 37.811	8 8 8	36.00	51.00		
AT1-865 AT1-866 AT1-867 *AT1-868	0.8750 0.8250 0.9000 0.0250 0.9000 0.8375	1.0448 0.9851 1.0746 0.0299 1.0746	1.1459 1.2543 0.1995 1.2517	0.9912 1.1071 0.1588 1.1071	1.2490 1.4120 0.3218 1.4120	8.205 9.198 37.811 6.521	8 8 8 8 8	36.00	51.00		
AT1-865 AT1-866 AT1-867 *AT1-868 AT1-870 AT1-871	0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875	1.0448 0.9851 1.0746 0.0299 1.0746 1.0000	1.1459 1.2543 0.1995 1.2517 1.1604	0.9912 1.1071 0.1588 1.1071 1.1071	1.2490 1.4120 0.3218 1.4120 1.2490	8.205 9.198 37.811 6.521 6.329	8 8 8 8	36.00	51.00		
AT1-865 AT1-866 AT1-867 *AT1-868 AT1-870 AT1-871 AT1-872	0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875	1.0448 0.9851 1.0746 0.0299 1.0746 1.0000 0.9403 0.9104	1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637	0.9912 1.1071 0.1588 1.1071 1.1071 0.9912	1.2490 1.4120 0.3218 1.4120 1.2490 1.2490	8.205 9.198 37.811 6.521 6.329 7.399	8 8 8 8 8	36.00	51.00		
AT1-865 AT1-866 AT1-867 *AT1-868 AT1-870 AT1-871 AT1-872 AT1-873	0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.8500	1.0448 0.9851 1.0746 0.0299 1.0746 1.0000 0.9403 0.9104 1.0149	1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.1840	0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912	1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071	8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8	36.00	51.00		
AT1-865 AT1-866 AT1-867 *AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Contro	0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.8500 0.9000	1.0448 0.9851 1.0746 0.0299 1.0746 1.0000 0.9403 0.9104	1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637	0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 0.9912	1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.4120	8.205 9.198 37.811 6.521 6.329 7.399 5.644 11.040	8 8 8 8 8 8	36.00	51.00 Critical	Skew	Kurt
AT1-865 AT1-866 AT1-867 *AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Contro	0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.8500 0.9000	1.0448 0.9851 1.0746 0.0299 1.0746 1.0000 0.9403 0.9104 1.0149 1.0746	1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.1840 1.2490	0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 0.9912 1.2490	1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.4120 1.2490	8.205 9.198 37.811 6.521 6.329 7.399 5.644 11.040	8 8 8 8 8 8 8 8 8	36.00		Skew 0.00924	
AT1-865 AT1-866 AT1-867 *AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Contro	0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.8500 0.9000 ts	1.0448 0.9851 1.0746 0.0299 1.0746 1.0000 0.9403 0.9104 1.0149 1.0746	1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.1840 1.2490	0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 0.9912 1.2490	1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.4120 1.2490	8.205 9.198 37.811 6.521 6.329 7.399 5.644 11.040	8 8 8 8 8 8 8 8 8	36.00	Critical		

Reviewed by:

		,,,		Gro	wth and S	Survival '	Test-Survi	ival				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II):	Swan Cre	ek		
End Date:	12/13/2021		Lab ID:				Sample T	ype:	Sediment			
Sample Date:			Protocol:				Test Spec	ies:	CT-Chiror	nomus dilu	ıtus	
Comments:							·					
Conc-	1	2	3	4	5	6	7	8				
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000				
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000				
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000				
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000				
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000				
AT1-868		0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
AT1-869		0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000				
AT1-870		0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000				
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000				
AT1-872	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000				
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000				
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
			Tr	ansform:	Arcsin Sc	uare Ro	ot		1-Tailed			
Conc-	Mean I	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	0.8375	1.0000	1.1636	0.9912	1.2490	8.502	8					
AT1-862	0.3500	0.4179	0.6322	0.5796	0.6847	8.885	8					
AT1-864	0.8875	1.0597	1.2313	1.1071	1.2490	4.074	8					
AT1-865	0.8750	1.0448	1.2136	1.1071	1.2490	5.413	8					
AT1-866	0.8250	0.9851	1.1459	0.9912	1.2490	8.205	8					
AT1-867	0.9000	1.0746	1.2543	1.1071	1.4120	9.198	8					
AT1-868	0.0250	0.0299	0.1995	0.1588	0.3218	37.811	8					
A T 1-869	0.9000	1.0746	1.2517	1.1071	1.4120	6.521	8	-1.943	1.761	0.0799		
AT1-870	0.8375	1.0000	1.1604	1.1071	1.2490	6.329	8					
AT1-871	0.7875	0.9403	1.0959	0.9912	1.2490	7.399	8					
AT1-872	0.7625	0.9104	1.0637	0.9912	1.1071	5.644	8					
AT1-873	0.8500	1.0149	1.1840	0.9912	1.4120	11.040	8					
Control	0.9000	1.0746	1.2490	1.2490	1.2490	0.000	8					
Auxiliary Test							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's	Test indica	ites norm	nal distribu	tion (p > 0.	01)		0.93287		0.844		-0.2344	0.05396
F-Test indicate			0 = 0.62				1.46876		8.88539			
Hypothesis T	est (1-tail, (0.05)					MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedasti	ic t Test indi	icates no	significan	t difference	es		0.06221	0.07378	0.03103	0.00822	0.07246	1, 14

					wth and S	urvival					
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID		Swan Creek		
End Date:	12/13/202	1	Lab ID:				Sample Ty	pe:	Sediment		
Sample Date:			Protocol:				Test Speci	ies:	CT-Chironon	nus dilutus	
Comments:											
Conc-	1	2	3	4	5	6	7	8			
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000			
AT1-862		0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000			
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000			
AT1-866		0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000			
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000			
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000			
AT1-870		0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000			
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000			
AT1-872	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000			
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
			Tr	ansform:	Arcsin Sq	uare Ro	ot	Rank	1-Tailed		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-863	0.8375	1.0000	1.1636	0.9912	1.2490	8.502	8				
AT1-862	0.3500	0.4179	0.6322	0.5796	0.6847	8.885	8				
AT1-864	0.8875	1.0597	1.2313	1.1071	1.2490	4.074	8				
AT1-865		1.0448	1.2136	1.1071	1.2490	5.413	8				
AT1-866											
AT 1-000	0.8250	0.9851	1.1459	0.9912	1.2490	8.205	8				
AT1-867		0.9851 1.0746	1.1459 1.2543	0.9912 1.1071	1.4120	8.205 9.198	8 8				
	0.9000	1.0746 0.0299		1.1071 0.1588	1.4120 0.3218	8.205 9.198 37.811	8 8 · 8				
AT1-867	0.9000 0.0250	1.0746 0.0299 1.07 4 6	1.2543 0.1995 1.2517	1.1071 0.1588 1.1071	1.4120 0.3218 1.4120	8.205 9.198 37.811 6.521	8 8 8 8				
AT1-867 AT1-868	0.9000 0.0250 0.9000 0.8375	1.0746 0.0299 1.07 4 6 1.0000	1.2543 0.1995 1.2517 1.1604	1.1071 0.1588 1.1071 1.1071	1.4120 0.3218 1.4120 1.2 4 90	8.205 9.198 37.811 6.521 6.329	8 8 8 8	66.50	51.00		
AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.9000 0.0250 0.9000 0.8375 0.7875	1.0746 0.0299 1.0746 1.0000 0.9403	1.2543 0.1995 1.2517 1.1604 1.0959	1.1071 0.1588 1.1071 1.1071 0.9912	1.4120 0.3218 1.4120 1.2490 1.2490	8.205 9.198 37.811 6.521 6.329 7.399	8 8 8 8 8	66.50	51.00		
AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872	0.9000 0.0250 0.9000 0.8375 0.7875 0.7625	1.0746 0.0299 1.0746 1.0000 0.9403 0.9104	1.2543 0.1995 1.2517 1.1604 1.0959 1.0637	1.1071 0.1588 1.1071 1.1071 0.9912 0.9912	1.4120 0.3218 1.4120 1.2490 1.2490 1.1071	8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8	66.50	51.00		
AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.9000 0.0250 0.9000 0.8375 0.7875 0.7625	1.0746 0.0299 1.0746 1.0000 0.9403	1.2543 0.1995 1.2517 1.1604 1.0959	1.1071 0.1588 1.1071 1.1071 0.9912	1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.4120	8.205 9.198 37.811 6.521 6.329 7.399	8 8 8 8 8 8	66.50	51.00		
AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872	0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.8500	1.0746 0.0299 1.0746 1.0000 0.9403 0.9104	1.2543 0.1995 1.2517 1.1604 1.0959 1.0637	1.1071 0.1588 1.1071 1.1071 0.9912 0.9912	1.4120 0.3218 1.4120 1.2490 1.2490 1.1071	8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8	66.50			
AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control	0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.8500 0.9000	1.0746 0.0299 1.0746 1.0000 0.9403 0.9104 1.0149 1.0746	1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.1840 1.2490	1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 0.9912 1.2490	1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.4120 1.2490	8.205 9.198 37.811 6.521 6.329 7.399 5.644 11.040	8 8 8 8 8 8 8 8 8 8	66.50	Critical	Skew	Kurt
AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control	0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.8500 0.9000	1.0746 0.0299 1.0746 1.0000 0.9403 0.9104 1.0149 1.0746	1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.1840 1.2490	1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 0.9912 1.2490	1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.4120 1.2490	8.205 9.198 37.811 6.521 6.329 7.399 5.644 11.040	8 8 8 8 8 8 8 8 8 Statistic 0.77035	66.50	Critical 0.844	Skew -0.2342	Kurt -1.021
AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Tes Shapiro-Wilk's	0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.8500 0.9000 ts Test indicates equal va	1.0746 0.0299 1.0746 1.0000 0.9403 0.9104 1.0149 1.0746 ates non-	1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.1840 1.2490	1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 0.9912 1.2490	1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.4120 1.2490	8.205 9.198 37.811 6.521 6.329 7.399 5.644 11.040	8 8 8 8 8 8 8 8 8 8	66.50	Critical		
AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Tes Shapiro-Wilk's	0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.8500 0.9000 ts Test indicates equal values (1-tail,	1.0746 0.0299 1.0746 1.0000 0.9403 0.9104 1.0149 1.0746 attes non- riances (p	1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.1840 1.2490 normal dis	1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.4120 1.2490	8.205 9.198 37.811 6.521 6.329 7.399 5.644 11.040	8 8 8 8 8 8 8 8 8 Statistic 0.77035	66.50	Critical 0.844		

				Gro	wth and	Survival '	Test-Surv	ival				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II):	Swan Cre	ek		
End Date:	12/13/2021	l	Lab ID:				Sample T	ype:	Sediment			
Sample Date:			Protocol:				Test Spec	cies:	CT-Chiro	nomus dik	utus	
Comments:												
Conc-	1	2	3	4	5	6	7	8				
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000				
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000				
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000				
AT1-866	0.8000	0.9000		0.9000	0.9000	0.8000	0.8000	0.8000				
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000				
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000				
AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000				
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000				
AT1-872	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000				
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000				
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
.,			Tı	ransform: /	Arcsin Sc	uare Ro	ot		1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	0.8375	1.0000	1.1636	0.9912	1.2490	8.502	8					
AT1-862	0.3500	0.4179	0.6322	0.5796	0.6847	8.885	8					
AT1-864	0.8875	1.0597	1.2313	1.1071	1.2490	4.074	8					
AT1-865	0.8750	1.0448	1.2136	1.1071	1.2490	5.413	8					
AT1-866	0.8250	0.9851	1.1459	0.9912	1.2490	8.205	8					
AT1-867	0.9000	1.0746		1.1071	1.4120	9.198	8					
AT1-868	0.0250	0.0299	0.1995	0.1588	0.3218	37.811	8					
AT1-869	0.9000	1.0746	1.2517	1.1071	1.4120	6.521	8					
AT1-870	0.8375	1.0000	1.1604	1.1071	1.2490	6.329	8					
AT1-87 1	0.7875	0.9403	1.0959	0.9912	1.2490	7.399	8	1.497	1.761	0.0797		
AT1-872	0.7625	0.9104	1.0637	0.9912	1.1071	5.644	8					
AT1-873	0.8500	1.0149	1.1840	0.9912	1.4120	11.040	8					
Control	0.9000	1.0746	1.2490	1.2490	1.2490	0.000	8					
Auxiliary Test							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's	Test indica	ates norn	nal distribu	ition (p > 0 .	01)		0.95077		0.844		-0.2135	-0.4293
F-Test indicate			p = 0.61)				1.48822		8.88539			
Hypothesis To							MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedasti	c t Test ind	icates no	significan	t difference	S		0.06203	0.07357	0.01834	0.00818	0.15653	1, 14

				Gro	wth and S	Survival	Test-Surv	ival				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II		Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample T		Sediment			
Sample Date:			Protocol:				Test Spec		CT-Chiro	nomus dilı	ıtus	
Comments:							-					
Conc-	1	2	3	4	5	6	7	8				
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000				
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000				
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000				
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000				
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000				
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000				
AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000				
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0,7000	0.8000	0.8000				
AT1-872	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000				
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000				
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
			T	ransform:	Arcsin Sc	uare Ro	ot		1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	M\$D		
AT1-863	0.8375	1.0000	1.1636	0.9912	1.2490	8.502	8					
AT1-862	0.3500	0.4179	0.6322	0.5796	0.6847	8.885	8					
AT1-864	0.8875	1.0597	1.2313	1.107 1	1.2490	4.074						
AT1-865	0.8750	1.0448	1.2136	1.1071	1.2490	5.413	8					
AT1-866	0.8250	0.9851	1.1459	0.9912	1.2490	8.205	8					
AT1-867	0.9000	1.0746	1.2543	1.107 1	1.4120	9.198	8					
AT1-868	0.0250	0.0299		0.1588	0.3218	37.811	8					
AT1-869	0.9000	1.0746	1.2517	1.1071	1.4120	6.521	8					
AT1-870	0.8375	1.0000	1.1604	1.1071	1.2490	6.329	8					
AT1-871	0.7875	0.9403	1.0959	0.9912	1.2490	7.399	8					
*AT1-872	0.7625	0.9104	1.0637	0.9912	1.1071	5.644	8	2.443	1.761	0.0721		
AT1-8 7 3	0.8500	1.0149	1.1840	0.9912	1.4120	11.040	8					
Control	0.9000	1.0746	1.2490	1.2490	1.2490	0.000	8					
Auxiliary Test							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's				tion ($p > 0$.	01)		0.85587		0.844		-0.6021	-0.5733
F-Test indicate			p = 0.21				2.71543		8.88539			
Hypothesis To							MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedasti	c t Test ind	icates siç	gnificant d	fferences			0.05578	0.06616	0.03996	0.00669	0.02842	1, 14

				Gro	win and a	Survivai	Test-Surv	ivai				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II	D:	Swan Cre	ek		
End Date:	12/13/2021		Lab ID:				Sample T	уре:	Sediment	1		
Sample Date:			Protocol:				Test Spec	cies:	CT-Chiro	nomus dili	utus	
Comments:												
Conc-	1	2	3	4	5	6	7	8				
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000				
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000				
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000				
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000				
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000				
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000				
AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000				
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000				
AT1-872	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000				
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000				
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
		•	Tr	ansform: A	Arcsin Sc	uare Ro	ot		1-Tailed			
Conc-	Mean I	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	0.8375	1.0000	1.1636	0.9912	1.2490	8.502	8					
AT1-862	0.3500	0.4179	0.6322	0.5796	0.6847	8.885	8					
AT1-864	0.8875	1.0597	1.2313	1.1071	1.2490	4.074	8					
AT1-865	0.8750	1.0448	1.2136	1.1071	1.2490	5.413	8					
AT1-866	0.8250	0.9851	1.1459	0.9912	1.2490	8.205	8					
AT1-867	0.9000	1.0746	1.2543	1.1071	1.4120	9.198	8					
AT1-868	0.0250	0.0299	0.1995	0.1588	0.3218	37.811	8					
AT1-869	0.9000	1.0746	1.2517	1.1071	1.4120	6.521	8					
AT1-870	0.8375	1.0000	1.1604	1.1071	1.2490	6.329	8					
AT1-871	0.7875	0.9403	1.0959	0.9912	1.2490	7.399	8					
AT1-872	0.7625	0.9104	1.0637	0.9912	1.1071	5.644	8					
AT1-873	0.8500	1.0149	1.1840	0.9912	1.4120	11.040	8	-0.352	1.761	0.1021		
Control	0.9000	1.0746	1.2490	1.2490	1.2490	0.000	8					
Auxiliary Test							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's				tion (p > 0.0	D1)		0.9169		0.844		0.05352	-0.3043
F-Test indicate			p = 0.48)				1.74583		8.88539			
Hypothesis Te							MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic	c t Tect indi	cates no	eignifican	difference	٠		0.08085	0.09589	0.00166	0.01344	0.73045	1, 14

·					Grov	wth and S	urvival	Test-Survi	val			
Sample Date: Comments: Protocol: Test Species: CT-Chironomus dilutus Conc- Conc- I 2 3 4 5 6 7 8 AT1-863 0.8000 0.9000 0.7000 0.9000 0.8000 0.9000 0.9000 0.4000 AT1-864 0.9000	Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID	:	Swan Creek		
Conc- One- 1				Lab ID:				Sample Ty	/pe:	Sediment		
Come- 1 2 3 4 5 6 7 8 AT1-863 0.8000 0.9000 0.7000 0.9000 0.8000 0.9000 0.9000 AT1-862 0.3000 0.3000 0.3000 0.9000 0.9000 0.4000 0.4000 0.4000 AT1-865 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 AT1-866 0.8000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.8000 AT1-867 1.0000 0.9000 0.9000 0.9000 0.9000 0.8000 0.8000 AT1-868 0.1000 0.1000 0.0000 0.9000 0.9000 0.9000 0.9000 0.9000 AT1-871 0.8000 0.9000 0.8000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.8000 0.8000 0.8000 0.8000 0.8000 </td <td>Sample Date:</td> <td>•</td> <td></td> <td>Protocol:</td> <td></td> <td></td> <td></td> <td>Test Speci</td> <td>ies:</td> <td>CT-Chironomus</td> <td>dilutus</td> <td></td>	Sample Date:	•		Protocol:				Test Speci	ies:	CT-Chironomus	dilutus	
AT1-863 0.8000 0.9000 0.7000 0.9000 0.8000 0.8000 0.9000 0.9000 0.4000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.9000 0.9000 0.9000 0.9000 0.8000 0.8000 0.8000 0.8000 0.8000 0.4000 0.4000 0.8000 0.8000 0.8000 0.8000 0.4000 0.4000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.4000 0.4000 0.4000 0.9000 0.9000 0.9000 0.9000 0.4000 0.4000 0.4000 0.9000 0.9000 0.9000 0.4000									_			
AT1-862 0.3000 0.3000 0.3000 0.3000 0.4000	Conc-	1	2	3	4			7				
AT1-864 0.9000 0.8000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.8000 0.8000 0.8000 0.8000 0.9000 0.9000 0.9000 0.8000 0.9000 0.9000 0.9000 0.9000 0.8000	AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000			
AT1-865 0.9000 0.8000 0.9000 0.9000 0.9000 0.9000 0.8000 0.9000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.8000 0.8000 0.8000 0.8000 0.9000 0.8000 0.9000 0.8000 0.9000 0.8000	AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000				
AT1-866 0.8000 0.9000 0.7000 0.9000 0.9000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.8000	AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-867 1.000 0.9000 0.9000 0.9000 0.9000 0.9000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.000	AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000			
AT1-868 0.1000 0.1000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 AT1-879 0.9000	AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000			
AT1-868 0.1000 0.1000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 AT1-870 0.9000 0.9000 0.8000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.8000 0.9000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.9000	AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000			
AT1-870 0.8000 0.8000 0.8000 0.8000 0.9000 0.9000 0.8000 0.9000 0.8000 0.9000 0.8000 0.8000 0.9900 0.8000 0.8000 0.8000 0.8000 0.9000			0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
AT1-871 0.8000 0.7000 0.8000 0.9000 0.8000 0.7000 0.8000 0.9000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.9000 0.0000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.0000 0.9000 0.0000 0.9000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000			
AT1-872 0.7000 0.7000 0.8000 0.7000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.9000 0.4179 0.6322 0.5796 0.6847 8.885 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000			
AT1-873 1.0000 0.9000 0.1638 0.9912 0.2490 0.8205 8 8 8 8 8 8 8 8 8	AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000			
Control 0.9000 0.0000 0.0000 0.0000 0.10746 1.2517 1.1071 1.4120 9.198 8 8 8 8 8 8 9 9 9 1.2543 1.1071 1.4120 9.198 8 8 8 8 8 8 8 8 9 9 9 9.1541 1.4120 9.198 8 8 8 9 9 9.1040 9.1040		0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000			
Conc- Mean N-Mean Min Max CV% N Sum Critical AT1-863 0.8375 1.0000 1.1636 0.9912 1.2490 8.502 8 AT1-862 0.3500 0.4179 0.6322 0.5796 0.6847 8.885 8 AT1-864 0.8875 1.0597 1.2313 1.1071 1.2490 4.074 8 AT1-865 0.8750 1.0448 1.2136 1.1071 1.2490 8.205 8 AT1-866 0.8250 0.9851 1.1459 0.9912 1.2490 8.205 8 AT1-868 0.0250 0.99851 1.1459 0.9912 1.2490 8.205 8 AT1-868 0.0250 0.0299 0.1995 0.1588 0.3218 37.811 8 AT1-868 0.0250 0.0299 0.1995 0.1588 0.3218 37.811 8 AT1-870 0.8375 1.0000 1.1604 1.1071 1.2490 7.399 <td>AT1-873</td> <td>1.0000</td> <td>0.9000</td> <td>0.9000</td> <td>0.9000</td> <td>0.8000</td> <td>0.8000</td> <td>0.7000</td> <td>0.8000</td> <td></td> <td></td> <td></td>	AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000			
Conc- Mean N-Mean Min Max CV% N Sum Critical AT1-863 0.8375 1.0000 1.1636 0.9912 1.2490 8.502 8 AT1-862 0.3500 0.4179 0.6322 0.5796 0.6847 8.885 8 AT1-864 0.8875 1.0597 1.2313 1.1071 1.2490 4.074 8 AT1-865 0.8750 1.0448 1.2136 1.1071 1.2490 5.413 8 AT1-866 0.8250 0.9851 1.1459 0.9912 1.2490 8.205 8 AT1-867 0.9000 1.0746 1.2543 1.1071 1.4120 9.198 8 AT1-868 0.0250 0.0299 0.1995 0.1588 0.3218 37.811 8 AT1-879 0.8375 1.0000 1.1604 1.1071 1.2490 6.329 8 AT1-871 0.7875 0.9403 1.0959 0.9912 1.2490 7.399	Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-863		-		Tı	ransform: A	Arcsin Sq	uare Ro	ot	Rank	1-Tailed		
AT1-862 0.3500 0.4179 0.6322 0.5796 0.6847 8.885 8 AT1-864 0.8875 1.0597 1.2313 1.1071 1.2490 4.074 8 AT1-865 0.8750 1.0448 1.2136 1.1071 1.2490 5.413 8 AT1-866 0.8250 0.9851 1.1459 0.9912 1.2490 8.205 8 AT1-867 0.9000 1.0746 1.2543 1.1071 1.4120 9.198 8 AT1-868 0.0250 0.0299 0.1995 0.1588 0.3218 37.811 8 AT1-869 0.9000 1.0746 1.2517 1.1071 1.4120 6.521 8 AT1-870 0.8375 1.0000 1.1604 1.1071 1.2490 6.329 8 AT1-871 0.7875 0.9403 1.0959 0.9912 1.2490 7.399 8 AT1-873 0.8500 1.0149 1.1840 0.9912 1.4120 11.040 8 Control 0.9000 1.0746 1.2490 1.2490 0									Sum	Critical		
AT1-864 0.8875 1.0597 1.2313 1.1071 1.2490 4.074 8 AT1-865 0.8750 1.0448 1.2136 1.1071 1.2490 5.413 8 AT1-866 0.8250 0.9851 1.1459 0.9912 1.2490 8.205 8 AT1-867 0.9000 1.0746 1.2543 1.1071 1.4120 9.198 8 AT1-868 0.0250 0.0299 0.1995 0.1588 0.3218 37.811 8 AT1-869 0.9000 1.0746 1.2517 1.1071 1.4120 6.521 8 AT1-870 0.8375 1.0000 1.1604 1.1071 1.2490 6.329 8 AT1-871 0.7875 0.9403 1.0959 0.9912 1.2490 7.399 8 AT1-872 0.7625 0.9104 1.0637 0.9912 1.1071 5.644 8 AT1-873 0.8500 1.0149 1.1840 0.9912 1.4120 11.040 8 Control 0.9000 1.0746 1.2490 1.2490 1.2490 0.000 8 84.00 51.00 Auxiliary Tests Statistic Critical Skew Kurl Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01) 0.84338 0.844 -0.7831 1.6796												
AT1-865 0.8750 1.0448 1.2136 1.1071 1.2490 5.413 8 AT1-866 0.8250 0.9851 1.1459 0.9912 1.2490 8.205 8 AT1-867 0.9000 1.0746 1.2543 1.1071 1.4120 9.198 8 AT1-868 0.0250 0.0299 0.1995 0.1588 0.3218 37.811 8 AT1-869 0.9000 1.0746 1.2517 1.1071 1.4120 6.521 8 AT1-870 0.8375 1.0000 1.1604 1.1071 1.2490 6.329 8 AT1-871 0.7875 0.9403 1.0959 0.9912 1.2490 7.399 8 AT1-872 0.7625 0.9104 1.0637 0.9912 1.1071 5.644 8 AT1-873 0.8500 1.0149 1.1840 0.9912 1.4120 11.040 8 Control 0.9000 1.0746 1.2490 1.2490 0.000 8 84.00 51.00 Auxiliary Tests Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01) 0.84338 0.844 -0.7831 1.6796												
AT1-866 0.8250 0.9851 1.1459 0.9912 1.2490 8.205 8 AT1-867 0.9000 1.0746 1.2543 1.1071 1.4120 9.198 8 AT1-868 0.0250 0.0299 0.1995 0.1588 0.3218 37.811 8 AT1-869 0.9000 1.0746 1.2517 1.1071 1.4120 6.521 8 AT1-870 0.8375 1.0000 1.1604 1.1071 1.2490 6.329 8 AT1-871 0.7875 0.9403 1.0959 0.9912 1.2490 7.399 8 AT1-872 0.7625 0.9104 1.0637 0.9912 1.1071 5.644 8 AT1-873 0.8500 1.0149 1.1840 0.9912 1.4120 11.040 8 Control 0.9000 1.0746 1.2490 1.2490 1.2490 0.000 8 84.00 51.00 Auxiliary Tests Statistic Critical Skew Kurl Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01) 0.84338 0.844 -0.7831 1.6796	AT1-864	0.8875		1.2313								
AT1-867 0.9000 1.0746 1.2543 1.1071 1.4120 9.198 8 AT1-868 0.0250 0.0299 0.1995 0.1588 0.3218 37.811 8 AT1-869 0.9000 1.0746 1.2517 1.1071 1.4120 6.521 8 AT1-870 0.8375 1.0000 1.1604 1.1071 1.2490 6.329 8 AT1-871 0.7875 0.9403 1.0959 0.9912 1.2490 7.399 8 AT1-872 0.7625 0.9104 1.0637 0.9912 1.1071 5.644 8 AT1-873 0.8500 1.0149 1.1840 0.9912 1.4120 11.040 8 Control 0.9000 1.0746 1.2490 1.2490 0.000 8 84.00 51.00 Auxiliary Tests Statistic Critical Skew Kurl Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01) 0.84338 0.844 -0.7831 1.6798	AT1-865			1.2136	1.1071							
AT1-868 0.0250 0.0299 0.1995 0.1588 0.3218 37.811 8 AT1-869 0.9000 1.0746 1.2517 1.1071 1.4120 6.521 8 AT1-870 0.8375 1.0000 1.1604 1.1071 1.2490 6.329 8 AT1-871 0.7875 0.9403 1.0959 0.9912 1.2490 7.399 8 AT1-872 0.7625 0.9104 1.0637 0.9912 1.1071 5.644 8 AT1-873 0.8500 1.0149 1.1840 0.9912 1.4120 11.040 8 Control 0.9000 1.0746 1.2490 1.2490 0.000 8 84.00 51.00 Auxiliary Tests Statistic Critical Skew Kurl Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01) 0.84338 0.844 -0.7831 1.6798												
AT1-869 0.9000 1.0746 1.2517 1.1071 1.4120 6.521 8 AT1-870 0.8375 1.0000 1.1604 1.1071 1.2490 6.329 8 AT1-871 0.7875 0.9403 1.0959 0.9912 1.2490 7.399 8 AT1-872 0.7625 0.9104 1.0637 0.9912 1.1071 5.644 8 AT1-873 0.8500 1.0149 1.1840 0.9912 1.4120 11.040 8 Control 0.9000 1.0746 1.2490 1.2490 0.000 8 84.00 51.00 Auxiliary Tests Statistic Critical Skew Kurl Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01) 0.84338 0.844 -0.7831 1.6798	AT1-867	0.9000	1.0746	1.2543	1.1071							
AT1-870 0.8375 1.0000 1.1604 1.1071 1.2490 6.329 8 AT1-871 0.7875 0.9403 1.0959 0.9912 1.2490 7.399 8 AT1-872 0.7625 0.9104 1.0637 0.9912 1.1071 5.644 8 AT1-873 0.8500 1.0149 1.1840 0.9912 1.4120 11.040 8 Control 0.9000 1.0746 1.2490 1.2490 0.000 8 84.00 51.00 Auxiliary Tests Statistic Critical Skew Kurl Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01) 0.84338 0.844 -0.7831 1.6794	AT1-868											
AT1-871 0.7875 0.9403 1.0959 0.9912 1.2490 7.399 8 AT1-872 0.7625 0.9104 1.0637 0.9912 1.1071 5.644 8 AT1-873 0.8500 1.0149 1.1840 0.9912 1.4120 11.040 8 Control 0.9000 1.0746 1.2490 1.2490 0.000 8 84.00 51.00 Auxiliary Tests Statistic Critical Skew Kurl Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01) 0.84338 0.844 -0.7831 1.6794	AT1-869	0.9000	1.0746	1.2517	1.1071	1.4120						
AT1-872 0.7625 0.9104 1.0637 0.9912 1.1071 5.644 8 AT1-873 0.8500 1.0149 1.1840 0.9912 1.4120 11.040 8 Control 0.9000 1.0746 1.2490 1.2490 1.2490 0.000 8 84.00 51.00 Auxiliary Tests Statistic Critical Skew Kurl Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01) 0.84338 0.844 -0.7831 1.6794	AT1-870	0.8375	1.0000									
AT1-873 0.8500 1.0149 1.1840 0.9912 1.4120 11.040 8 Control 0.9000 1.0746 1.2490 1.2490 0.000 8 84.00 51.00 Auxiliary Tests Statistic Critical Skew Kurt Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01) 0.84338 0.844 -0.7831 1.6798 Equality of variance cannot be confirmed	AT1-871	0.7875	0.9403	1.0959								
Control 0.9000 1.0746 1.2490 1.2490 0.000 8 84.00 51.00 Auxiliary Tests Statistic Critical Skew Kur Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	AT1-872	0.7625										
Auxiliary Tests Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01) Equality of variance cannot be confirmed Statistic Critical Skew Kun 0.84338 0.844 -0.7831 1.6796	AT1-873	0.8500	1.0149	1.1840	0.9912	1.4120	11.040					
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01) 0.84338 0.844 -0.7831 1.6796 Equality of variance cannot be confirmed	Control	0.9000	1.0746	1.2490	1.2490	1.2490	0.000		84.00			
Equality of variance cannot be confirmed								Statistic		Critical		Kurt
					tribution (p	<= 0.01)		0.84338		0.844	-0.7831	1.67986
Hypothesis Test (1-tail, 0.05)				nfirmed								
					w. **							
Wilcoxon Two-Sample Test indicates no significant differences	Wilcoxon Two	-Sample Te	st indica	tes no sigi	nificant diffe	rences						

			- -	Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample IE		Swan Cre	ek		
End Date:	12/13/2021		Lab ID:				Sample T		Sediment			
Sample Date:			Protocol:				Test Spec	ies:	CT-Chiror	nomus dilu	itus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867		1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100						*				
AT1-869	2,3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873		1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
Control		1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1,1978				
				Transform	ı: Untran	sformed			1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	1.2803	1.0000	1.2803	0.6144	1.7713	31.070	8					
*AT1-862	0.7133	0.5572	0.7133	0.5033	1.0825	29,363	8	3.031	2.701	0.5054		
AT1-864	1.0645	0.8315	1.0645	0.3100	1.6789	36.718	8	1.153	2.701	0.5054		
AT1-865	1.4866	1.1611	1.4866	0.7589	2.3656	40.686	8	-1.103	2.701	0.5054		
AT1-866		1.4267	1.8266	1.3722	2.2738	18.135	8	-2.921	2.701	0.5054		
AT1-867	1.6580	1.2950	1.6580	1.0810	2.1300	22.837	8	-2.019	2.701	0.5054		
AT1-868		0.5858	0.7500	0.0100	1.4900	139.536	2	1.793	2.701	0.7990		
AT1-869		1.4881	1.9052	1.3178	2.4750	22.161	8	-3.340	2.701	0.5054		
AT1-870	1.3922	1.0874	1.3922	0.7025	1.7322	2 5.5 4 4	8	-0.598	2.701	0.5054		
*AT1-871	0.7139	0.5576	0.7139	0.4713	0.9844	25.431	8	3.027	2.701	0.5054		
AT1-872	1.4930	1.1662	1.4930	0.9463	2.1129	27.421	8	-1.137	2.701	0.5054		
AT1-873	1.6211	1.2662	1.6211	1.3911	1.9588	11.701	8	-1.822	2.701	0.5054		
Control	1.1558	0.9028	1.1558	0.8767	1.4522	14.547	88	0.665	2.701	0.5054	•	
Auxiliary Tes	ts						Statistic		Critical		Skew	Kurt
Kolmogorov D		ates norm	al distribu	tion (p > 0.	01)		0.58535		1.035		-0.0263	-0.2071
Bartlett's Test			inces (p =	0.01)			26.0406		26.217			
Hypothesis T							MSDu	MSDp	MSB	MSE	F-Prob	df
Bonferroni t To	est indicate	s significa	ınt differer	nces			0.50536	0.39472	1.17897	0.13999	2.9E-10	12, 85

				Gro	wth and	Survival	Test-Grow	vth		***		
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID		Swan Cre	ek		
End Date:	12/13/202		Lab ID:				Sample Ty		Sediment			
Sample Date:	12, 10,111		Protocol:				Test Spec	•	CT-Chiror	omus dilu	tus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-863		1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-862		0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-864		1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865		1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866		1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867		1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868		0.0100										
AT1-869		1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870		1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871		0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872		1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873		1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
Control		1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
				Transform	ı. Hotran	sformed			1-Tailed			<u> </u>
				Hansion	ı. Onludi	SICHHICA						
Conc-	Mean	N-Mean -	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Conc- AT1-863		N-Mean 1.0000	Mean 1.2803			CV% 31.070	8		Critical			
	1.2803			Min	Max 1.7713 1.0825	CV% 31.070 29.363	8 8	t-S tat 3.567		MSD 0.2800		,
AT1-863	1.2803 0.7133	1.0000	1.2803	Min 0.6144	Max 1.7713 1.0825 1.6789	CV% 31.070	8 8 8		Critical			, <u> </u>
AT1-863 *AT1-862	1.2803 0.7133 1.0645	1.0000 0.5572	1.2803 0.7133	Min 0.6144 0.5033 0.3100 0.7589	Max 1.7713 1.0825 1.6789 2.3656	CV% 31.070 29.363	8 8 8		Critical			
AT1-863 *AT1-862 AT1-864	1.2803 0.7133 1.0645 1.4866	1.0000 0.5572 0.8315	1.2803 0.7133 1.0645 1.4866 1.8266	Min 0.6144 0.5033 0.3100 0.7589 1.3722	Max 1.7713 1.0825 1.6789 2.3656 2.2738	29.363 36.718 40.686 18.135	8 8 8 8		Critical			
AT1-863 *AT1-862 AT1-864 AT1-865	1.2803 0.7133 1.0645 1.4866 1.8266	1.0000 0.5572 0.8315 1.1611	1.2803 0.7133 1.0645 1.4866	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300	CV% 31.070 29.363 36.718 40.686 18.135 22.837	8 8 8 8 8		Critical			
AT1-863 *AT1-862 AT1-864 AT1-865 AT1-866	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580	1.0000 0.5572 0.8315 1.1611 1.4267	1.2803 0.7133 1.0645 1.4866 1.8266	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100	Max 1.7713 1.0825 1.6789 2.3656 2.2738	CV% 31.070 29.363 36.718 40.686 18.135 22.837 139.536	8 8 8 8 8		Critical			
AT1-863 *AT1-862 AT1-864 AT1-865 AT1-866	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750	CV% 31.070 29.363 36.718 40.686 18.135 22.837 139.536 22.161	8 8 8 8 8 8 2 8		Critical			
AT1-863 *AT1-862 AT1-864 AT1-865 AT1-866 AT1-867	1,2803 0,7133 1,0645 1,4866 1,8266 1,6580 0,7500 1,9052	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322	CV% 31.070 29.363 36.718 40.686 18.135 22.837 139.536	8 8 8 8 8 2 8		Critical			
AT1-863 *AT1-862 AT1-864 AT1-865 AT1-866 AT1-868 AT1-868	1,2803 0,7133 1,0645 1,4866 1,8266 1,6580 0,7500 1,9052 1,3922	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 8 8 2 8 8		Critical			,
AT1-863 *AT1-862 AT1-864 AT1-865 AT1-866 AT1-868 AT1-868 AT1-869	1,2803 0,7133 1,0645 1,4866 1,8266 1,6580 0,7500 1,9052 1,3922 0,7139	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881 1.0874	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322	29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544	8 8 8 8 8 2 8 8		Critical			,
AT1-863 *AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	1,2803 0,7133 1,0645 1,4866 1,8266 1,6580 0,7500 1,9052 1,3922 0,7139 1,4930	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 8 8 2 8 8 8		Critical			
AT1-863 *AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	1,2803 0,7133 1,0645 1,4866 1,8266 1,6580 0,7500 1,9052 0,7139 1,4930 1,6211	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129	29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 8 8 8 8 8		1.761			
AT1-863 *AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-872 AT1-873	1,2803 0,7133 1,0645 1,4866 1,8266 1,6580 0,7500 1,9052 0,7139 1,4930 1,4930 1,1558	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662 1.2662	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421 11.701	8 8 8 8 8 2 8 8 8 8 8 8 8		1.761 Critical		Skew	Kurt
AT1-863 *AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873	1,2803 0,7133 1,0645 1,4866 1,8266 1,6580 0,7500 1,9052 1,3922 0,7139 1,4930 1,6211 1,1558	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662 1.2662 0.9028	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 0.8767	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588 1.4522	29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421 11.701	8 8 8 8 8 2 8 8 8 8 8 8 8 8 8 8 9 8		Critical Critical 0.844		Skew -0.5672	Kurt 0.34377
AT1-863 *AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-873 Control Auxiliary Tes Shapiro-Wilk's F-Test indicat	1,2803 0,7133 1,0645 1,4866 1,8266 1,6580 0,7500 1,9052 0,7139 1,4930 1,4930 1,1558 ts	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662 1.2662 0.9028 ates norm	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 0.8767	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588 1.4522	29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421 11.701	8 8 8 8 8 2 8 8 8 8 8 8 8 8 8 8 8 8 7 9 9 9 9 9 9 9	3.567	Critical 0.844 8.88539	0.2800	-0.5672	0.34377
AT1-863 *AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Tes Shapiro-Wilk's	1,2803 0,7133 1,0645 1,4866 1,8266 1,6580 0,7500 1,9052 1,3922 0,7139 1,4930 1,6211 1,1558 ts Test indic es equal va	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662 1.2662 0.9028 attes norm	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 0.8767	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588 1.4522	29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421 11.701	8 8 8 8 8 2 8 8 8 8 8 8 8 Statistic 0.96601 3.60676 MSDu	3.567 MSDp	Critical Critical 0.844	0.2800 MSE	-0.5672 F-Prob	

<u> </u>				Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II):	Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample T		Sediment			
Sample Date:			Protocol:				Test Spec		CT-Chiro	nomus dilu	ıtus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-862		0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
				Transform	: Untran	sformed			1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MŞD		
AT1-863	1.2803	1.0000	1.2803	0.6144	1.7713	31.070	8					
AT1-862	0.7133	0.5572	0.7133	0.5033	1.0825	29.363	8					
AT1-864	1.0645	0.8315	1.0645	0.3100	1,6789	36.718	8	1.094	1.761	0.3473		
AT1-865	1.4866	1.1611	1.4866	0.7589	2.3656	40.686	8					
AT1-866	1.8266	1.4267	1.8266	1.3722	2.2738	18.135	8					
AT1-867		1.2950	1.6580	1.0810	2.1300	22.837	8					
AT1-868	0.7500	0.5858	0.7500	0.0100	1.4900	139.536	2					
AT1-869		1.4881	1.9052	1.3178	2.4750	22.161	8					
AT1-870		1.0874		0.7025	1.7322	25.544	8					
AT1-871	0.7139	0.5576		0.4713	0.9844	25.431	8					
AT1-872	1.4930	1.1662		0.9463	2.1129	27.421	8					
AT1-873	1.6211	1.2662	1.6211	1.3911	1.9588	11.701	8					
Control	1.1558	0.9028	1.1558	0.8767	1.4522	14.547	8					
Auxiliary Test							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's	Test indica	ates nom	nal di stri bu	ition (p > 0 .	01)		0.92763		0.844		-0.6364	0.11074
F-Test indicate			p = 0.96				1.03569		8.88539			
Hypothesis T							MŞDu	MSDp	MSB	MSE	F-Prob	df
Homoscedasti	ic t Test ind	icates no	significar	nt difference	S		0.34729	0.27126	0.1862	0.15551	0.29232	1, 14

	<u> </u>			Gro	wth and	Survival	Test-Grov	wth				
Start Date:	12/3/2021		Test ID:	TN-21-771		*	Sample II):	Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample T	ype:	Sediment			
Sample Date:			Protocol:				Test Spec	cies:	CT-Chiror	nomus dilu	ıtus	
Comments:												
Conc-	1	2	3	4	5	6	7	8				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722	,			-
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367		2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322		1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
				Transform	: Untran				1-Tailed			
Conc-	***	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		····
AT1-863		1.0000	1.2803	0.6144	1.7713	31.070						
AT1-862		0.5572	0.7133	0.5033	1.0825	29.363						
AT1 - 864		0.8315	1.0645	0.3100	1.6789	36.718						
AT1-865		1.161 1	1.4866	0.7589	2.3656	40.686		-0.806	1.761	0.4508		
AT1-866		1.4267	1.8266		2.2738	18.135						
AT1-867		1.2950	1.6580		2.1300	22.837						
AT1-868	0.7500	0.5858	0.7500	0.0100	1.4900	139.536						
AT1-869		1.4881	1.9052		2.4750	22.161						
AT1-870		1.0874	1.3922	0.7025	1.7322	25.544						
AT 1- 871		0.5576	0.7139		0.9844	25.431						
A T 1-872		1.1662	1.4930		2.1129	27.421						
AT1-873		1.2662	1.6211	1.3911	1.9588	11.701						
Control	1.1558	0.9028	1.1558	0.8767	1.4522	14.547						
Auxiliary Tes							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's	Test indica	ates norm	nal distribu	ution (p > 0.0	01)		0.95906		0.844		0.19414	-1.0795
F-Test indicate	es equal va	riances (j	p = 0.29				2.31185		8.88539			
Hypothesis T							MSDu	MSDp	MSB	MSE	F-Prob	df
				nt difference			0.4508	0.35211				1, 14

				Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/3/2021	-	Test ID:	TN-21-771			Sample II);	Swan Cre	ek		
End Date:	12/13/2021		Lab ID:				Sample T		Sediment			
Sample Date:			Protocol:				Test Spec		CT-Chiror	nomus dilu	tus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-863		1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722			<u> </u>	
AT1-862		0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-864		1.2244	0.8363	1.1389	1.6789	1,1911	0.3100	0.9600				
AT1-865		1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866		1.3722	1.7543	1.5733	1.5233	2.2738		2.2425				
AT1-867		1.6867	1.7767	1.3744	2.1300	1.9189		2.0250				
AT1-868		0.0100										
AT1-869		1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870		1.4950	1.4663	1.4038	1.5733	1.7322		1.7322				
AT1-871		0.8043	0.7088	0.9844	0.4713	0.4829		0.6063				
AT1-872		1.4929	1.9225	2.1129	0.9463	1.0450		1.6500				
AT1-873		1.5422	1.7078	1.3911	1.5313	1.9588		1.4163				
Control		1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
	111110			Transform					1-Tailed			
Conc-	Меал	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	1.2803	1.0000	1.2803	0.6144	1.7713	31.070	8					
AT1-862	0.7133	0.5572	0.7133	0.5033	1.0825	29.363	8					
AT1-864	1.0645	0.8315	1.0645	0.3100	1.6789	36.718	8					
AT1-865	1.4866	1.1611	1.4866	0.7589	2.3656	40.686	8					
AT1-866	1.8266	1.4267	1.8266	1.3722	2.2738	18.135		- 2.985	1.761	0.3224		
AT1-867	1.6580	1.2950	1.6580	1.0810	2.1300	22.837						
AT1-868	0.7500	0.5858	0.7500	0.0100	1.4900	139.536						
AT1-869	1.9052	1.4881	1.9052	1.3178	2.4750	22.161	8					
AT1-870	1.3922	1.0874	1.3922	0.7025	1.7322	25.544	8					
AT1-871	0.7139	0.5576	0.7139	0.4713	0.9844	25.431	8					
AT1-872		1.1662	1.4930	0.9463	2.1129	27.421						
AT1-873	1.6211	1.2662	1.6211	1.3911	1.9588	11.701						
Control	1.1558	0.9028	1.1558	0.8767	1.4522	14.547	8					
COMBO						-	Statistic		Critical		Skew	Kurt
Auxiliary Tes	ts											
		ates norm	al distribu	tion (p > 0.	01)		0.95052		0.844		-0.4006	-0.7607
Auxiliary Tes	s Test indica			tion (p > 0.	01)		1.442		8.88539			
Auxiliary Tes Shapiro-Wilk's	s Test indica es equal va	riances (p		tion (p > 0.	01)		1.442 MSD u	MSDp		MSE	-0.4006 F-Prob 0.00984	-0.7607 df 1, 14

				Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II):	Swan Cre	ek		
End Date:	12/13/2021	i	Lab ID:				Sample T	уре:	Sediment			
Sample Date:			Protocol:				Test Spec	cies:	CT-Chiror	nomus dili	utus	
Comments:							-					
Conc-	1	2	3	4	5	6	7	8				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
				Transform	ı: Untran	sformed			1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	1.2803	1.0000	1.2803	0.6144	1.7713	31.070	8					
AT1-862	0.7133	0.5572	0.7133	0.5033	1.0825	29.363	8					
AT1-864	1.0645	0.8315	1.0645	0.3100	1.6789	36.718						
AT1-865	1.4866	1.1611	1.4866	0.7589	2.3656	40.686	8					
AT1-866		1.4267	1.8266	1.3722	2.2738	18.135	8					
AT1-867		1.2950	1.6580	1.0810	2.1300	22.837	8	-1.9 45	1.761	0.3420		
AT1-868		0.5858	0.7500	0.0100	1.4900	139.536	2					
AT1-869		1.4881	1.9052	1.3178	2.4750	22.161	8					
AT1-870		1.0874	1.3922	0.7025	1.7322	25 <i>.</i> 544	8					
AT1 -871	0.7139	0.5576	0.7139	0.4713	0.9844	25.431	8					
AT1-872	1.4930	1.1662	1.4930	0.9463	2.1129	27.421	8					
AT1-873	1.6211	1.2662	1.6211	1.3911	1.9588	11.701	8					
Control	1.1558	0.9028	1.1558	0.8767	1.4522	14.547	8					
Auxiliary Test							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's	Test indica	ites nom	al distribu	tion (p > 0.	01)		0.92153		0.844		-0.5163	-0.9455
F-Test indicate			0.90				1.10375		8.88539			
Hypothesis To							MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedasti	c t Test ind	icates no	significan	t difference	s		0.34198	0.26712	0.57054	0.1508	0.07213	1, 14

				Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID		Swan Cre	ek		
End Date:	12/13/202		Lab ID:				Sample T		Sediment			
Sample Date:			Protocol:				Test Spec			nomus dilu	ıtus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-862		0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1,9189	1.2710	2.0250		-		
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
				Transform	n: Untran	sformed			1-Tailed			
Conc-	Mann	N R.C	Mean	Min	Bann	O1/0/	<u> </u>	t-Stat	Californi	MSD		
COIIC-	Mean	N-Mean	Mean	IAHH	Max	CV%	N	เรอเลเ	Critical	Man		
AT1-863		1.0000	1.2803	0.6144	1.7713	31.070	8	i•otat	Critical	MOD		
					1.7713 1.0825		8 8	<u> </u>	Chilcai	MISD		
AT1-863	1.2803 0.7133	1.0000	1.2803	0.6144	1.7713 1.0825 1.6789	31.070	8 8 8	i∗3(at	Chilcal	MOD		
AT1-863 AT1-862	1.2803 0.7133 1.0645	1.0000 0.5572	1.2803 0.7133	0.6144 0.5033 0.3100 0.7589	1.7713 1.0825 1.6789 2.3656	31.070 29.363 36.718 40.686	8 8 8 8	i∗ 3 (at	Chilcai	MISD		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866	1.2803 0.7133 1.0645 1.4866 1.8266	1.0000 0.5572 0.8315 1.1611 1.4267	1.2803 0.7133 1.0645 1.4866 1.8266	0.6144 0.5033 0.3100 0.7589 1.3722	1.7713 1.0825 1.6789 2.3656 2.2738	31.070 29.363 36.718 40.686 18.135	8 8 8 8	i-Stat	Chiicai	Man		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580	0.6144 0.5033 0.3100 0.7589 1.3722 1.0810	1.7713 1.0825 1.6789 2.3656 2.2738 2.1300	31.070 29.363 36.718 40.686 18.135 22.837	8 8 8 8 8					
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500	0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100	1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900	31.070 29.363 36.718 40.686 18.135 22.837 139.536	8 8 8 8 8	1.278	1.860	0.7714		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178	1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750	31.070 29.363 36.718 40.686 18.135 22.837 139.536 22.161	8 8 8 8 8 8 2 8					
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500	0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100	1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322	31.070 29.363 36.718 40.686 18.135 22.837 139.536	8 8 8 8 8 2 8					
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178	1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750	31.070 29.363 36.718 40.686 18.135 22.837 139.536 22.161	8 8 8 8 8 2 8 8					
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881 1.0874	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025	1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322	31.070 29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544	8 8 8 8 8 2 8 8					
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	31.070 29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 8 8 2 8 8 8					
AT1-863 AT1-864 AT1-864 AT1-866 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463	1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129	31.070 29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 8 8 8 8 8		1.860			
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Control	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662 1.2662 0.9028	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 0.8767	1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588 1.4522	31.070 29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421 11.701	8 8 8 8 8 2 8 8 8		1.860		Skew	Kurt
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662 1.2662 0.9028	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 0.8767	1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588 1.4522	31.070 29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421 11.701	8 8 8 8 8 2 8 8 8 8 8 8 8 8 8 8		1.860 Critical 0.781		Skew -0.2972	Kurt -0.9263
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-873 Control Auxiliary Test Shapiro-Wilk's	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558 ts	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662 1.2662 0.9028	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 0.8767	1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588 1.4522	31.070 29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421 11.701	8 8 8 8 8 2 8 8 8 8 8 8 8 8 8 9 5tatistic 0.93599 6.92124	1.278	1.860 Critical 0.781 16.2356	0.7714	-0.2972	-0.9263
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Test	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558 ts Test indicates equal varies (1-tail,	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662 1.2662 0.9028 ates norm	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 0.8767	1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588 1.4522	31.070 29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421 11.701	8 8 8 8 8 2 8 8 8 8 8 8 Statistic 0.93599 6.92124 MS Du		1.860 Critical 0.781 16.2356 MSB		-0.2972 F-Prob	

				Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II):	Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample T	ype:	Sediment			
Sample Date:	-		Protocol:				Test Spec	ies:	CT-Chiror	nomus dilu	ıtus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-862		0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-864		1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865		1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866		1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867		1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868		0.0100										
AT1-869		1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870		1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871		0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872		1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873		1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
Control		1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
				Transforn	ռ։ Untran	sformed			1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	1.2803	1.0000	1.2803	0.6144	1.7713	31.070	8					
AT1-862		0.5572	0.7133	0.5033	1.0825	29.363	8					
AT1-864		0.8315	1.0645	0.3100	1.6789	36.718	8					
AT1-865	1.4866	1.1611	1.4866	0.7589	2.3656	40.686	8					
AT1-866		1.4267	1.8266	1.3722	2.2738	18.135						
AT1-867							8					
		1.2950	1.6580	1.0810	2.1300	22.837	8					
AT1-868	0.7500	0.5858	0.7500	0.0100	2.1300 1.4900	22.837 139.536	8 2					
AT1-868 AT1-869	0.7500 1.9052	0.5858 1.4881	0.7500 1.9052	0.0100 1.3178	2.1300 1.4900 2.4750	22.837 139.536 22.161	8 2 8	-3.047	1.761	0.3612		
AT1-868	0.7500 1.9052 1.3922	0.5858 1.4881 1.0874	0.7500	0.0100 1.3178 0.7025	2.1300 1.4900 2.4750 1.7322	22.837 139.536 22.161 25.544	8 2 8 8	-3.047	1.761	0.3612		
AT1-868 AT1-869	0.7500 1.9052 1.3922 0.7139	0.5858 1.4881 1.0874 0.5576	0.7500 1.9052 1.3922 0.7139	0.0100 1.3178 0.7025 0.4713	2.1300 1.4900 2.4750 1.7322 0.9844	22.837 139.536 22.161 25.544 25.431	8 2 8 8	-3.047	1.761	0.3612		
AT1-868 AT1-869 AT1-870	0.7500 1.9052 1.3922 0.7139	0.5858 1.4881 1.0874 0.5576 1.1662	0.7500 1.9052 1.3922 0.7139 1.4930	0.0100 1.3178 0.7025 0.4713 0.9463	2.1300 1.4900 2.4750 1.7322 0.9844 2.1129	22.837 139.536 22.161 25.544 25.431 27.421	8 2 8 8 8	-3.047	1.761	0.3612		
AT1-868 AT1-869 AT1-870 AT1-871	0.7500 1.9052 1.3922 0.7139 1.4930	0.5858 1.4881 1.0874 0.5576 1.1662 1.2662	0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	22.837 139.536 22.161 25.544 25.431 27.421 11.701	8 2 8 8 8 8	-3.047	1.761	0.3612		
AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873	0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	0.5858 1.4881 1.0874 0.5576 1.1662	0.7500 1.9052 1.3922 0.7139 1.4930	0.0100 1.3178 0.7025 0.4713 0.9463	2.1300 1.4900 2.4750 1.7322 0.9844 2.1129	22.837 139.536 22.161 25.544 25.431 27.421	8 2 8 8 8 8 8	-3.047		0.3612		
AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Tes	0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	0.5858 1.4881 1.0874 0.5576 1.1662 1.2662 0.9028	0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 0.8767	2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588 1.4522	22.837 139.536 22.161 25.544 25.431 27.421 11.701	8 2 8 8 8 8 8 8 8	-3.047	Critical	0.3612	Skew	Kurt
AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Tes Shapiro-Wilk's	0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558 ts	0.5858 1.4881 1.0874 0.5576 1.1662 1.2662 0.9028	0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 0.8767	2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588 1.4522	22.837 139.536 22.161 25.544 25.431 27.421 11.701	8 2 8 8 8 8 8 8 8 Statistic 0.94574	-3.047	Critical 0.844	0.3612	Skew -0.2693	Kurt -1.0624
AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Tes Shapiro-Wilk's F-Test indicate	0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558 ts Test indicates equal va	0.5858 1.4881 1.0874 0.5576 1.1662 1.2662 0.9028 ates normances (0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 0.8767	2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588 1.4522	22.837 139.536 22.161 25.544 25.431 27.421 11.701	8 2 8 8 8 8 8 8 Statistic 0.94574 1.12652		Critical 0.844 8.88539		-0.2693	-1.0624
AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Tes Shapiro-Wilk's	0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558 ts Test indicates equal values (1-tail,	0.5858 1.4881 1.0874 0.5576 1.1662 1.2662 0.9028 ates normances (100,05)	0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558 nal distribu	0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 0.8767	2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588 1.4522	22.837 139.536 22.161 25.544 25.431 27.421 11.701	8 2 8 8 8 8 8 8 Statistic 0.94574 1.12652 MSDu	MSDp	Critical 0.844	MSE		

				Gro	wth and	Survival	Test-Grov	wth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II	D:	Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample T	ype:	Sediment			
Sample Date:			Protocol:				Test Spec	cies:	CT-Chiro	nomus dilu	ıtus	
Comments:							•					
Сопс-	1	2	3	4	5	6	7	8				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-862		0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2,1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873		1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
				Transform	ı: Untran	sformed			1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	1.2803	1.0000	1.2803	0.6144	1.7713	31.070						
AT1-862	0.7133	0.5572	0.7133	0.5033	1.0825	29.363	8					
AT1-864	1.0645	0.8315	1.0645	0.3100	1.6789	36.718						
AT1-865	1.4866	1.1611	1.4866	0.7589	2.3656	40.686						
AT1-866	1.8266	1.4267	1.8266	1.3722	2.2738	18.135						
AT1-86 7	1.6580	1.2950	1.6580	1.0810	2.1300	22.837						
AT1-868	0.7500	0.5858	0.7500	0.0100	1.4900	139.536						
AT1-869	1.9052	1.4881	1.9052	1.3178	2.4750	22.161	8					
AT1 -87 0	1.3922	1.0874	1.3922	0.7025	1.7322	25.544	8	-0.593	1.761	0.3323		
AT1-871	0.7139	0.5576	0.7139	0.4713	0.9844	25.431	8					
AT1-872	1.4930	1.1662	1.4930	0.9463	2.1129	27.421	8					
AT1-873	1.6211	1.2662	1.6211	1.3911	1.9588	11.701	8					
Comtrol	1.1558	0.9028	1.1558	0.8767	1.4522	14.547	8					
Control	ts						Statistic		Critical		Skew	Kurt
			_1 _1:_4_:_:	tion $(n > 0)$	01)		0.88174		0.844		-0.8617	-0.276
Auxiliary Test		ates nom	iai distribu	υσι (ρ > σ.	01)						0.0011	4 0
Auxiliary Test Shapiro-Wilk's	Test indic			ωοπ (μ > σ.			1.25118		8.88539			
Auxiliary Test Shapiro-Wilk's F-Test indicate Hypothesis Te	Test indica es equal va	riances (p		1001 (p > 0.			1.25118 MSD u	MSDp	8.88539 MSB 0.05012	MSE	F-Prob	df 1, 14

				Gro	wth and	Survival	Test-Grov	wth				· · · · · · · · · · · · · · · · · ·
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II		Swan Cre	ek		
End Date:	12/13/202		Lab ID:				Sample T		Sediment			
Sample Date:			Protocol:				Test Spec		CT-Chiror	nomus dilu	utus	
Comments:							•					
Сопс-	1	2	3	4	5	6	7	8				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-862		0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-864		1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865		1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT 1-87 0	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT 1-87 1	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
				Transform	ı: Hatran	eformed			1-Tailed			
				Hansioni	i. Onli an	SIUITIEU			i-iancu			
Conc-	Mean	N-Mean	Меап	Min	Max	CV%	N	t-Stat	Critical	MSD		
Conc- AT1-863		1.0000	Mean 1.2803	Min 0.6144	Max 1.7713	CV% 31.070	8	t-Stat		MSD		
	1.2803			Min 0.6144 0.5033	Max 1.7713 1.0825	CV% 31.070 29.363	8 8	t-Stat		MSD		
AT1-863	1.2803 0.7133	1.0000	1.2803	Min 0.6144	Max 1.7713	CV% 31.070	8 8 8	t-Stat		MSD		
AT1-863 AT1-862	1.2803 0.7133 1.0645	1.0000 0.5572	1.2803 0.7 1 33	Min 0.6144 0.5033	Max 1.7713 1.0825 1.6789 2.3656	CV% 31.070 29.363	8 8 8 8	t-Stat		MSD		
AT1-863 AT1-862 AT1-864	1.2803 0.7133 1.0645 1.4866	1.0000 0.5572 0.8315 1.1611 1.4267	1.2803 0.7133 1.0645 1.4866 1.8266	Min 0.6144 0.5033 0.3100 0.7589 1.3722	Max 1.7713 1.0825 1.6789 2.3656 2.2738	29.363 36.718 40.686 18.135	8 8 8 8	t-Stat		MSD		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300	29.363 36.718 40.686 18.135 22.837	8 8 8 8 8	t-Stat		MSD		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858	1.2803 0.7133 1.0645 1.4866 1.8266	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900	CV% 31.070 29.363 36.718 40.686 18.135 22.837 139.536	8 8 8 8 8	t-Stat		MSD		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750	CV% 31.070 29.363 36.718 40.686 18.135 22.837 139.536 22.161	8 8 8 8 8 2 8	t-Stat		MSD		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322	CV% 31.070 29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544	8 8 8 8 8 2 8					
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	CV% 31.070 29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 8 8 2 8 8	t-Stat		MSD 0.2723		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129	CV% 31.070 29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 2 8 8 8		Critical			
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	CV% 31.070 29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 8 8 8 8 8 8		Critical			
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 *AT1-871	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129	CV% 31.070 29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		Critical			
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 *AT1-871 AT1-872 AT1-873 Control	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662 1.2662 0.9028	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 0.8767	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588 1.4522	29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421 11.701	8 8 8 8 8 2 8 8 8 8 8 8 8		1.761		Skew	Kurt
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 *AT1-871 AT1-872 AT1-873 Control Auxiliary Tes Shapiro-Wilk's	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662 1.2662 0.9028	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 0.8767	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588 1.4522	29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421 11.701	8 8 8 8 8 2 8 8 8 8 8 8 8 8 8 8		1.761 Critical 0.844		Skew -0.7535	Kurt 0.66228
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 *AT1-871 AT1-872 AT1-873 Control Auxiliary Tes Shapiro-Wilk's F-Test indicate	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558 ts	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662 1.2662 0.9028	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 0.8767	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588 1.4522	29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421 11.701	8 8 8 8 8 2 8 8 8 8 8 8 8 8 8 4 79993	3.663	1.761 Critical 0.844 8.88539	0.2723	-0.7535	0.66228
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 *AT1-871 AT1-872 AT1-873 Control Auxiliary Tes Shapiro-Wilk's	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558 ts Test indices equal valuest (1-tail,	1.0000 0.5572 0.8315 1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662 1.2662 0.9028 ates norminances (p	1.2803 0.7133 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	Min 0.6144 0.5033 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 0.8767	Max 1.7713 1.0825 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588 1.4522	29.363 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421 11.701	8 8 8 8 8 2 8 8 8 8 8 8 8 Statistic 0.94556 4.79993	3.663 MSDp	1.761 Critical 0.844			

				Gro	wth and	Survival	Test-Grov	wth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II		Swan Cre	ek		
End Date:	12/13/202		Lab ID:				Sample T	ype:	Sediment			
Sample Date:			Protocol:				Test Spec		CT-Chiro	nomus dilı	utus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722		- ***		
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
A T 1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
A T 1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
				Transform	ո։ Untran	sformed		-	1-Tailed			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	1.2803	1.0000	1.2803	0.6144	1.7713	31.070						
AT1-862	0.7133	0.5572	0.7133	0.5033	1.0825	29.363	8					
AT1-864	4 0045											
	1.0645	0.8315	1.06 4 5	0.3100	1.6789	36.718	8					
AT1-865	1.4866	1.1611	1.4866	0.7589	2.3656	36.718 40.686	8 8					
AT1-865 AT1-866	1.4866 1.8266	1.1611 1.4267	1.4866 1.8266	0.7589 1.3722	2.3656 2.2738	40.686 18.135	8 8 8					
AT1-865 AT1-866 AT1-867	1.4866 1.8266 1.6580	1.1611 1.4267 1.2950	1.4866 1.8266 1.6580	0.7589 1.3722 1.0810	2.3656 2.2738 2.1300	40.686 18.135 22.837	8 8 8					
AT1-865 AT1-866 AT1-867 AT1-868	1.4866 1.8266 1.6580 0.7500	1.1611 1.4267 1.2950 0.5858	1.4866 1.8266 1.6580 0.7500	0.7589 1.3722 1.0810 0.0100	2.3656 2.2738 2.1300 1.4900	40.686 18.135 22.837 139.536	8 8 8 8					
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	1.4866 1.8266 1.6580 0.7500 1.9052	1.1611 1.4267 1.2950 0.5858 1.4881	1.4866 1.8266 1.6580 0.7500 1.9052	0.7589 1.3722 1.0810 0.0100 1.3178	2.3656 2.2738 2.1300 1.4900 2.4750	40.686 18.135 22.837 139.536 22.161	8 8 8 8 2 8					
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	1.1611 1.4267 1.2950 0.5858 1.4881 1.0874	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	0.7589 1.3722 1.0810 0.0100 1.3178 0.7025	2.3656 2.2738 2.1300 1.4900 2.4750 1.7322	40.686 18.135 22.837 139.536 22.161 25.544	8 8 8 2 8					
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 8 2 8 8					
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463	2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129	40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 2 8 8 8	-1.054	1.761	0.3555		
AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662 1.2662	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211	0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911	2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588	40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421 11.701	8 8 8 8 8 8 8 8	-1.054	1.761	0.3555		
AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463	2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129	40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 8 8 8 8	-1.054		0.3555		
AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662 1.2662 0.9028	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 0.8767	2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588 1.4522	40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421 11.701	8 8 8 2 8 8 8 8 8 8 8	-1.054	Critical	0.3555	Skew	Kurt
AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Test	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662 1.2662 0.9028	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 0.8767	2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588 1.4522	40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421 11.701	8 8 8 2 8 8 8 8 8 8 8 S Statistic	-1.054	Critical 0.844	0.3555	Skew -0.2724	Kurt -0.8872
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Test Shapiro-Wilk's F-Test indicate	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558 s	1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662 1.2662 0.9028 attes normances (p	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 0.8767	2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588 1.4522	40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421 11.701	8 8 8 2 8 8 8 8 8 8 Statistic 0.94642 1.0592		Critical 0.844 8.88539		-0.2724	-0.8872
AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Test	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558 Test indicates equal values (1-tail,	1.1611 1.4267 1.2950 0.5858 1.4881 1.0874 0.5576 1.1662 1.2662 0.9028 attes normances (p	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.6211 1.1558	0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 1.3911 0.8767	2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.9588 1.4522	40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421 11.701	8 8 8 2 8 8 8 8 8 8 8 Statistic 0.94642 1.0592 MSDu	MSDp	Critical 0.844 8.88539 MSB	0.3555 MSE 0.16292	-0.2724 F-Prob	

					wth and	Survival	Test-Grov	wth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II	D:	Swan Cre	eek		
End Date:	12/13/2021		Lab ID:				Sample T	уре:	Sediment	t		
Sample Date:			Protocol:				Test Spec	cies:	CT-Chiro	nomus dil	utus	
Comments:												
Conc-	1	2	3	4	5	6	7	8		•		
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
				Transform	ı: Untran	sformed			1-Tailed			
Conc-	Mean i	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	1.2803	1.0000	1.2803	0.6144	1.7713	31.070	8					
AT1-862	0.7133	0.5572	0.7133	0.5033	1.0825	29.363	8					
AT1-864	1.0645	0.8315	1.0645	0.3100	1.6789	36.718	8					
AT1-865	1.4866	1.1611	1.4866	0.7589	2.3656	40.686	8					
AT1-866	1.8266	1.4267	1.8266	1.3722	2.2738	18.135	8					
AT1-867	1.6580	1.2950	1.6580	1.0810	2.1300	22.837	8					
AT1-868	0.7500	0.5858	0.7500	0.0100	1.4900	139.536	2					
AT1-869	1.9052	1.4881	1.9052	1.3178	2.4750	22.161	8					
AT1-870	1.3922	1.0874	1.3922	0.7025	1.7322	25.544	8					
AT1-871	0.7139	0.5576	0.7139	0.4713	0.9844	25.431	8					
AT1-872	1.4930	1.1662	1.4930	0.9463	2.1129	27.421	8					
AT1-873	1.6211	1.2662	1.6211	1.3911	1.9588	11.701	8	-2.187	1.761	0.2744		
Control	1.1558	0.9028	1.1558	0.8767	1.4522	14.547	8					
Auxiliary Test							Statistic		Critical	•	Skew	Kurt
Shapiro-Wilk's	Test indica	tes norm	ıal distribu	tion (p > 0.0	01)		0.95545		0.844		-0.6677	0.5992
F-Test indicate			0 = 0.07				4.3976		8.88539			
Usmathaais Ti	set (1_tail_(0.51					MSDu	MSDp	MSB	MSE	F-Prob	df
Hypothesis Te Homoscedasti								0.21435		0.09711	1-1100	1, 14

				Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample it	D:	Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample T	ype:	Sediment			
Sample Date:			Protocol:				Test Spec	ies:	CT-Chiro	nomus dilu	utus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-863	1.4525	1.3189	1.2929	0.6144	1. 7 713	1.3913	1.6289	0.7722				
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866		1.3722		1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867		1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869		1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872		1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
AT1-873		1.5422		1.3911	1.5313	1.9588	1.7614	1.4163				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
				Transform	: Untran	sformed			1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	1.2803	1.0000		0.6144	1.7713	31.070	8					
AT1-862	0.7133	0.5572	0.7133	0.5033	1.0825	29.363	8					
AT1-864		0.8315		0.3100	1.6789	36.718	8					
AT1-865		1.1611	1.4866	0.7589	2.3656	40.686	8					
AT1-866		1.4267		1.3722	2.2738	18.135	8					
AT1-867		1.2950		1.0810	2.1300	22.837	8					
AT1-868		0.5858		0.0100	1.4900	139.536	2					
AT1-869	1.9052	1.4881	1.9052	1.3178	2.4750	22.161	8					
AT1-870	1.3922	1.0874	1.3922	0.7025	1.7322	25.544	8					
AT1-871	0.7139	0.5576	0.7139	0.4713	0.9844	25.431	8					
AT1-872	1.4930	1.1662	1.4930	0.9463	2.1129	27.421	8					
AT1-873	1.6211	1.2662	1.6211	1.3911	1.9588	11.701	8					
Control	1.1558	0.9028	1.1558	0.8767	1.4522	14.547	8	0.815		0.2689		
Auxiliary Test							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's	Test indica	ates norn	nal distribu	ition (p > 0.6	01)		0.93592		0.844		-0.7611	0.91206
F-Test indicate	es equal va	riances (5.59706		8.88539			
Hypothesis To	est (1-tail,	0.05)					MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedasti	ic t Test ind	icates no	significar	t difference	s		0.26893	0.21006	0.06196	0.09325	0.42867	1, 14

Start Date:	12/3/2021	-	Test ID:	TN-21-771		Survival T	Sample ID		Swan Creek		
End Date:	12/13/202		Lab ID:	114-21-11			Sample Ty		Sediment		
Sample Date:	IZI ICIZOZ		Protocol:				Test Spec		CT-Chironom	ue dilutue	
Comments:			1000001.				rest opec	100.	C1-Cillionoini	นธ นานเนธ	
Conc-	1	2	3	4	5	6	7	8	.	***	
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000	·		
AT1-862		0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000			
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000			
AT1-864		0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000			
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000			
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000			
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000			
AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000			
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000			
AT1-872	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
				ansform:				Rank	1-Tailed		
Conc-	Mean	N-Mean -	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-873	0.8500	1.0000	1.1840	0.9912	1.4120	11.040	8				
*AT1-862	0.3500	0.4118	0.6322	0.5796	0.6847	8.885	8	36.00	47.00		
AT1-863	0.8375	0.9853	1.1636	0.9912	1.2490	8.502	8	66.00	47.00		
AT1-864	0.8875	1.0441	1.2313	1.1071	1.2490	4.074	8	77.00	47.00		
AT1-865	0.8750	1.0294	1.2136	1.1071	1.2490	5.413	8	74.00	47.00		
AT1-866	0.8250	0.9706	1.1459	0.9912	1.2490	8.205	8	63.00	47.00		
AT1-867	0.9000	1.0588	1.2543	1.1071	1.4120	9.198	8	78.00	47.00		
*AT1-868	0.0250	0.0294	0.1995	0.1588	0.3218	37.811	8	36.00	47.00		
A T 1-869	0.9000	1.0588	1.2517	1.1071	1.4120	6.521	8	79.00	47.00		
AT1-870	0.8375	0.9853	1.1604	1.1071	1.2490	6.329	8	65.00	47.00		
AT1-871	0.7875	0.9265	1.0959	0.9912	1.2490	7.399	8	55.00	47.00		
AT1-872	0.7625	0.8971	1.0637	0.9912	1.1071	5.644	8	50.00	47.00		
Control	0.9000	1.0588	1.2490	1.2490	1.2490	0.000	8	80.00	47.00		
uxiliary Test							Statistic		Critical	Skew	Kurt
			نا حاليا ال	ion (p > 0.	241		1.00328		1.035	0.08845	0.3640

Hypothesis Test (1-tail, 0.05)
Wilcoxon Rank Sum Test indicates no significant differences

				Grov	wth and S	Survival	Γest-Survi	val				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID):	Swan Cre	ek		
End Date:	12/13/2021	1	Lab ID:				Sample Ty	/pe:	Sediment			
Sample Date:			Protocol:				Test Spec	ies:	CT-Chiror	nomus dilu	rtus	
Comments:												
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000				
AT1-862		0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000				
AT1-863		0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000				
AT1-864		0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-865		0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000				
AT1-866		0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000				
AT1-867		0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000				
AT1-868		0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
AT1-869		0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000				
AT1-870		0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000				
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000				
AT1-872		0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000				
Control		0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
. "			Т	ransform:	Arcsin Sc	uare Ro	ot		1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	0.8500	1.0000	1.1840	0.9912	1.4120	11.040	8					
*AT1-862	0.3500	0.4118	0.6322	0.5796	0.6847	8.885	8	10.970	1.761	0.0886		
AT1-863		0.9853	1.1636	0.9912	1.2490	8.502	8					
AT1-864	0.8875	1.0441	1.2313	1.1071	1.2490	4.074	8					
AT1-865		1.0294		1.1071	1.2490	5.413	8					
AT1-866		0.9706		0.9912	1.2490	8.205	8					
AT1-867		1.0588		1.1071	1.4120	9.198	8					
AT1-868	0.0250	0.0294		0.1588	0.3218	37.811	8					
AT1-869	0.9000	1.0588		1.1071	1.4120	6.521	8					
AT1-8 7 0	0.8375	0.9853	1.1604	1.1071	1.2490	6.329	8					
AT1-871	0.7875	0.9265	1.0959	0.9912	1.2490	7.399	8					
AT1-872	0.7625	0.8971	1.0637	0.9912	1.1071	5.644	8					
Control	0.9000	1.0588	1.2490	1.2 <u>490</u>	1.2490	0.000	8					
Auxiliary Tes	ts		·				Statistic		Critical		Skew	Kurt
Shapiro-Wilk's	Test indica	ates nom	nal distribu	tion (p > 0)	.01)		0.89865		0.844		0.34515	1.10038
F-Test indicate							5.41543		8.88539			
Hypothesis T							MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedast	ic t Test ind	licates si	gnificant d	iff e rences		. <u></u>	0.06718	0.07833	1.21789	0.01012	2.9E-08	1, 14

				Grov	wth and S	Survival '	Test-Surv	ival				
Start Date:	12/3/2021		Test ID:	TN-21-771	"	-	Sample IE		Swan Cre	ek		
End Date:	12/13/2021	[Lab ID:				Sample T	ype:	Sediment			
Sample Date:			Protocol:				Test Spec	cies:	CT-Chiro	nomus dilu	ıtus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000				
AT1-862		0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000				
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000				
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000				
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000				
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000				
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000				
AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000				
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000				
AT1-8 7 2	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000				
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
			Tr	ansform: /		juare Ro			1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	0.8500	1.0000	1.1840	0.9912	1.4120	11.040	8					
AT1-862	0.3500	0.4118	0.6322	0.5796	0.6847	8.885	8					
AT1-863	0.8375	0.9853	1.1636	0.9912	1.2490	8.502	8	0.352	1.761	0.1021		
AT1-864		1.0441	1.2313	1.1071	1.2490	4.074	8					
AT1-865		1.0294	1.2136	1.1071	1.2490	5.413	8					
AT1-866		0.9706	1.1459	0.9912	1.2490	8.205	8					
AT1-867		1.0588	1.2543	1.1071	1.4120	9.198	8					
AT1-868		0.0294	0.1995	0.1588	0.3218	37.811	8					
AT1-869		1.0588	1.2517	1.1071	1.4120	6.521	8					
AT1-870		0.9853	1.1604	1.1071	1.2490	6.329	8					
AT1-871		0.9265	1.0959	0.9912	1.2490	7.399	8					
AT1-872		0.8971	1.0637	0.9912	1.1071	5.644	8					
Control		1.0588	1.2490	1.2490	1.2490	0.000	8					
Auxiliary Test							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's				tion (p > 0 .	01)		0.9169		0.844		0.05352	-0.3043
	oe agual vai	riances (r	a = 0.48				1.74583		8.88539			
F-Test indicate			 									
F-Test indicate Hypothesis T Homoscedasti	est (1-tail, 1	0.05)					MSDu	MSDp	MSB 0.00166	MSE	F-Prob	df 1, 14

				Gro	wth and S	urvival 1	fest-Survi	val				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID		Swan Cree	∍k		
End Date:	12/13/202		Lab ID:				Sample Ty	ype:	Sediment			
Sample Date:			Protocol:				Test Spec	ies:	CT-Chiron	omus dilu	itus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000				
AT1-862		0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000				
AT1-863		0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000				
AT1-864		0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-865		0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000				
AT1-866		0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000				
AT1-867		0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000				
AT1-868		0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
AT1-869		0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000				
AT1-870		0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000				
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000				
AT1-872		0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000				
Control		0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
			Ti	ransform:	Arcsin So				1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	0.8500	1.0000	1.1840	0.9912	1.4120	11.040	8					
AT1-862		0 4440	0.6322	0.5796	0.6847	8.885	0					
	0.3500	0.4118					8					
AT1-863		0.9853	1.1636	0.9912	1.2490	8.502	8					
	0.8375				1.2490 1.2490	8.502 4.074	8 8	-0.956	1. 761	0.0872		
AT1-863	0.8375 0.8875 0.8750	0.9853 1.0441 1.0294	1.1636 1.2313 1.2136	0.9912 1.1071 1.1071	1.2490 1.2490 1.2490	8.502 4.074 5.413	8 8 8	-0.956	1. 761	0.0872		
AT1-863 AT1-864	0.8375 0.8875 0.8750 0.8250	0.9853 1.0441	1.1636 1.2313 1.2136 1.1459	0.9912 1.1071 1.1071 0.9912	1.2490 1.2490 1.2490 1.2490	8.502 4.074 5.413 8.205	8 8 8	-0.956	1.76 1	0.0872		
AT1-863 AT1-864 AT1-865	0.8375 0.8875 0.8750 0.8250 0.9000	0.9853 1.0441 1.0294 0.9706 1.0588	1.1636 1.2313 1.2136 1.1459 1.2543	0.9912 1.1071 1.1071 0.9912 1.1071	1.2490 1.2490 1.2490 1.2490 1.4120	8.502 4.074 5.413 8.205 9.198	8 8 8 8	-0.956	1. 761	0.0872		
AT1-863 AT1-864 AT1-865 AT1-866	0.8375 0.8875 0.8750 0.8250 0.9000	0.9853 1.0441 1.0294 0.9706 1.0588 0.0294	1.1636 1.2313 1.2136 1.1459 1.2543 0.1995	0.9912 1.1071 1.1071 0.9912 1.1071 0.1588	1.2490 1.2490 1.2490 1.2490 1.4120 0.3218	8.502 4.074 5.413 8.205 9.198 37.811	8 8 8 8 8	-0.956	1.76 1	0.0872		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000	0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588	1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517	0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071	1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120	8.502 4.074 5.413 8.205 9.198 37.811 6.521	8 8 8 8 8	-0.956	1. 761	0.0872		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375	0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853	1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604	0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071	1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490	8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329	8 8 8 8 8 8	-0.956	1. 761	0.0872		
AT1-863 AT1-865 AT1-865 AT1-866 AT1-868 AT1-868	0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375	0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588	1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517	0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912	1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490	8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399	8 8 8 8 8 8	-0.956	1. 761	0.0872		
AT1-863 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875	0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971	1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637	0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912	1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071	8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8	-0.956	1.761	0.0872		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871	0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875	0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265	1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959	0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912	1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490	8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399	8 8 8 8 8 8 8 8 8	-0.956		0.0872		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-872 Control	0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.9000	0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588	1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.2490	8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8	-0.956	Critical	0.0872	Skew	Kurt
AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-872 Control Auxillary Tes Shapiro-Wilk's	0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.9000 ts	0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588	1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.2490	8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8 8 9 8	-0.956	Critical 0.844	0.0872	Skew 0.19884	Kurt 1.62971
AT1-863 AT1-865 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-872 Control Auxiliary Tes Shapiro-Wilk's F-Test indicat	0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7625 0.7625 0.9000 ts s Test indices equal va	0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588 attes normalizates (particular la particular la par	1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.2490	8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 Statistic 0.9031 6.78804		Critical 0.844 8.88539		0.19884	1.62971
AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-872 Control Auxillary Tes Shapiro-Wilk's	0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.9000 ts s Test indices equal variest (1-tail,	0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588 attes normances (p. 0.05)	1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.1071 1.2490	8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8 8 9 8	MSDp	Critical 0.844	0.0872 MSE 0.0098		

				Gro	wth and S	Survival	i est-ourvi	ıvaı				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID		Swan Cre	ek		
End Date:	12/13/202		Lab ID:				Sample Ty	ype:	Sediment			
Sample Date:			Protocol:				Test Spec		CT-Chiron	omus dilu	itus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000				
AT1-862		0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000				
AT1-863		0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000				
AT1-864		0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-865		0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000				
AT1-866		0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000				
AT1-867		0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000				
AT1-868		0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
AT1-869		0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000				
AT1-870		0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000				
AT1-871		0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000				
AT1-872		0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000				
Control		0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
				ansform:					1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	0.8500	1.0000	1.1840	0.9912	1.4120	11.040	8					
AT1-862	0.3500	0.4118	0.6322	0.5796	0.6847	8.885	8					
AT1-863	0.8375	0.9853	1.1636	0.9912	1.2490	8.502	8					
AT1-864	0.8875	4 0 4 4 4	4.0040				0					
AT4 005	0.00.0	1.0441	1.2313	1.1071	1.2490	4.074	8					
AT1-865		1.0441	1.2313	1.1071	1.2490 1.2490	4.074 5.413		-0.572	1.761	0.0911		
AT1-866	0.8750				1.2490	4.074 5.413 8.205	8 8 8	-0.572	1.761	0.0911		
	0.8750 0.8250	1.0294	1.2136	1.1071	1.2490 1.2490	4.074 5.413 8.205 9.198	8 8 8	-0.572	1.761	0.0911		
AT1-866	0.8750 0.8250 0.9000	1.0294 0.9706	1.2136 1.1459	1.1071 0.9912	1.2490 1.2490 1.2490 1.4120 0.3218	4.074 5.413 8.205 9.198 37.811	8 8 8 8	-0.572	1.761	0.0911		
AT1-866 AT1-867	0.8750 0.8250 0.9000 0.0250	1.0294 0.9706 1.0588	1.2136 1.1459 1.2543	1.1071 0.9912 1.1071	1.2490 1.2490 1.2490 1.4120	4.074 5.413 8.205 9.198	8 8 8	-0.572	1.761	0.0911		
AT1-866 AT1-867 AT1-868	0.8750 0.8250 0.9000 0.0250 0.9000	1.0294 0.9706 1.0588 0.0294	1.2136 1.1459 1.2543 0.1995	1.1071 0.9912 1.1071 0.1588	1.2490 1.2490 1.2490 1.4120 0.3218	4.074 5.413 8.205 9.198 37.811 6.521 6.329	8 8 8 8	-0.572	1.761	0.0911		
AT1-866 AT1-867 AT1-868 AT1-869	0.8750 0.8250 0.9000 0.0250 0.9000 0.8375	1.0294 0.9706 1.0588 0.0294 1.0588	1.2136 1.1459 1.2543 0.1995 1.2517	1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912	1.2490 1.2490 1.2490 1.4120 0.3218 1.4120	4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399	8 8 8 8 8	-0.572	1.761	0.0911		
AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875	1.0294 0.9706 1.0588 0.0294 1.0588 0.9853	1.2136 1.1459 1.2543 0.1995 1.2517 1.1604	1.1071 0.9912 1.1071 0.1588 1.1071 1.1071	1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490	4.074 5.413 8.205 9.198 37.811 6.521 6.329	8 8 8 8 8 8	-0.572	1.761	0.0911		
AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875	1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265	1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959	1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912	1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490	4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399	8 8 8 8 8 8 8 8	-0.572		0.0911		
AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control	0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.9000 ts	1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588	1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.2490	4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8	-0.572	Critical	0.0911	Skew	Kurt
AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872	0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.9000 ts	1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588	1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.2490	4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 S S S S S S S S S S	-0.572	Critical 0.844	0.0911	Skew 0.15387	Kurt 0.79809
AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control	0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.9000 ts	1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588 ates norm	1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.2490	4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 Statistic 0.90158 3.95969		Critical 0.844 8.88539		0.15387	0.79809
AT1-866 AT1-868 AT1-868 AT1-870 AT1-871 AT1-872 Control Auxiliary Tes Shapiro-Wilk's	0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.9000 ts Test indices equal va	1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588 ates norm	1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.2490	4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 S S S S S S S S S S	MSDp	Critical 0.844	0.0911 MSE 0.0107		

				Gro	wth and S	Survival 1	Test-Survi	val				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID);	Swan Cre	ek		
End Date:	12/13/202		Lab ID:				Sample Ty	ype:	Sediment			
Sample Date:			Protocol:				Test Spec	ies:	CT-Chiror	nomus dilų	ıtus	
Comments:												
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000				•
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000				
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000				
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000				
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000				
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000				
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
AT1-869		0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000				
AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000				
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000				
AT1-872	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000				
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
			Tr	ansform:	Arcsin Sc	uare Ro	ot	-	1-Tailed		-	
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
4.74.070												
AT1-873	0.8500	1.0000	1.1840	0.9912	1.4120	11.040	8				=-	
AT1-873 AT1-862		1.0000 0.4118	1.1840 0.6322	0.9912 0.5796	1.4120 0.6847	11.040 8.885	8 8	··· ·				<u>.</u>
	0.3500				0.6847 1.2490	11.040 8.885 8.502	8 8 8					-
AT1-862	0.3500 0.8375	0.4118	0.6322	0.5796 0.9912 1.1071	0.6847 1.2490 1.2490	11.040 8.885 8.502 4.074	8 8 8					•
AT1-862 AT1-863	0.3500 0.8375 0.8875	0.4118 0.9853 1.0441 1.0294	0.6322 1.1636 1.2313 1.2136	0.5796 0.9912 1.1071 1.1071	0.6847 1.2490 1.2490 1.2490	11.040 8.885 8.502 4.074 5.413	8 8 8 8					-
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	0.3500 0.8375 0.8875 0.8750 0.8250	0.4118 0.9853 1.0441 1.0294 0.9706	0.6322 1.1636 1.2313 1.2136 1.1459	0.5796 0.9912 1.1071 1.1071 0.9912	0.6847 1.2490 1.2490 1.2490 1.2490	11.040 8.885 8.502 4.074 5.413 8.205	8 8 8 8 8	0.669	1.761	0.1003	-	-
AT1-862 AT1-863 AT1-864 AT1-865	0.3500 0.8375 0.8875 0.8750 0.8250	0.4118 0.9853 1.0441 1.0294 0.9706 1.0588	0.6322 1.1636 1.2313 1.2136 1.1459 1.2543	0.5796 0.9912 1.1071 1.1071 0.9912 1.1071	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120	11.040 8.885 8.502 4.074 5.413 8.205 9.198	8 8 8 8 8	0.669	1.761	0.1003		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250	0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294	0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995	0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811	8 8 8 8 8 8	0.669	1.761	0.1003		•
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250	0.4118 0.9853 1.0441 1.0294 0.9706 1.0588	0.6322 1.1636 1.2313 1.2136 1.1459 1.2543	0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521	8 8 8 8 8 8	0.669	1.761	0.1003		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000	0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294	0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995	0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329	8 8 8 8 8 8 8	0.669	1.761	0.1003		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000	0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588	0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517	0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399	8 8 8 8 8 8 8 8	0.669	1.761	0.1003		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875	0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853	0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604	0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8	0.669	1.761	0.1003		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875	0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265	0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959	0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399	8 8 8 8 8 8 8 8	0.669		0.1003		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-872 Control	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.9000	0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588	0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	0.6847 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.2490	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8 8	0.669	Critical	0.1003	Skew	Kurt
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.9000	0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588	0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	0.6847 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.2490	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	0.669	Critical 0.844	0.1003	Skew 0.20152	Kurt -0.1912
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-872 Control	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.9000 ts	0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588	0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	0.6847 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.2490	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 7 8 8 8 8		Critical 0.844 8.88539		0.20152	-0.1912
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 Control Auxiliary Tes Shapiro-Wilk's	0.3500 0.8375 0.8875 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.9000 ts Test indicates equal values (1-tail,	0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588 ates normalizates (p. 0.05)	0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490 tion (p > 0	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.1071 1.2490	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 9 5tatistic 0.94925 1.93296 MSDu	MSDp	Critical 0.844	MSE	0.20152 F-Prob	

				Gro	wth and S	Survival 1	est-Survi	val				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID		Swan Cree	ek		
End Date:	12/13/2021		Lab ID:				Sample Ty	ype:	Sediment			
Sample Date:	, , ,		Protocol:				Test Spec	ies:	CT-Chiron	omus dilu	ıtus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8			•	
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000				
AT1-862		0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000				
AT1-863		0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000				
AT1-864		0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-865		0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000				
AT1-866		0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000				
AT1-867		0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000				
AT1-868		0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
AT1-869		0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000				
AT1-8 7 0		0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000				
AT1-871		0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000				
AT1-872		0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000				
Control		0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
				ansform:			ot		1-Tailed			
Conc-	Mean	N-Mean ²	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Conc- AT1-873		N-Mea n 1.0000	Mean 1.1840	Min 0.9912	Max 1.4120	11.040	8	t-Stat	Critical	MSD		
	0.8500				1.4120 0.6847	11.040 8.885	8 8	t-Stat	Critical	MSD		
AT1-873	0.8500 0.3500	1.0000	1.1840	0.9912	1.4120	11.040	8	t-Stat	Critical	MSD_		
AT1-873 AT1-862	0.8500 0.3500 0.8375	1.0000 0. 411 8	1.1840 0.6322	0.9912 0.5796	1.4120 0.6847	11.040 8.885	8 8	t-Stat	Critical	MSD		
AT1-873 AT1-862 AT1-863	0.8500 0.3500 0.8375 0.8875	1.0000 0.4118 0.9853	1.1840 0.6322 1.1636	0.9912 0.5796 0.9912	1.4120 0.6847 1.2490 1.2490 1.2490	11.040 8.885 8.502 4.074 5.413	8 8 8 8	t-Stat	Critical	MSD_		
AT1-873 AT1-862 AT1-863 AT1-864	0.8500 0.3500 0.8375 0.8875 0.8750	1.0000 0.4118 0.9853 1.0441	1.1840 0.6322 1.1636 1.2313	0.9912 0.5796 0.9912 1.1071	1.4120 0.6847 1.2490 1.2490 1.2490 1.2490	11.040 8.885 8.502 4.074 5.413 8.205	8 8 8 8 8	ţ		-		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250	1.0000 0.4118 0.9853 1.0441 1.0294	1.1840 0.6322 1.1636 1.2313 1.2136	0.9912 0.5796 0.9912 1.1071 1.1071	1.4120 0.6847 1.2490 1.2490 1.2490 1.2490 1.4120	11.040 8.885 8.502 4.074 5.413 8.205 9.198	8 8 8 8 8	t-Stat	Critical	MSD 0.1086		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706	1.1840 0.6322 1.1636 1.2313 1.2136 1.1459	0.9912 0.5796 0.9912 1.1071 1.1071 0.9912	1.4120 0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811	8 8 8 8 8 8	ţ		-		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588	1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543	0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071	1.4120 0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521	8 8 8 8 8 8	ţ		-		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294	1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995	0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588	1.4120 0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329	8 8 8 8 8 8 8	ţ		-		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-868	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588	1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517	0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071	1.4120 0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521	8 8 8 8 8 8	ţ		-		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-868 AT1-870	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853	1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604	0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071	1.4120 0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329	8 8 8 8 8 8 8	ţ		-		
AT1-873 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265	1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959	0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912	1.4120 0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399	8 8 8 8 8 8 8 8 8 8	ţ	1.761	-		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.9000	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971	1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637	0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912	1.4120 0.6847 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8	ţ		-	Skew	Kurt
AT1-873 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.9000 ts	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588	1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	1.4120 0.6847 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.2490	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 0.96134	ţ	1.761 Critical 0.844	-	Skew 0.2538	Kurt -0.5293
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-870 AT1-871 AT1-872 Control Auxiliary Tes Shapiro-Wilk's	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.7875 0.7625 0.9000 ts Test indicates equal variation	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588	1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	1.4120 0.6847 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.2490	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 7 8 8 8 8 8 1 8 1	-1.141	1.761 Critical 0.844 8.88539	0.1086	0.2538	-0.5293
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Tes Shapiro-Wilk's	0.8500 0.3500 0.8375 0.8875 0.8750 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.9000 ts Test indices equal variest (1-tail,	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588 ates normances (p. 0.05)	1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 1.1071 0.9912 0.9912 1.2490	1.4120 0.6847 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.1071 1.2490	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 0.96134	-1.141 MSDp	1.761 Critical 0.844	-		

			<u> </u>	Gro	wth and	Survival	Test-Surv	ival				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample [[D:	Swan Cre	ek		
End Date:	12/13/202		Lab ID:				Sample T		Sediment			
Sample Date:			Protocol:				Test Spec		CT-Chiro	nomus dilı	utus	
Comments:												
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000	•			
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000				
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000				
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000				
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000				
AT1-86 7	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000				
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000				
AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000				
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000				
AT1-872	0. 7 000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000				
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
			Tr	ansform:	Arcsin Sc	uare Ro	ot		1-Tailed			
_					··							
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873		N-Mean 1.0000	Mean 1.1840	Min 0.9912	Max 1.4120	CV% 11.040	8	t-Stat	Critical	MSD		
	0.8500		1.1840 0.6322	0.9912 0.5796	1.4120 0.6847	11.040 8.885		t-Stat	Critical	MSD		
AT1-873	0.8500 0.3500 0.8375	1.0000 0.4118 0.9853	1.1840 0.6322 1.1636	0.9912 0.5796 0.9912	1.4120 0.6847 1.2490	11.040 8.885 8.502	8	t-Stat	Critical	MSD		
AT1-873 AT1-862 AT1-863 AT1-864	0.8500 0.3500 0.8375 0.8875	1.0000 0.4118	1.1840 0.6322	0.9912 0.5796 0.9912 1.1071	1.4120 0.6847 1.2490 1.2490	11.040 8.885 8.502 4.074	8 8 8	t-Stat	Critical	MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865	0.8500 0.3500 0.8375 0.8875 0.8750	1.0000 0.4118 0.9853 1.0441 1.0294	1.1840 0.6322 1.1636 1.2313 1.2136	0.9912 0.5796 0.9912 1.1071 1.1071	1.4120 0.6847 1.2490 1.2490 1.2490	11.040 8.885 8.502 4.074 5.413	8 8 8 8	t-Stat	Critical	MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706	1.1840 0.6322 1.1636 1.2313 1.2136 1.1459	0.9912 0.5796 0.9912 1.1071 1.1071 0.9912	1.4120 0.6847 1.2490 1.2490 1.2490 1.2490	11.040 8.885 8.502 4.074 5.413 8.205	8 8 8 8 8	t-Stat	Critical	MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588	1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543	0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.10 7 1	1.4120 0.6847 1.2490 1.2490 1.2490 1.2490 1.4120	11.040 8.885 8.502 4.074 5.413 8.205 9.198	8 8 8 8 8					
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 *AT1-868	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294	1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995	0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.10 7 1 0.1588	1.4120 0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811	8 8 8 8 8 8	t-Stat	1.761	MSD 0.0940		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 *AT1-868 AT1-869	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588	1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517	0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071	1.4120 0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521	8 8 8 8 8 8					
AT1-873 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 *AT1-868 AT1-869 AT1-870	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853	1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604	0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071	1.4120 0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329	8 8 8 8 8 8 8					
AT1-873 AT1-863 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 *AT1-868 AT1-869 AT1-870	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265	1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959	0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912	1.4120 0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399	8 8 8 8 8 8 8					
AT1-873 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 *AT1-868 AT1-869 AT1-870	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971	1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637	0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912	1.4120 0.6847 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8					
AT1-873 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 *AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.9000	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265	1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959	0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912	1.4120 0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399	8 8 8 8 8 8 8 8 8		1.761			
AT1-873 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 *AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.9000	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588	1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	1.4120 0.6847 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.1071 1.2490	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8 8		1.761 Critical		Skew	Kurt
AT1-873 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 *AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Test	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.9000 ts	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588	1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	1.4120 0.6847 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.1071 1.2490	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 9 7		1.761 Critical 0.844		Skew 0.51484	Kurt 0.44335
AT1-873 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 *AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Test Shapiro-Wilk's F-Test indicate	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7625 0.9000 ts Test indicates equal val	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588	1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	1.4120 0.6847 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.1071 1.2490	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 7 8 8 8 7 8	18.450	1.761 Critical 0.844 8.88539	0.0940	0.51484	0.44335
AT1-873 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 *AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Test	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7625 0.9000 ts Test indicates equal values (1-tail,	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588 atles normariances (p. 0.05)	1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 1.1071 0.9912 0.9912 1.2490 tion (p > 0	1.4120 0.6847 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.1071 1.2490	11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 9 7 9 1487 3.00186 MSDu	18.450 MSDp	1.761 Critical 0.844	0.0940 MSE		

				Gro	wth and S	Survival 1	est-Survi					
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID):	Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample Ty		Sediment			
Sample Date:			Protocol:				Test Spec	ies:	CT-Chiror	omus dilu	tus	
Comments:											_	
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000				
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000				
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000				
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000				
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000				
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000				
AT1-868		0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
AT1-869		0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000				
AT1-870		0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000				
AT1-871		0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000				
AT1-872		0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000				
Control		0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000		_		
			T	ransform:	Arcsin Sc	uare Ro	ot		1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT4 072												
AT1-873	0.8500	1.0000	1.1840	0.9912	1.4120	11.040	8					
AT1-873 AT1-862		1.0000 0.4118	1.1840 0.6322	0.9912 0.5796	0.6847	8.885	8					
	0.3500		0.6322 1.1636	0.5796 0.9912	0.6847 1.2490	8.885 8.502	8 8					
AT1-862	0.3500 0.8375	0.4118 0.9853 1.0441	0.6322 1.1636 1.2313	0.5796 0.9912 1.1071	0.6847 1.2490 1.2490	8.885 8.502 4.074	8 8 8					
AT1-862 AT1-863	0.3500 0.8375 0.8875	0.4118 0.9853 1.0441 1.0294	0.6322 1.1636 1.2313 1.2136	0.5796 0.9912 1.1071 1.1071	0.6847 1.2490 1.2490 1.2490	8.885 8.502 4.074 5.413	8 8 8					
AT1-862 AT1-863 AT1-864	0.3500 0.8375 0.8875 0.8750	0.4118 0.9853 1.0441 1.0294 0.9706	0.6322 1.1636 1.2313 1.2136 1.1459	0.5796 0.9912 1.1071 1.1071 0.9912	0.6847 1.2490 1.2490 1.2490 1.2490	8.885 8.502 4.074 5.413 8.205	8 8 8 8					
AT1-862 AT1-863 AT1-864 AT1-865	0.3500 0.8375 0.8875 0.8750 0.8250	0.4118 0.9853 1.0441 1.0294	0.6322 1.1636 1.2313 1.2136 1.1459 1.2543	0.5796 0.9912 1.1071 1.1071 0.9912 1.1071	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120	8.885 8.502 4.074 5.413 8.205 9.198	8 8 8 8 8					
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000	0.4118 0.9853 1.0441 1.0294 0.9706	0.6322 1.1636 1.2313 1.2136 1.1459	0.5796 0.9912 1.1071 1.1071 0.9912	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218	8.885 8.502 4.074 5.413 8.205	8 8 8 8 8					
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250	0.4118 0.9853 1.0441 1.0294 0.9706 1.0588	0.6322 1.1636 1.2313 1.2136 1.1459 1.2543	0.5796 0.9912 1.1071 1.1071 0.9912 1.1071	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120	8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521	8 8 8 8 8 8	-1.243	1.761	0.0960		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000	0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294	0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995	0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490	8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329	8 8 8 8 8 8	-1,243	1.761	0.0960.0		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-868	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375	0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588	0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517	0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120	8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399	8 8 8 8 8 8 8	-1.243	1.761	0.0960		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-867 AT1-868 AT1-869 AT1-870	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875	0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853	0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604	0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490	8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329	8 8 8 8 8 8	-1.243	1.761	0.0960		
AT1-862 AT1-863 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875	0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265	0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959	0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490	8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399	8 8 8 8 8 8 8	-1.243		0.0960		
AT1-862 AT1-863 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-870	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625	0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971	0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637	0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912	0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071	8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8	-1.243	Critical	0.0960	Skew	Kurt
AT1-862 AT1-863 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.9000	0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588	0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	0.6847 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.1071 1.2490	8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 9 8	-1.243	Critical 0.844	0.0960		Kurt 0.62523
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Tes Shapiro-Wilk's	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.9000 ts	0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9265 0.8971 1.0588	0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	0.6847 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.1071 1.2490	8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8		Critical 0.844 8.88539	.	0.34358	0.62523
AT1-862 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-872 Control	0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7625 0.7625 0.9000 ts s Test indices equal va	0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588	0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	0.6847 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.1071 1.2490	8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 9 8	MSDp	Critical 0.844 8.88539 MSB	0.0960 MSE 0.01187	0.34358 F-Prob	

				Gro	wth and S	Survival	Test-Survi	val				
Start Date:	12/3/2021	-	Test ID:	TN-21-771			Sample ID		Swan Cre	ek		******
End Date:	12/13/2021		ab ID:				Sample Ty		Sediment			
Sample Date:			Protocol:				Test Spec		CT-Chiror	nomus dilu	ıtus	
Comments:							-					
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000				
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000				
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000				
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-865		0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000				
AT1-866		0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000				
AT1-867		0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000				
AT1-868		0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
AT1-869		0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000				
AT1-870		0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000				
AT1-871		0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000				
AT1-872		0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000				
Control		0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
			Tra	ansform:	Arcsin Sc	uare Ro	ot		1-Tailed			
Conc-	Mean	N-Mean [‴]	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	0.8500	1.0000	1.1840	0.9912	1.4120	11.040	8					
AT1-862	0.3500	0.4118	0.6322	0.5796	0.6847	8.885	8					
AT1-863	0.8375	0.9853	1.1636	0.9912	1.2490	8.502	8					
AT1-864	0.8875	1.0441	1.2313	1.1071	1.2490	4.074	8					
AT1-865		1.0294	1.2136	1.1071	1.2490	5.413	8					
AT1-866		0.9706	1.1459	0.9912	1.2490	8.205	8					
AT1 - 867		1.0588	1.2543	1.1071	1.4120	9.198	8					
AT1-868		0.0294	0.1995	0.1588	0.3218	37.811	8					
AT1-869	0.9000	1.0588	1.2517	1.1071	1.4120	6.521	8					
AT1-870	0.8375	0.9853	1.1604	1.1071	1.2490	6.329	8	0.445	1.761	0.0934		
AT1-871	0.7875	0.9265	1.0959	0.9912	1.2490	7.399	8					
AT1-872	0.7625	0.8971	1.0637	0.9912	1.1071	5.644						
Control	0.9000	1.0588	1.2490	1.2490	1.2490	0.000						
Auxiliary Tes	ts						Statistic		Critical		Skew	Kurt
	s Test indica	ates norm	al distribut	tion (p > 0	.01)		0.90365		0.844		0.38987	0.33936
Shapiro-Wilk's							0.4077E		8.88539			
F-Test indicate	es equal va		= 0.15)				3.16775					
	es equal va est (1-tail,	0.05)					MSDu	MSDp	MSB 0.00223	MSE	F-Prob	df 1, 14

				Gro	wth and	Survival	Test-Surv	ival				
Start Date:	12/3/2021		Test ID:	TN-21-77			Sample II	D:	Swan Cre	eek		
End Date:	12/13/202	1 ·	Lab ID:				Sample T	уре:	Sedimen	t		
Sample Date:			Protocol:				Test Spec	cies:	CT-Chiro	nomus dili	utus	
Comments:												
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000				
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000				
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000				
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000				
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000				
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000				
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000				
AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000				
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000				
AT1-872	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000				
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
			Tr	ansform:	Arcsin Sc	uare Ro	ot		1-Tailed			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873		1.0000	1.1840	0.9912	1.4120	11.040	8					
AT1-862		0.4118	0.6322	0.5796	0.6847	8.885	8					
AT1-863	0.8375	0.9853	1.1636	0.9912	1.2490	8.502	8					
AT1-864		1.0441	1.2313	1.1071	1.2490	4.074	8					
AT1-865	0.8750	1.0294	1.2136	1.1071	1.2490	5.413	8					
AT1-866	0.8250	0.9706	1.1459	0.9912	1.2490	8.205	8					
AT1-867		1.0588	1.2543	1.1071	1.4120	9.198	8					
AT1-868		0.0294	0.1995	0.1588	0.3218	37.811	8					
AT1-869	0.9000	1.0588	1.2517	1.1071	1.4120	6.521	8					
	0.8375	0.9853	1.1604	1.1071	1.2490	6.329	8					
AT1-870						7.399	8	1.620	1.761	0.0958		
AT1-871	0.7875	0.9265	1.0959	0.9912	1.2490			1.020				
		0.9265 0.8971	1.0959 1.0637	0.9912 0.9912	1.2490 1.1071	5.644	8	1.020				
AT1-871 AT1-872 Control	0.7875 0.7625 0.9000						8 8	1.020				
AT1-871 AT1-872 Control Auxiliary Test	0.7875 0.7625 0.9000	0.8971 1.0588	1.0637 1.2490	0.9912 1.2490	1.1071 1.2490	5.644	8	1.020	Critical		Skew	Kurt
AT1-871 AT1-872 Control	0.7875 0.7625 0.9000	0.8971 1.0588	1.0637 1.2490	0.9912 1.2490	1.1071 1.2490	5.644	8 8	1.020			Skew 0.35859	Kurt 0.40688
AT1-871 AT1-872 Control Auxiliary Test Shapiro-Wilk's F-Test indicate	0.7875 0.7625 0.9000 ts Test indica	0.8971 1.0588 ites nom	1.0637 1.2490 nal distribu	0.9912 1.2490	1.1071 1.2490	5.644	8 8 Statistic 0.95326 2.59819		Critical 0.844 8.88539		0.35859	0.40688
AT1-871 AT1-872 Control Auxiliary Test Shapiro-Wilk's	0.7875 0.7625 0.9000 ts Test indica es equal val	0.8971 1.0588 ites nom riances (1.0637 1.2490 nal distribu p = 0.23)	0.9912 1.2490 tion (p > 0.	1.1071 1.2490 01)	5.644	8 8 Statistic 0.95326 2.59819 MSDu	MSDp 0.08519	Critical 0.844 8.88539 MSB	MSE		

				Gro	wth and	Survival	Test-Surv	ival				
Start Date:	12/3/2021		Test ID:	TN-21-771	1		Sample II	D:	Swan Cre	ek		
End Date:	12/13/202	1	Lab iD:				Sample T	ype:	Sediment	t		
Sample Date:			Protocol:				Test Spec		CT-Chiro	nomus dili	utus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000				
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000				
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000				
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000				
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000				
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000				
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000				
AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000				
AT 1- 8 7 1	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000				
AT1-872	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000				
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
			Tr	ransform:	Arcsin Sc	mare Ro	ot		1-Tailed			
						juai o i to			,			
Conc-		N-Mean ⁻	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	0.8500	1.0000	Mean 1.1840	Min 0.9912	Max 1.4120	CV% 11.040	N 8	t-Stat		MSD		
AT1-873 AT1-862	0.8500 0.3500	1.0000 0.4118	Mean 1.1840 0.6322	Min 0.9912 0.5796	Max 1.4120 0.6847	CV% 11.040 8.885	N	t-Stat		MSD		
AT1-873 AT1-862 AT1-863	0.8500 0.3500 0.8375	1.0000 0.4118 0.9853	Mean 1.1840 0.6322 1.1636	Min 0.9912 0.5796 0.9912	Max 1.4120 0.6847 1.2490	CV% 11.040 8.885 8.502	N 8	t-Stat		MSD		
AT1-873 AT1-862 AT1-863 AT1-864	0.8500 0.3500 0.8375 0.8875	1.0000 0.4118 0.9853 1.0441	Mean 1.1840 0.6322 1.1636 1.2313	Min 0.9912 0.5796 0.9912 1.1071	Max 1.4120 0.6847 1.2490 1.2490	CV% 11.040 8.885 8.502 4.074	N 8 8 8 8	t-Stat		MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865	0.8500 0.3500 0.8375 0.8875 0.8750	1.0000 0.4118 0.9853 1.0441 1.0294	Mean 1.1840 0.6322 1.1636 1.2313 1.2136	Min 0.9912 0.5796 0.9912 1.1071 1.1071	Max 1.4120 0.6847 1.2490 1.2490 1.2490	CV% 11.040 8.885 8.502 4.074 5.413	N 8 8 8 8	t-Stat		MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706	Mean 1.1840 0.6322 1.1636 1.2313 1.2136 1.1459	Min 0.9912 0.5796 0.9912 1.1071 1.1071 0.9912	Max 1.4120 0.6847 1.2490 1.2490 1.2490 1.2490	CV% 11.040 8.885 8.502 4.074 5.413 8.205	N 8 8 8 8 8	t-Stat		MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588	Mean 1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543	Min 0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071	Max 1.4120 0.6847 1.2490 1.2490 1.2490 1.2490 1.4120	CV% 11.040 8.885 8.502 4.074 5.413 8.205 9.198	N 8 8 8 8 8	t-Stat		MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294	Mean 1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995	Min 0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588	Max 1.4120 0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218	CV% 11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811	N 8 8 8 8 8	t-Stat		MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588	Mean 1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543	Min 0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071	Max 1.4120 0.6847 1.2490 1.2490 1.2490 1.2490 1.4120	CV% 11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521	N 8 8 8 8 8 8	t-Stat		MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853	Mean 1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604	Min 0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071	Max 1.4120 0.6847 1.2490 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490	CV% 11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329	N 8 8 8 8 8 8 8	t-Stat		MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265	Mean 1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959	Min 0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912	Max 1.4120 0.6847 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490	CV% 11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399	N 8 8 8 8 8 8 8		Critical			
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971	Mean 1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637	Min 0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912	Max 1.4120 0.6847 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071	CV% 11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	N 8 8 8 8 8 8 8 8 8	t-Stat 2.366		MSD 0.0896		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 *AT1-872 Control	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.9000	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265	Mean 1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959	Min 0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912	Max 1.4120 0.6847 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490	CV% 11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399	N 8 8 8 8 8 8 8 8 8		Critical			
AT1-873 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 *AT1-872 Control Auxiliary Test	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.9000	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588	Mean 1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	Min 0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	Max 1.4120 0.6847 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.2490	CV% 11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8 8		1.761		Skew	Kurt
AT1-873 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 *AT1-872 Control Auxiliary Test	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7625 0.9000	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588	Mean 1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490 al distribu	Min 0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	Max 1.4120 0.6847 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.2490	CV% 11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		1.761 Critical 0.844		Skew 0.27522	
AT1-873 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 *AT1-872 Control Auxiliary Test Shapiro-Wilk's F-Test indicate	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7875 0.7625 0.9000 s	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588	Mean 1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490 al distribu	Min 0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	Max 1.4120 0.6847 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.2490	CV% 11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 4.74068	2.366	1.761 Critical 0.844 8.88539	0.0896	0.27522	0.93642
AT1-873 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 *AT1-872 Control Auxiliary Test	0.8500 0.3500 0.8375 0.8875 0.8750 0.8250 0.9000 0.0250 0.9000 0.8375 0.7625 0.9000 s Test indicates equal values (1-tail,	1.0000 0.4118 0.9853 1.0441 1.0294 0.9706 1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588 ates norm	Mean 1.1840 0.6322 1.1636 1.2313 1.2136 1.1459 1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490 al distribut = 0.06)	Min 0.9912 0.5796 0.9912 1.1071 1.1071 0.9912 1.1071 1.1071 0.9912 0.9912 1.2490 tion (p > 0.	Max 1.4120 0.6847 1.2490 1.2490 1.2490 1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.2490	CV% 11.040 8.885 8.502 4.074 5.413 8.205 9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 4.74068 MSDu	2.366 MSDp	1.761 Critical 0.844 8.88539 MSB		0.27522 F-Prob	

				Gro	wth and	Survival	Test-Surv	ival				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II	D;	Swan Cre	ek		
End Date:	12/13/202		Lab ID:				Sample T		Sediment			
Sample Date:			Protocol:				Test Spec			nomus dilı	utus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.0000	0.9000	0.9000	0.9000	0.8000	0.8000	0.7000	0.8000			, .	•
AT1-862	0.3000	0.3000	0.3000	0.3000	0.4000	0.4000	0.4000	0.4000				
AT1-863	0.8000	0.9000	0.7000	0.9000	0.8000	0.8000	0.9000	0.9000				
AT1-864	0.9000	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-865	0.9000	0.8000	0.9000	0.9000	0.9000	0.9000	0.9000	0.8000				
AT1-866	0.8000	0.9000	0.7000	0.9000	0.9000	0.8000	0.8000	0.8000				
AT1-867	1.0000	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.8000				
AT1-868	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
AT1-869	0.9000	0.9000	0.9000	0.8000	0.9000	1.0000	0.9000	0.9000				
AT1-870	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.8000	0.9000				
AT1-871	0.8000	0.7000	0.8000	0.9000	0.8000	0.7000	0.8000	0.8000				
AT1-872	0.7000	0.7000	0.8000	0.7000	0.8000	0.8000	0.8000	0.8000				
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
			Tr	ansform:	Arcsin Sc	uare Ro	ot		1-Tailed			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	0.8500	1.0000	1.1840	0.9912	1.4120	11.040	8					
AT1-862	0.3500	0.4118	0.6322	0.5796	0.6847	8.885	8					
AT1-863	0.8375	0.9853	1.1636	0.9912	1.2490	8.502	8					
AT1-864	0.8875	1.0 441	1.2313	1.1071	1.2490	4.074	8					
AT1 - 865	0.8750	1.0294	1.2136	1.1071	1.2490	5.413	8					
AT1-866	0.8250	0.9706	1.1459	0.9912	4 2 400							
					1.2490	8.205	8					
AT1-867	0.9000	1.0588	1.2543	1.1071	1.4120	9.198	8					
AT1-868	0.0250	1.0588 0.0294	1.2543 0.1995	1.1071 0.1588	1.4120 0.3218	9.198 37.811	8 8					
AT1-868 AT1-869	0.0250 0.9000	1.0588 0.0294 1.0588	1.2543 0.1995 1.2517	1.1071 0.1588 1.1071	1.4120 0.3218 1.4120	9.198 37.811 6.521	8 8 8					
AT1-868 AT1-869 AT1-870	0.0250 0.9000 0.8375	1.0588 0.0294 1.0588 0.9853	1.2543 0.1995 1.2517 1.1604	1.1071 0.1588 1.1071 1.1071	1.4120 0.3218 1.4120 1.2490	9.198 37.811 6.521 6.329	8 8 8					
AT1-868 AT1-869 AT1-870 AT1-871	0.0250 0.9000 0.8375 0.7875	1.0588 0.0294 1.0588 0.9853 0.9265	1.2543 0.1995 1.2517 1.1604 1.0959	1.1071 0.1588 1.1071 1.1071 0.9912	1.4120 0.3218 1.4120 1.2490 1.2490	9.198 37.811 6.521 6.329 7.399	8 8 8 8					
AT1-868 AT1-869 AT1-870	0.0250 0.9000 0.8375 0.7875 0.7625	1.0588 0.0294 1.0588 0.9853 0.9265 0.8971	1.2543 0.1995 1.2517 1.1604 1.0959 1.0637	1.1071 0.1588 1.1071 1.1071 0.9912 0.9912	1.4120 0.3218 1.4120 1.2490 1.2490 1.1071	9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8			·		
AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control	0.0250 0.9000 0.8375 0.7875 0.7625 0.9000	1.0588 0.0294 1.0588 0.9853 0.9265	1.2543 0.1995 1.2517 1.1604 1.0959	1.1071 0.1588 1.1071 1.1071 0.9912	1.4120 0.3218 1.4120 1.2490 1.2490	9.198 37.811 6.521 6.329 7.399	8 8 8 8 8 8	-1.408	1.895	0.0876		
AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control	0.0250 0.9000 0.8375 0.7875 0.7625 0.9000	1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588	1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.2490	9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 8	-1.408	Critical	0.0876	Skew	Kurt
AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Test Shapiro-Wilk's	0.0250 0.9000 0.8375 0.7875 0.7625 0.9000 is	1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588	1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.2490	9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8	-1.408		0.0876	Skew 0.44503	Kurt 2.94491
AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Test Shapiro-Wilk's Equality of var	0.0250 0.9000 0.8375 0.7875 0.7625 0.9000 s Test indicationce cann	1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588 attes norm	1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490	1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490	1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.2490	9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 8 Statistic 0.87107		Critical 0.844		0.44503	2.94491
AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Test Shapiro-Wilk's	0.0250 0.9000 0.8375 0.7875 0.7625 0.9000 is Test indicationce cannest (1-tail,	1.0588 0.0294 1.0588 0.9853 0.9265 0.8971 1.0588 attes norm of be cont	1.2543 0.1995 1.2517 1.1604 1.0959 1.0637 1.2490 al distribut	1.1071 0.1588 1.1071 1.1071 0.9912 0.9912 1.2490 tion (p > 0.	1.4120 0.3218 1.4120 1.2490 1.2490 1.1071 1.2490	9.198 37.811 6.521 6.329 7.399 5.644	8 8 8 8 8 8 Statistic 0.87107	-1.408 MSDp 0.07734	Critical 0.844 MSB	MSE	0.44503 F-Prob	

	<u> </u>			Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/3/2021		Test ID:	TN-21-771		· -	Sample IE):	Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample T	<i>,</i> .	Sediment			
Sample Date:			Protocol:				Test Spec	ies:	CT-Chiror	nomus dilu	itus	
Comments:												
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
				Transform					1-Tailed			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873		1.0000	1.6211	1.3911	1.9588	11.701	8					
*AT1-862		0.4400	0.7133	0.5033	1.0825	29.363	8	4.852	2.701	0.5054		
AT1-863		0.7898	1.2803	0.6144	1.7713	31.070	8	1.822	2.701	0.5054		
*AT1-864		0.6567	1.0645	0.3100	1.6789	36.718	8	2.975	2.701	0.5054		
AT1-865		0.9170	1.4866		2.3656	40.686	8	0.719	2.701	0.5054		
AT1-866		1.1268	1.8266		2.2738	18.135	8	-1.099	2.701	0.5054		
AT1-867		1.0227	1.6580		2.1300	22.837	8	-0.197	2.701	0.5054		
*AT1-868		0.4626	0.7500	0.0100	1.4900	139.536	2	2.945	2.701	0.7990		
AT1-869		1.1752	1.9052		2.4750	22.161	8	-1.518	2.701	0.5054		
AT1-870		0.8588	1.3922	0.7025	1.7322	25.544	8	1.223	2.701	0.5054		
*AT1-871		0.4404	0.7139		0.9844	25.431	8	4.849	2.701	0.5054		
AT1-872		0.9210	1.4930		2.11 2 9	27.421	8	0.685	2.701	0.5054		
Control		0.7130	1.1558	0.8767	1.4522	14.547	8	2.487	2.701	0.5054		
Auxiliary Tes	ts						Statistic		Critical		Skew	Kurt
Kolmogorov D					.01)		0.58535		1.035		-0.0263	-0.2071
Bartlett's Test	indicates e	qual varia	ances (p =	0.01)			26.0406		26.217			
Hypothesis T							MSDu	MSDp	MSB	MSE	F-Prob_	df
Bonferroni t T	est indicate	s signific	ant differe	nces			0.50536	0.31174	1.17897	0.13999	2.9E-10	12, 85

		·		Gro	wth and	Survival	Test-Grov	/th				*
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID):	Swan Cre	ek		
End Date:	12/13/2021		Lab ID:				Sample Ty	/pe:	Sediment			
Sample Date:			Protocol:				Test Spec	ies:	CT-Chiror	nomus d ilu	ıtus	
Comments:												
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
		_		Transforn	n: Untran				1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	1.6211	1.0000	1.6211	1.3911	1.9588	11.701	8					
*AT1-862	0.7133	0.4400	0.7133	0.5033	1.0825	29.363	8	9.086	1.761	0.1760		
AT1-863	1.2803	0.7898	1.2803	0.6144	1.7713	31.070	8					
AT1-864	1.0645	0.6567	1.0645	0.3100	1.6789	36.718	8					
AT1-865	1.4866	0.9170	1.4866	0.7589	2.3656	40.686	8					
AT1-866	1 0066											
A11-000	1.8266	1.1268	1.8266	1.3722	2.2738	18.135	8					
AT1-867	1.6580	1.0227	1.6580	1.0810	2.1300	18.135 22.837	8 8					
AT1-867 AT1-868	1.6580 0.7500	1.0227 0.4626	1.6580 0.7500	1.0810 0.0100	2.1300 1.4900	18.135 22.837 139.536	8 8 2					
AT1-867	1.6580 0.7500	1.0227	1.6580	1.0810 0.0100 1.3178	2.1300 1.4900 2.4750	18.135 22.837 139.536 22.161	8 8 2 8					
AT1-867 AT1-868	1.6580 0.7500 1.9052	1.0227 0.4626 1.1752 0.8588	1.6580 0.7500 1.9052 1.3922	1.0810 0.0100 1.3178 0.7025	2.1300 1.4900 2.4750 1.7322	18.135 22.837 139.536 22.161 25.544	8 8 2 8					
AT1-867 AT1-868 AT1-869	1.6580 0.7500 1.9052 1.3922	1.0227 0.4626 1.1752 0.8588 0.4404	1.6580 0.7500 1.9052 1.3922 0.7139	1.0810 0.0100 1.3178 0.7025 0.4713	2.1300 1.4900 2.4750 1.7322 0.9844	18.135 22.837 139.536 22.161 25.544 25.431	8 8 2 8 8					
AT1-867 AT1-868 AT1-869 AT1-870	1.6580 0.7500 1.9052 1.3922 0.7139	1.0227 0.4626 1.1752 0.8588	1.6580 0.7500 1.9052 1.3922	1.0810 0.0100 1.3178 0.7025 0.4713 0.9463	2.1300 1.4900 2.4750 1.7322 0.9844 2.1129	18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 2 8 8 8					
AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	1.0227 0.4626 1.1752 0.8588 0.4404	1.6580 0.7500 1.9052 1.3922 0.7139	1.0810 0.0100 1.3178 0.7025 0.4713	2.1300 1.4900 2.4750 1.7322 0.9844	18.135 22.837 139.536 22.161 25.544 25.431	8 8 2 8 8 8 8					
AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Tes	1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558	1.0227 0.4626 1.1752 0.8588 0.4404 0.9210 0.7130	1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558	1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 0.8767	2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.4522	18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 2 8 8 8 8 8 8		Critical		Skew	Kurt
AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Tes Shapiro-Wilk's	1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558 ts	1.0227 0.4626 1.1752 0.8588 0.4404 0.9210 0.7130	1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558	1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 0.8767	2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.4522	18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 2 8 8 8 8 8 Statistic 0.91322		0.844		Skew 0.67194	Kurt -0.6344
AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Tes Shapiro-Wilk's	1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558 ts Test indicates equal va	1.0227 0.4626 1.1752 0.8588 0.4404 0.9210 0.7130 ates norm	1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558	1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 0.8767	2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.4522	18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 2 8 8 8 8 8 Statistic 0.91322 1.21926		0.844 8.88539		0.67194	-0.6344
AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Tes Shapiro-Wilk's	1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558 ts Test indicates equal values (1-tail,	1.0227 0.4626 1.1752 0.8588 0.4404 0.9210 0.7130 ates norm riances (p	1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558	1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 0.8767	2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.4522	18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 2 8 8 8 8 8 Statistic 0.91322	MSDp	0.844 8.88539 MSB	MSE 0.03993	0.67194 F-Prob	

	"			Gro	wth and	Survival	Test-Grow	/th			,	
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID		Swan Cre	ek		
End Date:	12/13/202		Lab ID:				Sample Ty		Sediment			
Sample Date:			Protocol:				Test Spec		CT-Chiror	omus dilu	itus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163	**-			
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
				Transform	n: Untran	sformed			1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	1.6211	1.0000	1.6211	1.3911	1.9588	11.701	8					
	1.021											
AT1-862		0.4400	0.7133	0.5033	1.0825	29.363	8					
AT1-862 *AT1-863	0.7133	0.4400 0.7898	0.7133 1.2803	0.6144	1.7713	29.363 31.070	8	2.187	1.761	0.2744		
	0.7133 1.2803			0.6144 0.3100			8 8	2.187	1.761	0.2744		
*AT1-863	0.7133 1.2803 1.0645	0.7898 0.6567 0.9170	1.2803 1.0645 1.4866	0.6144 0.3100 0.7589	1.7713 1.6789 2.3656	31.070 36.718 40.686	8 8 8	2.187	1.761	0.2744		
*AT1-863 AT1-864	0.7133 1.2803 1.0645 1.4866	0.7898 0.6567 0.9170 1.1268	1.2803 1.0645 1.4866 1.8266	0.6144 0.3100 0.7589 1.3722	1.7713 1.6789 2.3656 2.2738	31.070 36.718 40.686 18.135	8 8 8	2.187	1.761	0.2744		
*AT1-863 AT1-864 AT1-865	0.7133 1.2803 1.0645 1.4866 1.8266	0.7898 0.6567 0.9170 1.1268 1.0227	1.2803 1.0645 1.4866 1.8266 1.6580	0.6144 0.3100 0.7589 1.3722 1.0810	1.7713 1.6789 2.3656 2.2738 2.1300	31.070 36.718 40.686 18.135 22.837	8 8 8 8	2.187	1.761	0.2744		
*AT1-863 AT1-864 AT1-865 AT1-866	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500	0.7898 0.6567 0.9170 1.1268 1.0227 0.4626	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900	31.070 36.718 40.686 18.135 22.837 139.536	8 8 8 8 2	2.187	1.761	0.2744		
*AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	0.7898 0.6567 0.9170 1.1268 1.0227 0.4626 1.1752	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750	31.070 36.718 40.686 18.135 22.837 139.536 22.161	8 8 8 8 2 8	2.187	1.761	0.2744		
*AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	0.7898 0.6567 0.9170 1.1268 1.0227 0.4626 1.1752 0.8588	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544	8 8 8 8 2 8	2.187	1.761	0.2744		
*AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-868	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.7898 0.6567 0.9170 1.1268 1.0227 0.4626 1.1752 0.8588 0.4404	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 8 2 8 8	2.187	1.761	0.2744		
*AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.7898 0.6567 0.9170 1.1268 1.0227 0.4626 1.1752 0.8588 0.4404 0.9210	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 2 8 8 8	2.187	1.761	0.2744		
*AT1-863 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558	0.7898 0.6567 0.9170 1.1268 1.0227 0.4626 1.1752 0.8588 0.4404	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 8 8 8 8 8 8	2.187		0.2744		
*AT1-863 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Tes	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558	0.7898 0.6567 0.9170 1.1268 1.0227 0.4626 1.1752 0.8588 0.4404 0.9210 0.7130	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 0.8767	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.4522	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 2 8 8 8 8 8 8	2.187	Critical	0.2744	Skew	Kurt
*AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 Control Auxiliary Tes Shapiro-Wilk's	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558 ts	0.7898 0.6567 0.9170 1.1268 1.0227 0.4626 1.1752 0.8588 0.4404 0.9210 0.7130	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 0.8767	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.4522	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 2 8 8 8 8 8 8 8 8 8 8 9 7	2.187	Critical 0.844	0.2744	Skew -0.6677	Kurt 0.5992
*AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 Control Auxiliary Tes Shapiro-Wilk's F-Test indicate	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558 ts Test indices equal va	0.7898 0.6567 0.9170 1.1268 1.0227 0.4626 1.1752 0.8588 0.4404 0.9210 0.7130 ates normalizances (1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 0.8767	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.4522	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 2 8 8 8 8 8 8 Statistic 0.95545 4.3976		Critical 0.844 8.88539		-0.6677	0.5992
*AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Tes Shapiro-Wilk's	0.7133 1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558 ts Test indices equal valest (1-tail,	0.7898 0.6567 0.9170 1.1268 1.0227 0.4626 1.1752 0.8588 0.4404 0.9210 0.7130 eates normariances (1000)	1.2803 1.0645 1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558	0.6144 0.3100 0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 0.8767 tion (p > 0	1.7713 1.6789 2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.4522	31.070 36.718 40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 8 2 8 8 8 8 8 8 Statistic 0.95545 4.3976 MS Du	MSDp	Critical 0.844	MSE	-0.6677 F-Prob	

				Gro	wth and	Survival	Test-Grow	vth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID);	Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample Ty	/pe:	Sediment			
Sample Date:			Protocol:				Test Spec	ies:	CT-Chiror	nomus dilu	ıtus	
Comments:												
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722	•			
AT1-864	1.176 7	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3 7 22	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868		0.0100										
AT1-869		1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870		1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
A T1- 871		0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
				Transform	ı: Untran	sformed			1-Tailed			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	1.6211	1.0000	1.6211	1.3911	1.9588	11.701	8					
AT1-862		0.4400	0.7133	0.5033	1.0825	29.363						
AT1-863	1.2803	0.7898	1.2803	0.6144	1.7713	31.070						
*AT1-864		0.6567	1.0645	0.3100	1.6789	36.718		3.623	1.761	0.2706		
AT1-865	1.4866	0.9170	1.4866	0.7589	2.3656	40.686						
AT1-866	1.8266	1.1268	1.8266		2.2738	18.135						
AT1-867	1.6580	1.0227	1.6580	1.0810	2.1300	22.837						
AT1-868	0.7500	0.4626	0.7500	0.0100	1.4900	139.536						
AT1-869		1.1752		1.3178	2.4750	22.161	8					
AT1-870	1.3922	0.8588	1.3922	0.7025	1.7322	25.544						
AT1-871	0.7139	0.4404	0.7139	0.4713	0.9844	25.431	8					
AT1-872	1.4930	0.9210	1.4930		2.1129	27.421						
Control	1.1558	0.7130	1.1558	0.8767	1.4522	14.547						
Auxiliary Tes							Statistic		Critical		Skew	Kurt
01 1 140001	Test indic	ates nom	nal distribu	ıtion (p > 0.	01)		0.92894		0.844		-0.5327	2.56475
Snapiro-wilkis		. ,	0.001				4.24605		8.88539			
F-Test indicate	es equal va	nances (p = 0.06									
			p = 0.08)				MSDu 0.27055	MSDp 0.1669	MSB	MSE 0.09438	F-Prob	df 1, 14

				Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample ID):	Swan Cre	ek		
End Date:	12/13/2021		Lab ID:				Sample T	ype:	Sediment			
Sample Date:			Protocol:				Test Spec	ies:	CT-Chiron	iomus dili	ıtus	
Comments:												
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163	<u> </u>			
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865		1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866		1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867		1.6867	1. 7 767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868		0.0100										
AT1-869		1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870		1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872		1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
	. " "			Transform	n: Untran	sformed			1-Tailed			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	1.6211	1.0000	1.6211	1.3911	1.9588	11.701	8					
AT1-862	0.7133	0.4400	0.7133	0.5033	1.0825	29.363	8					
AT1-863	1.2803	0.7898	1.2803	0.6144	1.7713	31.070	8					
AT1-864		0.6567	1.0645	0.3100	1.6789	36.718	8					
AT1-865	1.4866	0.9170	1.4866	0.7589	2.3656	40.686	8	0.600	1.860	0.4167		
AT1-866		1.1268	1.8266	1.3722	2.2738	18.135	8					
AT1-867		1.0227	1.6580	1.0810	2.1300	22.837	8					
AT1-868		0.4626	0.7500	0.0100	1.4900	139.536	2					
AT1-869	1.9052	1.1752		1.3178	2.4750	22.161	8					
AT1-870	1.3922	0.8588	1.3922	0.7025	1.7322	25.544	8					
AT1-871	0.7139	0.4404		0.4713	0.9844	25.431	8					
AT1-872	1.4930	0.9210	1.4930	0.9463	2.1129	27.421	8					
Control	1.1558_	0.7130	1.1558	0.8767	1.4522	14 .547	8					
Auxiliary Tes							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's					01)		0.95887		0.844		0.55107	-0.14
F-Test indicate	es unequal	v a nance	s (p = <u>6</u> .69	9E-03)			10.1666		8.88539			
Hypothesis T	est (1-tail,	0.05)					MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedas	tic t Test inc	dicates n	o significa	nt differenc	es		0.41674	0.25707	0.07236	0.2009	0.55799	1, 14

				Gro	wth and	Survival	Test-Grov	wth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II		Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample T		Sediment			
Sample Date:	-		Protocol:				Test Spec		CT-Chiro		utus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
AT1-862		0.5033	0.6000	0.5267	0.5950	0.9375		1.0825				
AT1-863		1.3189	1.2929	0.6144	1.7713	1.3913		0.7722				
AT1-864		1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865		1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866		1.3722		1.5733	1.5233	2.2738		2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868		0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
A T 1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872		1.4929	1.9225	2.1129	0.9463	1.0450		1.6500				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
				Transform	ı: Untrar	sformed			1-Tailed			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873		1.0000	1.6211	1.3911	1.9588	11.701						
AT1-862		0.4400	0.7133	0.5033	1.0825	29.363						
AT1-863		0.7898	1.2803	0.6144	1.7713	31.070						
AT1-864		0.6567	1.0645	0.3100	1.6789	36.718						
AT1 - 865		0.9170	1.4866	0.7589	2.3656	40.686						
AT1-866		1.1268	1.8266	1.3722	2.2738	18.135		-1.523	1.761	0.2377		
AT1-867		1.0227	1.6580	1.0810	2.1300	22.837						
AT1 - 868		0.4626	0.7500	0.0100	1.4900	139.536						
AT1-869		1.1752	1.9052	1.3178	2.4750	22.161						
AT1-870		0.8588	1.3922	0.7025	1.7322	25.544						
AT1-871	0.7139	0.4404	0.7139	0.4713	0.9844	25.431	8					
AT1 - 872		0.9210	1.4930	0.9463	2.1129	27.421						
		0.7130	1.1558	0.8767	1.4522	14.547						
Control							Statistic		Critical		Skew	Kurt
Auxiliary Test												
Auxiliary Test Shapiro-Wilk's	Test indica			tion (p > 0.	01)		0.96816		0.844		0.20026	-0.6115
Auxiliary Test Shapiro-Wilk's F-Test indicate	Test indicates equal va	riances (tion (p > 0.	01)		3.04964		8.88539			
Auxiliary Test Shapiro-Wilk's	Test indica es equal va est (1-tail,	riaпces (0.05)	p = 0.16)					MSDp		MSE	0.20026 F-Prob 0.15002	-0.6115 df 1, 14

				Gro	wth and	Survival	Test-Grov	wth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II	D:	Swan Cre	ek		<u></u>
End Date:	12/13/202	1	Lab ID:				Sample T		Sedimen	ŧ		
Sample Date:			Protocol:				Test Spec	• •	CT-Chiro	nomus dilu	ıtus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189		2.0250				
AT1-868		0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829		0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450		1.6500				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
				Transform					1-Tailed			
Conc-		N-Mean [°]	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	1.6211	1.0000	1.6211	1.3911	1.9588	11.701	8					
AT1-862	0.7133	0.4400	0.7133	0.5033	1.0825	29.363	8					
AT1-863	1.2803	0.7898	1.2803	0.6144	1.7713	31.070						
AT1-864	1.0645	0.6567	1.0645	0.3100	1.6789	36.718	8					
AT1-865	1.4866	0.9170	1.4866	0.7589	2.3656	40.686						
AT1-866	1.8266	1.1268	1.8266	1.3722	2.2738	18.135						
A T 1-867	1.6580	1.0227	1.6580	1.0810	2.1300	22.837		-0.246	1.761	0.2637		
AT1-868	0.7500	0.4626	0.7500	0.0100	1.4900	139.536						
AT1-869	1.9052	1.1752	1.9052	1.3178	2.4750	22.161	8					
AT1-870	1.3922	0.8588	1.3922	0.7025	1.7322	25.544						
AT1-871	0.7139	0.4404	0.7139	0.4713	0.9844	25.431	8					
AT1-872	1.4930	0.9210	1.4930	0.9463	2.1129	27.421	8					
Control	1.1558	0.7130	1.1558	0.8767	1.4522	14.547						
Auxiliary Test	s						Statistic		Critical		Skew	Kurt
Shapiro-Wilk's	Test indica	ates norm	al distribu	tion (p > 0.0	01)		0.98346		0.844	,	-0.2477	-0.4312
F-Test indicate	es equal va	riances (p	0.09	·	·		3.98422		8.88539			
Hypothesis Te	est (1-tail,	0.05)					MSDu	MSDp	MSB	MSE	F-Prob	df

				Gro	wth and	Survival	Test-Grov	wth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II		Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample T		Sediment			
Sample Date:			Protocol:				Test Spec			nomus dilu	utus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1,7614	1. 4 163				
AT1-862		0.5033	0.6000	0.5267	0.5950	0.9375		1.0825				
AT1-863		1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864		1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865		1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866		1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867		1.6867	1.7767	1.3744	2.1300	1.9189		2.0250				
AT1-868		0.0100										
AT1-869		1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870		1.4950	1.4663	1,4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872		1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
				Transform	: Untran	sformed			1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	1.6211	1.0000	1.6211	1.3911	1.9588	11.701	8					
AT1-862	0.7133	0.4400	0.7133	0.5033	1.0825	29.363	8					
AT1-863	1.2803	0.7898	1.2803	0.6144	1.7713	31.070	8					
AT1-864	4.0045						_					
	1.0645	0.6567	1.0645	0.3100	1.6789	36.718	8					
AT1-865	1.4866	0.9170	1.4866	0.7589	2.3656	40.686	8 8					
AT1 - 866	1.4866	0.9170 1.1268	1.4866 1.8266	0.7589 1.3722	2.3656 2.2738		8 8 8					
AT1-866 AT1-867	1.4866 1.8266 1.6580	0.9170 1.1268 1.0227	1.4866	0.7589 1.3722 1.0810	2.3656 2.2738 2.1300	40.686 18.135 22.837	8 8 8					
AT1-866 AT1-867 AT1-868	1.4866 1.8266 1.6580 0.7500	0.9170 1.1268 1.0227 0.4626	1.4866 1.8266 1.6580 0.7500	0.7589 1.3722 1.0810 0.0100	2.3656 2.2738 2.1300 1.4900	40.686 18.135 22.837 139.536	8 8 8 8 2	1.172	6.314	4.6913		
AT1-866 AT1-867	1.4866 1.8266 1.6580 0.7500 1.9052	0.9170 1.1268 1.0227 0.4626 1.1752	1.4866 1.8266 1.6580 0.7500 1.9052	0.7589 1.3722 1.0810 0.0100 1.3178	2.3656 2.2738 2.1300 1.4900 2.4750	40.686 18.135 22.837 139.536 22.161	8 8 8 8 2 8	1.172	6.314	4.6913		
AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	0.9170 1.1268 1.0227 0.4626 1.1752 0.8588	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922	0.7589 1.3722 1.0810 0.0100 1.3178 0.7025	2.3656 2.2738 2.1300 1.4900	40.686 18.135 22.837 139.536 22.161 25.544	8 8 8 2 8	1.172	6.314	4.6913		
AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.9170 1.1268 1.0227 0.4626 1.1752 0.8588 0.4404	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 2 8 8	1.172	6.314	4.6913		
AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.9170 1.1268 1.0227 0.4626 1.1752 0.8588 0.4404 0.9210	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930	0.7589 1.3722 1.0810 0.0100 1.3178 0.7025	2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129	40.686 18.135 22.837 139.536 22.161 25.544	8 8 8 2 8 8 8	1.172	6.314	4.6913		
AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.9170 1.1268 1.0227 0.4626 1.1752 0.8588 0.4404	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139	0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713	2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844	40.686 18.135 22.837 139.536 22.161 25.544 25.431	8 8 8 8 8 8 8 8	1.172		4.6913		
AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 Control	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558	0.9170 1.1268 1.0227 0.4626 1.1752 0.8588 0.4404 0.9210 0.7130	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558	0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 0.8767	2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.4522	40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 2 8 8 8 8 8 8	1.172	Critical	4.6913	Skew	Kurt
AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Test	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558 ts	0.9170 1.1268 1.0227 0.4626 1.1752 0.8588 0.4404 0.9210 0.7130	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558	0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 0.8767	2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.4522	40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 2 8 8 8 8 8 Statistic 0.95866	1.172	Critical 0.781	4.6913	Skew 0.04795	Kurt 1.67988
AT1-866 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Test Shapiro-Wilk's F-Test indicate	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558 ts Test indicases unequal	0.9170 1.1268 1.0227 0.4626 1.1752 0.8588 0.4404 0.9210 0.7130	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558	0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 0.8767	2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.4522	40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 2 8 8 8 8 8 Statistic 0.95866 30.4368		Critical 0.781 16.2356		0.04795	1.67988
AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Test	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558 ts Test indicates unequal	0.9170 1.1268 1.0227 0.4626 1.1752 0.8588 0.4404 0.9210 0.7130 ates norm variances	1.4866 1.8266 1.6580 0.7500 1.9052 1.3922 0.7139 1.4930 1.1558	0.7589 1.3722 1.0810 0.0100 1.3178 0.7025 0.4713 0.9463 0.8767	2.3656 2.2738 2.1300 1.4900 2.4750 1.7322 0.9844 2.1129 1.4522	40.686 18.135 22.837 139.536 22.161 25.544 25.431 27.421	8 8 8 2 8 8 8 8 8 Statistic 0.95866	MSDp	Critical 0.781	4.6913 MSE 0.16838		

				Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample IE):	Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample T		Sediment			
Sample Date:			Protocol:				Test Spec			nomus dilu	utus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375		1.0825				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864	1,1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2,3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450		1.6500				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
				Transform	ı: Untran	sformed			1-Tailed			
Сопс-		N-Mean	Меал	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	1.6211	1.0000	1.6211	1.3911	1.9588	11.701						
AT1-862	0.7133	0.4400	0.7133	0.5033	1.0825	29.363						
AT1-863	1.2803	0.7898	1.2803	0.6144	1.7713	31.070	8					
AT1 - 864	1.0645	0.6567	1.0645	0.3100	1.6789	36.718						
AT1-865	1.4866	0.9170	1.4866	0.7589	2.3656	40.686						
AT1-866	1.8266	1.1268	1.8266	1.3722	2.2738	18.135						
AT1-867	1.6580	1.0227	1.6580	1.0810	2.1300	22.837	8					
AT1 - 868	0.7500	0.4626	0.7500	0.0100	1.4900	139.536						
AT1 -8 69	1.9052	1.1752	1.9052	1.3178	2.4750	22.161	8	-1.736	1.761	0.2882		
AT1-870	1.3922	0.8588	1.3922	0.7025	1.7322	25.544						
AT1-871	0.7139	0.4404	0.7139	0.4713	0.9844	25.431	8					
AT1-872	1.4930	0.9210	1.4930	0.9463	2.1129	27.421	8					
Control	1.1558	0.7130	1.1558	0.8767	1.4522	14.547						
	ts						Statistic		Critical		Skew	Kurt
Auxiliary Test					a ()		0.00027		0.844		0 4 40 40	0.0500
Auxiliary Test Shapiro-Wilk's		ates norm	nal distribu	ition (p > 0.	01)		0.96637				0.14248	-0.3598
	Test indica			ition (p > 0.	U1) 		4.95398		8.88539			
Shapiro-Wilk's	Test indica es equal va est (1-tail,	riances (<u>)</u> 0.05)	p = 0.0 <u>5</u>)					MSDp 0.1778	8.88539 MSB	MSE 0.10712	F-Prob	-0.3598 df 1, 14

				Gro	wth and	Survival	Test-Grov	wth				
Start Date:	12/3/2021	,	Test ID:	TN-21-771			Sample II	D:	Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample T	ype:	Sediment	t		
Sample Date:			Protocol:				Test Spec	cies:	CT-Chiro	nomus dila	utus	
Comments:							<u>-</u>					
Conc-	1	2	3	4	5	6	7	8				***
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.31 7 8	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
,				Transforn	n: Untran	sformed			1-Tailed			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873		1.0000	1.6211	1.3911	1.9588	11.701	8					
AT1-862		0.4400	0.7133	0.5033	1.0825	29.363	8					
AT1-863		0.7898	1.2803	0.6144	1.7713	31.070	8					
AT1-864		0.6567	1.0645	0.3100	1.6789	36.718						
AT1-865		0.9170	1.4866	0.7589	2.3656	40.686	8					
AT1-866		1.1268	1.8266	1.3722	2.2738	18.135	8					
AT1-867		1.0227	1.6580	1.0810	2.1300	22.837	8					
AT1-868		0.4626	0.7500	0.0100	1.4900	139.536	2					
AT1-869		1.1752	1.9052	1.3178	2.4750	22.161	8					
AT1-870	1.3922	0.8588	1.3922	0.7025	1.7322	25.544	8	1.606	1.761	0.2510		
AT1-871	0.7139	0.4404	0.7139	0.4713	0.9844	25.431	8					
AT1-872	1.4930	0.9210	1.4930	0.9463	2.1129	27.421	8					
Control	1.1558	0.7130	1.1558	0.8767	1.4522	14.547	8					
Auxiliary Test							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's	Test indica	ates norm	al distribu	tion (p > 0	.01)		0.92476		0.844		-0.9805	1.30293
F-Test indicate	es equal va	riances (p	o = 0.12)				3.51 4 76		8.88539			
Hypothesis To	est (1-tail,	0.05)					MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedasti	c t Test ind	icates no	significan	t difference	es		0.25099	0.15483	0.20954	0.08123	0.13056	1, 14

				Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II):	Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample T	ype:	Sediment			
Sample Date:			Protocol:				Test Spec	ies:	CT-Chiro	nomus dilu	ıtus	
Comments:							-					
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163		•		
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868		0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
	"			Transform	ı: Untran	sformed			1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873		1.0000	1.6211	1.3911	1.9588	11.701	8					
AT1-862	0.7133	0.4400	0.7133	0.5033	1.0825	29.363						
AT1-863	1.2803	0.7898	1.2803	0.6144	1.7713	31.070	8					
AT1-864		0.6567	1.0645	0.3100	1.6789	36.718	8					
AT1-865		0.9170	1.4866	0.7589	2.3656	40.686	8					
AT1-866		1.1268	1.8266	1.3722	2.2738	18.135						
AT1-867	1.6580	1.0227	1.6580	1.0810	0.4000	22 22	^					
					2.1300	22.837						
AT1-868	0.7500	0.4626	0.7500	0.0100	1.4900	139.536	2					
AT1-868 AT1-869	0.7500 1.9052	0.4626 1.1752	0.7500 1.9052	0.0100 1.3178	1.4900 2.4750	139.536 22.161	2 8					
AT1-869 AT1-870	0.7500 1.9052 1.3922	0.4626 1.1752 0.8588	0.7500 1.9052 1.3922	0.0100 1.3178 0.7025	1.4900 2.4750 1.7322	139.536 22.161 25.544	2 8 8					
AT1-869 AT1-870 *AT1-871	0.7500 1.9052 1.3922 0.7139	0.4626 1.1752 0.8588 0.4404	0.7500 1.9052 1.3922 0.7139	0.0100 1.3178 0.7025 0.4713	1.4900 2.4750 1.7322 0.9844	139.536 22.161 25.544 25.431	2 8 8 8	9.771	1.761	0.1635		
AT1-869 AT1-870	0.7500 1.9052 1.3922 0.7139	0.4626 1.1752 0.8588 0.4404 0.9210	0.7500 1.9052 1.3922 0.7139 1.4930	0.0100 1.3178 0.7025 0.4713 0.9463	1.4900 2.4750 1.7322 0.9844 2.1129	139.536 22.161 25.544 25.431 27.421	2 8 8 8	9.771	1.761	0.1635		
AT1-869 AT1-870 *AT1-871	0.7500 1.9052 1.3922 0.7139 1.4930	0.4626 1.1752 0.8588 0.4404	0.7500 1.9052 1.3922 0.7139	0.0100 1.3178 0.7025 0.4713	1.4900 2.4750 1.7322 0.9844	139.536 22.161 25.544 25.431	2 8 8 8 8	9.771		0.1635		
AT1-869 AT1-870 *AT1-871 AT1-872 Control Auxiliary Tes	0.7500 1.9052 1.3922 0.7139 1.4930 1.1558	0.4626 1.1752 0.8588 0.4404 0.9210 0.7130	0.7500 1.9052 1.3922 0.7139 1.4930 1.1558	0.0100 1.3178 0.7025 0.4713 0.9463 0.8767	1.4900 2.4750 1.7322 0.9844 2.1129 1.4522	139.536 22.161 25.544 25.431 27.421	2 8 8 8 8 8 8 Statistic	9.771	Critical	0.1635	Skew	Kurt
AT1-869 AT1-870 *AT1-871 AT1-872 Control	0.7500 1.9052 1.3922 0.7139 1.4930 1.1558	0.4626 1.1752 0.8588 0.4404 0.9210 0.7130	0.7500 1.9052 1.3922 0.7139 1.4930 1.1558	0.0100 1.3178 0.7025 0.4713 0.9463 0.8767	1.4900 2.4750 1.7322 0.9844 2.1129 1.4522	139.536 22.161 25.544 25.431 27.421	2 8 8 8 8	9.771	Critical 0.844	0.1635	Skew 0.20481	Kurt -0.7921
AT1-869 AT1-870 *AT1-871 AT1-872 Control Auxiliary Tes' Shapiro-Wilk's F-Test indicate	0.7500 1.9052 1.3922 0.7139 1.4930 1.1558 ts Test indices equal va	0.4626 1.1752 0.8588 0.4404 0.9210 0.7130 ates norm	0.7500 1.9052 1.3922 0.7139 1.4930 1.1558	0.0100 1.3178 0.7025 0.4713 0.9463 0.8767	1.4900 2.4750 1.7322 0.9844 2.1129 1.4522	139.536 22.161 25.544 25.431 27.421	2 8 8 8 8 8 Statistic 0.94169 1.09149		Critical 0.844 8.88539		0.20481	-0.7921
AT1-869 AT1-870 *AT1-871 AT1-872 Control Auxiliary Tes' Shapiro-Wilk's	0.7500 1.9052 1.3922 0.7139 1.4930 1.1558 ts Test indices equal values (1-tail,	0.4626 1.1752 0.8588 0.4404 0.9210 0.7130 ates norm nances (p	0.7500 1.9052 1.3922 0.7139 1.4930 1.1558 al distribu 0 = 0.91)	0.0100 1.3178 0.7025 0.4713 0.9463 0.8767	1.4900 2.4750 1.7322 0.9844 2.1129 1.4522	139.536 22.161 25.544 25.431 27.421	2 8 8 8 8 8 Statistic 0.94169 1.09149 MSD u	MSDp	Critical 0.844 8.88539 MSB	0.1635 MSE 0.03447	0.20481 F-Prob	

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				Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample IE):	Swan Cre	ek		
End Date:	12/13/2021		Lab ID:				Sample T		Sediment			
Sample Date:			Protocol:				Test Spec		CT-Chiro	nomus dilı	utus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
AT1-862		0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-863	1.4525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865		1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870		1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872		1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
				Transform	: Untran	sformed			1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	1.6211	1.0000	1.6211	1.3911	1.9588	11.701	8					
AT1-862	0.7133	0.4400	0.7133	0.5033	1.0825	29.363	8					
AT1-863	1.2803	0.7898	1.2803	0.6144	1.7713	31.070	8					
AT1-864		0.6567	1.0645	0.3100	1.6789	36.718	8					
AT1-865		0.9170	1.4866	0.7589	2.3656	40.686	8					
AT1-866		1.1268	1.8266	1.3722	2.2738	18,135	8					
AT1-867	1.6580	1.0227	1.6580	1.0810	2.1300	22.837	8					
AT1-868		0.4626	0.7500	0.0100	1.4900	139.536	2					
AT1-869	1.9052	1.1752	1.9052	1.3178	2.4750	22.161	8					
AT1-870	1.3922	0.8588	1.3922	0.7025	1.7322	25.544	8					
AT1-871	0.7139	0.4404	0.7139	0.4713	0.9844	25.431	8					
AT1-872	1.4930	0.9210	1.4930	0.9463	2.1129	27.421	8	0.803	1.761	0.2810		
Control	1.1558	0.7130	1.1558	0.8767	1.4522	14.547	8					
Auxiliary Test							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's				tion (p > 0.0	01)		0.98566		0.844		0.17464	-0.002
F-Test indicate	es equal va	riances (p	= 0.06				4.65795		8.88539			
Hypothesis To Homoscedasti	est (1-tail,			, .,,			MSDu 0.28097	MSDp	MSB	MSE 0.10179	F-Prob	df 1, 14

				Gro	wth and	Survival	Test-Grov	wth				
Start Date:	12/3/2021		Test ID:	TN-21-771			Sample II):	Swan Cre	ek		
End Date:	12/13/202	1	Lab ID:				Sample T	vpe:	Sediment			
Sample Date:			Protocol:				Test Spec		CT-Chiro	nomus dilu	utus	
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-873	1.6600	1.5422	1.7078	1.3911	1.5313	1.9588	1.7614	1.4163				
AT1-862	0.6467	0.5033	0.6000	0.5267	0.5950	0.9375	0.8150	1.0825				
AT1-863	1. 4 525	1.3189	1.2929	0.6144	1.7713	1.3913	1.6289	0.7722				
AT1-864	1.1767	1.2244	0.8363	1.1389	1.6789	1.1911	0.3100	0.9600				
AT1-865	1.0156	1.2300	0.7589	1.1833	2.1178	1.1367	2.3656	2.0850				
AT1-866	1.8975	1.3722	1.7543	1.5733	1.5233	2.2738	1.9763	2.2425				
AT1-867	1.0810	1.6867	1.7767	1.3744	2.1300	1.9189	1.2710	2.0250				
AT1-868	1.4900	0.0100										
AT1-869	2.3233	1.8200	2.3156	2.4750	1.3178	1.7430	1.7689	1.4778				
AT1-870	0.7025	1.4950	1.4663	1.4038	1.5733	1.7322	1.0325	1.7322				
AT1-871	0.8275	0.8043	0.7088	0.9844	0.4713	0.4829	0.8263	0.6063				
AT1-872	1.2171	1.4929	1.9225	2.1129	0.9463	1.0450	1.5575	1.6500				
Control	1.1178	1.2533	0.8767	1.0178	1.4522	1.1567	1.1744	1.1978				
				Transform	n: Untrar	sformed			1-Tailed			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	1.6211	1.0000	1.6211	1.3911	1.9588	11.701	8					
AT1-862	0.7133	0.4400	0.7133	0.5033	1.0825	29.363	8					
AT1-863	1.2803	0.7898	1.2803	0.6144	1.7713	31.070	8					
AT1-864	1.0645	0.6567	1.0645	0.3100	1.6789	36.718	8					
AT1-865	1.4866	0.9170	1.4866	0.7589	2.3656	40.686	8					
AT1-866	1.8266	1.1268	1.8266	1.3722	2.2738	18.135						
AT1-867	1.6580	1.0227	1.6580	1.0810	2.1300	22.837	8					
AT1-868	0.7500	0.4626	0.7500	0.0100	1.4900	139.536						
AT1-869	1.9052	1.1752	1.9052	1.3178	2.4750	22.161	8					
AT1-870	1.3922	0.8588	1.3922	0.7025	1.7322	25.544	8					
AT1-871	0.7139	0.4404	0.7139	0.4713	0.9844	25.431	8					
AT1-872	1.4930	0.9210	1.4930	0.9463	2.1129	27.421	8					
*Control	1.1558	0.7130	1.1558	0.8767	1.4522	14.547	8	5.192		0.1578		
Auxiliary Test							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's	Test indic	ates norm	nal distribu	tion ($p > 0$.	01)		0.96945		0.844		0.33151	-0.1233
F-Test indicate			0 = 0.76				1.27276		8.88539			
Hypothesis To			-				MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedasti	c t Test inc	licates sig	nificant di	fferences		-	0.15785	0.09737	0.86589	0.03213	1.4E-04	1, 14



ATTACHMENT V

Data Sheets and Statistical Analyses from *Hyalella azteca* Toxicity Tests (100 pages)





SEDIMENT TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-788	
	COT OD CLANTION INTO ON A ATTONOMY

TEST ORC	GANISM INFORMATION
Common Name: <u>Amphipod</u>	Adults Isolated (Time, Date):
Scientific Name: H. azteca	Neonates Pulled (Time, Date):
Lot Number: HA-054	Acclimation: 24hrs Age: 9 days
Source: ARO	Culture Water (T/S): 22.5 °C ppt

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		TEST INITI	ATION
<u>Date</u>	Time	<u>Initials</u>	Activity
1918191	1500	AY (UMO	Sediment Added to Chambers
7	1600	ma	Overlying Water Added to Chambers
12118131	1255	Þ	Organisms Transferred

	TEST SET-UP	
Sample Number(s): AT1-697,	AT1-862—▶873	
Overlying Water Number:	Dechlor	
<u>Treatment</u>	Volume Test Sediment	Volume Overlying Water
Pretty Boy Control (AT1-697)	100 ml	175 ml
AT1-862		
,		
AT1-873	→	
Т		•



Project Number: 70019.TOX	TEST ORGANISM
Client: Swan Creek	Common Name: <u>Amphipod</u>
QC Test Number: <u>TN-21-788</u>	Scientific Name: H. azteca
Organisms Recovered (date, time, initials): 14/20	/21 1300 m

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered
AT1-697	A	10	q
(Lab Control)	В	10	9
	C	10	9
	D	10	q
, <u> </u>	Е	10	q
	F	10	9
.,	G	10	10
	Н	10	9
AT1-862	A	10	6
	В	10	6
"	C	10	6
	D	10	6
	Е	10	6
	F	10	S
	G	10	ς
	Н	10	5
AT1-863	A	10	q
	В	10	ঀ
	C	10	9
	D	10	9
	Е	10	9
	F	10	٦
	G	10	9
	Н	10	٩



Project Number: 70019.TOX	TEST ORGANISM
Client: Swan Creek	Common Name: Amphipod
QC Test Number: TN-21-788	Scientific Name: H. azteca
Organisms Recovered (date, time, initials):	12/20/21 1300

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered
AT1-864	A	10	8
111	В	10	9
·	С	10	7
	D	10	8
	E	10	9
	F	10	8
	G	10	8
	Н	10	8
AT1-865	A	10	9
	В	10	4
	С	10	Ч
	D	10	4
	Е	10	>
	F	10	Ч
	G	10	3
	Н	10)
AT1-866	A	10	5
	В	10	5
	C	10	6
	D	10	4
	E	10	5
	F	10	Ч
	G	10	5
	Н	10	5



Project Number: 70019.TOX	TEST ORGANISM
Client: Swan Creek	Common Name: Amphipod
QC Test Number:	Scientific Name: H. azteca
Organisms Recovered (date, time, initials):	12/20/21 130 M

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered
AT1-867	A	10	& E
	В	10	Ø 6
	C	10	5
	D	10	۶
	E	10	2
	F	10	5
	G	10	4
	Н	10	5
AT1-868	A	10	6
••	В	10	6
	C	10	6
	D	10	5
	Е	10	6
	F	10	6
	G	10	6
	H	10	6
AT1-869	A	10	8
	В	10	7
	С	10	8
	D	10	7
	Е	10	8
	F	10	6
- · · · · · · · · · · · · · · · · · · ·	G	10	1
	Н	10	४
		<u> </u>	
			(2) (2) (2)

(B) 12/20/21



Project Number:70019.TOX	TEST ORGANISM
Client: Swan Creek	Common Name: Amphipod
QC Test Number: TN-21-788	Scientific Name: H. azteca
Organisms Recovered (date, time, initials):/2/	20/21 1300

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered
AT1-870	A	10	7
	В	10	8
	С	10	5
	D	10	7
	E	10	8
	F	10	7
	G	10	7
	Н	10	2
AT1-871	A	10	9
	В	10	8
	С	10	}
	D	10	9
	Е	10	7
	F	10	8
	G	10	9
	Н	10	8
AT1-872	A	10	75
	В	10	7
	С	10	9
	D	10	8
	Е	10	7
	F	10	6
	G	10	7
	Н	10	7



Project Number:70019.TOX	TEST ORGANISM
Client: Swan Creek	Common Name: Amphipod
QC Test Number: TN-21-788	Scientific Name: H. azteca
Organisms Recovered (date, time, initials): 12/2	ofer 1300 m

A B C D E F G H	10 10 10 10 10 10 10 10	9 9 7 8 9 9
C D E F	10 10 10 10 10	9 7 8 9
D E F G	10 10 10 10	9 7 8 9
E F G	10 10 10	7 8 9
F G	10 10	8 9 9
G	10	9
		1
H	10	Ý

H. artoca	
Test Species:	
WEIGHT DATA (Test Species:	

Project Number: 70010 TOV	70010 TC	<u> </u>	T ^^	WEIGHT DATA (Tes	AIA (Test Species: H. a	H. azteca		
Clients of the control of the contro	1.21.00	4					Date	Time Initials
Client: Sw	Swan Creek				Loaded tins placed in oven:	/en:		1449 JR
Number:		TN-21-788			Loaded tins removed from oven:	om oven:	1/20/2002 13	1203 JR
Tin Lot:	Red 270	ည			Loaded tins weighed:)
Oven Temp (°C);	Start:	<u></u>	End: 45		Oven Number: BIM-01 / (4-009646		TAS.	
			A	В	B-A)	(B-A)/C	
Test Concentration	Rep	Tin#	Weight of Tin (mg)	Weight of Tin and Dried Organisms (mg)	Total Dry Organism Weight (mg)	Number of Organisms Weighed	Mean Dry Organism Weight	(if applicable) Mean Biomass
Control	А	38	39.68	31.07	139	Daniel C	(mg)	(mg/exposed org.)
(AT1-697)	В	Si	29.37	36.30	1.13	- 0-	1-81-6	
	ت ت	111	29.82	31.04	66.1	J	0.130	
	Д	45	29,79	31.01	44.1	0	0.130	
	м	73	27.99	29,24	1.25		0, (39	
	ъ	89	28.14	29.01	0.43	5	0.103	
	C	33	23.99	20.03	1.04	10	20, 0	
070 FTA	н	14d	38.6C	29.53	ره. د.	0	45 C	
A11-802	∢	၃	24.88	30,27	0,39	ھ ا	20170	
	В	53	30.48	30,92	D-44	ی	6.074	
	C	901	79.64	30.04	0.40	ه (0.000	
	Ω	23	39.98	30.42	0.44	و	0.000	
	ш	15%	28,43	28,68	0.9%	هـ ا	0042	
	щ	125	28.95	29.40	0.45	5	0.000	
	D.	øь	28.02	28.31	8.0	5	10.00K	
	Ħ	121	29.69	30.00	0.31	>	6500	

Dry wt. calculations checked (date, initials): 2/2/11, CS 6

Biomass calculations checked (date, initials):

Balance Number(18-1-225.6) / P0115825 ¥ Initials Z Z Time 1303 1449 <u>2</u> Date | 19 [30] 1/30/2033 1/30/3033 Oven Number: BLM-01 / 84-009646 Loaded tins removed from oven: Loaded tins placed in oven: Loaded tins weighed: Oven Temp (°C): Start: (90 End: Red 370 TN-21-788 Project Number: 70019, TOX Swan Creek QC Test Number: __ Tin Lot: Client:

							The state of the s	
			₩	B	B-A	၁	(B-A)/C	
Toot			W_{col}	Weight of Tin	Total Dry	Number	Mean Dry	(if applicable)
Concentration	Rep	Tin#	weight of 11n (mg)	and Dried Organisms (mg)	Organism Weight (mg)	of Organisms Weighed	Organism Weight (mg)	Mean Biomass (mg/exposed org.)
AT1-863	A	48	30.05	30,88	0.83	6	6,00	
	В	35	30.49	31.35	9870	-	0.046	
	ပ	<u>ا</u> رو	28.00	78.67	0.47	o-	0.68	
	D	47	28.53	29.46	6,93	· -	0,103	
	ъ	39	34.71	30.56	0.85	0-	D.0.04	The state of the s
	Ξ	149	30.73	31.71	86,0	<u>-</u>	8010	
	Ð	44	28.67	29,53	0,85	G-	0,094	
	н	158	30.94	31.80	0.86	-	0.036	
AT1-864	А	&±/	18.31	24.05	70.0	8	0.093	
	æ	22	26.68	7.2.4	95.0	8	0,07%	
	၁	63	28.35	29.16	0.81	اب	911.0	
	D	151	29.63	80.23	63.0	>	0.074	
	ы	133	28.33	28.88	99.0	<i>-</i>	0.073	
	F	95	30.84	3130	0,46	⊹	0.05%	
	Q.	135	98.14	28,72	0.58	8	0.073	
	Н	18	27.46	28,08	69.0	×	0.078	

Dry wt. calculations checked (date, initials): 2/1/12 , KM

Biomass calculations checked (date, initials):

12/20 2/2/20

LL ATS-T46 4/1/19

Project Number: 70019 TOX)019.TO	×	\(\frac{1}{2}\) \(\lambda\)	TEIGHT DAIA (IES	DATA (Test Species: H. azieca	(page 2		
<u> </u>	27.77	***					ıcı	릐
Client: Swar	Swan Creek				Loaded tins placed in oven:	en:	the least offer	1449 JR
QC Test Number:	Ţ	TN-21-788			Loaded tins removed from oven:	m oven:	Ear) Secolor	23 (18)
Tin Lot:	∽	Red 270			Loaded tins weighed:			
Oven Temp (°C): S	Start: 100		End: 95		Oven Number: BLM-01	(64-009646)	et TS	
			A	B	B-A	C	(B-A)/C	
Test		T.	Weight of Tin	Weight of Tin and Dried Organisms	Total Dry Organism Weight	Number of Organisms	Mean Dry Organism Weight	(if applicable) Mean Biomass
AT1-865	A	j	(Surv)	(9m)	(mg)	weigned	(mg)	(mg/exposed org.)
	٤ ا	3	36.47	26.66	0.19	2	O.048	
	Д	کی	38.47	28.CE	(5.2)	5	0,053	
	೦	75.	23.41	38,60	0. (9	5	OO48	
	D	54	29.92	30,21	D.39	7	0.013	
	Ħ	67	28,46	28,69	0.23	~	0.077	
	Ħ	83	38.47	2866	D. G	3	0.048	
	Ü	79	30.00	30.23	0,23	<i>ج</i>	0,077	
	Н	&& &	30.9£	28.41	0,33	\ \ \	ONO.	
AT1-866	А	152	24,76	30,07	0.31	5	6,000	
	В	77	29.15	29.59	0,44	ζ,	0.088	
	0	2	24.ID	29,30	0.00	9	©, D33	
	Д	116	30,27	उट.6म्	0.37	7	0.093	
	ш		28.94	29.25	0.31	5	6.063	
	ĹĽ,	83	28.88	29.05	0,17	7	0,043	
	Ü	68,	29.52	29,75	0.23	5	0,046	
	Н	5	27.41	73384	0,43	\sim	0.0%	

Dry wt. calculations checked (date, initials): 1/2 LL (186

Biomass calculations checked (date, initials):

Droisot Muncham 70010 TOW	010	>	AA Tr	WEIGHT DATA (Test Species:		H. azteca		
Office of the second of the se	012,10	4					Date Time	T
Cilent: Swan	Swan Creek				Loaded tins placed in oven:	7en:	bhhi leveloelei	19 JR
QC Test Number:	N.	TN-21-788			Loaded tins removed from oven:	m oven:	130/2003	3 28
Tin Lot:	€	Red 270		į	Loaded tins weighed:			
Oven Temp (°C): St	Start:	T COIL	End: 9S		Oven Number: BLM-01	/G4-009646	T	
			A	æ	B-A	C	(B-A)/C	
Test Concentration	Rep	Tin#	Weight of Tin (mg)	Weight of Tin and Dried Organisms (mg)	Total Dry Organism Weight (mg)	Number of Organisms Weighed	Mean Dry Organism Weight	(if applicable) Mean Biomass
AT1-867	A	130	27.25	27.37	2,0	9	0,000	(u.g. cv.post o.g.)
	В	33	29.68	29,94	0,26	و	0,04.3	
	ပ	87	29.56	29.75	9.9	\ \	0.038	
	D	705	29.73	36.04	0.31	و	D.053	/
	Э	23	28.05	28,43	0.37	1+	0.083	
	Ħ	09)	D8.74	78.64 78.64	80	- P	040	
	D G	63	29.21	29.75	20,52) 5	0, 135	
	Н	ክ L	bh'80	28,81	0,32	~	0,064	
ATI-868	A	123	28.87	29.17	0.30	و_	0,050	
	В	三	28.50	28,81	0.31	و	0.052	
	O	101	29.54	29.93	0.34	e	0.065	
	Д	30	30.10	30.30	0,20	7	0.040	
	ш	93	29.33	29.63	0.30	ب	0.050	
	Щ	7	29.30	29.55	0.25	Ŷ	0.045	
	G	0	30.19	30,48	6,29	و	0.048	
	H	811	28.76	29.15	0.39	٩	0.065	

Dry wt. calculations checked (date, initials):

Biomass calculations checked (date, initials):

	0	;	AV E.	WEIGHT DATA (TES	DAIA (Test Species: H. a	H. azteca		
Froject Inumber: //UO19.1 UX	10019.11	×					Date Time	ne Initials
Client: Sw	Swan Creek				Loaded tins placed in oven:	'en:	97/30/3031 1449	
QC Test Number:	ZI.	TN-21-788			Loaded tins removed from oven:	oven:		
Tin Lot:	Red	Red 270			Loaded tins weighed:			
Oven Temp (°C):	Start:	I	End: 95		Oven Number: BLM-01	7 G4-009646		_
			¥	B	B-A	C	(B-A)/C	AND THE PROPERTY OF THE PROPER
Test Concentration	Rep	Tin#	Weight of Tin (mg)	Weight of Tin and Dried Organisms (mg)	Total Dry Organism Weight (mg)	Number of Organisms Weighed	Mean Dry Organism Weight	(if applicable) Mean Biomass (mo/exposed org)
AT1-869	А	139	30.01	30.13	<u>4</u> 0	~	2700	/ (Grant Grant)
	В	130	27.33	59,18	0,31	· (*	7040	
-	ပ	134	27.50	27.66	0.(6	8	0.020	
	Ω	109	28.25	28.46	7.0	t	0.030	
	口	19	24.40	29.51	20	8	0.04	
	Ī.	ц	29,39	99 SO	0,0	و	×200	
	rg U	127	27.13	27.47	0,34	l-f-	OHO O	
	н	23	18.97	29.23	0,26	8	0.033	
AT1-870	A	26	28.63	28.84	0.21	١٠	0.030	
	Ф	126	27.89	28,21	0.33	R	0.040	
	O	27	38.65	28.93	12.0	~	0.034	
	Д	113	29.48	29,71	0.23	4	0.033	
	П	73	29,13	29.36	0.33	F	500	
	т	102	28.91	29,06	0.15	4) 60 O	
	D.	37	78.94	24.05	0.11	4	9)(2)(0	
	Н	011	30.19	30,53	0.34	1	0,049	

Dry wt. calculations checked (date, initials): $\frac{1}{2}$

Biomass calculations checked (date, initials): ____



P0115825 (if applicable)
Mean Biomass (mg/exposed org.) oy Y Initials Z Balance Number: (S-L-225.C 5770 (30G) Time (B-A)/C Mean Dry Organism Weight (mg) 0.0400 0.055 0.058 0.030 6,043 0.065 0.043 0.044 0.039 0.053 1700 0.671 Date 0.041 0.041 1-e0e/00/e1 rectioe/i 1/30/9033 Number of Organisms Weighed G4-009646 4 σ ھن ئِ 4 σ حجر <u>G-</u> ∞ 80 ò ح d ىر Loaded tins removed from oven: Loaded tins placed in oven: Oven Number: BLM-01 Total Dry Organism Weight Loaded tins weighed: 950 0.30 0.33 0.34 0,40 0.36 637 657 0.50 0.24 0.33 (mg) 0,23 0.33 0.37 and Dried Organisms Weight of Tin 29,53 28,69 27.86 29.45 30.85 28,73 30,90 28,89 29,15 29.38 28.39 29.85 अ म 28.15 Weight of Tin (mg) 28.37 30.52 28,90 28.33 30.53 5 29.08 29.30 27.50 27.93 28.78 29.52 27.89 29.11 28.11 End: Red 270 143 Tin# 46 53 TN-21-788 132 છે 50 000 64 4 3(3) 99 ريم 49 7 Start: NO Project Number: 70019.TOX Swan Creek Rep Μ Ö Ö Η Ω Ą ĮΞÌ Ŋ ĮΥ Ą B Ξì ш 2C Test Number: Oven Temp (°C): Concentration AT1-872 Tin Lot: AT1-871 Client:

Dry wt. calculations checked (date, initials): 2 | L | LL , RS

Biomass calculations checked (date, initials): _

7

0.050

44

0.41

38.62

28.27

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29,95

29.54

<u>~</u>

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0.059

Project Number: 70019 TOX	70019 TO	×	7.T & A	WEAGILL DATA (Test Species.	i speces.	(1000)		Time Initials
	71.							1
Client: Sw	Swan Creek				Loaded tins placed in oven:	en:	13/30/30 144d	HG JR
QC Test Number:		-21-788	:		Loaded tins removed from oven:	m oven:	el geogladi	903 X
Tin Lot:		Red	02 6		Loaded tins weighed:		1/20/2003-6-1349	
Oven Temp (°C):	Start:	(00 E	End: 95		Oven Number: BLM-01	(G4-009646)	Balance Number: TS-L-225.C	.225.C)/ P0115825
E			A	B Weight of Tin	B-A Total Dry	C Number	(B-A)/C Mean Dry	(if applicable)
lest Concentration	Rep	Tin#	Weight of 1 in (mg)	and Dried Organisms (mg)	Organism Weight (mg)	of Organisms Weighed	Organism Weight (mg)	Mean Biomass (mg/exposed org.)
AT1-873	A	44	39.45	30.11	99,0	٦	0,073	
	В	117	39.64	36.11	0.47	≫	absa	
	C	<u>رد</u> ا	29.35	30.36	0.51	-	0.057	
	D	44	27.68	28,43	0.75	-+	0.607	
	E	50	28,13	28,46	0.34	æ	0.043	
	ഥ	13	29.27	39.95	89.0	6-	0,016	
	Ð	9	28,18	28.53	0.35	6	0.039	
	н	131	29.81	30,38	0.57		0,063	_
		:						
Dry wt. calculations checked (date, initials): _	checked (c	late, initials	150' 77/7/2 "		Biomass calculations checked (date, initials):	(date, initials):	4/2	
•	•		1		:		,	

TOXICITY TEST WATER QUALITY DATA SHEET - NEW SOLUTIONS

<u>=</u>	70019,TOX	TEST ORGANISM	Beginning Date: _	12/10/21 Time: 125	125
Client: Swan Creek	ek	Common Name: Amphipod	Ending Date:		130
QC Test Number:	TN-21-788	E)
TARGET VALUES: Temp:	Temp: 23±1 °C pH: 6.0-9.0	DO: >4.0 mg/L S	ppt Photoperiod: 161,84 Li	Light Intensity: 50 - 100 fc	
	Temperature (°C)	hd	Dissolved Oxygen (mg/L)	Conductivity (µS/cm)	
Test Conc Rep	0 1 2 3 4 5 6	0 1 2 3 4 5 6	0 1 2 3 4 5 6	0 1 2 3 4 5	9
Control (AT1-697)	072	7.5			+
AT1-862	n.0			2012	_
AT1-863	0.72			27.0	
AT1-864	22.0		73	050	
AT1-865	22.3			205	_
AT1-866				0 2	
n AT1-867				7.72	-
AT1-868				760	-
AT1-869 22				229	_
AT1-870	2.0			236	+
ATI-871 27	1.22			200	_
AT1-872 21	2.3			Che Che	
AT1-873 (27.)				337	-
					-
Meter Number (6%)		[89]		189	<u> </u>
Time 5					+
Initials Wort		Thi		177	

TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

1300 34 352 345 341 347 347 358 351 357 358 358860 38/362 350 340 340 340 350 350 365 351368 351 351 359 355 378.73. 368 359 358 360 360 36 7369 369 353 353 353 355 356 346 355 347 347 349 351 358 354 354 367 364 371 364 374 381 390 359 358 345 347 348 351 362 352 360 355 357 353 Time: Time: Conductivity (µS/cm) ppt Photoperiod: 161,8 d Light Intensity: 50 - 100 fc 361355 352 355 351 371361 369359 357 369 367366359 360 371 382 359 3 12/22/21 0 7 82 8.686 gc 8.0 8.5 79 7,67,8 7,5 7,6 80 80 848,5 8.6 8.6 8.5 83 Beginning Date: 8.0 7.9 79 7.677 75 76 70 80 80 8.7848,7 8.3 8.5 83 678.484 8-080 7.48.9 7.65.3 8.2 8.0 8.1 797777 75 76 80 80838186 8483 82 9808185848281 807973841858279 1 00 6,08 12,58.3 86 80 13 Ending Date: 8.4 8.4 8-4 0-8 4-97658 9 Dissolved Oxygen (mg/L) 8.38.8 8.4 8.1 8,18,7 8.28.08.7 8.585 8 p:0) 74 8 0 7680 7.680 Amphipod 7.6 86 H. azteca 79 26 79 15 76 80 7.5 7.6 8.0 7.57679 7.9 7.6 8.6 76 8.0 PY 01 SIL C/2012 87 87 7-6 7.9 1 mg/L Salinity: 9 1,5 5.5 215 797.97.67.87.8 15 5 TEST ORGANISM 7.4 7.67.7 7.87.67.7 CZQ'L 8'L 7.87.9 7.67.8 1.87.67.7 Scientific Name: Hd 1.87.67.T Common Name: >4.0 8,07.7 19 79 DO: 7.8 7.8 2/8 7.8 23 _ 6.0 - 9.0 220 220 220 220 220 220 22.6 22.0 22.0 32.0 32.0 22.0 2,02.0 22.0 22.0 22.0 21.0 21.0 22.0 32.0 320 226 22,0 22,0 32.0 32.0 22.0 22.0 22.0 22.0 22.0 22.0 22.0 2,022,022.0 22.0 32.0 22.0 20 21, Vu. 0 320 32. V 22. 0 200 220 220 220 220 220 220 220 320 320 220 22,0 22,0 22.0 32.0 22.0 22.0 7 22.021.022.6 22.10 320 pH: Temperature (°C) S 70019.TOX IN-21-788 23±1 Temp: 7 Swan Creek 27 17. 177 17 277 TARGET VALUES Rep QC Test Number: Project Number: Control (ATI-697) Test Conc Client: AT1-863 AT1-865 AT1-868 AT1-870 AT1-872 AT1-862 AT1-864 AT1-866 AT1-867 AT1-871 AT1-873 AT1-869

Pr83 175 KU

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SLSC IMT

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Initials

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TX.

68 (88) (88) (89)

180 180 180

(55) (56) (50) (50) (131) (131) (50)

TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Time: 1288 13 Time: Conductivity (µS/cm) ppt Photoperiod: 161,8 d Light Intensity: 50 - 100 fc 12 352 357 370 347 352 32 35/35/37/2 352 350 370 10 30 35 371 354 360 371 367 363 375 354 36 376 361375 275 360 372 34 367 378 357 360374 38 365 372 70/343L 12/21/21 1101 ah 11 (186 12/16/29 Beginning Date: 14 Ending Date: Dissolved Oxygen (mg/L) 83848.5 8,783 818.28.0 8.3 8.3 8.08.3 8.08.0 10 76 82 85 7.8 8.0 8.7 82 8,18,2 8,18,1 101 0h11 1180 680 686 681 18 18 1 6 28 1.0 0 00 Amphipod H. azteca 14 mg/L Salinity: 13 12 TEST ORGANISM Hd 11 Scientific Name: Common Name: >4.0 9.787 9282 7.87.6 91/81/ 7.8/7.10 10 9.6 8.7 8.2 7.8 7.7 36/56 1/01 0/11 1/89 6.0 - 9.0 DO: 6 1.8 14 13 pH: Temperature (°C) S 70019.TOX TN-21-788 23±1 220220 20 200 220 0.22 0.22 0.22022 o.th 0.22 0.22 0.26 33 0 22.0 22.0 720 22.C 22 0.22 ott 022 022 000 12.0 22.0 J.C. 220 22 026 36 31 Time 0811 //40 1011 Meter Number | 690 | 650 | 651 Temp: Swan Creek TARGET VALUES Rep Initials QC Test Number: Project Number: Control (ATI-697) Test Conc Client: AT1-862 AT1-866 AT1-863 AT1-867 AT1-869 AT1-870 ATI-864 AT1-865 AT1-868 AT1-871 AT1-872 AT1-873

ATS-T16 06/21/06



TOXICOLOGY LABORATORY BENCH SHEET - TESTING LOCATION

Project Number:	70019.TOX
Client:Swan	Creek
QC Test Number:	TN-21-788

			<u> </u>	· · · · · · · · · · · · · · · · · · ·
Day	Testing Location	Date	Time	Initials
0	55 A	1210121	1620	178
1	55 Å	12/10/21	1600	727
2	SSA	12/12/21	1004	54
_ 3	55A 55A 55A 55A	12/13/21	0815	54
4	55A	12/14/21	1435	SC JR
5	554	18/15/21	0810	AS Ny SR
6	SSA	12/11/12/	0835	My
7	<u>55A</u>	12/17/21	0.803	JR
8	55A	12118121	112D 1282	-co
9	55A	12/19/21	1150	SL SL
10	55 A	12/20/21	1012	36
11				
12				
13			·	
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				



TOXICOLOGY LABORATORY BENCH SHEET - RENEWAL RECORD

Project Number:70019.TOX	
Client: Swan Creek	
QC Test Number: TN-21-788	

Day	Date		Time	Initials
0	1044	AM	0910	to
	12/16/21	PM	1620	1.00
1	17111151	AM	0830	HIS HIS SL
	1211112	PM	550	-el
2	12/12/21	AM	0958	SL
<u> </u>	- 1.0101	PM	1440	Alg
3	12/13/21	AM	0615	Ay 54
	- 110101	PM	1601	LADO TP
4	12114121	AM	0910	
	, - · · · · · · · · · · · · · · · · · ·	PM	1435	JR
5	121 15/21	AM	0810	AY
	12/10/21	PM	1500	-P
6	12114 121	AM	0830	dy
		PM	1527	AY OR
7	12/17/2021	AM		SE
	191/1/303/	PM	418	CAD
8	12118121	AM	0800	-RD
9	- 1 - 4	PM	1545	P
9	12/19/21	AM	W25	SL
10		PM	1553	BL
10	Idodei	AM	0836	UA0
		PM		



TOXICOLOGY LABORATORY BENCH SHEET - FEEDING RECORD

Project Number: 70019.TOX
Client: Swan Creek
QC Test Number:TN-21-788
Food: 1 ml YCT per beaker daily

_ Day	Date	Time	Initials
0	12/10/21	1631	MB
11	1211111	1666	-0
2	12/5/12/	1508	fly
3	12113121	1724	gh
4	12113121	1453	(1)
5	12115/21	1515	To To
6	12/16/12/	1540	ely
7	12/17/1	1437	UPO
8	12/18/21	1508 1724 1453 1515 1540 1437 1555	P
9	12/19/21	1601	SL
10			
11			
_12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			



TOXICOLOGY LABORATORY BENCH SHEET

Project Number:70019.TOX	
Client: Swan Creek	·
QC Test Number: TN-21-788	
Date/Time/Initials	Comments/Activity



TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number: 70019.TOX
Client: Swan Creek
QC Test Number: TN-21-788
Correction Explanations
(a) Technician Error-Mathematical
(b) Technician Error-Manual Data Recording
(c) Technician Error-Head Count Observation
(d) Technician Error-Overwrite
(e) Technician Error-Missing Data
(f) Technician Error-Lost Organism
(g) Technician Error-Transcription Error
(h) Technician Error-Other:
(i) Meter Malfunction

Start Date:	12/10/2021		Toet ID:	TN-21-788			Fest-Survi Sample ID		Swan Creek		
ind Date:	12/10/2021		Lab ID:	114-21-700			Sample Ty		Sediment		
Sample Date:	12/20/2021		Protocol:				Test Spec		HA-Hyalella a	ztoco	
Comments:			i iotocoi.				rest opec	165.	i iA-i iyalella a	zieca	
Conc-	1	2	3	4	5	6	7	8			
Control		0.9000		0.9000	0.9000	0.9000	1.0000	0.9000			
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-863	0.9000	0.9000		0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-864		0.8000		0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866	0.4000	0.5000		0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000						
AT1-867 AT1-868	0.6000		0.6000		0.6000	0.5000	0.4000	0.5000			
		0.6000		0.5000		0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872	0.8000	0.7000	0.9000 0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
AT1-873	0.9000	0.8000		0.7000	0.8000	0.9000	0.9000	0.9000 Rank	1-Tailed		
Cono	Maan I	l Maan		ransform: /							
Conc-		N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
Control	0.9125	1.0000	1.2694	1.2490	1.4120	4.539	8	00.00	47.00		
*AT1-862	0.5625	0.6164		0.7854	0.8861	6.142	8	36.00	47.00		
AT1-863	0.9000	0.9863	1.2490	1.2490	1.2490	0.000	8	64.00	47.00		
*AT1-864	0.8000	0.8767	1.1104	0.9912	1.2490	6.231	8	39.50	47.00		
*AT1-865	0.3625	0.3973	0.6453	0.5796	0.6847	8.427	8	36.00	47.00		
*AT1-866	0.4875	0.5342	0.7728	0.6847	0.8861	8.349	8	36.00	47.00		
*A T 1-867	0.5500	0.6027	0.8363	0.6847	0.9912	11.268	8	36.00	47.00		
*AT1-868	0.5875	0.6438	0.8735	0.7854	0.8861	4.0 7 5	8	36.00	47.00		
*AT1-869	0.7375	0.8082	1.0360	0.8861	1.1071	8.056	8	36.00	47.00		
*AT1-870	0.7375	0.8082	1.0347	0.9912	1.1071	5.802	8	36.00	47.00		
*AT1-871	0.8250	0.9041	1.1459	0.9912	1.2490	8.205	8	46.50	47.00		
*AT1-872	0.7375	0.8082	1.0393	0.8861	1.2490	10.662	8	39.50	4 7 .00		
AT1-873	0.8500	0.9315	1.1813	0.9912	1.2490	8.471	8	53.50	47.00		
uxiliary Test	S						Statistic		Critical	Skew	Kurt
Kolmogorov D Test indicates normal distribution (p > 0.01)							0.93433		1.035	-0.0003	0.6922
		t ha con	firmed								
quality of var			minica								

Reviewed by: <u>R</u>

Start Date:	12/10/202	1	Test ID:	TN-21-788	}		Sample ID):	Swan Creek		
En d Date:	12/20/202		Lab ID:			**	Sample Ty		Sediment		
Sample Date:			Protocol:				Test Spec		HA-Hyalella az	zteca	
Comments:									,		
Conc-	1	2	3	4	5	6	7	8			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
AT1-862		0.6000	0.6000	0.6000	0.6000	0.5000		0.5000			
AT1-863		0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-864		0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865		0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866		0.5000	0.6000	0.4000	0.5000	0.4000		0.5000			
AT1-867		0.6000	0.5000	0.6000	0.7000	0.5000		0.5000			
AT1-868		0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870		0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872		0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
			Tr	ansform:	Arcsin Sq	uare Ro		Rank	1-Tailed		
Сопс-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
Control	0.9125	1.0000	1.2694	1.2490	1.4120	4.539	8				
*AT1-862	0.5625	0.6164	0.8483	0.7854	0.8861	6.142	8	36.00	51.00		
AT1-863		0.9863	1.2490	1.2490	1.2490	0.000					
AT1-864		0.8767	1.1104	0.9912	1.2490	6.231	8				
AT1-865		0.3973	0.6453	0.5796	0.6847	8.427					
A T 1-866		0.5342	0.7728	0.6847	0.8861	8.349	8				
AT1-867		0.6027	0.8363	0.6847	0.9912	11.268	8				
A T 1-868		0.6438	0.8735	0.7854	0.8861	4.075	8				
AT1-869		0.8082	1.0360	0.8861	1.1071	8.056	8				
AT1-870		0.8082	1.0347	0.9912	1.1071	5.802	8				
AT1-871		0.9041	1.1459	0.9912	1.2490	8.205	8				
AT1-872		0.8082	1.0393	0.8861	1.2490	10.662	8				
AT1-873		0.9315	1.1813	0.9912	1.2490	8.471	8				
							Statistic		Critical	Skew	Kurt
	Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)						0.83611		0.844	1.20415	2.2188
Auxiliary Test Shapiro-Wilk's -Test indicate					,		1.22277		8.88539		

	"	· · · · · · · · · · · · · · · · · · ·		Gro	wth and	Survival	Test-Survi	val			<u>.</u>
Start Date:	12/10/202	21	Test ID:	TN-21-78			Sample II		Swan Cree	ek	
End Date:	12/20/202	21	Lab ID:				Sample T		Sediment		
Sample Date:			Protocol:				Test Spec		HA-Hyaleli	a a zt eca	
Comments:									· is · riyaloli	a aztoda	
Conc-	1	2	3	4	5	6	7	8	-		
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT 1-86 4	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
AT1-8 7 3	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
-				ansform:			ot -	Rank	1-Tailed	·	 -
Сопс-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
Control	0.9125	1.0000	1.2694	1.2490	1.4120	4.539	8		·		
AT1-862	0.5625	0.6164	0.8483	0.7854	0.8861	6.142	8				
AT1-863	0.9000	0.9863	1.2490	1.2490	1.2490	0.000	8	64.00	51.00		
AT1-864	0.8000	0.8767	1.1104	0.9912	1.2490	6.231	8				
AT1-865	0.3625	0.3973	0.6453	0.5796	0.6847	8.427	8				
AT1-866	0.4875	0.5342	0.7728	0.6847	0.8861	8.349	8				
AT1-867	0.5500	0.6027	0.8363	0.6847	0.9912	11.268	8				
AT1-868	0.5875	0.6438	0.8735	0.7854	0.8861	4.075	8				
AT1-869	0.7375	0.8082	1.0360	0.8861	1.1071	8.056	8				
AT1-870	0.7375	0.8082	1.0347	0.9912	1.1071	5.802	8				
AT1-8 7 1	0.8250	0.9041	1.1459	0.9912	1.2490	8.205	8				
AT1-872	0.7375	0.8082	1.0393	0.8861	1.2490	10.662	8				
<u>AT1-873</u>	0.8500	0.9315	1.1813	0.9912	1.2490	8.471	8				
Auxiliary Tests							Statistic		Critical	Skew	Kurt
Shapiro-Wilk's	Test indica	ates non-n	ormal dist	ribution (p	<= 0.01)		0.4689		0.844	3.5489	
Equality of varia			imed								
Hypothesis Te	st (1-tail, (0.05)			-						

Wilcoxon Two-Sample Test indicates no significant differences

Start Date:	12/10/2021		Test ID:	TN-21-788	-		Fest-Surviv Sample ID		Swan Creek		
End Date:	12/10/2021		Lab ID:	111 27 700			Sample Ty		Sediment		
Sample Date:	12/20/2021		Protocol:				Test Speci		HA-Hyalella azteca		
Comments:			1 1010001.								
Conc-	1	2	3	4	5	6	7	8			
Control		0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866		0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867		0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-809	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-870	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
AT1-873		0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
A11-013	0.9000_	0.0000		ransform:				Rank	1-Tailed		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
Control		1.0000	1.2694	1.2490	1.4120	4.539	8				
AT1-862		0.6164	0.8483	0.7854	0.8861	6.142	8				
AT1-863		0.9863	1.2490	1.2490	1.2490	0.000	8				
*AT1-864		0.8767	1.1104	0.9912	1.2490	6.231	8	39.50	51.00		
AT1-865		0.3973	0.6453	0.5796	0.6847	8,427	8				
AT1-866		0.5342	0.7728	0.6847	0.8861	8.349	8				
AT1-867		0.6027	0.8363	0.6847	0.9912	11.268	8				
AT1-868		0.6438	0.8735	0.7854	0.8861	4.075	8				
AT1-869		0.8082	1.0360	0.8861	1.1071	8.056	8				
AT1-870		0.8082	1.0347	0.9912	1.1071	5.802	8				
AT1-871		0.9041	1.1459	0.9912	1.2490	8.205	8				
AT1-872		0.8082	1.0393	0.8861	1.2490	10.662	8				
AT1-873		0.9315	1.1813	0.9912	1.2490	8.471	8				
Auxiliary Tes					.,		Statistic		Critical	Skew	Kurt
Shapiro-Wilk's		ates non-	normal dis	stribution (p	<= 0.01)		0.69016		0.844	1.24801	3.1589
	es equal va			\ 1	,		1.441 <u>73</u>		8.88539		

			· · · · · ·	Gro	wth and S	iurvival 1	Γest-Survi	ival				
Start Date:	12/10/202	1	Test ID:	TN-21-788	3		Sample II	D:	Swan Cre	ek		
End Date:	12/20/202		Lab ID:				Sample T		Sediment			
Sample Date:			Protocol:				Test Spec		HA-Hyale	lla azteca		
Comments:							•		•			
Conc-	1	2	3	4	5	6	7	8	-			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000				
AT1-862		0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000				
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000				
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000				
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000				
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000				
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000				
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000				
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000				
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000				
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000				
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000				
			Tr	ansform:	Arcsin Sc				1-Tailed			
Conc-	14	M Mann	Mean	R.H.L.	B.#	O140/	- NI	t-Stat	Critical	MSD		
		N-Mean		Min	Max	CV%	N	i-Siat	Cilucai	IAIOD		
Control	0.9125	1.0000	1.2694	1.2490	1.4120	4.539	8	i-Stat	CHUCAI	INIOD		
Control AT1-862	0.9125 0.5625	1.0000 0.6 1 64		1.2490 0.7854	1.4120 0.8861	4.539 6.142	8 8	i-Siat	Cilucai	WISD		
Control AT1-862 AT1-863	0.9125 0.5625 0.9000	1.0000	1.2694 0.8483 1.2490	1.2490 0.7854 1.2490	1.4120	4.539 6.142 0.000	8 8 8	i-Siat	Offical	INIOD		
Control AT1-862 AT1-863 AT1-864	0.9125 0.5625 0.9000 0.8000	1.0000 0.6164 0.9863 0.8767	1.2694 0.8483 1.2490 1.1104	1.2490 0.7854 1.2490 0.9912	1.4120 0.8861 1.2490 1.2490	4.539 6.142 0.000 6.231	8 8 8					
Control AT1-862 AT1-863 AT1-864 *AT1-865	0.9125 0.5625 0.9000 0.8000 0.3625	1.0000 0.6164 0.9863 0.8767 0.3973	1.2694 0.8483 1.2490 1.1104 0.6453	1.2490 0.7854 1.2490 0.9912 0.5796	1.4120 0.8861 1.2490 1.2490 0.6847	4.539 6.142 0.000 6.231 8.427	8 8 8 8	22.280	1.761	0.0493		
Control AT1-862 AT1-863 AT1-864 *AT1-865 AT1-866	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875	1.0000 0.6164 0.9863 0.8767 0.3973 0.5342	1.2694 0.8483 1.2490 1.1104 0.6453 0.7728	1.2490 0.7854 1.2490 0.9912 0.5796 0.6847	1.4120 0.8861 1.2490 1.2490 0.6847 0.8861	4.539 6.142 0.000 6.231 8.427 8.349	8 8 8 8 8					
Control AT1-862 AT1-863 AT1-864 *AT1-865 AT1-866 AT1-867	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500	1.0000 0.6164 0.9863 0.8767 0.3973 0.5342 0.6027	1.2694 0.8483 1.2490 1.1104 0.6453 0.7728 0.8363	1.2490 0.7854 1.2490 0.9912 0.5796 0.6847 0.6847	1.4120 0.8861 1.2490 1.2490 0.6847 0.8861 0.9912	4.539 6.142 0.000 6.231 8.427 8.349 11.268	8 8 8 8 8					
Control AT1-862 AT1-863 AT1-864 *AT1-865 AT1-866 AT1-867 AT1-868	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875	1.0000 0.6164 0.9863 0.8767 0.3973 0.5342 0.6027 0.6438	1.2694 0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735	1.2490 0.7854 1.2490 0.9912 0.5796 0.6847 0.6847 0.7854	1.4120 0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861	4.539 6.142 0.000 6.231 8.427 8.349 11.268 4.075	8 8 8 8 8 8					
Control AT1-862 AT1-863 AT1-864 *AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375	1.0000 0.6164 0.9863 0.8767 0.3973 0.5342 0.6027 0.6438 0.8082	1.2694 0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360	1.2490 0.7854 1.2490 0.9912 0.5796 0.6847 0.6847 0.7854 0.8861	1.4120 0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071	4.539 6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056	8 8 8 8 8 8					
Control AT1-862 AT1-863 AT1-864 *AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375	1.0000 0.6164 0.9863 0.8767 0.3973 0.5342 0.6027 0.6438 0.8082 0.8082	1.2694 0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347	1.2490 0.7854 1.2490 0.9912 0.5796 0.6847 0.6847 0.7854 0.8861 0.9912	1.4120 0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071	4.539 6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056 5.802	8 8 8 8 8 8 8					
Control AT1-862 AT1-863 AT1-864 *AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375	1.0000 0.6164 0.9863 0.8767 0.3973 0.5342 0.6027 0.6438 0.8082 0.8082 0.9041	1.2694 0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459	1.2490 0.7854 1.2490 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912	1.4120 0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490	4.539 6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205	8 8 8 8 8 8 8 8					
Control AT1-862 AT1-863 AT1-864 *AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375 0.8250 0.7375	1.0000 0.6164 0.9863 0.8767 0.3973 0.5342 0.6027 0.6438 0.8082 0.8082 0.9041 0.8082	1.2694 0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393	1.2490 0.7854 1.2490 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912 0.8861	1.4120 0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490	4.539 6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662	8 8 8 8 8 8 8 8 8					
Control AT1-862 AT1-863 AT1-864 *AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375	1.0000 0.6164 0.9863 0.8767 0.3973 0.5342 0.6027 0.6438 0.8082 0.8082 0.9041	1.2694 0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459	1.2490 0.7854 1.2490 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912	1.4120 0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490	4.539 6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		1.761			
Control AT1-862 AT1-863 AT1-864 *AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8500	1.0000 0.6164 0.9863 0.8767 0.3973 0.5342 0.6027 0.6438 0.8082 0.9041 0.8082 0.9315	1.2694 0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813	1.2490 0.7854 1.2490 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912 0.8861 0.9912	1.4120 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490 1.2490	4.539 6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662	8 8 8 8 8 8 8 8 8 8 8 8		1.761 Critical		Skew	Kurt
Control AT1-862 AT1-863 AT1-864 *AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8250	1.0000 0.6164 0.9863 0.8767 0.3973 0.5342 0.6027 0.6438 0.8082 0.9041 0.8082 0.9315	1.2694 0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813	1.2490 0.7854 1.2490 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912 0.8861 0.9912	1.4120 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490 1.2490	4.539 6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		1.761 Critical 0.844		Skew 1.10357	
Control AT1-862 AT1-863 AT1-864 *AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-873 Auxiliary Test Shapiro-Wilk's	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8500 ts	1.0000 0.6164 0.9863 0.8767 0.3973 0.5342 0.6027 0.6438 0.8082 0.9041 0.8082 0.9315 ates norm	1.2694 0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813	1.2490 0.7854 1.2490 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912 0.8861 0.9912	1.4120 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490 1.2490	4.539 6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 7 8 8 1.1225	22.280	1.761 Critical 0.844 8.88539	0.0493	1.10357	1.89356
Control AT1-862 AT1-863 AT1-864 *AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8500 ts Test indicates equal valuest (1-tail,	1.0000 0.6164 0.9863 0.8767 0.3973 0.5342 0.6027 0.6438 0.8082 0.9041 0.8082 0.9315 ates norm	1.2694 0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813	1.2490 0.7854 1.2490 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.8861 0.9912	1.4120 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490 1.2490	4.539 6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662	8 8 8 8 8 8 8 8 8 8 8 8 Statistic 0.84427 1.1225 MSDu	22.280 . MSDp	1.761 Critical 0.844 8.88539 MSB		1.10357 F-Prob	

			. "	Gro	wth and S	urvival T	est-Surviv	/al	•.		
Start Date:	12/10/202	1	Test ID:				Sample ID		Swan Creek		
End Date:	12/20/202		Lab ID:				Sample Ty		Sediment		
Sample Date:	,_,_,_		Protocol:				Test Speci	es:	HA-Hyalella azte	eca	
Comments:							•		-		
Conc-	1	2	3	4	5	6	7	8			<u> </u>
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000	**		
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-863		0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-864		0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865		0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866		0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867		0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868		0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869		0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870		0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872		0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
AT1-873		0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
			Tr	ansform:	Arcsin Sq	uare Ro	ot	Rank	1-Tailed	_	
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
Control		1.0000	1.2694	1.2490	1.4120	4.539	8				
Control AT1-862	0.9125	0.6164	0.8483	0.7854	0.8861	6.142	8	_			
	0.9125 0.5625			0.7854 1.2490	0.8861 1.2490	6.142 0.000	8 8				
AT1-862	0.9125 0.5625 0.9000	0.6164	0.8483	0.7854 1.2490 0.9912	0.8861 1.2490 1.2490	6.142 0.000 6.231	8 8 8				
AT1-862 AT1-863	0.9125 0.5625 0.9000 0.8000 0.3625	0.6164 0.9863 0.8767 0.3973	0.8483 1.2490 1.1104 0.6453	0.7854 1.2490 0.9912 0.5796	0.8861 1.2490 1.2490 0.6847	6.142 0.000 6.231 8.427	8 8 8 8				
AT1-862 AT1-863 AT1-864 AT1-865 *AT1-866	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875	0.6164 0.9863 0.8767 0.3973 0.5342	0.8483 1.2490 1.1104 0.6453 0.7728	0.7854 1.2490 0.9912 0.5796 0.6847	0.8861 1.2490 1.2490 0.6847 0.8861	6.142 0.000 6.231 8.427 8.349	8 8 8 8	36.00	51.00		
AT1-862 AT1-863 AT1-864 AT1-865	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875	0.6164 0.9863 0.8767 0.3973 0.5342 0.6027	0.8483 1.2490 1.1104 0.6453 0.7728 0.8363	0.7854 1.2490 0.9912 0.5796 0.6847 0.6847	0.8861 1.2490 1.2490 0.6847 0.8861 0.9912	6.142 0.000 6.231 8.427 8.349 11.268	8 8 8 8 8	36.00	51.00		
AT1-862 AT1-863 AT1-864 AT1-865 *AT1-866	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875	0.6164 0.9863 0.8767 0.3973 0.5342 0.6027 0.6438	0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735	0.7854 1.2490 0.9912 0.5796 0.6847	0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861	6.142 0.000 6.231 8.427 8.349 11.268 4.075	8 8 8 8 8	36.00	51.00		
AT1-862 AT1-863 AT1-864 AT1-865 *AT1-866 AT1-867 AT1-868 AT1-869	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875	0.6164 0.9863 0.8767 0.3973 0.5342 0.6027 0.6438 0.8082	0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360	0.7854 1.2490 0.9912 0.5796 0.6847 0.6847 0.7854 0.8861	0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071	6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056	8 8 8 8 8 8	36.00	51.00		
AT1-862 AT1-863 AT1-864 AT1-865 *AT1-866 AT1-867 AT1-868	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375	0.6164 0.9863 0.8767 0.3973 0.5342 0.6027 0.6438 0.8082 0.8082	0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347	0.7854 1.2490 0.9912 0.5796 0.6847 0.6847 0.7854 0.8861 0.9912	0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071	6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056 5.802	8 8 8 8 8 8 8	36.00	51.00		
AT1-862 AT1-863 AT1-864 AT1-865 *AT1-866 AT1-867 AT1-868 AT1-869	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375	0.6164 0.9863 0.8767 0.3973 0.5342 0.6027 0.6438 0.8082 0.8082 0.9041	0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459	0.7854 1.2490 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912	0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490	6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205	8 8 8 8 8 8 8 8 8	36.00	51.00		
AT1-862 AT1-863 AT1-864 AT1-865 *AT1-866 AT1-868 AT1-869 AT1-870	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375	0.6164 0.9863 0.8767 0.3973 0.5342 0.6027 0.6438 0.8082 0.8082	0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347	0.7854 1.2490 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912 0.8861	0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490	6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662	8 8 8 8 8 8 8 8 8 8 8	36.00	51.00		
AT1-862 AT1-863 AT1-864 AT1-865 *AT1-866 AT1-868 AT1-869 AT1-870 AT1-871	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375 0.8250 0.7375	0.6164 0.9863 0.8767 0.3973 0.5342 0.6027 0.6438 0.8082 0.8082 0.9041	0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459	0.7854 1.2490 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912	0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490	6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205	888888888888888888888888888888888888888	36.00			
AT1-862 AT1-863 AT1-864 AT1-865 *AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-873 Auxiliary Tes	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8250	0.6164 0.9863 0.8767 0.3973 0.5342 0.6027 0.6438 0.8082 0.8082 0.9041 0.8082 0.9315	0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813	0.7854 1.2490 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.8861 0.9912	0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490	6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662	8 8 8 8 8 8 8 8 8 8 8	36.00	Critical	Skew	Kurt
AT1-862 AT1-863 AT1-864 AT1-865 *AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Tes Shapiro-Wilk's	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8500 ts	0.6164 0.9863 0.8767 0.3973 0.5342 0.6027 0.6438 0.8082 0.9041 0.8082 0.9315	0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813	0.7854 1.2490 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.8861 0.9912	0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490	6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662	8 8 8 8 8 8 8 8 8 8 8 8 8 0.82292	36.00	Critical 0.844		Kurt 2.00921
AT1-862 AT1-863 AT1-864 AT1-865 *AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-873 Auxiliary Tes Shapiro-Wilk's F-Test indicat	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8500 ts	0.6164 0.9863 0.8767 0.3973 0.5342 0.6027 0.6438 0.8082 0.9041 0.8082 0.9315 ates non-r	0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813	0.7854 1.2490 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.8861 0.9912	0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490	6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662	8 8 8 8 8 8 8 8 8 8 8	36.00	Critical		
AT1-862 AT1-863 AT1-864 AT1-865 *AT1-866 AT1-868 AT1-869 AT1-871 AT1-872 AT1-873 Auxiliary Tes Shapiro-Wilk's	0.9125 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8500 ts Test indicates equal values (1-tail,	0.6164 0.9863 0.8767 0.3973 0.5342 0.6027 0.6438 0.8082 0.9041 0.8082 0.9315 ates non-riances (p	0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813	0.7854 1.2490 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.8861 0.9912 tribution (p	0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490	6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662	8 8 8 8 8 8 8 8 8 8 8 8 8 0.82292	36.00	Critical 0.844		

Reviewed by:

				Gro	wth and S	Survival	Test-Surv	ival				
Start Date:	12/10/202	1	Test ID:				Sample II		Swan Cre	ek		
End Date:	12/20/202		Lab ID:				Sample T		Sediment			
Sample Date:			Protocol:				Test Spec		HA-Hyale			
Comments:							•		•			
Conc-	1	2	3	4	5	6	7	8				
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000				
AT1-862		0.6000	0.6000	0.6000	0.6000	0.5000		0.5000				
AT1-863		0.9000	0.9000	0.9000	0.9000	0.9000		0.9000				
AT1-864		0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000				
AT1-865		0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000				
AT1-866		0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000				
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000				
AT1-868		0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000				
AT1-869		0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000				
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000				
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000				
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000				
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000				
			Tra	ansform:	Arcsin Sc	uare Ro	ot		1-Tailed			
Conc-		N-Mean [*]	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control	0.9125	1.0000	1.2694	1.2490	1.4120	4.539		· -				
AT1-862	0.5625	0.6164	0.8483	0.7854	0.8861	6.142						
AT1-863	0.9000	0.9863	1.2490	1.2490	1.2490	0.000						
AT1-864		0.8767	1.1104	0.9912	1.2490	6.231	8					
AT1-865		0.3973	0.6453	0.5796	0.6847	8.427						
AT1-866		0.5342	0.7728	0.6847	0.8861	8.349	8					
*AT1-867		0.6027	0.8363	0.6847	0.9912	11.268		11.091	1.761	0.0688		
AT1-868		0.6438	0.8735	0.7854	0.8861	4.075						
AT1-869		0.8082	1.0360	0.8861	1.1071	8.056						
AT1-870	0.7375	0.8082	1.0347	0.9912	1.1071	5.802						
AT1-871	0.8250	0.9041	1.1459	0.9912	1.2490	8.205						
AT1-872		0.8082	1.0393	0.8861	1.2490	10.662						
		0.9315	1.1813	0.9912	1.2490	8.471	8					
AT1-873							Statistic		Critical		Skew	Kurt
Auxiliary Test												
Auxiliary Test Shapiro-Wilk's	Test indica			tion (p > 0	.01)		0.87682		0.844		0.54053	1.07449
Auxiliary Test Shapiro-Wilk's F-Test indicate	Test indica	riances (p		ion (p > 0	.01)		2.67492		8.88539		0.54053	
Auxiliary Test Shapiro-Wilk's	Test indica es equal va est (1-tail,	riances (p 0.05)) = 0.22)		.01)		2.67492 M\$D u	MSDp 0.04689		MSE 0.0061		1.07449 df 1, 14

					vth and S	urvival 1	Test-Survi				
Start Date:	12/10/2021			TN-21-788			Sample ID		Swan Creek		
End Date:	12/20/2021	[Lab ID:				Sample Ty		Sediment		
Sample Date:			Protocol:				Test Speci	ies:	HA-Hyalella a	zteca	
Comments:							·				
Conc-	1	2	3	4	5	6	7	8			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870		0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
AT1-873		0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
			Tı	ansform: A	Arcsin So	uare Ro	ot	Rank	1-Tailed		
Сопс-	Меал	N-Mean [°]	Меап	Min	Max	CV%	N	Sum	Critical		
Control	0.9125	1.0000	1.2694	1.2490	1.4120	4.539	8				
AT1-862	0.5625	0.6164	0.8483	0.7854	0.8861	6.142	8				
AT1-863	0.9000	0.9863	1.2490	1.2490	1.2490	0.000	8				
AT1-864	0.8000	0.8767	1.1104	0.9912	1.2490	6.231	8				
AT1-865	0.3625	0.3973	0.6453	0.5796	0.6847	8.427	8				
AT1-866	0.4875	0.5342	0.7728	0.6847	0.8861	8.349	8				
AT1-867	0.5500	0.6027	0.8363	0.6847	0.9912	11.268	8				
*AT1-868	0.5875	0.6438	0.8735	0.7854	0.8861	4.075	8	36.00	51.00		
AT1-869	0.7375	0.8082	1.0360	0.8861	1.1071	8.056	8				
AT1-870	0.7375	0.8082	1.0347	0.9912	1.1071	5.802	8				
AT1-871	0.8250	0.9041	1.1459	0.9912	1.2490	8.205	8				
AT1-872	0.7375	0.8082	1.0393	0.8861	1.2490	10.662	8				
AT1-873	0.8500	0.9315	1.1813	0.9912	1.2490	8.471	8				
Auxiliary Test	ts	-"					Statistic		Critical	Skew	Kurt
Shapiro-Wilk's		tes non-	normal dis	tribution (p	<= 0.01)		0.72773		0.844	1.67003	6.62189
					•		2.62023		8.88539		
F-Test indicate	so equal val	1) 0001121	, o. <u>-</u> c,								
F-Test indicate Hypothesis T			<i>y</i> 0.20)								

		,-		Grov	wth and S	urvival 1	Test-Survi	val				
Start Date:	12/10/2021	1	Test ID:	TN-21-788			Sample II):	Swan Cre	ek		
End Date:	12/20/2021		Lab ID:				Sample T	уре:	Sediment	•		
Sample Date:			Protocol:				Test Spec	ies:	HA-Hyale	lla azteca		
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			•	
AT1-862		0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000				
AT1-863		0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-864		0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000				
AT1-865		0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000				
AT1-866		0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000				
AT1-867		0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000				
AT1-868		0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000				
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000				
AT1-870		0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000				
AT1-871		0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000				
AT1-872		0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000				
AT1-873		0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000				
			Tı	ansform:	Arcsin Sc				1-Tailed			
Conc-	Mean	N-Mean	Меап	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control	0.9125	1.0000	1.2694	1.2490	1.4120	4.539	8					
AT1-862	0.5625	0.6164	0.8483	0.7854	0.8861	6.142	8					
AT1-863		0.9863	1.2490	1.2490	1.2490	0.000	8					
AT1-864	0.8000	0.8767	1.1104	0.9912	1.2490	6.231	8					
AT1-865		0.3973	0.6453	0.5796	0.6847	8.427	8					
AT1-866		0.5342	0.7728	0.6847	0.8861	8.349	8					
AT1-867		0.6027	0.8363	0.6847	0.9912	11.268	8					
AT1-868		0.6438	0.8735	0.7854	0.8861	4.075	8					
*AT1-869		0.8082	1.0360	0.8861	1.1071	8.056	8	6.509	1.761	0.0632		
		0.8082	1.0347	0.9912	1.1071	5.802	8					
AT1-870			4 4 4 5 0	0.0043	1.2490	8.205	8					
AT1-870 AT1-871		0.9041	1.1459	0.9912								
AT1-871 AT1-872	0.7375	0.8082	1.0393	0.8861	1.2490	10.662	8					
AT1-871 AT1-872 AT1-873	0.7375 0.8500						8 8					
AT1-871 AT1-872 AT1-873 Auxiliary Tes	0.7375 0.8500 ts	0.8082 0.9315	1.0393 1.1813	0.8861 0.9912	1.2490 1.2490	10.662	8 8 Statistic		Critical		Skew	Kurt
AT1-871 AT1-872 AT1-873 Auxiliary Tes Shapiro-Wilk's	0.7375 0.8500 ts Test indica	0.8082 0.9315 ates norm	1.0393 1.1813 nal distribu	0.8861 0.9912	1.2490 1.2490	10.662	8 8 Statistic 0.87534	-,	0.844		Skew 0.14623	Kurt 0.76592
AT1-871 AT1-872 AT1-873 Auxiliary Tes Shapiro-Wilk's F-Test indicat	0.7375 0.8500 ts Test indicates equal va	0.8082 0.9315 ates norm	1.0393 1.1813 nal distribu	0.8861 0.9912	1.2490 1.2490	10.662	8 8 Statistic 0.87534 2.09808		0.844 8.88539		0.14623	0.76592
AT1-871 AT1-872 AT1-873 Auxiliary Tes Shapiro-Wilk's	0.7375 0.8500 ts s Test indica es equal va rest (1-tail,	0.8082 0.9315 ates norm riances (p	1.0393 1.1813 nal distribu nal = 0.35)	0.8861 0.9912 tion (p > 0.	1.2490 1.2490	10.662	8 8 Statistic 0.87534	MSDp 0.04276	0.844	MSE 0.00514	0.14623 F-Prob	

				Gro	wth and S	Survival	Test-Survi	val			
Start Date:	12/10/202	21	Test ID:	TN-21-788	}		Sample ID):	Swan Creek		
End Date:	12/20/202		Lab ID:				Sample Ty	/pe:	Sediment		
Sample Date:			Protocol:				Test Spec		HA-Hyalella a	ezteca	
Comments:							•		•		
Conc-	1	2	3	4	5	6	7	8			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
AT1-862		0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-863		0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-864		0.8000	0.7000		0.9000	0.8000	0.8000	0.8000			
AT1-865		0.4000	0.4000		0.3000	0.4000	0.3000	0.3000			
AT1-866		0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867		0.6000	0.5000		0.7000	0.5000	0.4000	0.5000			
AT1-868		0.6000	0.6000		0.6000	0.6000	0.6000	0.6000			
AT1-869		0.7000	0.8000		0.8000	0.6000	0.7000	0.8000			
AT1-870		0.8000	0.8000		0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000		0.9000	0.8000	0.9000	0.8000			
AT1-872		0.7000	0.9000		0.7000	0.6000	0.7000	0.7000			
AT1-873		0.8000	0.9000		0.8000	0.9000	0.9000	0.9000			
				ransform:				Rank	1-Tailed		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
Control		1.0000	1.2694		1.4120	4.539	8				
AT1-862		0.6164	0.8483		0.8861	6.142	8				
AT1-863	0.9000	0.9863	1.2490	1.2490	1.2490	0.000	8				
AT1 - 864	0.8000	0.8767	1.1104	0.9912	1.2490	6.231	8			,	
AT1-865		0.3973	0.6453		0.6847	8.427	8				
AT1-866		0.5342	0.7728		0.8861	8.349	8				
AT1 - 867		0.6027	0.8363		0.9912	11.268	8				
AT1-868	0.5875	0.6438	0.8735	0.7854	0.8861	4.075	8				
AT1-869	0.7375	0.8082	1.0360	0.8861	1.1071	8.056	8				
*AT1-870	0.7375	0.8082	1.0347	0.9912	1.1071	5.802	8	36.00	51.00		
AT1-871	0.8250	0.9041	1.1459	0.9912	1.2490	8.205	8				
AT1-872		0.8082	1.0393	0.8861	1.2490	10.662	8				
AT1-873	0.8500	0.9315	1.1813	0.9912	1.2490	8.471	8				
Auxiliary Test							Statistic		Critical	Skew	Kurt
Shapiro-Wilk's	Test indic	ates non-	normal dis	stribution (p	<= 0.01)		0.72407		0.844	1.48182	1.21055
F-Test indicate			p = 0.92				1.08551		8.88539		
Hypothesis T	est (1-tail.	0.05)									

Start Date: End Date:	12/10/202	4									
Sample Date: Comments:	12/20/202		Lab ID: Protocol:	TN-21-788	3		Sample ID Sample Ty Test Spec	ype:	Swan Creek Sediment HA-Hyalella az	rteca	
Conc-	1	2	3	4	5	6	7	8	, .	<u></u>	
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
<u> </u>			Tra	ansform:	Arcsin Sc			Rank	1-Tailed	· · · · · · · · · · · · · · · · · · ·	
Conc-	Mean	N-Mean ⁻	Mean	Min	Max	CV%	N	Sum	Critical		
Control	0.9125	1.0000	1.2694	1.2490	1.4120	4.539	8				
AT1-862	0.5625	0.6164	0.8483	0.7854	0.8861	6.142	8				
AT1-863	0.9000	0.9863	1.2490	1.2490	1.2490	0.000	8				
AT1-864	0.8000	0.8767	1.1104	0.9912	1.2490	6.231	8				
AT1-865	0.3625	0.3973	0.6453	0.5796	0.6847	8.427	8				
AT1-866	0.4875	0.5342	0.7728	0.6847	0.8861	8.349	8				
AT1-867	0.5500	0.6027	0.8363	0.6847	0.9912	11.268	8				
AT1-868	0.5875	0.6438	0.8735	0.7854	0.8861	4.075	8				
AT1-869	0.7375	0.8082	1.0360	0.8861	1.1071	8.056	8				
AT1-870	0.7375	0.8082	1.0347	0.9912	1.1071	5.802	8				
*AT1-871	0.8250	0.9041	1.1459	0.9912	1.2490	8.205	8	46.50	51.00		
AT1-872	0. 7 375	0.8082	1.0393	0.8861	1.2490	10.662	8				
AT1-873	0.8500	0.9315	1.1813	0.9912	1.2490	8.471	8				
uxiliary Tests							Statistic		Critical	Skew	Kurt
hapiro-Wilk's				ribution (p	<= 0.01)		0.81235		0.844	0.39249	0.4277
-Test indicate:					,		2.66226		8.88539	3.33210	J
ypothesis Te	st (1-tail, 0 Sample Te					_				····	

Start Date:	12/10/202	1	Toet ID:	TN-21-788		, a, , , , a,	Fest-Survit Sample ID		Swan Creek		
End Date:	12/10/202		Lab ID:	111-21-700	,		Sample Ty		Sediment		
Sample Date:	12/20/202		Protocol:				Test Spec		HA-Hyalella	a zt ana	
Comments:			i iolocoi.				rest opec	163.	i iA-i iyalella	azi o ca	
Conc-	1	2	3	4	5	6	7	8			
Control		0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			····
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000					
AT 1-864 AT 1-865	0.4000	0.4000	0.7000	0.4000	0.3000	0.4000	0.8000	0.8000			
AT1-866	0.4000	0.4000	0.6000	0.4000	0.5000	0.4000	0.3000	0.3000			
							0.5000	0.5000			
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000	,		
_				ansform:				Rank	1-Tailed		
Conc-		N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
Control	0.9125	1.0000	1.2694	1.2490	1.4120	4.539	8				
AT1-862	0.5625	0.6164	0.8483	0.7854	0.8861	6.142	8				
AT1-863	0.9000	0.9863	1.2490	1.2490	1.2490	0.000	8				
AT1-864	0.8000	0.8767	1.110 4	0.9912	1.2490	6.231	8				
AT1-865	0.3625	0.3973	0.6453	0.5796	0.6847	8.427	8				
AT1-866	0.4875	0.5342	0.7728	0.6847	0.8861	8.349	8				
AT1-867	0.5500	0.6027	0.8363	0.6847	0.9912	11.268	8				
AT1-868	0.5875	0.6438	0.8735	0.7854	0.8861	4.075	8				
AT1-869	0.7375	0.8082	1.0360	0.8861	1.1071	8.056	8				
AT1-870	0.7375	0.8082	1.0347	0.9912	1.1071	5.802	8				
AT1-871	0.8250	0.9041	1.1459	0.9912	1.2490	8.205	8				
*AT1-872	0.7375	0.8082	1.0393	0.8861	1.2490	10.662	8	39.50	51.00		
	0.8500	0.9315	1.1813	0.9912	1.2490	8.471	8				
AT1-873	S						Statistic		Critical	Skew	Kurt
		tee non-r	ormal dist	ribution (p	<= 0.01)		0.8353		0.844	1.06246	
AT1-873 Auxiliary Test Shapiro-Wilk's	Test indica	ares mon-i	continue alo								
Auxiliary Test					·		3.6984		8.88539		

Reviewed by:

				Gro	wth and	Survival	Test-Sur	vival			-	
Start Date:	12/10/20:			TN-21-78	8	-	Sample		Swan C	reek		
End Date:	12/20/20:	21	Lab ID:				Sample	Type:	Sedime			
Sample Date:			Protocol:				Test Spe	ecies:		lelia aztec	а	
Comments:									•		-	
Conc-	1	2	3	4	5	6	7	8		_		-
Control		0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000	 _			
AT1-862		0.6000	0.6000	0.6000	0.6000	0.5000	0.5000					
AT1-863	_	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000					
AT1-864		0.8000	0.7000	0.8000	0.9000	0.8000	0.8000					
AT1-865		0.4000	0.4000	0.4000	0.3000	0.4000	0.3000					
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000					
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000					
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000					
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000					
AT1 - 870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000					
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	_				
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000					
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000					
· · · · · · · · ·				ansform:		uare Ro	0.3000	0.9000	1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	- t-Stat	Critical			
Control	0.9125	1.0000	1.2694	1.2490	1.4120	4.539	8		Ontrogi	WOD		
AT1-862	0.5625	0.6164	0.8483	0.7854	0.8861	6.142	8					
AT1-863	0.9000	0.9863	1.2490	1.2490	1.2490	0.000	8					
AT1-864	0.8000	0.8767	1.1104	0.9912	1.2490	6.231	8					
AT1-865	0.3625	0.3973	0.6453	0.5796	0.6847	8.427	8					
AT1-866	0.4875	0.5342	0.7728	0.6847	0.8861	8.349	8					
AT1 - 867	0.5500	0.6027	0.8363	0.6847	0.9912	11.268	8					
AT1-868	0.5875	0.6438	0.8735	0.7854	0.8861	4.075	8					
AT1-869	0.7375	0.8082	1.0360	0.8861	1.1071	8.056	8					
AT1-870	0.7375	0.8082	1.0347	0.9912	1.1071	5.802	8					
711 1 070		0.0044	1.1459	0.9912	1.2490	8.205	8					
AT1-871	0.8250	0.9041	1. 1 4 09				U					
	0.8250 0.7375											
AT1-871	0.7375	0.8082	1.0393	0.8861	1.2490	10.662	8	2 457	4.704	0.0740		
AT1-871 AT1-872 *AT1-873	0.7375 0.8500					10.662 8.471	8 8	2.157	1.761	0.0719		
AT1-871 AT1-872 *AT1-873 Auxiliary Tests	0.7375 0.8500	0.8082 0.9315	1.0393 1.1813	0.8861 0.991 <u>2</u>	1.2490 1.2490	10.662 8.471	8 8 Statistic	2.157	Critical	0.0719	Skew	Kurt
AT1-871 AT1-872 *AT1-873 Auxiliary Tests Shapiro-Wilk's	0.7375 0.8500 Test indica	0.8082 0.9315	1.0393 1.1813	0.8861 0.991 <u>2</u>	1.2490 1.2490	10.662 8.471	8 8 Statistic 0.89721		Critical 0.844	0.0719	Skew -0.5126	Kurt 1.15065
AT1-871 AT1-872 *AT1-873 Auxiliary Tests Shapiro-Wilk's F-Test indicates	0.7375 0.8500 Test indicas equal var	0.8082 0.9315 ates norma	1.0393 1.1813	0.8861 0.991 <u>2</u>	1.2490 1.2490	10.662 8.471	8 8 Statistic 0.89721 3.01637		Critical 0.844 8.88539		-0.5126	1.15065
AT1-871 AT1-872	0.7375 0.8500 s Test indica s equal var st (1-tail, (0.8082 0.9315 ates norma iances (p	1.0393 1.1813 al distributi = 0.17)	0.8861 0.9912 on (p > 0.0	1.2490 1.2490	10.662 8.471	8 8 Statistic 0.89721 3.01637 MSDu		0.844 8.88539 MSB	MSE	-0.5126 F-Prob	

			···	Gro	wth and	Survival	Test-Grow	/th				
Start Date:	12/10/202	1	Test ID:	TN-21-788	}		Sample ID):	Swan Cre			
End Date:	12/20/202	:1	Lab ID:				Sample Ty	/pe:	Sediment			
Sample Date:			Protocol:				Test Spec	ies:	HA-Hyalel	lla azteca		
Comments:												
Conc-	1	2	3	4	5	6	7	8		\$.D.		
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022		0.01968		
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620		0.01392		
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956		0.0066		
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775		0.01764		
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100		0.02208		
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860		0.0227		
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640		0.03458		
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650		0.00932		
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325		0.01276		
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486		0.01022		
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413		0.00754		
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586		0.01354		
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633		0.02156		
				Transform	n: Untran			Rank	1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical			
Control	0.1249	1.0000	0.1249	0.1022	0.1544	15.754						
*AT1-862	0.0663	0.5302	0.0663	0.0417	0.0900	21.013	8	36.00	47.00			
*AT1-863		0.7926	0.0990	0.0922	0.1089	6.663	8	43.50	47.00			
*AT1-864		0.6331	0.0791	0.0575	0.1157	22.298	8	39.00	47.00			
*AT1-865		0.5311	0.0664	0.0475	0.1100	33.281	8	39.00	47.00			
*AT1-866		0.5126	0.0640	0.0333	0.0925	35.445	8	36.00	47.00			
*AT1-867		0.4451	0.0556	0.0200	0.1350	62.180	8	40.00	47.00			
*AT1-868		0.4118	0.0515	0.0400	0.0650	18.111	8	36.00	47.00			
*AT1-869		0.2325	0.0291	0.0138	0.0486	43.921	8	36.00	47.00			
*AT1-870	0.0314	0.2512	0.0314	0.0157	0.0486	32.559	8	36.00	47.00			
*AT1-871	0.0426	0.3413	0.0426	0.0300	0.0578	17.690	8	36.00	47.00			
*AT1-872	0.0527	0.4218	0.0527	0.0288	0.0714	25.699	8	36.00	47.00			
*AT1-873	0.0645	0.5164	0.0645	0.0389	0.1071	33.418	8	39.00	47.00			
Auxiliary Tes	ts						Statistic		Critical		Skew	Kurt
Kolmogorov D							1.10656		1.035		1.23919	4.18444
Bartlett's Test			riances (p	= 4.98E-0	04)		34.8347		26.217			
Hypothesis T	est (1-tail,	0.05)										

Wilcoxon Rank Sum Test indicates significant differences

***			"	Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/10/202	1	Test ID:	TN-21-788			Sample II		Swan Cre	ek		
End Date:	12/20/202		Lab ID:				Sample Ty		Sediment			
Sample Date:			Protocol:				Test Spec		HA-Hyale	lla azteca		
Comments:							•		-			
Conc-	1	2	3	4	5	6	7	8				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-864		0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
		-		Transforn	n: Untran	sformed			1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control	0.1249	1.0000	0.1249	0.1022	0.1544	15.754						
*AT1-862	0.0663	0.5302	0.0663	0.0417	0.0900	21.013	0	6.886	1.761	0.0150		
7	0.0003						8					
AT1-863	0.0990	0.7926	0.0990	0.0922	0.1089	6.663	8					
	0.0990		0.0791	0.0922 0.0575	0.1157	6.663 22.298	8 8					
AT1-863 AT1-864 AT1-865	0.0990 0.0791 0.0664	0.7926 0.6331 0.5311	0.0791 0.0664	0.0922 0.0575 0.0475	0.1157 0.1100	6.663 22.298 33.281	8 8 8					
AT1-863 AT1-864 AT1-865 AT1-866	0.0990 0.0791	0.7926 0.6331 0.5311 0.5126	0.0791 0.0664 0.0640	0.0922 0.0575 0.0475 0.0333	0.1157 0.1100 0.0925	6.663 22.298 33.281 35.445	8 8 8					
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.0990 0.0791 0.0664 0.0640 0.0556	0.7926 0.6331 0.5311 0.5126 0.4451	0.0791 0.0664 0.0640 0.0556	0.0922 0.0575 0.0475 0.0333 0.0200	0.1157 0.1100 0.0925 0.1350	6.663 22.298 33.281 35.445 62.180	8 8 8 8					
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	0.7926 0.6331 0.5311 0.5126 0.4451 0.4118	0.0791 0.0664 0.0640 0.0556 0.0515	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400	0.1157 0.1100 0.0925 0.1350 0.0650	6.663 22.298 33.281 35.445 62.180 18.111	8 8 8 8 8					
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.0922 0.0575 0.0475 0.0333 0.0200	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	6.663 22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8					
AT1-863 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8 8	****				
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8					
AT1-863 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8					
AT1-863 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8 8 8 8					
AT1-863 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8		Critical		Skew	Kurt
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-872 AT1-873 Auxiliary Tes	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 7 8 9 9 9 9		Critical 0.844		Skew -0.0278	Kurt -0.742
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Tesi Shapiro-Wilk's F-Test indicate	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 ts	0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 Statistic 0.94724 1.9993		Critical 0.844 8.88539		-0.0278	-0.742
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Tes	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 s Test indicates equal valuest (1-tail,	0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164 ates normances (p	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 7 8 9 9 9 9	MSDp	Critical 0.844 8.88539 MSB	MSE		

				Gro	wth and	Survival	Test-Grov	wth				
Start Date:	12/10/202	1	Test ID:	TN-21-788			Sample II	D:	Swan Cre	ek		
End Date:	12/20/202		Lab ID:				Sample T	ype:	Sediment			
Sample Date:			Protocol:				Test Spec	cies:	HA-Hyale	lla azteca		
Comments:							•		-			
Conc-	1	2	3	4	5	6	7	8				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
				Transform	n: Untran	sformed			1-Tailed			
Сопс-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control		1.0000	0.1249	0.1022	0.1544	15.754						
AT1-862	0.0663	0.5302	0.0663	0.0417	0.0900	21.013	8					
*AT1-863	0.0990	0.7926	0.0990	0.0922	0.1089	6.663	8	3.531	1.860	0.0136		
AT1-864		0.6331	0.0791	0.0575	0.1157	22.298	8					
AT1-865		0.5311	0.0664	0.0475	0.1100	33.281	8					
AT1-866		0.5126	0.0640	0.0333	0.0925	35.445	8					
AT1-867		0.4451	0.0556	0.0200	0.1350	62.180	8					
AT1-868	0.0515	0.4118	0.0515	0.0400	0.0650	18.111	8					
AT1-869	0.0291	0.2325		0.0138	0.0486	43.921	8					
AT1-870	0.0314	0.2512	0.0314	0.0157	0.0486	32.559	8					
AT1-871	0.0426	0.3413	0.0426	0.0300	0.0578	17.690	8					
AT1-872	0.0527	0.4218	0.0527	0.0288	0.0714	25.699	8		,			
AT1-873	0.0645	0.5164	0.0645	0.0389	0.1071	33.418	8					
Auxiliary Test							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's					01)		0.94532		0.844	· · · · · · · · · · · · · · · · · · ·	0.02346	0.02624
F-Test indicate			s(p = 9.95)	E-03)			8.899		8.88539			
Hypothesis Te							MSDu	MSDp	M\$B	MSE	F-Prob	df
Heteroscedast	tic t Test ind	dicates s	ignificant d	lifferences			0.01365	0.10924	0.00269	0.00022	0.00332	1, 14

1.00				Gro	wth and	Survival	Test-Grov	wth				<u></u>
Start Date:	12/10/2021	1	Test ID:	TN-21-788			Sample II	D:	Swan Cre	ek		
End Date:	12/20/2021		Lab ID:				Sample T	уре:	Sediment			
Sample Date:			Protocol:				Test Spec	cies:	HA-Hyale	lla azteca		
Comments:											_	
Conc-	1	2	3	4	5	6	7	8				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433		0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869		0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
				Transform	ı: Untran				1-Tailed			
Conc-	Mean	N-Mean	Меал	Міл	Max	CV%	N	t-Stat	Critical	MSD		
Control	0.1249	1.0000	0.1249		0.1544	15.754						
AT1-862		0.5302	0.0663	0.0417	0.0900	21.013	8					
AT1-863		0.7926	0.0990	0.0922	0.1089	6.663	8					
*AT1-864	0.0791	0.6331	0.0791	0.0575	0.1157	22.298	8	4.906	1.761	0.0165		
AT1-865		0.5311	0.0664	0.0475	0.1100	33.281	8					
AT1-866	0.0640	0.5126		0.0333	0.0925	35.445	8					
AT1-867	0.0556	0.4451	0.0556	0.0200	0.1350	62.180	8					
AT1-868	0.0515	0.4118		0.0400	0.0650	18.111	8					
AT1-869		0.2325		0.0138	0.0486	43.921	8					
AT1-870	0.0314	0.2512		0.0157	0.0486	32.559	8					
AT1-871	0.0426	0.3413		0.0300	0.0578	17.690	8					
AT1 - 872	0.0527	0.4218		0.0288	0.0714	25.699	8					
AT1-873		0.5164	0.0645	0.0389	0.1071	33.418						
Auxiliary Tes							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's				ition (p > 0.	01)		0.93095		0.844		0.51504	-0.3752
F-Test indicate			p = 0.78				1.24557		8.88539			
Hypothesis T							MSDu	MSDp	MSB	MSE	F-Prob	df
Hamanandant	ic t Test ind	icatae ei	nnificant d	ifferences			0.01646	0.13173	0.00841	0.00035	2 3F-04	1, 14

			*	Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/10/202	1	Test ID:	TN-21-788			Sample II		Swan Cre	ek		
End Date:	12/20/202		Lab ID:				Sample Ty		Sediment			
Sample Date:			Protocol:				Test Spec			lla azteca		
Comments:												
Conc-	1	2	3	4	5	6	7	8				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
				Transforn	n: Untran:	sformed			1-Tailed			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control	0.1249	1.0000	0.1249	0.1022	0.1544	15.754	8					
AT1-862	0.0663	0.5302	0.0663	0.0417	0.0900	21.013						
							8					
AT1-863	0.0990	0.7926	0.0990	0.0922	0.1089	6.663	8					
AT1-863 AT1-864	0.0990 0.0791	0.7926 0.6331	0.0791	0.0575		6.663 22.298	8 8					
	0.0990	0.7926 0.6331 0.5311	0.0791 0.0664	0.0575 0.0475	0.1089 0.1157 0.1100	6.663 22.298 33.281	8 8 8	5.602	1.761	0.0184		
AT1-864 *AT1-865 AT1-866	0.0990 0.0791 0.0664 0.0640	0.7926 0.6331 0.5311 0.5126	0.0791 0.0664 0.0640	0.0575 0.0475 0.0333	0.1089 0.1157 0.1100 0.0925	6.663 22.298 33.281 35.445	8 8 8	5.602	1.761	0.0184		
AT1-864 *AT1-865 AT1-866 AT1-867	0.0990 0.0791 0.0664 0.0640 0.0556	0.7926 0.6331 0.5311 0.5126 0.4451	0.0791 0.0664 0.0640 0.0556	0.0575 0.0475 0.0333 0.0200	0.1089 0.1157 0.1100 0.0925 0.1350	6.663 22.298 33.281 35.445 62.180	8 8 8 8	5.602	1.761	0.0184		
AT1-864 *AT1-865 AT1-866 AT1-867 AT1-868	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	0.7926 0.6331 0.5311 0.5126 0.4451 0.4118	0.0791 0.0664 0.0640 0.0556 0.0515	0.0575 0.0475 0.0333 0.0200 0.0400	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650	6.663 22.298 33.281 35.445 62.180 18.111	8 8 8 8 8	5.602	1.761	0.0184		
AT1-864 *AT1-865 AT1-866 AT1-867	0.0990 0.0791 0.0664 0.0640 0.0556	0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	6.663 22.298 33.281 35.445 62.180	8 8 8 8 8	5.602	1.761	0.0184		
AT1-864 *AT1-865 AT1-866 AT1-867 AT1-868	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	0.7926 0.6331 0.5311 0.5126 0.4451 0.4118	0.0791 0.0664 0.0640 0.0556 0.0515	0.0575 0.0475 0.0333 0.0200 0.0400	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650	6.663 22.298 33.281 35.445 62.180 18.111	8 8 8 8 8 8 8	5.602	1.761	0.0184		
AT1-864 *AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8	5.602	1.761	0.0184		
AT1-864 *AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8 8 8	5.602	1.761	0.0184		
AT1-864 *AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8 8 8 8	5.602		0.0184		
AT1-864 *AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8	5.602	Critical	0.0184	Skew	Kurt
AT1-864 *AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	5.602	Critical 0.844	0.0184	Skew 0.57755	Kurt -0.3837
AT1-864 *AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-873 Auxiliary Test Shapiro-Wilk's	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 is Test indicates equal var	0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 Statistic 0.88464 1.25865		Critical 0.844 8.88539		0.57755	-0.3837
AT1-864 *AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 Es Test indicates equal valuest (1-tail,	0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164 etes norm riances (p	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 Statistic 0.88464 1.25865 MSDu	MSDp	Critical 0.844	MSE		

				Gro	wth and	Survival	Test-Grov	wth				
Start Date:	12/10/202	1	Test ID:	TN-21-788	}		Sample II):	Swan Cre	ek		
End Date:	12/20/202	1	Lab ID:				Sample T	уре:	Sediment			
Sample Date:			Protocol:				Test Spec	cies:	HA-Hyale	lla azteca		
Comments:												
Сопс-	1	2	3	4	5	6	7	8				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
		_		Transforn	n: Untran	sformed			1-Tailed			
Сопс-	Меап	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control	0 10 10		0 10 10									
		1.0000	0.1249	0.1022	0.1544	15.754	8					
AT1-862	0.0663	0.5302	0.0663	0.0417	0.0900	21.013	8					
AT1-862 AT1-863	0.0663 0.0990	0.5302 0.7926	0.0663 0.0990	0.0417 0.0922	0.0900 0.1089	21.013 6.663	8 8					
AT1-862 AT1-863 AT1-864	0.0663 0.0990 0.0791	0.5302 0.7926 0.6331	0.0663 0.0990 0.0791	0.0417 0.0922 0.0575	0.0900 0.1089 0.1157	21.013 6.663 22.298	8 8 8					
AT1-862 AT1-863 AT1-864 AT1-865	0.0663 0.0990 0.0791 0.0664	0.5302 0.7926 0.6331 0.5311	0.0663 0.0990 0.0791 0.0664	0.0417 0.0922 0.0575 0.0475	0.0900 0.1089 0.1157 0.1100	21.013 6.663 22.298 33.281	8 8 8					
AT1-862 AT1-863 AT1-864	0.0663 0.0990 0.0791 0.0664	0.5302 0.7926 0.6331	0.0663 0.0990 0.0791	0.0417 0.0922 0.0575 0.0475 0.0333	0.0900 0.1089 0.1157 0.1100 0.0925	21.013 6.663 22.298	8 8 8 8	5.733	1.761	0.0187		
AT1-862 AT1-863 AT1-864 AT1-865 *AT1-866 AT1-867	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	0.5302 0.7926 0.6331 0.5311 0.5126 0.4451	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	0.0417 0.0922 0.0575 0.0475 0.0333 0.0200	0.0900 0.1089 0.1157 0.1100 0.0925 0.1350	21.013 6.663 22.298 33.281 35.445 62.180	8 8 8 8 8	5.733	1.761	0.0187		
AT1-862 AT1-863 AT1-864 AT1-865 *AT1-866	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	0.5302 0.7926 0.6331 0.5311 0.5126	0.0663 0.0990 0.0791 0.0664 0.0640	0.0417 0.0922 0.0575 0.0475 0.0333	0.0900 0.1089 0.1157 0.1100 0.0925	21.013 6.663 22.298 33.281 35.445	8 8 8 8 8 8	5.733	1.761	0.0187		
AT1-862 AT1-863 AT1-864 AT1-865 *AT1-866 AT1-867	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	0.5302 0.7926 0.6331 0.5311 0.5126 0.4451	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	0.0417 0.0922 0.0575 0.0475 0.0333 0.0200	0.0900 0.1089 0.1157 0.1100 0.0925 0.1350	21.013 6.663 22.298 33.281 35.445 62.180	8 8 8 8 8	5.733	1.761	0.0187		
AT1-862 AT1-863 AT1-864 AT1-865 *AT1-866 AT1-867 AT1-868	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8	5.733	1.761	0.0187		
AT1-862 AT1-863 AT1-864 AT1-865 *AT1-866 AT1-868 AT1-869 AT1-870 AT1-871	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8	5.733	1.761	0.0187		
AT1-862 AT1-863 AT1-864 AT1-865 *AT1-866 AT1-868 AT1-869 AT1-870	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8 8 8	5.733	1.761	0.0187		
AT1-862 AT1-863 AT1-864 AT1-865 *AT1-866 AT1-868 AT1-869 AT1-870 AT1-871	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8 8 8 8	5.733		0.0187		
AT1-862 AT1-863 AT1-864 AT1-865 *AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8	5.733	Critical	0.0187	Skew	Kurt
AT1-862 AT1-863 AT1-864 AT1-865 *AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 0.91242	5.733	Critical 0.844	0.0187	Skew 0.02031	Kurt -1.5047
AT1-862 AT1-863 AT1-864 AT1-865 *AT1-866 AT1-868 AT1-869 AT1-870 AT1-872 AT1-873 Auxiliary Test Shapiro-Wilk's F-Test indicate	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 ts Test indices equal variance	0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 9 Statistic 0.91242 1.32986		Critical 0.844 8.88539		0.02031	-1.5047
AT1-862 AT1-863 AT1-864 AT1-865 *AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 ts Test indices equal valuest (1-tail,	0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164 attes norm	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 0.91242	MSDp	Critical 0.844 8.88539 MSB	0.0187 MSE 0.00045	0.02031 F-Prob	

- : -				Gre	owth and	Survival	Test-Gro	wth			- -	· .
Start Date:	12/10/202	!1	Test ID:	TN-21-78			Sample II	_	Swan Cr	eek		
End Date:	12/20/202		Lab ID:				Sample T		Sedimen			
Sample Date:			Protocol:				Test Spec			 ella azteca	1	
Comments:									· · · · · · · · · · · ·	ond deloce	•	
Conc-	1	2	3	4	5	6	7	8	··· .			
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900		0.0620				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
		_		Transform	n: Untran	sformed			1-Tailed	_	_	
Conc-												
		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control	0.1249	1.0000	Mean 0.1249	Min 0.1022	Max 0.1544	CV% 15.754	N 8	t-Stat	Critical	MSD	·	<u>.</u>
Control AT1-862					_		8	t-Stat	Critical	MSD	·	. <u>.</u>
Control AT1-862 AT1-863	0.1249 0.0663 0.0990	1.0000 0.5302 0.7926	0.1249	0.1022	0.1544	15.754	8 8	t-Stat	Critical	MSD		
Control AT1-862 AT1-863 AT1-864	0.1249 0.0663 0.0990 0.0791	1.0000 0.5302 0.7926 0.6331	0.1249 0.0663	0.1022 0.0417	0.1544 0.0900	15.754 21.013	8	t-Stat	Critical	MSD	<u>.</u>	<u></u>
Control AT1-862 AT1-863 AT1-864 AT1-865	0.1249 0.0663 0.0990 0.0791 0.0664	1.0000 0.5302 0.7926 0.6331 0.5311	0.1249 0.0663 0.0990	0.1022 0.0417 0.0922	0.1544 0.0900 0.1089	15.754 21.013 6.663	8 8 8	t-Stat	Critical	MSD		
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126	0.1249 0.0663 0.0990 0.0791	0.1022 0.0417 0.0922 0.0575	0.1544 0.0900 0.1089 0.1157	15.754 21.013 6.663 22.298	8 8 8	t-Stat	Critical	MSD		
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 *AT1-867	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451	0.1249 0.0663 0.0990 0.0791 0.0664	0.1022 0.0417 0.0922 0.0575 0.0475	0.1544 0.0900 0.1089 0.1157 0.1100	15.754 21.013 6.663 22.298 33.281	8 8 8 8	t-Stat	Critical			
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 *AT1-867 AT1-868	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925	15.754 21.013 6.663 22.298 33.281 35.445	8 8 8 8 8			MSD 0.0248		
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 *AT1-867 AT1-868 AT1-869	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350	15.754 21.013 6.663 22.298 33.281 35.445 62.180	8 8 8 8 8 8					
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 *AT1-867 AT1-868 AT1-869 AT1-870	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111	8 8 8 8 8 8 8					
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 *AT1-867 AT1-868 AT1-869 AT1-870	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8 8					
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 *AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8 8					
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 *AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8 8 8					
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 *AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Tests	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.2325 0.2512 0.3413 0.4218 0.5164	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8				Skew	Kurt
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 *AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Tests Shapiro-Wilk's	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 s	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		1.761		Skew 1.68648	Kurt 4.14505
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 *AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Tests Shapiro-Wilk's F-Test indicate	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 s	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8 8		1.761		Skew 1.68648	Kurt 4.14505
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 *AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Tests Shapiro-Wilk's	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 Test indicase equal valuet (1-tail, 0.45)	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164 ates normatices (p. 0.05)	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		1.761 Critical 0.844			

				Gro	wth and	Survival	Test-Gro	wth				
Start Date:	12/10/202	1	Test ID:	TN-21-788			Sample II		Swan Cre	eek		
End Date:	12/20/202	1	Lab ID:				Sample T	ype:	Sediment	ţ		
Sample Date:			Protocol:				Test Spec		HA-Hyale	lla azteca		
Comments:							•		•			
Conc-	1	2	3	4	5	6	7	8				· · · · · · · · · · · · · · · · · · ·
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872		0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
				Transform					1-Tailed			
C		-										
Сопс-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control	0.1249	1.0000	0.1249	0.1022	0.1544	15.754	N 8	t-Stat	Critical	MSD		
Control AT1-862	0.1249 0.0663	1.0000 0.5302	0.1249 0.0663	0.1022 0.0417	0.1544 0.0900			t-Stat	Critical	MSD		
Control	0.1249	1.0000	0.1249	0.1022	0.1544	15.754	8	t-Stat	Critical	MSD		
Control AT1-862 AT1-863 AT1-864	0.1249 0.0663 0.0990 0.0791	1.0000 0.5302 0.7926 0.6331	0.1249 0.0663	0.1022 0.0417	0.1544 0.0900	15.754 21.013	8 8	t-Stat	Critical	MSD		
Control AT1-862 AT1-863	0.1249 0.0663 0.0990	1.0000 0.5302 0.7926	0.1249 0.0663 0.0990	0.1022 0.0417 0.0922	0.1544 0.0900 0.1089	15.754 21.013 6.663	8 8 8	t-Stat	Critical	MSD		
Control AT1-862 AT1-863 AT1-864	0.1249 0.0663 0.0990 0.0791	1.0000 0.5302 0.7926 0.6331	0.1249 0.0663 0.0990 0.0791	0.1022 0.0417 0.0922 0.0575	0.1544 0.0900 0.1089 0.1157	15.754 21.013 6.663 22.298	8 8 8	t-Stat	Critical	MSD		
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451	0.1249 0.0663 0.0990 0.0791 0.0664	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350	15.754 21.013 6.663 22.298 33.281	8 8 8 8	t-Stat	Critical	MSD		
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 *AT1-868	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925	15.754 21.013 6.663 22.298 33.281 35.445	8 8 8 8 8	t-Stat 9.544	Critical	MSD 0.0136		
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350	15.754 21.013 6.663 22.298 33.281 35.445 62.180	8 8 8 8 8					
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 *AT1-868	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111	8 8 8 8 8 8					
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 *AT1-868 AT1-869	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8 8					
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 *AT1-868 AT1-869 AT1-870	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8 8					
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 *AT1-868 AT1-869 AT1-870	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8 8					
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 *AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8				Skew	Kurt
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8		1.761		Skew 0.052	Kurt -0.4726
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 *AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test Shapiro-Wilk's F-Test indicate	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8		1.761			
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 *AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test Shapiro-Wilk's	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 Test indicase equal values (1-tail,	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 Statistic 0.94893 4.46107 MSDu		1.761 Critical 0.844			

		·	<u>. </u>	Gre	owth and	Survival	Test-Gro	wth		 .		
Start Date:	12/10/202	1	Test ID:	TN-21-788			Sample I	_	Swan Cr	eek		
End Date:	12/20/202	1	Lab ID:				Sample		Sedimen			
Sample Date:			Protocol:				Test Spe			ella azteca	1	
Comments:							•				•	
Conc-	1	2	3	4	5	6	7	8		···		*
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.10 2 2				
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580					
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944					
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725					
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.04 7 5						
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425						
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400						
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417						
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283						
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214						
AT1-8 7 1	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300		-				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500					
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389					
-				Transform	n: Untran	sformed			1-Tailed			
Сопс-		N-Mean `	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control	0.1249	1.0000	0.1249	0.1022	0.1544	15.754	8	-		*		
AT1-862	0.0663	0.5302	0.0663	0.0417	0.0900	21.013	8					
AT1-863	0.0990	0.7926	0.0990	0.0922	0.1089	6.663	8					
AT1-864	0.0791	0.6331	0.0791	0.0575	0.1157	22.298	8					
AT1-865	0.0664	0.5311	0.0664	0.0475	0.1100	33.281	8					
AT1 - 866	0.0640	0.5126	0.0640	0.0333	0.0925	35.445	8					
AT1-867	0.0556	0.4451	0.0556	0.0200	0.1350	62.180	8					
AT1-868	0.0515	0.4118	0.0515	0.0400	0.0650	18.111	8					
*AT1 - 869	0.0291	0.2325	0.0291	0.0138	0.0486	43.921	8	11.561	1.761	0.0146		
AT1 - 870	0.0314	0.2512	0.0314	0.0157	0.0486	32.559	8					
AT1-871	0.0426	0.3413	0.0426	0.0300	0.05 7 8	17.690	8					
AT1-872	0.0527	0.4218	0.0527	0.0288	0.0714	25.699	8					
AT1-873	0.0645	0.5164	0.0645	0.0389	0.1071	33.418	8					
Auxiliary Tests					*.		Statistic		Critical		Skew	Kurt
Shapiro-Wilk's				ion (p > 0.	01)		0.95096	-	0.844		0.06785	-0.9937
F-Test indicate			= 0.28)				2.37934		8.88539			
Hypothesis Te							MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic	t Test indi	cates sign	nificant dif	ferences			0.01461			0.00028	1.5E-08	1, 14

				Gro	wth and	Survival	Test-Grov	vth				
Start Date: End Date:	12/10/202 12/20/202		Test ID:	TN-21-788		out man	Sample II Sample T):	Swan Cre			
Sample Date:	12/20/202		Protocol:				Test Spec			Ila azteca		
Comments:		'	1010001.				1001000	,,,,,,	1111111111	uz.1000		
Conc-	1	2	3	4	5	6	7	8				
Control		0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022		•		
AT1-862		0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-863		0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-864		0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865		0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
				Transform	n: Untran:	sformed			1-Tailed			
_												
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control	0.1249	1.0000	0.1249	0.1022	0.1544	15.754	8	t-Stat	Critical	MSD		
Control AT1-862	0.1249 0.0663	1.0000 0.5302	0.1249 0.0663	0.1022 0.0417	0.15 44 0.0900	15.754 21.013	8 8	t-Stat	Critical	MSD		
Control AT1-862 AT1-863	0.1249 0.0663 0.0990	1.0000	0.1249	0.1022 0.0417 0.0922	0.1544 0.0900 0.1089	15.754 21.013 6.663	8 8 8	t-Stat	Critical	MSD		
Control AT1-862 AT1-863 AT1-864	0.1249 0.0663 0.0990 0.0791	1.0000 0.5302 0.7926 0.6331	0.1249 0.0663 0.0990 0.0791	0.1022 0.0417 0.0922 0.0575	0.1544 0.0900 0.1089 0.1157	15.754 21.013 6.663 22.298	8 8 8	t-Stat	Critical	MSD		
Control AT1-862 AT1-863 AT1-864 AT1-865	0.1249 0.0663 0.0990 0.0791 0.0664	1.0000 0.5302 0.7926 0.6331 0.5311	0.1249 0.0663 0.0990 0.0791 0.0664	0.1022 0.0417 0.0922 0.0575 0.0475	0.1544 0.0900 0.1089 0.1157 0.1100	15.754 21.013 6.663 22.298 33.281	8 8 8 8	t-Stat	Critical	MSD		
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925	15.754 21.013 6.663 22.298 33.281 35.445	8 8 8 8 8	t-Stat	Critical	MSD		
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350	15.754 21.013 6.663 22.298 33.281 35.445 62.180	8 8 8 8 8	t-Stat	Critical	MSD		
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111	8 8 8 8 8	t-Stat	Critical	MSD		
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8 8					
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 *AT1-870	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8 8	t-Stat	Critical	MSD 0.0138		
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 *AT1-870	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8					
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 *AT1-870 AT1-871	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8					
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-869 *AT1-870 AT1-871 AT1-872	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8 8 8 8 8		1.761			
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 *AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.2325 0.2512 0.3413 0.4218 0.5164	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8		1.761 Critical		Skew	Kurt
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test Shapiro-Wilk's	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 ts	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		1.761 Critical 0.844		Skew 0.01401	Kurt -0.5688
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test Shapiro-Wilk's F-Test indicate	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 ts Test indicates equal value	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 3 7 1079	11.932	1.761 Critical 0.844 8.88539	0.0138	0.01401	-0.5688
Control AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Auxiliary Test Shapiro-Wilk's	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 ts Test indicates equal values (1-tail,	1.0000 0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164 ates normariances (p	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 3.71079 MSDu	11.932 MSDp	1.761 Critical 0.844	0.0138 MSE		

				Gre	owth and	Survival	Test-Gro	wth	<u></u>			
Start Date:	12/10/202	1	Test ID:	TN-21-788			Sample		Swan Cr	eek		
End Date:	12/20/202	1	Lab ID:				Sample		Sedimen			
Sample Date:			Protocol:				Test Spe			 ella azteca	3	
Comments:										J.14 421000	•	
Conc-	1	2	3	4	5	6	7	8				-
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022			······································	
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900						
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089						
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725					
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475						
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425						
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400						
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483					
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283						
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157					
AT1-8 7 1	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444					
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500					
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389					
				Transform	n: Untran:	sformed			1-Tailed	.	*	
Сопс-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control	0.1249	1.0000	0.1249	0.1022	0.1544	15.754	8		···			
AT1-862	0.0663	0.5302	0.0663	0.0417	0.0900	21.013	8					
AT1-863	0.0990	0.7926	0.0990	0.0922	0.1089	6.663	8					
AT1-864	0.0791	0.6331	0.0791	0.0575	0.1157	22.298	8					
AT1-865	0.0664	0.5311	0.0664	0.0475	0.1100	33.281	8					
AT1-866	0.0640	0.5126	0.0640	0.0333	0.0925	35.445	8					
AT1-867	0.0556	0.4451	0.0556	0.0200	0.1350	62.180	8					
AT1-868	0.0515	0.4118	0.0515	0.0400	0.0650	18.111	8					
AT1-869	0.0291	0.2325	0.0291	0.0138	0.0486	43.921	8					
AT1-870	0.0314	0.2512	0.0314	0.0157	0.0486	32.559	8					
*AT1-871	0.0426	0.3413	0.0426	0.0300	0.0578	17.690	8	11.042	1.761	0.0131		
AT1 - 872	0.0527	0.4218	0.0527	0.0288	0.0714	25.699	8					
AT1-873	0.0645	0.5164	0.0645	0.0389	0.1071	33.418	8					
Auxiliary Tests							Statistic		Critical	·	Skew	Kurt
Shapiro-Wilk's				ion (p > 0.	01)		0.93747		0.844		0.03054	-0.0585
F-Test indicate			= 0.02)				6.80713		8.88539			-
Hypothesis Te							MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic	t Test indi	cates sig	nificant dif	ferences			0.01313	0.10506	0.02709	0.00022	2.7E-08	1, 14

•				Gro	owth and	Survival	Test-Gro	wth				
Start Date:	12/10/202	1	Test ID:	TN-21-788			Sample I		Swan Cr	eek		
End Date:	12/20/202	1	Lab ID:				Sample 1		Sedimen			
Sample Date:			Protocol:				Test Spe			ella azteca	1	
Comments:							•				-	
Conc-	1	2	3	4	5	Ĝ	7	8			· · · · · · · · · · · · · · · · · · ·	
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022		-4	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
A T 1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
				Transform	n: Untran:	sformed			1-Tailed			
Conc-		N-Mean ¯	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Control	0.1249	1.0000	0.1249	0.1022	0.1544	1 5. 7 54	8					*
AT1-862	0.0663	0.5302	0.0663	0.0417	0.0900	21.013	8					
AT1-863	0.0990	0.7926	0.0990	0.0922	0.1089	0.000	_					
AT1-864	0.0000		0.0990	0.0022	0.1000	6.663	8					
	0.0791	0.6331	0.0791	0.0575	0.1157	22.298	8 8					
AT1-865	0.0791 0.0664	0.6331 0.5311	0.0791 0.0664	0.0575 0.0475	0.1157 0.1100							
AT1-865 AT1-866	0.0791 0.0664 0.0640	0.6331 0.5311 0.5126	0.0791	0.0575 0.0475 0.0333	0.1157 0.1100 0.0925	22.298	8					
AT1-865 AT1-866 AT1-867	0.0791 0.0664 0.0640 0.0556	0.6331 0.5311 0.5126 0.4451	0.0791 0.0664 0.0640 0.0556	0.0575 0.0475 0.0333 0.0200	0.1157 0.1100 0.0925 0.1350	22.298 33.281	8 8					
AT1-865 AT1-866 AT1-867 AT1-868	0.0791 0.0664 0.0640 0.0556 0.0515	0.6331 0.5311 0.5126 0.4451 0.4118	0.0791 0.0664 0.0640 0.0556 0.0515	0.0575 0.0475 0.0333 0.0200 0.0400	0.1157 0.1100 0.0925 0.1350 0.0650	22.298 33.281 35.445	8 8 8					
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.6331 0.5311 0.5126 0.4451 0.4118 0.2325	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.0575 0.0475 0.0333 0.0200	0.1157 0.1100 0.0925 0.1350	22.298 33.281 35.445 62.180	8 8 8					
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.6331 0.5311 0.5126 0.4451 0.4118	0.0791 0.0664 0.0640 0.0556 0.0515	0.0575 0.0475 0.0333 0.0200 0.0400	0.1157 0.1100 0.0925 0.1350 0.0650	22.298 33.281 35.445 62.180 18.111	8 8 8 8					
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8					
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 *AT1-872	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8	8.552	1.761	0.0149		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 *AT1-872 AT1-873	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8 8	8.552	1.761	0.0149		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 *AT1-872 AT1-873	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8	8.552	1.761	0.0149	Skew	Kurt
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 *AT1-872 AT1-873 Auxiliary Test	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 s	0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8	8.552		0.0149	Skew -0.1297	Kurt -0.9016
AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 *AT1-872 AT1-873 Auxiliary Test: Shapiro-Wilk's F-Test indicate	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 s	0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 Statistic 0.93583 2.11233	8.552	Critical	0.0149		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 *AT1-872 AT1-873 Auxiliary Test	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 s Test indicases equal var	0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164 etes normariances (p	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 Statistic 0.93583 2.11233 MSDu	8.552 MSDp 0.11908	Critical 0.844 8.88539 MSB	0.0149 		

				Gr	owth and	Survival	Test-Gro	wth		 -		
Start Date:	12/10/202		Test ID:	TN-21-78	8	_	Sample		Swan C	reek		
End Date:	12/20/202	21	Lab ID:				Sample		Sedime			
Sample Date:			Protocol:				Test Spe			iella aztec	9	
Comments:											-	
Conc-	1	2	3	4	5	6	7	8				
Control		0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
AT1-862		0.0733	0.0667	0.0733	0.0417	0.0900						
AT1-863		0.0956	0.1078	0.1033	0.0944	0.1089						
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575						
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475						
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425						
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400						
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417						
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283						
AT1 -8 70	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214		_				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300						
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550						
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389					
				Transform	n: Untran				1-Tailed			
Conc-	Mean	N-Mean 7	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
						O V /0	1.4	i-oiai	Critical	เขอบ		
Control	0.1249	1.0000	0.1249	0.1022	0.1544	15.754	8	<u>t-Stat</u>	Critical	INIOD		
AT1-862	0.0663	0.5302	0.1249 0.0663	0.1022 0.0417	0.1544 0.0900			t-Stat	Critical	INISD		
AT1-862 AT1-863	0.0663 0.0990	0.5302 0.7926	0.1249 0.0663 0.0990	0.1022 0.0417 0.0922	0.1544	15.754	8	L-O tat	Criucai	WISD_		
AT1 - 862 AT1 - 863 AT1-864	0.0663 0.0990 0.0791	0.5302 0.7926 0.6331	0.1249 0.0663 0.0990 0.0791	0.1022 0.0417 0.0922 0.0575	0.1544 0.0900 0.1089 0.1157	15.754 21.013	8 8	i-otat	Criucai	IVIOU	.,	
AT1-862 AT1-863 AT1-864 AT1-865	0.0663 0.0990 0.0791 0.0664	0.5302 0.7926 0.6331 0.5311	0.1249 0.0663 0.0990 0.0791 0.0664	0.1022 0.0417 0.0922 0.0575 0.0475	0.1544 0.0900 0.1089 0.1157 0.1100	15.754 21.013 6.663	8 8 8	rotat	Crucai			
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	0.0663 0.0990 0.0791 0.0664 0.0640	0.5302 0.7926 0.6331 0.5311 0.5126	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333	0.1544 0.0900 0.1089 0.1157	15.754 21.013 6.663 22.298	8 8 8	i-otat	Crucai	N3D		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	0.5302 0.7926 0.6331 0.5311 0.5126 0.4451	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200	0.1544 0.0900 0.1089 0.1157 0.1100	15.754 21.013 6.663 22.298 33.281	8 8 8 8	rotat	Criucai	W3D		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650	15.754 21.013 6.663 22.298 33.281 35.445	8 8 8 8 8	Potat	Criucai	INOU_		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350	15.754 21.013 6.663 22.298 33.281 35.445 62.180	8 8 8 8 8 8	Potat	Criucai	INIOU		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111	8 8 8 8 8 8	Potat	Criucai	IVIOU		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8 8 8	Potat	Criucai	IVIOU		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8 8 8	Potat	Criucai	IVIOD		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413	0.1249 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8 8 8					
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-873 Auxiliary Tests	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8 8	5.854	1.761 Critical	0.0182	Skew	Kurt
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 *AT1-873 Auxiliary Tests Shapiro-Wilk's	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8		1.761		Skew 0.48995	Kurt -0.2516
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 *AT1-873 Auxiliary Tests Shapiro-Wilk's F-Test indicates	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 s	0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8	5.854	1.761 Critical 0.844		Skew 0.48995	Kurt -0.2516
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 *AT1-873 Auxiliary Tests Shapiro-Wilk's	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 s equal val	0.5302 0.7926 0.6331 0.5311 0.5126 0.4451 0.4118 0.2325 0.2512 0.3413 0.4218 0.5164	0.1249 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.1022 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1544 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	15.754 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 9 7	5.854	1.761 Critica l			

Start Date:	12/10/202	1	Test ID:	TN-21-788	wth and S	Julylyai	Sample ID		Swan Creek		
End Date:	12/20/202		Lab ID:				Sample Ty		Sediment		
Sample Date:			Protocol:				Test Spec		HA-Hyalella a	ızteca	
Comments:									, , yalona a	21004	
Conc-	1	2	3	4	5	6	7	8	*		
AT1-863		0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000		 .	
AT1-862		0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
			-Ti	ansform:	Arcsin Sc	uare Ro	ot	Rank	1-Tailed		
Conc-		N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-863		1.0000	1.2490	1.2490	1.2490	0.000	8				
*AT1-862		0.6250	0.8483	0.7854	0.8861	6.142	8	36.00	47.00		
*AT1-864		0.8889	1.1104	0.9912	1.2490	6.231	8	40.00	47.00		
*AT1-865		0.4028	0.6453	0.5796	0.6847	8.427	8	36.00	47.00		
*AT1-866	0.4875	0.5417	0.7728	0.6847	0.8861	8.349	8	36.00	47.00		
*****		0 0111	വ വാഭാ	0.6847	0.0042						
*AT1-867	0.5500	0.6111	0.8363		0.9912	11.268	8	36.00	47.00		
*AT1-868	0.5875	0.6528	0.8735	0.7854	0.8861	4.075	8	36.00 36.00	47.00		
*AT1-868 *AT1-869	0.5875 0.7375	0.6528 0.8194	0.8735 1.0360	0.7854 0.8861	0.8861 1.1071	4.075 8.056	8 8	36.00 36.00	47.00 47.00		
*AT1-868 *AT1-869 *AT1-870	0.5875 0.7375 0.7375	0.6528 0.8194 0.8194	0.8735 1.0360 1.0347	0.7854 0.8861 0.9912	0.8861 1.1071 1.1071	4.075 8.056 5.802	8 8 8	36.00	47.00		
*AT1-868 *AT1-869 *AT1-870 AT1-871	0.5875 0.7375 0.7375 0.8250	0.6528 0.8194 0.8194 0.9167	0.8735 1.0360 1.0347 1.1459	0.7854 0.8861 0.9912 0.9912	0.8861 1.1071 1.1071 1.2490	4.075 8.056 5.802 8.205	8 8 8	36.00 36.00	47.00 47.00		
*AT1-868 *AT1-869 *AT1-870 AT1-871 *AT1-872	0.5875 0.7375 0.7375 0.8250 0.7375	0.6528 0.8194 0.8194 0.9167 0.8194	0.8735 1.0360 1.0347 1.1459 1.0393	0.7854 0.8861 0.9912 0.9912 0.8861	0.8861 1.1071 1.1071 1.2490 1.2490	4.075 8.056 5.802	8 8 8	36.00 36.00 36.00	47.00 47.00 47.00		
*AT1-868 *AT1-869 *AT1-870 AT1-871 *AT1-872 AT1-873	0.5875 0.7375 0.7375 0.8250 0.7375 0.8500	0.6528 0.8194 0.8194 0.9167 0.8194 0.9444	0.8735 1.0360 1.0347 1.1459	0.7854 0.8861 0.9912 0.9912 0.8861 0.9912	0.8861 1.1071 1.1071 1.2490	4.075 8.056 5.802 8.205	8 8 8	36.00 36.00 36.00 48.00	47.00 47.00 47.00 47.00		
*AT1-868 *AT1-869 *AT1-870 AT1-871 *AT1-872 AT1-873 Control	0.5875 0.7375 0.7375 0.8250 0.7375 0.8500 0.9125	0.6528 0.8194 0.8194 0.9167 0.8194	0.8735 1.0360 1.0347 1.1459 1.0393	0.7854 0.8861 0.9912 0.9912 0.8861	0.8861 1.1071 1.1071 1.2490 1.2490	4.075 8.056 5.802 8.205 10.662 8.471 4.539	8 8 8 8 8	36.00 36.00 36.00 48.00 40.00	47.00 47.00 47.00 47.00 47.00		
*AT1-868 *AT1-869 *AT1-870 AT1-871 *AT1-872 AT1-873 Control	0.5875 0.7375 0.7375 0.8250 0.7375 0.8500 0.9125	0.6528 0.8194 0.8194 0.9167 0.8194 0.9444 1.0139	0.8735 1.0360 1.0347 1.1459 1.0393 1.1813 1.2694	0.7854 0.8861 0.9912 0.9912 0.8861 0.9912 1.2490	0.8861 1.1071 1.1071 1.2490 1.2490 1.2490 1.4120	4.075 8.056 5.802 8.205 10.662 8.471 4.539	8 8 8 8 8	36.00 36.00 36.00 48.00 40.00 56.00	47.00 47.00 47.00 47.00 47.00 47.00	Skew	Kurt
*AT1-868 *AT1-869 *AT1-870 AT1-871 *AT1-872 AT1-873 Control Auxiliary Test	0.5875 0.7375 0.7375 0.8250 0.7375 0.8500 0.9125 ts	0.6528 0.8194 0.8194 0.9167 0.8194 0.9444 1.0139	0.8735 1.0360 1.0347 1.1459 1.0393 1.1813 1.2694	0.7854 0.8861 0.9912 0.9912 0.8861 0.9912 1.2490	0.8861 1.1071 1.1071 1.2490 1.2490 1.2490 1.4120	4.075 8.056 5.802 8.205 10.662 8.471 4.539	8 8 8 8 8	36.00 36.00 36.00 48.00 40.00 56.00	47.00 47.00 47.00 47.00 47.00 47.00 47.00	Skew -0.0003	Kurt 0.6922
*AT1-868 *AT1-869 *AT1-870 AT1-871 *AT1-872 AT1-873 Control wxiliary Test	0.5875 0.7375 0.7375 0.8250 0.7375 0.8500 0.9125 ts Test indica	0.6528 0.8194 0.8194 0.9167 0.8194 0.9444 1.0139 tes norm	0.8735 1.0360 1.0347 1.1459 1.0393 1.1813 1.2694	0.7854 0.8861 0.9912 0.9912 0.8861 0.9912 1.2490	0.8861 1.1071 1.1071 1.2490 1.2490 1.2490 1.4120	4.075 8.056 5.802 8.205 10.662 8.471 4.539	8 8 8 8 8 8 8 S Statistic	36.00 36.00 36.00 48.00 40.00 56.00	47.00 47.00 47.00 47.00 47.00 47.00 Critical		

				Gro	wth and S	Survival i	Test-Surviv	val			
Start Date:	12/10/202	1	Test ID:				Sample ID		Swan Creek	·	
End Date:	12/20/202		Lab ID:				Sample Ty	/pe:	Sediment		
Sample Date:			Protocol:				Test Speci		HA-Hyalella	azteca	
Comments:							•		-		
Conc-	1	2	3	4	5	6	7	8			
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-8 7 0	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
			Tr	ansform:	Arcsin Sc	uare Ro	ot	Rank	1-Tailed		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-863		1.0000	1.2490	1.2490	1.2490	0.000	8				
*AT1-862		0.6250	0.8483	0.7854	0.8861	6.142		36.00	51.00		
AT1-864	0.8000	0.8889	1.1104	0.9912	1.2490	6.231	8				
AT1 - 865		0.4028	0.6453	0.5796	0.6847	8.427	8				
AT1-866	0.4875	0.5417	0.7728	0.6847	0.8861	8.349	8				
AT1-867		0.6111	0.8363	0.6847	0.9912	11.268	8				
AT4 000											
AT1-868		0.6528	0.8735	0.7854	0.8861	4.075	8				
AT1-868 AT1-869		0.6528 0.8194	1.0360	0.7854 0.8861	1.1071	4.075 8.056	8 8				
	0.7375 0.7375		1.0360 1.0347	0.8861 0.9912	1.1071 1.1071	4.075 8.056 5.802	8 8 8				
AT1-869	0.7375	0.8194	1.0360	0.8861	1.1071	4.075 8.056	8 8 8				
AT1-869 AT1-870	0.7375 0.7375 0.8250	0.8194 0.8194	1.0360 1.0347	0.8861 0.9912 0.9912 0.8861	1.1071 1.1071	4.075 8.056 5.802	8 8 8 8				
AT1-869 AT1-870 AT1-871	0.7375 0.7375 0.8250 0.7375	0.8194 0.8194 0.9167	1.0360 1.0347 1.1459	0.8861 0.9912 0.9912	1.1071 1.1071 1.2490	4.075 8.056 5.802 8.205	8 8 8				
AT1-869 AT1-870 AT1-871 AT1-872	0.7375 0.7375 0.8250 0.7375	0.8194 0.8194 0.9167 0.8194	1.0360 1.0347 1.1459 1.0393	0.8861 0.9912 0.9912 0.8861	1.1071 1.1071 1.2490 1.2490	4.075 8.056 5.802 8.205 10.662	8 8 8 8 8				
AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Test	0.7375 0.7375 0.8250 0.7375 0.8500 0.9125	0.8194 0.8194 0.9167 0.8194 0.9444 1.0139	1.0360 1.0347 1.1459 1.0393 1.1813 1.2694	0.8861 0.9912 0.9912 0.8861 0.9912 1.2490	1.1071 1.1071 1.2490 1.2490 1.2490 1.4120	4.075 8.056 5.802 8.205 10.662 8.471	8 8 8 8 8 8 Statistic		Critical	Skew	Kurt
AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Test Shapiro-Wilk's	0.7375 0.7375 0.8250 0.7375 0.8500 0.9125 ts	0.8194 0.8194 0.9167 0.8194 0.9444 1.0139	1.0360 1.0347 1.1459 1.0393 1.1813 1.2694	0.8861 0.9912 0.9912 0.8861 0.9912 1.2490	1.1071 1.1071 1.2490 1.2490 1.2490 1.4120	4.075 8.056 5.802 8.205 10.662 8.471	8 8 8 8 8		Critical 0.844	Skew -0.8081	Kurt -0.1593
AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Test	0.7375 0.7375 0.8250 0.7375 0.8500 0.9125 ts Test indications cann	0.8194 0.8194 0.9167 0.8194 0.9444 1.0139 ates non-iot be con-	1.0360 1.0347 1.1459 1.0393 1.1813 1.2694	0.8861 0.9912 0.9912 0.8861 0.9912 1.2490	1.1071 1.1071 1.2490 1.2490 1.2490 1.4120	4.075 8.056 5.802 8.205 10.662 8.471	8 8 8 8 8 8 Statistic				

Page 1

					vth and S	urvival]	Test-Surviv	val			
Start Date:	12/10/2021		Test ID:	TN-21-788			Sample ID):	Swan Creek		
End Date:	12/20/2021	•	Lab ID:				Sample Ty	/pe:	Sediment		
Sample Date:			Protocol:				Test Speci	ies:	HA-Hyalella a	zteca	
Comments:											
Conc-	1	2	3	4	5	6	7	8			
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
			Tı	ransform: /	Arcsin Sq	uare Ro	ot	Rank	1-Tailed		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
A T 1-863	0.9000	1.0000	1.2490	1.2490	1.2490	0.000	8				
AT1-862	0.5625	0.6250	0.8483	0.7854	0.8861	6.142	8				
*AT1-864	0.8000	0.8889	1.1104	0.9912	1.2490	6.231	8	40.00	51.00		
AT1-865	0.3625	0.4028	0.6453	0.5796	0.6847	8.427	8				
AT1-866	0.4875	0.5417	0.7728	0.6847	0.8861	8.349	8				
AT1-867	0.5500	0.6111	0.8363	0.6847	0.9912	11.268	8				
AT1-868	0.5875	0.6528	0.8735	0.7854	0.8861	4.075	8				
AT1-869	0.7375	0.8194	1.0360	0.8861	1.1071	8.056	8				
AT1-870	0.7375	0.8194	1.0347	0.9912	1.1071	5.802	8				
AT1-871	0.8250	0.9167	1.1459	0.9912	1.2490	8.205	8				
AT1-872	0.7375	0.8194	1.0393	0.8861	1.2490	10.662	8				
AT1-873	0.8500	0.9444	1.1813	0.9912	1.2490	8.471	8				
Control	0.9125	1.0139	1.2694	1.2490	1.4120	4.539	8				
Auxiliary Test	ts						Statistic		Critical	Skew	Kurt
Shapiro-Wilk's	Test indica	tes non-	normal dis	stribution (p	<= 0.01)		0.53499		0.844	0.7006	7.70862
Equality of var	iance canno	ot be cor	nfirmed								
Uveethooic T	est (1-tail, ().05)									
Li siporii esis	oot (i -tair, i	,									

ToxCalc v5.0.23

tart Date:	12/10/202	1	Test ID:	TN-21-788	3		Sample ID):	Swan Creek		
nd Date:	12/20/202		Lab ID:				Sample Ty		Sediment		
Sample Date:			Protocol:				Test Speci	•	HA-Hyalella az	teca	
Comments:							·		•		
Conc-	1	2	3	4	5	6	7	8			
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
			Tr	ansform:	Arcsin Sq	uare Ro	ot	Rank	1-Tailed		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-863	0.9000	1.0000	1.2490	1.2490	1.2490	0.000	8				
AT1-862	0.5625	0.6250	0.8483	0.7854	0.8861	6.142	8				
AT1-864	0.8000	0.8889	1.1104	0.9912	1.2490	6.231	8				
*AT1-865	0.3625	0.4028	0.6453	0.5796	0.6847	8.427	8	36.00	51.00		
AT1-866	0.4875	0.5417	0.7728	0.6847	0.8861	8.349	8				
AT1-867	0.5500	0.6111	0.8363	0.6847	0.9912	11.268	8				
AT1-868	0.5875	0.6528	0.8735	0.7854	0.8861	4.075	8				
AT1-869	0.7375	0.8194	1.0360	0.8861	1.1071	8.056	8				
AT1-870	0.7375	0.8194	1.0347	0.9912	1.1071	5.802	8				
AT1-8 7 1	0.8250	0.9167	1.1459	0.9912	1.2490	8.205	8				
AT1-872	0.7375	0.8194	1.0393	0.8861	1.2490	10.662	8				
AT1-873	0.8500	0.9444	1.1813	0.9912	1.2490	8.471	8				
Control	0.9125	1.0139	1.2694	1.2490	1.4120	4.539	8				
uxiliary Test							Statistic		Critical	Skew	Kurt
hapiro-Wilk's				tribution (p	<= 0.01)		0.7856		0.844	-0.8081	-0.159
quality of var			firmed								
	est (1-tail, (1.051									

Reviewed by: <u></u>

tart Date:	12/10/202	1	Test ID:	TN-21-788			Sample ID) <u>:</u>	Swan Creek		
nd Date:	12/20/202		Lab ID:				Sample Ty	/pe:	Sediment		
Sample Date:			Protocol:				Test Speci		HA-Hyalella az	teca	
Comments:											
Conc-	1	2	3	4	5	6	7	8			
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
AT1-873		0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
			Tr	ansform:	Arcsin Sq	uare Ro		Rank	1-Tailed		
Сопс-		N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-863	0.9000	1.0000	1.2490	1.2490	1.2490	0.000	8				
AT1-862		0.6250	0.8483	0.7854	0.8861	6.142	8				
AT1-864		0.8889	1.1104	0.9912	1.2490	6.231	8				
AT1-865	0.3625	0.4028	0.6453	0.5796	0.6847	8.427	8				
*AT1-866		0.5417	0.7728	0.6847	0.8861	8.349	8	36.00	51.00		
AT1-867	0.5500	0.6111	0.8363	0.6847	0.9912	11.268	8				
AT1-868	0.5875	0.6528	0.8735	0.7854	0.8861	4.075	8				
AT1-869	0.7375	0.8194	1.0360	0.8861	1.1071	8.056	8				
AT1-870	0.7375	0.8194	1.0347	0.9912	1.1071	5.802	8				
AT1-871	0.8250	0.9167	1.1459	0.9912	1.2490	8.205	8				
AT1-872	0.7375	0.8194	1.0393	0.8861	1.2490	10.662	8				
AT1-873		0.9444	1.1813	0.9912	1.2490	8.471	8				
Control	0.9125	1.0139	1.2694	1.2490	1.4120	4.539	8				
uxiliary Test							Statistic		Critical	Skew	Kurt
hapiro-Wilk's				tribution (p	<= 0.01)		0.70789		0.844	0.08512	3.8184
quality of var			firmed								
ypothesis T											

Reviewed by: _______

***				Gro	wth and S	urvival 1	Test-Survi	val				
Start Date:	12/10/202	1	Test ID:	TN-21-788	3		Sample IE):	Swan Cre	ek		
End Date:	12/20/202		_ab ID:				Sample T	ype:	Sediment			
Sample Date:			Protocol:				Test Spec		HA-Hyale	lla azteca		
Comments:							•		·			
Conc-	1	2	3	4	5	6	7	8		1111111111		
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000				
A T 1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000				
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000				
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000				
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000				
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000				
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000				
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000				
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000				
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000				
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000				
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000				
	,		Tr	ansform:	Arcsin Sc	uare Ro	ot		1-Tailed			
		_								1100		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Conc- AT1-863	Mean 0.9000	N-Mean 1.0000	Mean 1.2490	Min 1.2490	Max 1.2490	0.000	N 8	t-Stat	Critical	MSD		
					1.2490 0.8861	0.000 6.142	8 8	t-Stat	Critical	MSD		
AT1-863	0.9000	1.0000	1.2490	1.2490	1.2490 0.8861 1.2490	0.000	8	t-Stat	Critical	MSD		
AT1-863 AT1-862	0.9000 0.5625	1.0000 0.6250	1.2490 0.8483	1.2490 0.7854	1.2490 0.8861	0.000 6.142 6.231 8.427	8 8 8	t-Stat	Critical	MSD		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866	0.9000 0.5625 0.8000 0.3625 0.4875	1.0000 0.6250 0.8889 0.4028 0.5417	1.2490 0.8483 1.1104 0.6453 0.7728	1.2490 0.7854 0.9912 0.5796 0.6847	1.2490 0.8861 1.2490 0.6847 0.8861	0.000 6.142 6.231 8.427 8.349	8 8 8 8					
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 *AT1-867	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363	1.2490 0.7854 0.9912 0.5796 0.6847 0.6847	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912	0.000 6.142 6.231 8.427 8.349 11.268	8 8 8 8 8	t-Stat	1.895	0.0631		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528	1.2490 0.8483 1.1104 0.6453 0.7728	1.2490 0.7854 0.9912 0.5796 0.6847 0.6847 0.7854	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861	0.000 6.142 6.231 8.427 8.349 11.268 4.075	8 8 8 8 8					
AT1-863 AT1-864 AT1-865 AT1-866 *AT1-867 AT1-868 AT1-869	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360	1.2490 0.7854 0.9912 0.5796 0.6847 0.6847 0.7854 0.8861	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056	8 8 8 8 8 8					
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 *AT1-867 AT1-868	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735	1.2490 0.7854 0.9912 0.5796 0.6847 0.6847 0.7854	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861	0.000 6.142 6.231 8.427 8.349 11.268 4.075	8 8 8 8 8					
AT1-863 AT1-864 AT1-865 AT1-866 *AT1-867 AT1-868 AT1-869	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360	1.2490 0.7854 0.9912 0.5796 0.6847 0.6847 0.7854 0.8861	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056	8 8 8 8 8 8					
AT1-863 AT1-864 AT1-865 AT1-866 *AT1-867 AT1-868 AT1-869 AT1-870	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.8194	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347	1.2490 0.7854 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802	8 8 8 8 8 8 8 8					
AT1-863 AT1-862 AT1-864 AT1-866 *AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.8194 0.9167	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459	1.2490 0.7854 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205	8 8 8 8 8 8 8					
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 *AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375 0.8250 0.7375	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393	1.2490 0.7854 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912 0.8861	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662	8 8 8 8 8 8 8 8		1.895			
AT1-863 AT1-864 AT1-865 AT1-866 *AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Test	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8500 0.9125	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194 0.9444 1.0139	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813 1.2694	1.2490 0.7854 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.8861 0.9912 1.2490	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.2490 1.2490 1.2490 1.4120	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662 8.471	8 8 8 8 8 8 8 8		1.895		Skew	Kurt
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 *AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8500 0.9125	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194 0.9444 1.0139	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813 1.2694	1.2490 0.7854 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.8861 0.9912 1.2490	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.2490 1.2490 1.2490 1.4120	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662 8.471	8 8 8 8 8 8 8 8 8 8 8 8		1.895		Skew 0.05922	Kurt 2.91364
AT1-863 AT1-864 AT1-865 AT1-866 *AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-873 Control Auxiliary Test Shapiro-Wilk's Equality of var	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8500 0.9125 ts	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194 0.9444 1.0139	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813 1.2694	1.2490 0.7854 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.8861 0.9912 1.2490	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.2490 1.2490 1.2490 1.4120	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662 8.471	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	12.389	1.895 Critical 0.844	0.0631	0.05922	2.91364
AT1-863 AT1-864 AT1-865 AT1-866 *AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Test	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8500 0.9125 ts Test indication cannest (1-tail,	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194 0.9444 1.0139	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813 1.2694	1.2490 0.7854 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.8961 0.9912 1.2490 tion (p > 0.	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.2490 1.2490 1.2490 1.4120	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662 8.471	8 8 8 8 8 8 8 8 8 8 8 8 8	12.389 MSDp	1.895 Critical 0.844 MSB		0.05922 F-Prob	

	40/40/000		T(1D-		vill allu S		Carrela (D		0		
Start Date:	12/10/2021			TN-21-788			Sample ID		Swan Creek		
End Date:	12/20/2021]	Lab ID:				Sample Ty		Sediment	4	
Sample Date:			Protocol:				Test Speci	ies:	HA-Hyalella az	reca	
Comments:					_		-				
Conc-	1	2	3	4	5	6	7	8			
AT1-863		0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-864		0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865		0.4000		0.4000	0.3000	0,4000	0.3000	0.3000			
AT1-866		0.5000		0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867		0.6000		0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868		0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000		0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
			Ti	ansform: /	Arcsin Sq	uare Ro	ot	Rank	1-Tailed		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-863	0.9000	1.0000	1.2490	1.2490	1.2490	0.000	8				
AT1-862	0.5625	0.6250	0.8483	0.7854	0.8861	6.142	8				
AT1-864	0.8000	0.8889	1.1104	0.9912	1.2490	6.231	8				
AT1-865	0.3625	0.4028	0.6453	0.5796	0.6847	8.427	8				
AT1-866	0.4875	0.5417	0.7728	0.6847	0.8861	8.349	8				
AT1-867	0.5500	0.6111	0.8363	0.6847	0.9912	11.268	8				
*AT1-868	0.5875	0.6528	0.8735	0.7854	0.8861	4.075	8	36.00	51.00		
AT1-869	0.7375	0.8194	1.0360	0.8861	1.1071	8.056	8				
AT1-870	0.7375	0.8194	1.0347	0.9912	1.1071	5.802	8				
AT1-871	0.8250	0.9167	1.1459	0.9912	1.2490	8.205	8				
AT1-872	0.7375	0.8194	1.0393	0.8861	1.2490	10.662	8				
AT1-8 7 3	0.8500	0.9444	1.1813	0.9912	1.2490	8.471	8				
Control	0.9125	1.0139	1.2694	1.2490	1.4120	4.539	8				
uxiliary Test	ts						Statistic		Critical	Skew	Kurt
	Test indica	ates non-	normal dis	tribution (p	<= 0.01)		0.4689		0.844	-3.5489	13.504
					•						
quality of var	iance canni		mmu								

Reviewed by:

	_		•			urvival 1	Test-Survi	val			
Start Date:	12/10/202	1 '	Test ID:	TN-21-788	3		Sample ID		Swan Creek		
End Date:	12/20/202	1	Lab ID:				Sample Ty		Sediment		
Sample Date:			Protocol:				Test Speci	ies:	HA-Hyaiella azt	eca	
Comments:											
Conc-	1	2	3	4	5	6	7	8			
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
		_	Т	ransform:		uare Ro		Rank	1-Tailed		
Conc-		N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-863	0.9000	1.0000	1.2490	1.2490	1.2490	0.000	8	Sum	Critical		
AT1-863 AT1-862	0.9000 0.5625	1.0000 0.6250	1.2490 0.8483	1.2490 0.7854	1.2490 0.8861	0.000 6.142	8 8	Sum	Critical		
AT1-863 AT1-862 AT1-864	0.9000 0.5625 0.8000	1.0000 0.6250 0.8889	1.2490 0.8483 1.1104	1.2490 0.7854 0.9912	1.2490 0.8861 1.2490	0.000 6.142 6.231	8 8 8	Sum	Critical		
AT1-863 AT1-862 AT1-864 AT1-865	0.9000 0.5625 0.8000 0.3625	1.0000 0.6250 0.8889 0.4028	1.2490 0.8483 1.1104 0.6453	1.2490 0.7854 0.9912 0.5796	1.2490 0.8861 1.2490 0.6847	0.000 6.142 6.231 8.427	8 8 8 8	Sum	Critical		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866	0.9000 0.5625 0.8000 0.3625 0.4875	1.0000 0.6250 0.8889 0.4028 0.5417	1.2490 0.8483 1.1104 0.6453 0.77 2 8	1.2490 0.7854 0.9912 0.5796 0.6847	1.2490 0.8861 1.2490 0.6847 0.8861	0.000 6.142 6.231 8.427 8.349	8 8 8 8	Sum	Critical		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111	1.2490 0.8483 1.1104 0.6453 0.77 2 8 0.8363	1.2490 0.7854 0.9912 0.5796 0.6847 0.6847	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912	0.000 6.142 6.231 8.427 8.349 11.268	8 8 8 8 8	Sum	Critical		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528	1.2490 0.8483 1.1104 0.6453 0.77 2 8 0.8363 0.8735	1.2490 0.7854 0.9912 0.5796 0.6847 0.6847 0.7854	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861	0.000 6.142 6.231 8.427 8.349 11.268 4.075	8 8 8 8 8				
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194	1.2490 0.8483 1.1104 0.6453 0.77 2 8 0.8363 0.8735 1.0360	1.2490 0.7854 0.9912 0.5796 0.6847 0.6847 0.7854 0.8861	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056	8 8 8 8 8 8	Sum 36.00	Critical 51.00		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 *AT1-869	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.8194	1.2490 0.8483 1.1104 0.6453 0.77 2 8 0.8363 0.8735 1.0360 1.0347	1.2490 0.7854 0.9912 0.5796 0.6847 0.6847 0.7854 0.8861 0.9912	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802	8 8 8 8 8 8 8 8				
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 *AT1-870 AT1-870	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.8194 0.9167	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459	1.2490 0.7854 0.9912 0.5796 0.6847 0.6847 0.7854 0.8861 0.9912 0.9912	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205	8 8 8 8 8 8 8 8 8				
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 *AT1-870 AT1-871	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375 0.8250 0.7375	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393	1.2490 0.7854 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912 0.8861	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662	8 8 8 8 8 8 8 8 8 8				
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 *AT1-870 AT1-870	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375 0.8250 0.7375 0.8500	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194 0.9444	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813	1.2490 0.7854 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.8861 0.9912	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490 1.2490	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662 8.471	8 8 8 8 8 8 8 8 8 8 8 8				
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 *AT1-869 AT1-870 AT1-871 AT1-872	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375 0.8250 0.7375 0.8500 0.9125	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393	1.2490 0.7854 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912 0.8861	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		51.00		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 *AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Tes	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8500 0.9125	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194 0.9444 1.0139	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813 1.2694	1.2490 0.7854 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.8861 0.9912 1.2490	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.2490 1.2490 1.2490 1.4120	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662 8.471	8 8 8 8 8 8 8 8 8 8 8		51.00 Critical	Skew	Kurt
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 *AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Tes Shapiro-Wilk's	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375 0.8250 0.7375 0.8500 0.9125 ts	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194 0.9444 1.0139	1.2490 0.8483 1.1104 0.6453 0.77 2 8 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813 1.2694	1.2490 0.7854 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.8861 0.9912 1.2490	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.2490 1.2490 1.2490 1.4120	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662 8.471	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		51.00	Skew -0.9054	Kurt 2.13754
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 *AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Tes Shapiro-Wilk's Equality of var	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8500 0.9125 ts Test indicationce cann	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194 1.0139 ates non-rot be com	1.2490 0.8483 1.1104 0.6453 0.77 2 8 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813 1.2694	1.2490 0.7854 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.8861 0.9912 1.2490	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.2490 1.2490 1.2490 1.4120	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662 8.471	8 8 8 8 8 8 8 8 8 8 8		51.00 Critical		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 *AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Tes Shapiro-Wilk's	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8500 0.9125 ts Test indicatione cannest (1-tail,	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194 0.9444 1.0139 ates non-rot be conf	1.2490 0.8483 1.1104 0.6453 0.77 2 8 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813 1.2694	1.2490 0.7854 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912 0.8861 0.9912 1.2490	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490 1.2490 1.4120	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662 8.471	8 8 8 8 8 8 8 8 8 8 8		51.00 Critical		

				Grov	vth and S	Survival :	Test-Surviv	/al	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		
Start Date:	12/10/202	1	Test ID:	TN-21-788			Sample ID	:	Swan Creek		
End Date:	12/20/202	1	Lab ID:				Sample Ty	rpe:	Sediment		
Sample Date:			Protocol:				Test Speci	ies:	HA-Hyalella azteca		
Comments:											
Conc-	1	2	3	4	5	6	7	8			
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
			Ti	ransform: /	Arcsin Sc	uare Ro	ot	Rank	1-Tailed		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-863		1.0000	1.2490	1.2490	1.2490	0.000					
AT1-862	0.5625	0.6250	0.8483	0.7854	0.8861	6.142					
AT1-864		0.8889	1.1104	0.9912	1.2490	6.231	8				
AT1-865	0.3625	0.4028	0.6453	0.5796	0.6847	8.427					
AT1-866		0.5417	0.7728	0.6847	0.8861	8.349					
AT1-867	0.5500	0.6111	0.8363	0.6847	0.9912	11.268					
AT1-868		0.6528	0.8735	0.7854	0.8861	4.075					
AT1-869	0.7375	0.8194	1.0360	0.8861	1.1071	8.056					
*AT1-870	0.7375	0.8194	1.0347	0.9912	1.1071	5.802	8	36.00	51.00		
AT1-871	0.8250	0.9167	1.1459	0.9912	1.2490	8.205	8				
AT1-872	0.7375	0.8194	1.0393	0.8861	1.2490	10.662	8				
AT1-873	0.8500	0.9444	1.1813	0.9912	1.2490	8.471	8				
A11-0/3		1.0139	1.2694	1.2490	1.4120	4.539					
Control	0.9125	1.0138									
Control Auxiliary Test	ts						Statistic		Critical	Skew	Kurt
Control	ts				<= 0.01)		Statistic 0.7856		O.844	Skew 0.80812	
Control Auxiliary Test	ts Test indica iance cann	ates non- ot be con	normal dis		<= 0.01)						

	-		*	Gro	wth and S	urvival 🛚	est-Survi	val			
Start Date:	12/10/202	1	Test ID:	TN-21-788	3		Sample ID):	Swan Creek		
End Date:	12/20/202	1	Lab ID:				Sample Ty	/pe:	Sediment		
Sample Date:			Protocol:				Test Spec	ies:	HA-Hyalella azteca	l	
Comments:				_							
Conc-	1	2	3	4	5	6	7	8			
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1 - 872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
			Ţ	ransform:				Rank	1-Tailed		
_				2.41	B.4	61 (6)	N.I.	C	Critical		
Conc-		N-Меал	Меап	Min	Max	CV%	N	Sum	Critical		
AT1-863	0.9000	1.0000	1.2490	1.2490	1.2490	0.000	8	Sum	Cinical		
AT1-863 AT1-862	0.9000 0.5625	1.0000 0.6250	1.2490 0.8483	1.2490 0.7854	1.2490 0.8861	0.000 6.142	8 8	S um	Chicai		<u>-</u>
AT1-863 AT1-862 AT1-864	0.9000 0.5625 0.8000	1.0000 0.6250 0.8889	1.2490 0.8483 1.1104	1.2490 0.7854 0.9912	1.2490 0.8861 1.2490	0.000 6.142 6.231	8 8 8	Sum	Citical		
AT1-863 AT1-862 AT1-864 AT1-865	0.9000 0.5625 0.8000 0.3625	1.0000 0.6250 0.8889 0.4028	1.2490 0.8483 1.1104 0.6453	1.2490 0.7854 0.9912 0.5796	1.2490 0.8861 1.2490 0.6847	0.000 6.142 6.231 8.427	8 8 8	S um	CHUGAI		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866	0.9000 0.5625 0.8000 0.3625 0.4875	1.0000 0.6250 0.8889 0.4028 0.5417	1.2490 0.8483 1.1104 0.6453 0.7728	1.2490 0.7854 0.9912 0.5796 0.6847	1.2490 0.8861 1.2490 0.6847 0.8861	0.000 6.142 6.231 8.427 8.349	8 8 8 8	Sum	CHUGAI		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363	1.2490 0.7854 0.9912 0.5796 0.6847 0.6847	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912	0.000 6.142 6.231 8.427 8.349 11.268	8 8 8 8 8	Sum	CHUGAI		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735	1.2490 0.7854 0.9912 0.5796 0.6847 0.6847 0.7854	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861	0.000 6.142 6.231 8.427 8.349 11.268 4.075	8 8 8 8 8	Sum	Chucai		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360	1.2490 0.7854 0.9912 0.5796 0.6847 0.6847 0.7854 0.8861	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056	8 8 8 8 8 8	Sum	CHUGAI		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.8194	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347	1.2490 0.7854 0.9912 0.5796 0.6847 0.6847 0.7854 0.8861 0.9912	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802	8 8 8 8 8 8 8				
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459	1.2490 0.7854 0.9912 0.5796 0.6847 0.6847 0.7854 0.8861 0.9912 0.9912	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205	8 8 8 8 8 8 8 8	48.00	51.00		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 *AT1-871	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375 0.8250 0.7375	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393	1.2490 0.7854 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912 0.8861	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662	8 8 8 8 8 8 8 8 8				
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375 0.8250 0.7375	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194 0.9444	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813	1.2490 0.7854 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912 0.8861 0.9912	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490 1.2490	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662 8.471	8 8 8 8 8 8 8 8 8 8 8				
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 *AT1-871 AT1-872 AT1-873	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8250 0.7375	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393	1.2490 0.7854 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912 0.8861	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		51.00		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 *AT1-871 AT1-872 AT1-873 Control Auxiliary Tes	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8250 0.7375	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194 0.9444 1.0139	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813 1.2694	1.2490 0.7854 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.8861 0.9912 1.2490	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.2490 1.2490 1.2490 1.4120	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662 8.471	8 8 8 8 8 8 8 8 8 8 8 8		51.00 Critical	Skew	Kurt
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 *AT1-871 AT1-872 AT1-873 Control Auxiliary Tes Shapiro-Wilk's	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8500 0.9125 ts	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194 0.9444 1.0139	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813 1.2694	1.2490 0.7854 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.8861 0.9912 1.2490	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.2490 1.2490 1.2490 1.4120	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662 8.471	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		51.00	Skew -0.1837	Kurt 1.69018
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 *AT1-871 AT1-872 AT1-873 Control Auxiliary Tes Shapiro-Wilk's Equality of var	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8500 0.9125 ts	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194 1.0139 attes non-	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813 1.2694	1.2490 0.7854 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.8861 0.9912 1.2490	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.2490 1.2490 1.2490 1.4120	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662 8.471	8 8 8 8 8 8 8 8 8 8 8 8		51.00 Critical		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 *AT1-871 AT1-872 AT1-873 Control Auxiliary Tes Shapiro-Wilk's	0.9000 0.5625 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8500 0.9125 ts Test indic	1.0000 0.6250 0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194 1.0139 attes non- lot be con	1.2490 0.8483 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813 1.2694	1.2490 0.7854 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912 0.8861 0.9912 1.2490	1.2490 0.8861 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490 1.4120	0.000 6.142 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662 8.471	8 8 8 8 8 8 8 8 8 8 8 8		51.00 Critical		

						Survival	Test-Survi	val			
Start Date:	12/10/2021			TN-21-788			Sample ID):	Swan Creek	•	
End Date:	12/20/2021	1	Lab ID:				Sample Ty	/pe:	Sediment		
Sample Date:			Protocol:				Test Spec	ies:	HA-Hyalella a	zteca	
Comments:											
Conc-	1	2	3	4	5	6	7	8			
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
				ansform: A	Arcsin So			Rank	1-Tailed	**	
Сопс-		N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-863	0.9000	1.0000	1.2490	1.2490	1.2490	0.000					
AT1-862	0.5625	0.6250	0.8483	0.7854	0.8861	6.142					
AT1-864	0.8000	0.8889	1.1104	0.9912	1.2490	6.231	8				
AT1-865	0.3625	0.4028	0.6453	0.5796	0.6847	8.427	8				
AT1-866	0.4875	0.5417	0.7728	0.6847	0.8861	8.349	8				
AT1-867	0.5500	0.6111	0.8363	0.6847	0.9912	11.268	8				
AT1-868	0.5875	0.6528	0.8735	0.7854	0.8861	4.075	8				
AT1-869	0.7375	0.8194	1.0360	0.8861	1.1071	8.056	8				
AT1-870	0.7375	0.8194	1.0347	0.9912	1.1071	5.802	8				
AT1-871	0.8250	0.9167	1.1459	0.9912	1.2490	8.205	8				
*AT1-872	0.7375	0.8194	1.0393	0.8861	1.2490	10.662	8	40.00	51.00		
AT1-873	0.8500	0.9444	1.1813	0.9912	1.2490	8.471	8				
Control	0.9125	1.0139	1.2694	1.2490	1.4120	4.539	. 8				
Auxiliary Test							Statistic		Critical	Skew	Kurt
Shapiro-Wilk's				tribution (p	<= 0.01)	3	0.83072		0.844	1.02233	4.03414
Equality of vari			firmed								
Hypothesis Te	st (1-tail f	1051									

Start Date:	12/10/2021		Test ID:	TN-21-788			Sample ID);	Swan Creek		
End Date:	12/20/2021		Lab ID:				Sample Ty		Sediment		
Sample Date:			Protocol:				Test Speci		HA-Hyalella a:	zteca	
Comments:							•		,		
Conc-	1	2	3	4	5	6	7	8			
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-862		0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-864		0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865		0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866		0.5000		0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867		0.6000		0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872		0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
AT1-873		0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
			Tr	ransform: A	Arcsin Sc	uare Ro	ot	Rank	1-Tailed		
Conc-	Mean I	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-863	0.9000	1.0000	1.2490	1.2490	1.2490	0.000	8				
AT1-862		0.6250	0.8483	0.7854	0.8861	6.142	8				
AT1-864		0.8889	1.1104	0.9912	1.2490	6.231	8				
AT1-865		0.4028	0.6453	0.5796	0.6847	8.427	8				
AT1-866		0.5417	0.7728	0.6847	0.8861	8.349	8				
AT1-867		0.6111	0.8363	0.6847	0.9912	11.268	8				
AT1-868	0.5875	0.6528	0.8735	0.7854	0.8861	4.075	8				
AT1-869		0.8194	1.0360	0.8861	1.1071	8.056	8				
AT1 - 870	0.7375	0.8194	1.0347	0.9912	1.1071	5.802	8				
AT1-871	0.8250	0.9167	1.1459	0.9912	1.2490	8.205	8				
AT1-872	0.7375	0.8194	1.0393	0.8861	1.2490	10.662	8				
AT1-873	0.8500	0.9444	1.1813	0.9912	1.2490	8.471	8	56.00	51.00		
Control	0.9125	1.0139	1.2694	1.2490	1.4120	4.539	8				
Auxiliary Test							Statistic		Critical	Skew	Kurt
hapiro-Wilk's				tribution (p	<= 0.01)		0.793		0.844	-1.465	3.0148
auglity of yer	iance canno	t be cor	firmed								
lypothesis T											

	_			Grov	wth and S	urvival 1	Test-Surviv	/al	· · ·		
Start Date:	12/10/202	1	Test ID:	TN-21-788			Sample ID	:	Swan Creek		
End Date:	12/20/202		Lab ID:				Sample Ty	pe:	Sediment		
Sample Date:			Protocol:				Test Speci		HA-Hyalella az	teca	
Comments:									_		
Conc-	1	2	3	4	5	6	7	8			
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000		*	
AT1-862		0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-864		0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865		0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866		0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867		0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868		0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869		0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870		0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
Control		0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
			Tr	ansform:	Arcsin Sc			Rank	1-Tailed		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-863		1.0000	1.2490	1.2490	1.2490	0.000	8				
AT1-862	0.5005	0.6250	0.8483	0.7854	0.8861	6.142	8				
AT1-864		0.8889	1.1104	0.9912	1.2490	6.231	8				
AT1-864 AT1-865	0.8000 0.3625	0.8889 0.4028	1.1104 0.6453	0.5796	0.6847	8.427	8				
AT1-864 AT1-865 AT1-866	0.8000 0.3625 0.4875	0.8889 0.4028 0.5417	1.1104 0.6453 0.7728	0.5796 0.6847	0.6847 0.8861	8.427 8.3 4 9	8 8				
AT1-864 AT1-865 AT1-866 AT1-867	0.8000 0.3625 0.4875 0.5500	0.8889 0.4028 0.5417 0.6111	1.1104 0.6453 0.7728 0.8363	0.5796 0.6847 0.6847	0.6847 0.8861 0.9912	8.427 8.3 4 9 11.268	8 8 8				
AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.8000 0.3625 0.4875 0.5500 0.5875	0.8889 0.4028 0.5417 0.6111 0.6528	1.1104 0.6453 0.7728 0.8363 0.8735	0.5796 0.6847 0.6847 0.7854	0.6847 0.8861 0.9912 0.8861	8.427 8.3 4 9 11.268 4.075	8 8 8				
AT1-864 AT1-865 AT1-866 AT1-867	0.8000 0.3625 0.4875 0.5500 0.5875	0.8889 0.4028 0.5417 0.6111	1.1104 0.6453 0.7728 0.8363	0.5796 0.6847 0.6847 0.7854 0.8861	0.6847 0.8861 0.9912 0.8861 1.1071	8.427 8.349 11.268 4.075 8.056	8 8 8 8				
AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.8000 0.3625 0.4875 0.5500 0.5875 0.7375	0.8889 0.4028 0.5417 0.6111 0.6528	1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347	0.5796 0.6847 0.6847 0.7854 0.8861 0.9912	0.6847 0.8861 0.9912 0.8861 1.1071 1.1071	8.427 8.349 11.268 4.075 8.056 5.802	8 8 8 8				
AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375 0.8250	0.8889 0.4028 0.5417 0.6111 0.6528 0.8194	1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459	0.5796 0.6847 0.6847 0.7854 0.8861 0.9912	0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490	8.427 8.349 11.268 4.075 8.056 5.802 8.205	8 8 8 8 8				
AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375 0.8250 0.7375	0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194	1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393	0.5796 0.6847 0.6847 0.7854 0.8861 0.9912 0.9912 0.8861	0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490	8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662	8 8 8 8 8 8 8				
AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375 0.8250 0.7375	0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194 0.9444	1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813	0.5796 0.6847 0.6847 0.7854 0.8861 0.9912 0.8861 0.9912	0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490 1.2490	8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662 8.471	8 8 8 8 8 8 8 8 8				
AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Control	0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8250 0.7375 0.8500 0.9125	0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194	1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393	0.5796 0.6847 0.6847 0.7854 0.8861 0.9912 0.9912 0.8861	0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490	8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662	8 8 8 8 8 8 8 8 8 8 8	72.00			
AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Control	0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375 0.8250 0.7375 0.8500 0.9125	0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194 0.9444 1.0139	1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813 1.2694	0.5796 0.6847 0.6847 0.7854 0.8861 0.9912 0.9912 0.8861 0.9912 1.2490	0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490 1.2490 1.4120	8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662 8.471	8 8 8 8 8 8 8 8 8 8 8	72.00	Critical	Skew	Kurt
AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-873 Control Auxiliary Tes Shapiro-Wilk's	0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8250 0.7375 0.8500 0.9125	0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194 0.9444 1.0139	1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813 1.2694	0.5796 0.6847 0.6847 0.7854 0.8861 0.9912 0.9912 0.8861 0.9912 1.2490	0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490 1.2490 1.4120	8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662 8.471	8 8 8 8 8 8 8 8 8 8 8	72.00		Skew 3.54891	
AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Control	0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.8500 0.9125 ts	0.8889 0.4028 0.5417 0.6111 0.6528 0.8194 0.9167 0.8194 0.9444 1.0139	1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.1813 1.2694	0.5796 0.6847 0.6847 0.7854 0.8861 0.9912 0.9912 0.8861 0.9912 1.2490	0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490 1.2490 1.4120	8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662 8.471	8 8 8 8 8 8 8 8 8 8 8	72.00	Critical		

				Gro	wth and	Survival	Test-Grow	rth			
Start Date:	12/10/2021	1	Test ID:	TN-21-788			Sample ID	:	Swan Creek		
End Date:	12/20/202		Lab ID:	•			Sample Ty		Sediment		
Sample Date:			Protocol:				Test Speci		HA-Hyalella azt	eca	
Comments:							•		<u>-</u>		
Conc-	1	2	3	4	5	6	7	8			
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956			
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620			
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775			
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100			
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860			
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640			
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650			
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325			
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486			
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413			
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586			
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633			
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022			
				Transform		formed		Rank	1-Tailed		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-863	0.0990	1.0000	0.0990	0.0922	0.1089	6.663	8				
*AT1-862	0.0663	0.6690	0.0663	0.0417	0.0900	21.013	8	36.00	47.00		
*AT1-864	0.0791	0.7988	0.0791	0.0575	0.1157	22.298	8	45.00	47.00		
*AT1-865	0.0664	0.6701	0.0664	0.0475	0.1100	33.281	8	44.00	47.00		
*AT1-866	0.0640	0.6467	0.0640	0.0333	0.0925	35.445	8	37.00	47.00		
*AT1-867	0.0556	0.5615	0.0556	0.0200	0.1350	62.180	8	44.00	47.00		
*AT1-868	0.0515	0.5196	0.0515	0.0400	0.0650	18.111	8	36.00	47.00		
*AT1-869	0.0291	0.2934	0.0291	0.0138	0.0486	43.921	8	36.00	47.00		
*AT1-870	0.0314	0.3169	0.0314	0.0157	0.0486	32.559	8	36.00	47.00	•	
*AT1-871	0.0426	0.4307	0.0426	0.0300	0.0578	17.690	8	36.00	47.00		
*AT1-872	0.0527	0.5322	0.0527	0.0288	0.0714	25.699	8	36.00	47.00		
*AT1-873	0.0645	0.6515	0.0645	0.0389	0.1071	33.418	8	42.00	47.00		
Control	0.1249	1.2617	0.1249	0.1022	0.1544	15.754	8	92.50	47.00		
Auxiliary Test	s						Statistic		Critical	Skew	Kurt
Kolmogorov D							1.10656		1.035	1.23919	4.18444
Bartlett's Test			nances (p	= 4.98E-0	4)		34.8347		26.217		
Hypothesis To							<u> </u>		<u> </u>		
Tryportiosis I											

				Gro	wth and	Survival	Test-Grov	wth				
Start Date:	12/10/202	1	Test ID:	TN-21-788			Sample II		Swan Cre	ek		
End Date:	12/20/202		Lab ID:				Sample T	ype:	Sediment			
Sample Date:			Protocol:				Test Spec		HA-Hyale	lla azteca		
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-862		0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866		0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869		0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
				Transform	n: Untran	sformed			1-Tailed			
0		-										
Сопс-	Mean	N-Меал	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863		N-Меал 1.0000	Mean 0.0990	Min 0.0922	Max 0.1089	6.663	8				<u>, </u>	····
	0.0990			0.0922 0.0417		6.663 21.013	8	t-Stat 6.018	1.761	0.0096		····
AT1-863	0.0990 0.0663	1.0000 0.6690 0.7988	0.0990	0.0922	0.1089	6.663 21.013 22.298	8 8 8				_	
AT1-863 *AT1-862	0.0990 0.0663 0.0791	1.0000 0.6690	0.0990 0.0663	0.0922 0.0417	0.1089 0.0900	6.663 21.013	8 8					
AT1-863 *AT1-862 AT1-864 AT1-865 AT1-866	0.0990 0.0663 0.0791 0.0664	1.0000 0.6690 0.7988 0.6701 0.6467	0.0990 0.0663 0.0791 0.0664 0.0640	0.0922 0.0417 0.0575 0.0475 0.0333	0.1089 0.0900 0.1157 0.1100 0.0925	6.663 21.013 22.298 33.281 35.445	8 8 8 8					
AT1-863 *AT1-862 AT1-864 AT1-865 AT1-866 AT1-867	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556	0.0922 0.0417 0.0575 0.0475 0.0333 0.0200	0.1089 0.0900 0.1157 0.1100 0.0925 0.1350	6.663 21.013 22.298 33.281 35.445 62.180	8 8 8 8 8					
AT1-863 *AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515	0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400	0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650	6.663 21.013 22.298 33.281 35.445	8 8 8 8 8					
AT1-863 *AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138	0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8 8					
AT1-863 *AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515	0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400	0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	6.663 21.013 22.298 33.281 35.445 62.180 18.111	8 8 8 8 8 8					
AT1-863 *AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8 8 8					
AT1-863 *AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288	0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8 8					
AT1-863 *AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.0990 0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8 8					
AT1-863 *AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.0990 0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288	0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8		1.761			
AT1-863 *AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-872 AT1-873 Control	0.0990 0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	0.0990 0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8 8		1.761		Skew	Kurt
AT1-863 *AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Test	0.0990 0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	0.0990 0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 9		1.761 Critical 0.844		Skew -0.0178	Kurt 2.07681
AT1-863 *AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-873 Control Auxiliary Test Shapiro-Wilk's	0.0990 0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 ts Test indicates equal va	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	0.0990 0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 4 4.45106	6.018	1.761 Critical 0.844 8.88539	0.0096	-0.0178	2.07681
AT1-863 *AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Test	0.0990 0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 ts Test indicates equal values (1-tail,	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	0.0990 0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 al distribu	0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 9	6.018 MSDp	1.761 Critical 0.844		-0.0178 F-Prob	

•				Gro	wth and	Survival	Test-Grow	vth				
Start Date:	12/10/2021		Test ID:	TN-21-788	1		Sample ID):	Swan Cre	ek		
End Date:	12/20/2021		Lab ID:				Sample Ty	ype:	Sediment			
Sample Date:			Protocol:				Test Spec	ies:	HA-Hyale	la azteca		
Comments:							-					
Conc-	1	2	3	4	5	6	7	8				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956			<u> </u>	
AT1-862		0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865		0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870		0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871		0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0,0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
	•			Transforn	n: Untran:	sformed	•		1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	0.0990	1.0000	0.0990	0.0922	0.1089	6.663	8					
AT1-862	0.0663	0.6690	0.0663	0.0417	0.0900	21.013	8					
	0.0003	0.0000										
*AT1-864		0.7988	0.0791	0.0575	0.1157	22.298	8	2.993	1.761	0.0117		
*AT1-864 A T 1-865	0.0791		0.0664	0.0475	0.1100	22.298 33.281	8 8	2.993	1.761	0.0117		
	0.0791 0.0664	0.7988 0.6701 0.6467	0.0664 0.0640	0.0475 0.0333	0.1100 0.0925	22.298 33.281 35.445	8 8 8	2.993	1.761	0.0117		
A T 1-865	0.0791 0.0664 0.0640	0.7988 0.6701 0.6467 0.5615	0.0664 0.0640 0.0556	0.0475 0.0333 0.0200	0.1100 0.0925 0.1350	22.298 33.281 35.445 62.180	8 8 8	2.993	1.761	0.0117		
AT1-865 AT1-866	0.0791 0.0664 0.0640 0.0556	0.7988 0.6701 0.6467 0.5615 0.5196	0.0664 0.0640 0.0556 0.0515	0.0475 0.0333 0.0200 0.0400	0.1100 0.0925 0.1350 0.0650	22.298 33.281 35.445 62.180 18.111	8 8 8 8	2.993	1.761	0.0117		
AT1-865 AT1-866 AT1-867	0.0791 0.0664 0.0640 0.0556 0.0515	0.7988 0.6701 0.6467 0.5615 0.5196 0.2934	0.0664 0.0640 0.0556	0.0475 0.0333 0.0200 0.0400 0.0138	0.1100 0.0925 0.1350 0.0650 0.0486	22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8	2.993	1.761	0.0117		
A T 1-865 AT1-866 AT1-867 AT1-868	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8	2.993	1.761	0.0117		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.7988 0.6701 0.6467 0.5615 0.5196 0.2934	0.0664 0.0640 0.0556 0.0515 0.0291	0.0475 0.0333 0.0200 0.0400 0.0138	0.1100 0.0925 0.1350 0.0650 0.0486	22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8 8 8 8	2.993	1.761	0.0117		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288	0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714	22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8	2.993	1.761	0.0117		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8 8	2.993	1.761	0.0117		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288	0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714	22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8	2.993		0.0117		
AT1-865 AT1-866 AT1-866 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8	2.993	Critical	0.0117	Skew	Kurt
AT1-865 AT1-866 AT1-868 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Tes	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 ts	0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	2.993	Critical 0.844	0.0117	Skew 1.47247	Kurt 3.84702
AT1-865 AT1-866 AT1-868 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Tes Shapiro-Wilk's	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 ts Test indicates equal val	0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 Statistic 0.85004 7.14451		Critical 0.844 8.88539		1.47247	3.84702
AT1-865 AT1-866 AT1-868 AT1-868 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Tes	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 ts s Test indicates equal variest (1-tail,	0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617 ates normation (p. 1000)	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	MSDp	Critical 0.844 8.88539 MSB	MSE 0.00018	1.47247 F-Prob	

				Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/10/2021	1	Test ID:	TN-21-788			Sample ID		Swan Cre	ek		
End Date:	12/20/2021		Lab ID:				Sample Ty		Sediment			
Sample Date:			Protocol:				Test Spec		HA-Hyale			
Comments:									•			
Conc-	1	2	3	4	5	6	7	8				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-864		0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866		0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868		0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869		0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870		0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
				Transforn	n: Untran:	sformed			1-Tailed			
Conc-	Mean	N-Mean `	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	0.0000	1.0000	0.0990	0.0922	0.1089	6.663	0					
, , , , , , , ,	0.0990						8					
AT1-862		0.6690	0.0663	0.0922	0.0900	21.013	8					
	0.0663			0.0 4 17 0.0 5 75		21.013 22.298	8 8					
AT1-862	0.0663 0.0791	0.6690	0.0663 0.0791 0.0664	0.0417 0.0575 0.0475	0.0900	21.013 22.298 33.281	8 8 8	4.010	1.860	0.0152		
AT1-862 AT1-864 *AT1-865 AT1-866	0.0663 0.0791 0.0664 0.0640	0.6690 0.7988 0.6701 0.6467	0.0663 0.0791 0.0664 0.0640	0.0417 0.0575 0.0475 0.0333	0.0900 0.1157 0.1100 0.0925	21.013 22.298 33.281 35.445	8 8 8	4.010	1.860	0.0152		
AT1-862 AT1-864 *AT1-865 AT1-866 AT1-867	0.0663 0.0791 0.0664 0.0640 0.0556	0.6690 0.7988 0.6701 0.6467 0.5615	0.0663 0.0791 0.0664 0.0640 0.0556	0.0417 0.0575 0.0475 0.0333 0.0200	0.0900 0.1157 0.1100 0.0925 0.1350	21.013 22.298 33.281 35.445 62.180	8 8 8 8	4.010	1.860	0.0152		
AT1-862 AT1-864 *AT1-865 AT1-866 AT1-867 AT1-868	0.0663 0.0791 0.0664 0.0640 0.0556 0.0515	0.6690 0.7988 0.6701 0.6467 0.5615 0.5196	0.0663 0.0791 0.0664 0.0640 0.0556 0.0515	0.0417 0.0575 0.0475 0.0333 0.0200 0.0400	0.0900 0.1157 0.1100 0.0925 0.1350 0.0650	21.013 22.298 33.281 35.445 62.180 18.111	8 8 8 8 8	4.010	1.860	0.0152		
AT1-862 AT1-864 *AT1-865 AT1-866 AT1-867	0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934	0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138	0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	21.013 22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8	4.010	1.860	0.0152		
AT1-862 AT1-864 *AT1-865 AT1-866 AT1-867 AT1-868	0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169	0.0663 0.0791 0.0664 0.0640 0.0556 0.0515	0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8 8	4.010	1.860	0.0152		
AT1-862 AT1-864 *AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934	0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138	0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	21.013 22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8 8 8	4.010	1.860	0.0152		
AT1-862 AT1-864 *AT1-865 AT1-866 AT1-867 AT1-868 AT1-870	0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169	0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714	21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8 8	4.010	1.860	0.0152		
AT1-862 AT1-864 *AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307	0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8 8 8	4.010	1.860	0.0152		
AT1-862 AT1-864 *AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322	0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288	0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714	21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8	4.010		0.0152		
AT1-862 AT1-864 *AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control	0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8	4.010	Critical	0.0152	Skew	Kurt
AT1-862 AT1-864 *AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Test	0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 ts	0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	4.010	Critical 0.844	0.0152	Skew 1.2477	Kurt 2.91835
AT1-862 AT1-864 *AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-873 Control Auxiliary Test Shapiro-Wilk's F-Test indicate	0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 ts Test indicates	0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 7 8 8 8 1 1 1 1		Critical 0.844 8.88539		1.2477	2.91835
AT1-862 AT1-864 *AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Test	0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 ts Test indicates unequal est (1-tail,	0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617 ates norm variances 0.05)	0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022 tion (p > 0.	0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	MSDp	Critical 0.844	MSE		

				Gro	wth and	Survival	Test-Grov	wth				
Start Date:	12/10/2021		Test ID:	TN-21-788			Sample II	D:	Swan Cre	ek		
End Date:	12/20/2021		Lab ID:				Sample T	уре:	Sediment			
Sample Date:			Protocol:				Test Spec	cies:	HA-Hyale	lla azteca		
Comments:							•		·			
Conc-	1	2	3	4	5	6	7	8				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-864		0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866		0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-87 1	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
AT1-873		0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
				Transform	: Untran	sformed			1-Tailed			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863		1.0000	0.0990	0.0922	0.1089	6.663	8					
AT1-862		0.6690	0.0663	0.0417	0.0900	21.013	8					
AT1-864		0.7988	0.0791	0.0575	0.1157	22.298	8					
AT1-865		0.6701	0.0664	0.0475	0.1100	33.281	8					
*AT1-866		0.6467	0.0640	0.0333	0.0925	35.445	8	4.186	1.860	0.0155		
AT1-867		0.5615	0.0556	0.0200	0.1350	62.180	8					
AT1-868		0.5196	0.0515	0.0400	0.0650	18.111	8					
AT1-869		0.2934	0.0291	0.0138	0.0486	43.921	8					
AT1 - 870		0.3169	0.0314	0.0157	0.0486	32.559	8	•				
AT1-871	0.0426	0.4307	0.0426	0.0300	0.0578	17.690	8					
AT1 - 872		0.5322	0.0527	0.0288	0.0714	25.699	8					
AT1-873		0.6515	0.0645	0.0389	0.1071	33.418	8					
Control		1.2617	0.1249	0.1022	0.1544	15.754	8					
Auxiliary Test							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's					01)		0.95547		0.844		0.06623	-0.1232
F-Test indicate			s (p = 4.21	E-03)			11.8344		8.88539			
Hypothesis T	est (1-tail, ().05)					MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedasi								0.15694	0.0049	0.00028		1, 14

				Gro	wth and	Survival	Test-Grow	/th			
Start Date:	12/10/202	1	Test ID:	TN-21-788	}		Sample ID):	Swan Creek		
End Date:	12/20/202	1	Lab ID:				Sample Ty	/pe:	Sediment		
Sample Date:			Protocol:				Test Spec	ies:	HA-Hyalella	azteca	
Comments:							-		-		
Сопс-	1	2	3	4	5	6	7	8	•		
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956			
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620			
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775			
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100			
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860			
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640			
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650			
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325			
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486			
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413			
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586			
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633			
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022			
				Transform	n: Untran:	sformed		Rank	1-Tailed		
Conc-		N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-863		1.0000	0.0990	0.0922	0.1089	6.663	8				
AT1-862		0.6690	0.0663	0.0417	0.0900	21.013	8				
AT1-864		0.7988	0.0791	0.0575	0.1157	22.298	8				
AT1-865		0.6701	0.0664	0.0475	0.1100	33.281	8				
AT1-866		0.6467	0.0640	0.0333	0.0925	35.445	8				
*AT1-867	0.0556	0.5615	0.0556	0.0200	0.1350	62.180	8	44.00	51.00		
AT1-868		0.5196	0.0515	0.0400	0.0650	18.111	8				
AT1-869		0.2934	0.0291	0.0138	0.0486	43.921	8				
AT1-870		0.3169	0.0314	0.0157	0.0486	32.559	8				
AT1-871	0.0426	0.4307	0.0426	0.0300	0.0578	17.690	8				
AT1-872		0.5322	0.0527	0.0288	0.0714	25.699	8				
AT1-873		0.6515	0.0645	0.0389	0.1071	33.418	8				
Control		1.2617	0.1249	0.1022	0.1544	15.754	8				
Auxiliary Test							Statistic		Critical	Skew	Kurt
Shapiro-Wilk's					<= 0.01)		0.72311		0.844	2.44274	8.6694
F-Test indicate			s(p = 2.83)	E-04)			27.4584		8.88539		
Hypothesis To	est (1-tail,	0.05)									

Wilcoxon Two-Sample Test indicates significant differences

				Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/10/202	1	Test ID:	TN-21-788			Sample II		Swan Cre	ek		
End Date:	12/20/202		Lab ID:				Sample T		Sediment			
Sample Date:			Protocol:				Test Spec		HA-Hyale			
Comments:							•		,			
Conc-	1	2	3	4	5	6	7	8				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866		0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
				Transforn	n: Untran:	sformed			1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	0.0990	1.0000	0.0990	0.0922	0.1089	6.663	8					
AT1-862	0.0663	0.6690	0.0663	0.0417	0.0900	21.013	8					
AT1-864	0.0791	0.7988	0.0791	0.0575	0.1157	22.298	•					
AT1-865	0.0.0.						8					
	0.0664	0.6701	0.0664	0.0475	0.1100	33.281	8					
AT1-866	0.0664 0.0640	0.6701 0.6467	0.0640	0.0333	0.0925	33.281 35.445	8 8					
AT1-866 AT1-867	0.0664 0.0640 0.0556	0.6701 0.6467 0.5615	0.0640 0.0556	0.0333 0.0200	0.0925 0.1350	33.281 35.445 62.180	8 8 8					
AT1-866 AT1-867 *AT1-868	0.0664 0.0640 0.0556 0.0515	0.6701 0.6467 0.5615 0.5196	0.0640 0.0556 0.0515	0.0333 0.0200 0.0400	0.0925 0.1350 0.0650	33.281 35.445 62.180 18.111	8 8 8	11.783	1. 7 61	0.0071		
AT1-866 AT1-867 *AT1-868 AT1-869	0.0664 0.0640 0.0556 0.0515 0.0291	0.6701 0.6467 0.5615 0.5196 0.2934	0.0640 0.0556 0.0515 0.0291	0.0333 0.0200 0.0400 0.0138	0.0925 0.1350 0.0650 0.0486	33.281 35.445 62.180 18.111 43.921	8 8 8 8	11.783	1. 7 61	0.0071		
AT1-866 AT1-867 *AT1-868 AT1-869 AT1-870	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.6701 0.6467 0.5615 0.5196 0.2934 0.3169	0.0640 0.0556 0.0515 0.0291 0.0314	0.0333 0.0200 0.0400	0.0925 0.1350 0.0650	33.281 35.445 62.180 18.111	8 8 8 8 8	11.783	1. 7 61	0.0071		
AT1-866 AT1-867 *AT1-868 AT1-869	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307	0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8	11.783	1. 7 61	0.0071		
AT1-866 AT1-867 *AT1-868 AT1-869 AT1-870 AT1-871 AT1-872	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322	0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288	0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714	33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8	11.783	1. 7 61	0.0071		
AT1-866 AT1-867 *AT1-868 AT1-869 AT1-870 AT1-871	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515	0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8	11.783	1. 7 61	0.0071		
AT1-866 AT1-867 *AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322	0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288	0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714	33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8	11.783		0.0071		
AT1-866 AT1-867 *AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8	11.783	Critical	0.0071	Skew	Kurt
AT1-866 AT1-867 *AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Test Shapiro-Wilk's	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 Statistic 0.915 7 8	11.783	Critical 0.844	0.0071	Skew 0.57842	Kurt -0.6745
AT1-866 AT1-869 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Test Shapiro-Wilk's F-Test indicate	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 Statistic 0.915 7 8 1.99481		Critical 0.844 8.88539		0.57842	-0.6745
AT1-866 AT1-867 *AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Test Shapiro-Wilk's	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 is Test indicates equal values (1-fail,	0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617 ates normation (p. 1000)	0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 Statistic 0.91578 1.99481 MSDu	11.783 MSDp 0.07181	Critical 0.844	MSE		

				Gro	wth and	Survival	Test-Grov	wth				
Start Date:	12/10/2021		Test ID:	TN-21-788			Sample II	D:	Swan Cre	ek		
End Date:	12/20/2021		Lab ID:				Sample T	ype:	Sediment			
Sample Date:			Protocol:				Test Spec	cies:	HA-Hyale	lla azteca	l	
Comments:							•		-			
Conc-	1	2	3	4	5	6	7	8				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-8 7 2	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
				Transform	: Untran	sformed			1-Tailed			
Conc-	Mean 1	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	0.0990	1.0000	0.0990	0.0922	0.1089	6.663	8					
AT1-862	0.0663	0.6690	0.0663	0.0417	0.0900	21.013	8					
AT1-864	0.0791	0.7988	0.0791	0.0575	0.1157	22.298	8					
AT1 - 865	0.0664	0.6701	0.0664	0.0475	0.1100	33.281	8					
AT1-866	0.0640	0.6467	0.0640	0.0333	0.0925	35.445	8					
AT1-867	0.0556	0.5615	0.0556	0.0200	0.1350	62,180	8					
AT1-868	0.0515	0.5196	0.0515	0.0400	0.0650	18.111	8					
*AT1-869	0.0291	0.2934	0.0291	0.0138	0.0486	43.921	8	13.776	1.761	0.0089		
AT1 - 8 7 0	0.0314	0.3169	0.0314	0.0157	0.0486	32.559	8					
AT1 -871	0.0426	0.4307	0.0426	0.0300	0.0578	17.690	8					
AT1 -87 2	0.0527	0.5322	0.0527	0.0288	0.0714	25.699	8					
AT1-873	0.0645	0.6515	0.0645	0.0389	0.1071	33.418	8					
Control	0.1249	1.2617	0.1249	0.1022	0.1544	15.754	8					
Auxiliary Test							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's				tion (p > 0.0)1)		0.96999		0.844		0.40473	-0.2866
F-Test indicate	es equal var	iances (p	0 = 0.10				3.74011		8.88539			
Hypothesis Te).05)	•				MSDu	MSDp	MSB	MSE	F-Prob	df

				Gro	wth and	Survival	Test-Grov	wth				
Start Date:	12/10/202	1	Test ID:	TN-21-788	}		Sample II	D:	Swan Cre	ek		
End Date:	12/20/202		Lab ID:				Sample T		Sediment			
Sample Date:			Protocol:				Test Spec		HA-Hyale			
Comments:	1_						•		•			
Conc-	1	2	3	4	5	6	7	8				-
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
				Transform	n: Untran:	sformed			1-Tailed			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	0.0990	1.0000	0.0990	0.0922	0.1089	6.663	8					
AT1-862	0.0663	0.6690	0.0663	0.0417	0.0900	21.013	8					
AT1-864												
	0.0791	0.7988	0.0791	0.0575	0.1157	22.298	8					
AT1-865	0.0791 0.0664	0.7988 0.6701	0.0791 0.0664	0.0475	0.1100	33,281	8 8					
AT1-865 AT1-866	0.0664 0.0640	0.6701 0.6467		0.0475 0.0333	0.1100 0.0925	33,281 35,445	8 8 8					
AT1-865 AT1-866 AT1-867	0.0664 0.0640 0.0556	0.6701 0.6467 0.5615	0.0664 0.0640 0.0556	0.0475 0.0333 0.0200	0.1100 0.0925 0.1350	33.281 35.445 62.180	8 8 8					
AT1-865 AT1-866 AT1-867 AT1-868	0.0664 0.0640 0.0556 0.0515	0.6701 0.6467 0.5615 0.5196	0.0664 0.0640 0.0556 0.0515	0.0475 0.0333 0.0200 0.0400	0.1100 0.0925 0.1350 0.0650	33.281 35.445 62.180 18.111	8 8 8 8					
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0664 0.0640 0.0556 0.0515 0.0291	0.6701 0.6467 0.5615 0.5196 0.2934	0.0664 0.0640 0.0556 0.0515 0.0291	0.0475 0.0333 0.0200 0.0400 0.0138	0.1100 0.0925 0.1350 0.0650 0.0486	33.281 35.445 62.180 18.111 43.921	8 8 8 8 8					
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 *AT1-870	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.6701 0.6467 0.5615 0.5196 0.2934 0.3169	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	33.281 35.445 62.180 18.111	8 8 8 8 8 8	15.729	1.761	0.0076		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8	15.729	1.761	0.0076		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 *AT1-870 AT1-871 AT1-872	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288	0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714	33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8	15.729	1.761	0.0076		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 *AT1-870 AT1-871	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8 8	15.729	1.761	0.0076		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 *AT1-870 AT1-871 AT1-872	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288	0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714	33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8	15.729		0.0076		
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 *AT1-870 AT1-871 AT1-872 AT1-873 Control	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.1100 0.0925 0.1350 0.0650 0.0486 0.0578 0.0714 0.1071 0.1544	33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8	15.729	Critical	0.0076	Skew	Kurt
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 *AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Test	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.1100 0.0925 0.1350 0.0650 0.0486 0.0578 0.0714 0.1071 0.1544	33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8	15.729		0.0076	Skew 0.265	Kurt 0.0939
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 *AT1-870 AT1-871 AT1-872 AT1-873 Control	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.1100 0.0925 0.1350 0.0650 0.0486 0.0578 0.0714 0.1071 0.1544	33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 Statistic 0.97662 2.39814		Critical 0.844 8.88539		0.265	0.0939
AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 *AT1-870 AT1-871 AT1-872 AT1-873 Control Auxiliary Test	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 se equal values (1-tail,	0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617 ates normation (p. 0.05)	0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.1100 0.0925 0.1350 0.0650 0.0486 0.0578 0.0714 0.1071 0.1544	33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 Statistic	MSDp	Critical 0.844	0.0076 MSE 7.4E-05		

				Gro	wth and	Survival	Test-Grov	wth				
Start Date:	12/10/202	1	Test ID:	TN-21-788			Sample II		Swan Cre	ek		
End Date:	12/20/202		Lab ID:				Sample T		Sediment			
Sample Date:	12/20/202		Protocol:				Test Spec		HA-Hyalel	la azteca		
Comments:												
Conc-	1	2	3	4	5	6	7	8				
AT1-863		0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-862		0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-864		0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865		0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866		0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867		0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868		0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869		0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870		0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872		0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
AT1-873		0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
				Transforn		sformed			1-Tailed			
					ile Applications	01011104						
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	0.0990	1.0000	Mean 0.0990	Min 0.0922	Max 0.1089	CV% 6.663	8	t-Stat		MSD		
	0.0990		Mean 0.0990 0.0663	Min 0.0922 0.0417	Max	CV%	8 8	t-Stat		MSD		
AT1-863	0.0990 0.0663	1.0000	Mean 0.0990	Min 0.0922	Max 0.1089	6.663 21.013 22.298	8 8 8	t-Stat		MSD		
AT1-863 AT1-862	0.0990 0.0663 0.0791	1,0000 0.6690	Mean 0.0990 0.0663 0.0791 0.0664	Min 0.0922 0.0417 0.0575 0.0475	Max 0.1089 0.0900 0.1157 0.1100	6.663 21.013 22.298 33.281	8 8 8 8	t-Stat		MSD		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866	0.0990 0.0663 0.0791 0.0664 0.0640	1.0000 0.6690 0.7988 0.6701 0.6467	Mean 0.0990 0.0663 0.0791 0.0664 0.0640	Min 0.0922 0.0417 0.0575 0.0475 0.0333	Max 0.1089 0.0900 0.1157 0.1100 0.0925	6.663 21.013 22.298 33.281 35.445	8 8 8 8	t-Stat		MSD		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615	Mean 0.0990 0.0663 0.0791 0.0664 0.0640 0.0556	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200	Max 0.1089 0.0900 0.1157 0.1100	6.663 21.013 22.298 33.281 35.445 62.180	8 8 8 8 8	t-Stat		MSD		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196	Mean 0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400	Max 0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650	6.663 21.013 22.298 33.281 35.445	8 8 8 8 8	t-Stat		MSD		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934	Mean 0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138	Max 0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8 8	t-Stat		MSD		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196	Mean 0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400	Max 0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	6.663 21.013 22.298 33.281 35.445 62.180 18.111	8 8 8 8 8 8			MSD		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	1,0000 0,6690 0,7988 0,6701 0,6467 0,5615 0,5196 0,2934 0,3169 0,4307	Mean 0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	Max 0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8	t-Stat		MSD 0.0062		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	1,0000 0,6690 0,7988 0,6701 0,6467 0,5615 0,5196 0,2934 0,3169	Mean 0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288	Max 0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8 8		Critical			
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 *AT1-871	0.0990 0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	1,0000 0,6690 0,7988 0,6701 0,6467 0,5615 0,5196 0,2934 0,3169 0,4307	Mean 0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	Max 0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8		Critical			
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 *AT1-871	0.0990 0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	1,0000 0,6690 0,7988 0,6701 0,6467 0,5615 0,5196 0,2934 0,3169 0,4307 0,5322	Mean 0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288	Max 0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8		1.761			
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 *AT1-871 AT1-872 AT1-873 Control Auxiliary Test	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	1,0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	Mean 0.0990 0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8		1.761		Skew	Kurt
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 *AT1-871 AT1-872 AT1-873	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	1,0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	Mean 0.0990 0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 9 8		1.761 Critical 0.844		Skew 0.60594	Kurt 0.68784
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 *AT1-871 AT1-872 AT1-873 Control Auxiliary Test	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 ts	1,0000 0,6690 0,7988 0,6701 0,6467 0,5615 0,5196 0,2934 0,3169 0,4307 0,5322 0,6515 1,2617	Mean 0.0990 0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 al distribut	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8 8	15.910	1.761	0.0062	0.60594	0.68784
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 *AT1-871 AT1-872 AT1-873 Control Auxiliary Tesi Shapiro-Wilk's	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 ts Test indicates equal values (1-tail,	1,0000 0,6690 0,7988 0,6701 0,6467 0,5615 0,5196 0,2934 0,3169 0,4307 0,5322 0,6515 1,2617 ates norm riances (p	Mean 0.0990 0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 al distribut 0 = 0.73)	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 9 8		1.761 Critical 0.844			

				Gre	owth and	Survival	Test-Gro	wth			· ·	
Start Date:	12/10/202	.1	Test ID:	TN-21-788			Sample II		Swan Cr	eek		*
End Date:	12/20/202	1	Lab ID:				Sample T	ype:	Sedimen	t		
Sample Date:			Protocol:				Test Spec		HA-Hyale	ella a zt eca		
Comments:									•			
Conc-	1	2	3	4	5	6	7	8				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1 - 865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
AT1 - 873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
				Transforr	n: Untran	eformed			1-Tailed			
					ii, ondai				i-i diiçu			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	0.0990	1.0000	Mean 0.0990	Min 0.0922	Max 0.1089	CV% 6.663	8	t-Stat			*	
AT1-863 AT1-862	0.0990 0.0663	1.0000 0.6690	Mean 0.0990 0.0663	Min 0.0922 0.0417	Max	6.663 21.013		t-Stat			·*··	
AT1-863 AT1-862 AT1-864	0.0990 0.0663 0.0791	1.0000 0.6690 0.7988	Mean 0.0990 0.0663 0.0791	Min 0.0922 0.0417 0.0575	Max 0.1089 0.0900 0.1157	6.663 21.013 22.298	8 8 8	t-Stat				
AT1-863 AT1-862 AT1-864 AT1-865	0.0990 0.0663 0.0791 0.0664	1.0000 0.6690 0.7988 0.6701	Mean 0.0990 0.0663 0.0791 0.0664	Min 0.0922 0.0417 0.0575 0.0475	Max 0.1089 0.0900 0.1157 0.1100	6.663 21.013 22.298 33.281	8 8	t-Stat			**	
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866	0.0990 0.0663 0.0791 0.0664 0.0640	1.0000 0.6690 0.7988 0.6701 0.6467	Mean 0.0990 0.0663 0.0791 0.0664 0.0640	Min 0.0922 0.0417 0.0575 0.0475 0.0333	Max 0.1089 0.0900 0.1157 0.1100 0.0925	6.663 21.013 22.298 33.281 35.445	8 8 8 8	t-Stat			···	
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615	Mean 0.0990 0.0663 0.0791 0.0664 0.0640 0.0556	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200	Max 0.1089 0.0900 0.1157 0.1100 0.0925 0.1350	6.663 21.013 22.298 33.281 35.445 62.180	8 8 8 8 8	t-Stat			· · ·	
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196	Mean 0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400	Max 0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650	6.663 21.013 22.298 33.281 35.445 62.180 18.111	8 8 8 8 8	t-Stat			***	
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934	Mean 0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138	Max 0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8 8	t-Stat				
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169	Mean 0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	Max 0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8 8	t-Stat				
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307	Mean 0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	Max 0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8	t-Stat	Critical	MSD		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322	Mean 0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288	Max 0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8	t-Stat 8.697				
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 *AT1-872	0.0990 0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515	Mean 0.0990 0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	Max 0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8 8 8 8		Critical	MSD		
AT1-863 AT1-864 AT1-864 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 *AT1-872 AT1-873 Control	0.0990 0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322	Mean 0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288	Max 0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		Critical	MSD		
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 *AT1-872 AT1-873 Control Auxiliary Test	0.0990 0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	Mean 0.0990 0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	Max 0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8 8		1.761	MSD	Skew	Kurt
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 *AT1-872 AT1-873 Control Auxiliary Test Shapiro-Wilk's	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 s	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	Mean 0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 al distribut	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	Max 0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 9 7 7 7 7		1.761 Critical 0.844	MSD	Skew -0.4227	Kurt 0.92011
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 *AT1-872 AT1-873 Control Auxiliary Test Shapiro-Wilk's F-Test indicate	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 s	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	Mean 0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 al distribut	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	Max 0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 4 9 7 126 4.21289	8.697	1.761 Critical 0.844 8.88539	MSD 0.0094	-0.4227	0.92011
AT1-863 AT1-862 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 *AT1-872 AT1-873 Control Auxiliary Test Shapiro-Wilk's	0.0990 0.0663 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 s Test indicases equal variest (1-tail,	1.0000 0.6690 0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	Mean 0.0990 0.0663 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 al distribut 0 = 0.08)	Min 0.0922 0.0417 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	Max 0.1089 0.0900 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	6.663 21.013 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 4 2 1,21289 MSDu	8.697 MSD p	1.761 Critical 0.844 8.88539 MSB	0.0094 MSE		

				Gro	wth and	Survival	Test-Grov	wth				
Start Date:	12/10/202	1	Test ID:	TN-21-788	3	.,	Sample II	D:	Swan Cre	eek		
End Date:	12/20/202	1	Lab ID:				Sample T	vpe:	Sediment	t		
Sample Date:			Protocol:				Test Spec			lla azteca		
Comments:							•		•			
Conc-	1	2	3	4	5	6	7	8				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				•
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
				Transform	n: Untran:	sformed			1-Tailed			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	0.0990	1.0000	0.0990	0.0922	0.1089	6.663	8					
AT4 000				0.0447								
AT1 - 862	0.0663	0.6690	0.0663	0.0417	0.0900	21.013	8					
AT1 - 864	0.0791	0.7988	0.0791	0.0575	0.1157	22.298	8					
AT1-864 AT1-865	0.0791 0.0664	0.7988 0.6701	0.0791 0.0664	0.0575 0.0475	0.1157 0.1100	22.298 33.281	8 8					
AT1-864 AT1-865 AT1-866	0.0791 0.0664 0.0640	0.7988 0.6701 0.6467	0.0791 0.0664 0.0640	0.0575 0.0475 0.0333	0.1157 0.1100 0.0925	22.298 33.281 35.445	8 8 8					
AT1-864 AT1-865 AT1-866 AT1-867	0.0791 0.0664 0.0640 0.0556	0.7988 0.6701 0.6467 0.5615	0.0791 0.0664 0.0640 0.0556	0.0575 0.0475 0.0333 0.0200	0.1157 0.1100 0.0925 0.1350	22.298 33.281 35.445 62.180	8 8 8					
AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.0791 0.0664 0.0640 0.0556 0.0515	0.7988 0.6701 0.6467 0.5615 0.5196	0.0791 0.0664 0.0640 0.0556 0.0515	0.0575 0.0475 0.0333 0.0200 0.0400	0.1157 0.1100 0.0925 0.1350 0.0650	22.298 33.281 35.445 62.180 18.111	8 8 8 8					
AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.7988 0.6701 0.6467 0.5615 0.5196 0.2934	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8					
AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8					
AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8					
AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714	22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8					
AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071	22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8 8	4.328	1.860	0.0148		
AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 *AT1-873 Control	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714	22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8	4.328		0.0148		
AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 *AT1-873 Control	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0578 0.0714 0.1071 0.1544	22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8	4.328	1.860	0.0148	Skew	Kurt
AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 *AT1-873 Control	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8	4.328		0.0148		Kurt 3.39046
AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 *AT1-873 Control Auxiliary Test Shapiro-Wilk's F-Test indicate	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 s	0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 8 8 8 0.88346 10.6777	· · · · · · · · · · · · · · · · · · ·	Critical 0.844 8.88539		1.09174	3.39046
AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 *AT1-873 Control Auxiliary Test Shapiro-Wilk's	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 s Test indicases unequal	0.7988 0.6701 0.6467 0.5615 0.5196 0.2934 0.3169 0.4307 0.5322 0.6515 1.2617 attes norm variances 0.05)	0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.0645 0.1249 al distributi	0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.0389 0.1022	0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1071 0.1544	22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 33.418	8 8 8 8 8 8 8 8 8 8 8 S S 8	4.328 MSDp 0.1497	Critical 0.844 8.88539 MSB	0.0148 MSE 0.00025		

····			<u>-</u> .	Gre	owth and	Survival	Test-Gro	wth		* "		
Start Date:	12/10/202	<u>!</u> 1	Test ID:	TN-21-78			Sample I	_	Swan Cr	eek	<u></u>	
End Date:	12/20/202	<u>!</u> 1	Lab ID:				Sample 1		Sedimen			
Sample Date:			Protocol:				Test Spe			 ella azteca	à	
Comments:							,			ona aztoa	•	
Сопс-	1	2	3	4	5	6	7	8				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956		-	·	
AT1-862		0.0733	0.0667	0.0733	0.0417	0.0900						
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575						
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475						
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425						
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400						
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483					
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486					
AT1-870		0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1 - 871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872		0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
				Transforn	n: Untran:	sformed			1-Tailed			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-863	0.0990	1.0000	0.0990	0.0922	0.1089	6.663	8					
AT1-862	0.0663	0.6690	0.0663	0.0417	0.0900	21.013	8					
AT1-864	0.0791	0.7988	0.0791	0.0575	0.1157	22.298	8					
AT1-865	0.0664	0.6701	0.0664	0.0475	0.1100	33.281	8					
AT1-866	0.0640	0.6467	0.0640	0.0333	0.0925	35.445	8					
AT1-867	0.0556	0.5615	0.0556	0.0200	0.1350	62.180	8					
AT1-868	0.0515	0.5196	0.0515	0.0400	0.0650	18.111	8					
AT1-869	0.0291	0.2934	0.0291	0.0138	0.0486	43.921	8					
AT1-870	0.0314	N 2160	0.0314	ハ ハイミフ	0.040c	^^ == ^	_					
		0.3169		0.0157	0.0486	32.559	8					
AT1-871	0.0426	0.4307	0.0426	0.0300	0.0578	17.690	8					
AT1-871 AT1-872	0.0426 0.0527	0.4307 0.5322	0.0426 0.0527	0.0300 0.0288	0.0578 0.0714	17.690 25.699	8 8					
AT1-871 AT1-872 AT1-873	0.0426 0.0527 0.0645	0.4307 0.5322 0.6515	0.0426 0.0527 0.0645	0.0300 0.0288 0.0389	0.0578 0.0714 0.1071	17.690	8					
AT1-871 AT1-872 AT1-873 Control	0.0426 0.0527 0.0645 0.1249	0.4307 0.5322	0.0426 0.0527	0.0300 0.0288	0.0578 0.0714	17.690 25.699	8 8 8	<u>-3</u> .531	1. <u>8</u> 60	0.0136		
AT1-871 AT1-872 AT1-873 Control Auxiliary Tests	0.0426 0.0527 0.0645 0.1249	0.4307 0.5322 0.6515 1.2617	0.0426 0.0527 0.0645 0.1249	0.0300 0.0288 0.0389 0.1022	0.0578 0.0714 0.1071 0.1544	17.690 25.699 33.418	8 8 8 8 Statistic	-3.531	1.860 Critical	0.0136	Skew	Kurt
AT1-871 AT1-872 AT1-873 Control Auxiliary Tests Shapiro-Wilk's	0.0426 0.0527 0.0645 0.1249 s	0.4307 0.5322 0.6515 1.2617	0.0426 0.0527 0.0645 0.1249	0.0300 0.0288 0.0389 0.1022 ion (p > 0.4	0.0578 0.0714 0.1071 0.1544	17.690 25.699 33.418	8 8 8	-3.531		0.0136	Skew 0.02346	Kurt 0.02624
AT1-871 AT1-872 AT1-873 Control Auxiliary Tests Shapiro-Wilk's F-Test indicate	0.0426 0.0527 0.0645 0.1249 s Test indicas s unequal	0.4307 0.5322 0.6515 1.2617 ates norma	0.0426 0.0527 0.0645 0.1249	0.0300 0.0288 0.0389 0.1022 ion (p > 0.4	0.0578 0.0714 0.1071 0.1544	17.690 25.699 33.418	8 8 8 8 Statistic 0.94532 8.899	-3.531	Critical	0.0136		
AT1-871 AT1-872 AT1-873 Control Auxiliary Tests Shapiro-Wilk's	0.0426 0.0527 0.0645 0.1249 s Test indicas s unequal	0.4307 0.5322 0.6515 1.2617 ates norma variances 0.05)	0.0426 0.0527 0.0645 0.1249 al distribut (p = 9.958	0.0300 0.0288 0.0389 0.1022 ion (p > 0.030)	0.0578 0.0714 0.1071 0.1544 01)	17.690 25.699 33.418	8 8 8 8 Statistic 0.94532 8.899 MSDu	MSDp	0.844 8.88539 MSB	0.0136 MSE 0.00022	0.02346 F-Prob	

tart Date:	12/10/2021		est ID: T	N-21-788		s	ample ID:		Swan Creek		
	12/20/2021		ab ID:			S	Sample Typ		Sediment		
Sample Date:	12/20/2021		rotocol:			Т	est Specie	es:	HA-Hyalella azteca		
Comments:		·									
Conc-	1	2	3	4	5	6	7	8			
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-809 AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-870 AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
AT1-872	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
Control	0.9000	0.3000	Tr	ansform:			ot	Rank	1-Tailed		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-873	0.8500	1.0000	1.1813	0.9912	1.2490	8.471	8				
*AT1-862		0.6618	0.8483	0.7854	0.8861	6.142	8	36.00	47.00		
AT1-863		1.0588	1.2490	1.2490	1.2490	0.000	8	80.00	47. 00		
AT1-864		0.9412	1.1104	0.9912	1.2490	6.231	8	54.00			
*A T1 -865		0.4265	0.6453	0.5796	0.6847	8.427	8	36.00			
*AT1-866		0.5735	0.7728	0.6847	0.8861	8.349	8	36.00			
*AT1-867		0.6471	0.8363	0.6847	0.9912	11.268	8	36.50			
*AT1-868		0.6912	0.8735	0.7854	0.8861	4.075	8	36.00	47.00		
*AT1-869		0.8676	1.0360	0.8861	1.1071	8.056	8	45.50			
*AT1-870		0.8676	1.0347	0.9912	1.1071	5.802	8	44.50			
AT1-870		0.9706	1.1459	0.9912	1.2490	8.205	8	61.00			
AT1-871		0.8676	1.0393	0.8861	1.2490	10.662	8	47.50			
Contro		1.0735	1.2694	1.2490	1.4120	4.539	8	82.50			
Auxiliary Tes		1.07.00	112001				Statistic		Critical	Skew	Kurt
Kolmogorov E	Toet india	ates norm	al distribu	tion ($p > 0$.01)		0.93433		1.035	-0.0003	0.6922
Equality of va	gance can	not he con	firmed	(F	/						
Hypothesis 1	Test (1-tail	0.051	m/nou								

					vth and S	urvival	Test-Surviv				
Start Date:	12/10/2021			TN-21-788			Sample ID		Swan Creek		
ind Date:	12/20/2021		Lab ID:				Sample Ty		Sediment		
Sample Date:			Protocol:				Test Speci	ies:	HA-Hyaiella a	zteca	
Comments:											
Conc-	1	2	3	4	5	6	7	8			
AT1-873		0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868		0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869		0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872		0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
Control		0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
			Tı	ansform:	Arcsin Sq	uare Ro	ot	Rank	1-Tailed	-	
Conc-	Mean	N-Mean ⁻	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-873	0.8500	1.0000	1.1813	0.9912	1.2490	8.471	8		•		
*AT1-862	0.5625	0.6618	0.8483	0.7854	0.8861	6.142	8	36.00	51.00		
AT1-863	0.9000	1.0588	1.2490	1.2490	1.2490	0.000	8				
AT1-864	0.8000	0.9412	1.1104	0.9912	1.2490	6.231	8				
AT1-865	0.3625	0.4265	0.6453	0.5796	0.6847	8.427	8				
AT1-866	0.4875	0.5735	0.7728	0.6847	0.8861	8.349	8				
AT1-867	0.5500	0.6471	0.8363	0.6847	0.9912	11.268	8				
AT1-868	0.5875	0.6912	0.8735	0.7854	0.8861	4.075	8				
AT1-869	0.7375	0.8676	1.0360	0.8861	1.1071	8.056	8				
AT1-870		0.8676	1.0347	0.9912	1.1071	5.802	8				
AT1-871	0.8250	0.9706	1.1459	0.9912	1.2490	8.205	8				
AT1-872		0.8676	1.0393	0.8861	1.2490	10.662	8				
Control		1.0735	1.2694	1.2490	1.4120	4.539	8				
Auxiliary Test							Statistic		Critical	Skew	Kurt
Shapiro-Wilk's		tes non-r	normal dis	tribution (p	<= 0.01)		0.80124		0.844	-1.1019	0.614
	es equal va			``	•		3.68835		8.88539		
i est muicate											
-rest indicate Typothesis T		0.05)									

					wth and S	Survival T	est-Surviv	/al			
Start Date:	12/10/202	1	Test ID:	TN-21-788	}		Sample ID		Swan Creek		
End Date:	12/20/202		Lab ID:				Sample Ty	•	Sediment		
Sample Date:			Protocol:			,	Test Speci	es:	HA-Hyalella az	teca	
Comments:											
Сопс-	1	2	3	4	5	6	7	8			
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
			Tra	ansform:	Arcsin Sc	uare Roc	ot	Rank	1-Tailed		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-873	0.8500	1.0000	1.1813	0.9912	1.2490	8.471	8				
AT1-862	0.5625	0.6618	0.8483	0.7854	0.8861	6.142	8				
AT1-863	0.9000	1.0588	1.2490	1.2490	1.2490	0.000	8	80.00	51.00		
AT1-864	0.8000	0.9412	1.1104	0.9912	1.2490	6.231	8				
AT1-865	0.3625	0.4265	0.6453	0.5796	0.6847	8.427	8				
AT1-866	0.4875	0.5735	0.7728	0.6847	0.8861	8.349	8				
AT1-867	0.5500	0.6471	0.8363	0.6847	0.9912	11.268	8				
AT1-868	0.5875	0.6912	0.8735	0.7854	0.8861	4.075	8				
AT1-869	0.7375	0.8676	1.0360	0.8861	1.1071	8.056	8				
AT1-870	0.7375	0.8676	1.0347	0.9912	1.1071	5.802	8				
AT1-871	0.8250	0.9706	1.1459	0.9912	1.2490	8.205	8				
AT1-872	0.7375	0.8676	1.0393	0.8861	1.2490	10.662	8				
Control	0.9125	1.0735	1.2694	1.2490	1.4120	4.539	8				
Auxiliary Test							Statistic		Critical	Skew	Kurt
Shapiro-Wilk's	Test indic	ates non-r	normal dist	tribution (p	<= 0.01)		0.793		0.844	-1.465	3.0148
	iance cann			**	•						

Hypothesis Test (1-tail, 0.05)
Wilcoxon Two-Sample Test indicates no significant differences

				Grov	vth and S	Survival	Test-Surv	ival				
Start Date:	12/10/2021		Test ID:	TN-21-788			Sample II		Swan Cre	ek		
End Date:	12/20/2021		Lab ID:				Sample T		Sediment			
Sample Date:			Protocol:				Test Spec		HA-Hyale	lla azteca		
Comments:							·		•			
Conc-	1	2	3	4	5	6	7	8				
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000				
AT1-862		0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000				
AT1-863		0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-864		0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000				
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000				
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000				
AT1-86 7	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000				
AT1-868		0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000				
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000				
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000				
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000				
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000				
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000				
			Tı	ansform: A	Arcsin Sc	uare Ro	ot		1-Tailed			
Conc-		N-Mean	Меап	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873		1.0000	1.1813	0.9912	1.2490	8.471	8					
AT1-862	0.5625	0.6618	0.8483	0.7854	0.8861	6.142						
AT1-863	0.9000	1.0588	1.2490	1.2490	1.2490	0.000	8					
AT1-864		0.9412	1.1104	0.9912	1.2490	6.231	8	1.649	1.761	0.0758		
AT1-865		0.4265	0.6453	0.5796	0.6847	8.427	8					
AT1-866		0.5735	0.7728	0.6847	0.8861	8.349	8					
AT1-867	0.5500	0.6471	0.8363	0.6847	0.9912	11.268	8					
AT1-868		0.6912	0.8735	0.7854	0.8861	4.0 7 5	8					
AT1-869		0.8676	1.0360	0.8861	1.1071	8.056						
AT1-870		0.8676	1.0347	0.9912	1.1071	5.802	8					
AT1-871	0.8250	0.9706	1.1459	0.9912	1.2490	8.205	8					
AT1 - 872	0.7375	0.8676	1.0393	0.8861	1.2490	10.662	8					
Control	0.9125	1.0735	1.2694	1.2490	1.4120	4.539	8					
Auxiliary Test							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's				tion ($p > 0$.	01)		0.9183		0.844		-0.6865	0.56335
F-Test indicate			p = 0.35)				2.09218		8.88539			
Hypothesis Te							MSDu	MSDp	MSB	MSE	F-Prob	df
				t difference			0.05709	0.06671		0.0074	0.1213	1, 14

				Grov	vtn and S	urvival	Fest-Surviv	∕aı			
Start Date:	12/10/2021		Test ID:	TN-21-788	•	•	Sample ID	:	Swan Creek		
End Date:	12/20/2021		Lab ID:				Sample Ty		Sediment		
Sample Date:			Protocol:				Test Speci	ies:	HA-Hyalella az	teca	
Comments:											
Conc-	1	2	3	4	5	6	7	8			
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
			Tı	ransform: A	Arcsin Sq	uare Ro	ot	Rank	1-Tailed		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-873	0.8500	1.0000	1.1813	0.9912	1.2490	8.471	8				
AT1-862	0.5625	0.6618	0.8483	0.7854	0.8861	6.142	8				
AT1-863	0.9000	1.0588	1.2490	1.2490	1.2490	0.000	8				
AT1-864	0.8000	0.9412	1.1104	0.9912	1.2490	6.231	8				
*AT1-865	0.3625	0.4265		0.5796	0.6847	8.427	8	36.00	51.00		
AT1-866	0.4875	0.5735		0.6847	0.8861	8.349	8				
AT1-867	0.5500	0.6471	0.8363	0.6847	0.9912	11.268	8				
AT1-868	0.5875	0.6912	0.8735	0.7854	0.8861	4.075	8				
AT1-869	0.7375	0.8676	1.0360	0.8861	1.1071	8.056	8				
AT1-870	0.7375	0.8676	1.0347	0.9912	1.1071	5.802	8				
AT1-871	0.8250	0.9706		0.9912	1.2490	8.205	8				
AT1-872	0.7375	0.8676	1.0393	0.8861	1.2490	10.662	8				
Control	0.9125	1.0735	1.2694	1.2490	1.4120	4.539	8				
Auxiliary Test							Statistic		Critical	Skew	Kurt
Shapiro-Wilk's	Test indica	tes non-	normal dis	tribution (p	<= 0.01)		0.79436		0.844	-1.0817	0.48289
F-Test indicate	es equal var	iances (p = 0.13)				3.3859		8.88539		<u>-</u>
Hypothesis To	est (1-tail, ().05)									
Wilcoxon Two-											

			· <u>-</u>	Grov	vth and S	Survival 1	Test-Survi	val				
Start Date:	12/10/2021		Test ID:	TN-21-788			Sample ID):	Swan Cre	ek		
End Date:	12/20/2021		Lab ID:				Sample Ty	/pe:	Sediment			
Sample Date:			Protocol:				Test Spec	ies:	HA-Hyale	lla azteca		
Comments:							•					
Conc-	1	2	3	4	5	6	7	8				
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000				
AT1-862		0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000				
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000				
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000				
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000				
AT1-867		0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000				
AT1-868		0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000				
AT1-869		0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000				
AT1-870		0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000				
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000				
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000				
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000				
	 		Tr	ansform:	Arcsin So	quare Ro	ot		1-Tailed			
Conc-	Mean	N-Mean ⁻	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	0.8500	1.0000	1.1813	0.9912	1.2490	8.471	8					
AT1-862	0.5625	0.6618	0.8483	0.7854	0.8861	6.142	8					
AT1-863	0.9000	1.0588	1.2490	1.2490	1.2490	0.000	8					
AT1-864	0.8000	0.9412	1.1104	0.9912	1.2490	6.231	8					
AT1-865		0.4265	0.6453	0.5796	0.6847	8.427	8					
*AT1-866		0.5735	0.7728	0.6847	0.8861	8.349	8	9.704	1.761	0.0741		
AT1-867		0.6471	0.8363	0.6847	0.9912	11.268	8					
AT1-868		0.6912	0.8735	0.78 54	0.8861	4.075	8					
AT1-869		0.8676	1.0360	0.8861	1.1071	8.056	8					
AT1-870		0.8676	1.0347	0.9912	1.1071	5.802	8					
AT1-871	0.8250	0.9706	1.1459	0.9912	1.2490	8.205	8					
AT1-872		0.8676	1.0393	0.8861	1.2490	10.662	8					
Control	0.9125	1.0735	1.2694	1.2490	1.4120	4.539	8					
Auxiliary Tes							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's	Test indica	ates norm	al distribu	tion (p > 0.	01)		0.89211		0.844		-0.8562	0.29494
	es equal va						2.40544		8.88539			
Hypothesis T Homoscedast	est (1-tail,						MSDu 0.0558	MSD p 0.0652	MSB	MSE 0.00709	F-Prob 1. 4 E-07	df 1, 14

			.,,,,,	Gro	wth and S	Survival 1	Test-Survi	val				
Start Date:	12/10/2021	1	Test ID:	TN-21-788	3		Sample ID):	Swan Cre	ek		
End Date:	12/20/2021		Lab ID:				Sample Ty	/pe:	Sediment			
Sample Date:			Protocol:				Test Spec		HA-Hyale	lla azteca		
Comments:							•		•			
Сопс-	1	2	3	4	5	6	7	8				
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000				
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000				
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000				
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000				
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000				
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000				
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000				
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000				
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000				
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000				
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000				
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000				
			T.	ransform:	Arçsin Sc	uare Ro	ot		1-Tailed			
Сопс-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	0.8500	1.0000	1.1813	0.9912	1.2490	8.471	8					
AT1-862	0.5625	0.6618	0.8483	0.7854	0.8861	6.142	8					
AT1-863	0.9000	1.0588	1.2490	1.2490	1.2490	0.000	8					
AT1-864	0.8000	0.9412	1.1104	0.9912	1.2490	6.231	8					
AT1-865	0.3625	0.4265	0.6453	0.5796	0.6847	8.427	8					
AT1-866	0.4875	0.5735	0.7728	0.6847	0.8861	8.349	8					
*AT1-867	0.5500	0.6471	0.8363	0.6847	0.9912	11.268	8	7.100	1.761	0.0856		
AT1-868	0.5875	0.6912	0.8735	0.7854	0.8861	4.075	8					
AT1-869	0.7375	0.8676	1.0360	0.8861	1.1071	8.056	8					
AT1-870	0.7375	0.8676	1.0347	0.9912	1.1071	5.802	8					
AT1-871	0.8250	0.9706	1.1459	0.9912	1.2490	8.205	8					
AT1-872	0.7375	0.8676	1.0393	0.8861	1.2490	10.662	8					
Control	0.9125	1.0735	1.2694	1.2490	1.4120	4.539	8					
Auxiliary Test	ts						Statistic		Critical		Skew	Kurt
Shapiro-Wilk's	Test indica	ates norm	ıal distribu	ıtion (p > 0.	.01)		0.89958		0.844		-0.5462	-0.3572
F-Test indicate	es equal va	nances (0 = 0.88				1.12765		8.88539			
Hypothesis To	est (1-tail, I	0.05)					MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedasti	c t Test ind	icates sig	nificant d	ifferences			0.06504	0.076	0.47623	0.00945	5.3E-06	1, 14

				Grov	vth and S	urvival 1	Test-Surviv	/al			
Start Date:	12/10/2021	1	Test ID:	TN-21-788		-	Sample ID	:	Swan Creek		
End Date:	12/20/2021		Lab ID:				Sample Ty	pe:	Sediment		
Sample Date:			Protocol:				Test Speci	es:	HA-Hyalella azteo	ca	
Comments:											
Conc-	1	2	3	4	5	6	7	8			
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
AT1-862		0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
Control		0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
			Tr	ansform:	Arcsin Sc	uare Ro	ot	Rank	1-Tailed		
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-873	0.8500	1.0000	1.1813	0.9912	1.2490	8.471	8				
A T 1-862	0.5625	0.6618	0.8483	0.7854	0.8861	6.142	8				
AT1-863	0.9000	1.0588	1.2490	1.2490	1.2490	0.000	8				
A T 1-864	0.8000	0.9412	1.1104	0.9912	1.2490	6.231	8				
AT1-865		0.4265	0.6453	0.5796	0.6847	8.427	8				
AT1-866	0.4875	0.5735	0.7728	0.6847	0.8861	8.349	8				
AT1-867	0.5500	0.6471	0.8363	0.6847	0.9912	11.268	8				
*AT1-868	0.5875	0.6912	0.8735	0.7854	0.8861	4.075	8	36.00	51.00		
AT1-869	0.7375	0.8676	1.0360	0.8861	1.1071	8.056	8				
AT1-870	0.7375	0.8676	1.0347	0.9912	1.1071	5.802	8				
AT1-871		0.9706	1.1459	0.9912	1.2490	8.205	8				
AT1-872	0.7375	0.8676	1.0393	0.8861	1.2490	10.662	8				
Control	0.9125	1.0735	1.2694	1.2490	1.4120	4.539	8				
Auxiliary Test							Statistic		Critical	Skew	Kurt
Shapiro-Wilk's	Test indica	ates non-	normal dis	tribution (p	<= 0.01)		0.81		0.844	-1.3588	1.80651
F-Test indicate	es equal va	<u>riances</u> (p	0 = 0.01				7.9036		8.88539		
		0.05)									

Wilcoxon Two-Sample Test indicates significant differences

			***	Grov	vth and S	urvival 1	Test-Survi	val			
Start Date:	12/10/202	1	Test ID:	TN-21-788			Sample ID);	Swan Creek		
End Date:	12/20/202	1	Lab ID:				Sample Ty	/pe:	Se d iment		
Sample Date:			Protocol:				Test Spec	ies:	HA-Hyalella azt	eca	
Comments:											
Сопс-	1	2	3	4	5	6	7	8			
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867		0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000			
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
Control		0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
			Tr	ansform:	Arcsin Sq	uare Ro	ot	Rank	1-Tailed		
Сопс-	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-873	0.8500	1.0000	1.1813	0.9912	1.2490	8.471	8				
AT1-862	0.5625	0.6618	0.8483	0.7854	0.8861	6.142	8				
AT1-863	0.9000	1.0588	1.2490	1.2490	1.2490	0.000	8				
AT1-864	0.8000	0.9412	1.1104	0.9912	1.2490	6.231	8				
AT1-865	0.3625	0.4265	0.6453	0.5796	0.6847	8.427	8				
AT1-866	0.4875	0.5735	0.7728	0.6847	0.8861	8.349	8		•		
AT1-867	0.5500	0.6471	0.8363	0.6847	0.9912	11.268	8				
AT1-868	0.5875	0.6912	0.8735	0.7854	0.8861	4.075	8				
*AT1-869	0.7375	0.8676	1.0360	0.8861	1.1071	8.056	8	45.50	51.00		
AT1-870	0.7375	0.8676	1.0347	0.9912	1.1071	5.802	8				
	0.8250	0.9706	1.1459	0.9912	1.2490	8.205	8				
AT1-871		0.8676	1.0393	0.8861	1.2490	10.662	8				
AT1-871 AT1-872	0.7375			1.2490	1.4120	4.539	8				
		1.0735	1.2694	1,2450			-		0-1411		
AT1-872	0.9125	1.0735	1.2694	1,2490			Statistic		Critical	Skew	Kurt
AT1-872 Control Auxiliary Tes	0.9125 ts				<= 0.01)		0.77723		0.844	-0.9014	-0.3862
AT1-872 Control	0.9125 ts Test indica	ates non-	normal dis		<= 0.01)						
AT1-872 Control Auxiliary Tes Shapiro-Wilk's	0.9125 ts Test indica es equal va	ates non- riances (¡	normal dis		<= 0.01)		0.77723		0.844		

							Test-Surviv				
Start Date:	12/10/2021			TN-21-788			Sample ID		Swan Creek		
End Date:	12/20/2021		Lab ID:				Sample Ty	ље:	Sediment		
Sample Date:			Protocol:				Test Speci	ies:	HA-Hyalella azt	eca	
Comments:											
Conc-	1	2	3	4	5	6	7	8			
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000			
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000			
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000			
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000			
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000			
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000			
AT1-867	0.6000	0.6000	0.5000	0,6000	0.7000	0.5000	0.4000	0.5000			
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000			
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000			
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000			
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000			
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000			
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000			
				ansform:				Rank	1-Tailed		
Сопс-	Mean i	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-873	0.8500	1.0000	1.1813	0.9912	1.2490	8.471	8				
AT1-862	0.5625	0.6618	0.8483	0.7854	0.8861	6.142	8				
AT1-863	0.9000	1.0588	1.2490	1.2490	1.2490	0.000	8				
AT1-864	0.8000	0.9412	1.1104	0.9912	1.2490	6.231	8				
AT1-865	0.3625	0.4265	0.6453	0.5796	0.6847	8.427	8				
AT1-866	0.4875	0.5735	0.7728	0.6847	0.8861	8.349	8				
AT1-867	0.5500	0.6471	0.8363	0.6847	0.9912	11.268	8				
AT1-868	0.5875	0.6912	0.8735	0.7854	0.8861	4.075	8				
AT1-869	0.7375	0.8676	1.0360	0.8861	1.1071	8.056	8				
*AT1-870	0.7375	0.8676	1.0347	0.9912	1.1071	5.802	8	44.50	51.00		
AT1-871	0.8250	0.9706	1.1459	0.9912	1.2490	8.205	8				
AT1-872	0.7375	0.8676	1.0393	0.8861	1.2490	10.662	8				
Control	0.9125	1.0735	1.2694	1.2490	1.4120	4.539	8				
Auxiliary Test							Statistic		Critical	Skew	Kurt
Shapiro-Wilk's		tes non-r	normal dis	tribution (p	<= 0.01)		0.79709		0.844	-0.8138	0.17567
F-Test indicate				``	,		2.77877		8.88539		
				· ····							
Hypothesis T	est (1-tail. ().05)									

				Gro	wth and S	Survival '	Test-Surv	ival				
Start Date:	12/10/202	1	Test ID:	TN-21-788	3		Sample II	D:	Swan Cre	ek		
End Date:	12/20/202	1	Lab ID:				Sample T	ype:	Sediment			
Sample Date:			Protocol:				Test Spec	cies:	HA-Hyale	lla azteca		
Comments:												
Conc-	1	2	3	4	5	6	7	8				
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000				
AT1-862		0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000				
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000				
AT1-865		0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000				
AT1-866		0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000				
AT1-867		0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000				
AT1-868		0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000				
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000				
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000				
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000				
AT1-872		0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000				
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000				
				ransform:	Arcsin Sc	uare Ro	ot		1-Tailed	·. •		
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	0.8500	1.0000		0.9912	1.2490	8.471						
AT1-862	0.5625	0.6618		0.7854	0.8861	6.142						
AT1-863	0.9000	1.0588	1.2490	1.2490	1.2490	0.000						
AT1-864	0.8000	0.9412		0.9912	1.2490	6.231	8					
AT1-865		0.4265		0.5796	0.6847	8.427						
AT1-866		0.5735		0.6847	0.8861	8.349						
AT1-867		0.6471	0.8363	0.6847	0.9912	11.268						
AT1-868		0.6912	0.8735	0.7854	0.8861	4.075						
AT1-869	0.7375	0.8676	1.0360	0.8861	1.1071	8.056						
AT1-870	0.7375	0.8676	1.0347	0.9912	1.1071	5.802						
AT1-871	0.8250	0.9706		0.9912	1.2490	8.205		0.731	1.761	0.0855		
AT1-872	0.7375	0.8676	1.0393	0.8861	1.2490	10.662						
Control	0.9125	1.0735	1.2694	1.2490	1.4120	4.539			_			
Auxiliary Tes							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's	Test indica	ates norn	nal distribu	ition ($p > 0$.	.01)		0.87541		0.844		-0.6261	-0.625
F-Test indicate							1.13301		8.88539			
Hypothesis T	est (1-tail,	0.05)					MSDu	MSDp	M\$B	MSE	F-Prob	df
Homoscedast	ic t Test ind	icates no	significan	it difference	es		0.06496	0.07591	0.00503	0.00943	0.47698	1, 14

•				Grov	wth and S	Survival	Test-Surv	ival				
Start Date:	12/10/2021		Test ID:	TN-21-788			Sample II	D:	Swan Cre	eek		
End Date:	12/20/2021		Lab ID:				Sample T	ype:	Sediment	t		
Sample Date:			Protocol:				Test Spec	cies:	HA-Hyale	lla azteca		
Comments:												
Conc-	1	2	3	4	5	6	7	8				
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000				
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000				
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000				
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000				
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000				
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000				
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000				
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000				
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000				
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000				
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000				
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000				
			Tı	ransform: /	Arcsin Sc	uare Ro	ot		1-Tailed			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873		1.0000	1.1813	0.9912	1.2490	8.471	8					
A T1 -862		0.6618	0.8483	0.7854	0.8861	6.142	8					
AT1-863		1.0588	1.2490	1.2490	1.2490	0.000	8					
AT 1- 864		0.9412	1.1104	0.9912	1.2490	6.231	8					
AT1-865		0.4265	0.6453	0.5796	0.6847	8.427	8					
AT1-866		0.5735	0.7728	0.6847	0.8861	8.349	8					
AT1-867		0.6471	0.8363	0.6847	0.9912	11.268	8					
AT1-868		0.6912	0.8735	0.7854	0.8861	4.075	8					
AT1-869		0.8676	1.0360	0.8861	1.1071	8.056	8					
AT1-870		0.8676	1.0347	0.9912	1.1071	5.802	8					
AT1-871	0.8250	0.9706	1.1459	0.9912	1.2490	8.205	8					
*AT1-872	0.7375	0.8676	1.0393	0.8861	1.2490	10.662	8	2.692	1.761	0.0930		
Control		1.0735	1.2694	1.2490	1.4120	4 .539	8					
Auxiliary Test							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's				tion (p > 0.0	01)		0.90513		0.84 4		-0.0232	-0.0031
F T 1 1 1 1	es equal var	iances (ı	p = 0.79				1.22611		8.88539			
F-Test indicate												
Hypothesis To Homoscedasti	est (1-tail, 0).05)	,				MSD u 0.07108	MSDp	MSB	MSE 0.01115	F-Prob	df 1, 14

	· <u></u>			Gro	wth and S	Survival	Test-Surv	ival	·		_	
Start Date:	12/10/202	1	Test ID:	TN-21-788	3		Sample II	D:	Swan Cr	eek		· · · · · · · · · · · · · · · · · · ·
End Date:	12/20/202		Lab ID:				Sample T		Sedimen			
Sample Date:			Protocol:				Test Spe			ella azteca	l	
Comments:							•		,			
Conc-	1	2	3	4	5	6	7	8		1		
AT1-873	0.9000	0.8000	0.9000	0.7000	0.8000	0.9000	0.9000	0.9000				
AT1-862	0.6000	0.6000	0.6000	0.6000	0.6000	0.5000	0.5000	0.5000				
AT1-863	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000				
AT1-864	0.8000	0.8000	0.7000	0.8000	0.9000	0.8000	0.8000	0.8000				
AT1-865	0.4000	0.4000	0.4000	0.4000	0.3000	0.4000	0.3000	0.3000				
AT1-866	0.5000	0.5000	0.6000	0.4000	0.5000	0.4000	0.5000	0.5000				
AT1-867	0.6000	0.6000	0.5000	0.6000	0.7000	0.5000	0.4000	0.5000				
AT1-868	0.6000	0.6000	0.6000	0.5000	0.6000	0.6000	0.6000	0.6000				
AT1-869	0.8000	0.7000	0.8000	0.7000	0.8000	0.6000	0.7000	0.8000	•			
AT1-870	0.7000	0.8000	0.8000	0.7000	0.8000	0.7000	0.7000	0.7000				
AT1-871	0.9000	0.8000	0.7000	0.8000	0.9000	0.8000	0.9000	0.8000				
AT1-872	0.8000	0.7000	0.9000	0.8000	0.7000	0.6000	0.7000	0.7000				
Control	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000				
			Tr	ansform:	Arcsin Sc				1-Tailed	*****		
_												
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	Mean 0.8500	1.0000	Mean 1.1813	Min 0.9912	Max 1.2490	CV% 8.471	N 8	t-Stat	Critical	MSD		
AT1-873 AT1-862	0.8500 0.5625	1.0000 0.6618						t-Stat	Critical	MSD		
AT1-873 AT1-862 AT1-863	0.8500 0.5625 0.9000	1.0000 0.6618 1.0588	1.1813 0.8483 1.2490	0.9912 0.7854 1.2490	1.2490	8.471	8	t-Stat	Critical	MSD		
AT1-873 AT1-862 AT1-863 AT1-864	0.8500 0.5625 0.9000 0.8000	1.0000 0.6618 1.0588 0.9412	1.1813 0.8483	0.9912 0.7854	1.2490 0.8861	8.471 6.142	8 8	t-Stat	Critical	MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865	0.8500 0.5625 0.9000 0.8000 0.3625	1.0000 0.6618 1.0588 0.9412 0.4265	1.1813 0.8483 1.2490 1.1104 0.6453	0.9912 0.7854 1.2490 0.9912 0.5796	1.2490 0.8861 1.2490 1.2490 0.6847	8.471 6.142 0.000 6.231 8.427	8 8 8 8	t-Stat	Critical	MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	0.8500 0.5625 0.9000 0.8000 0.3625 0.4875	1.0000 0.6618 1.0588 0.9412 0.4265 0.5735	1.1813 0.8483 1.2490 1.1104 0.6453 0.7728	0.9912 0.7854 1.2490 0.9912 0.5796 0.6847	1.2490 0.8861 1.2490 1.2490 0.6847 0.8861	8.471 6.142 0.000 6.231 8.427 8.349	8 8 8 8 8	t-Stat	Critical	MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.8500 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500	1.0000 0.6618 1.0588 0.9412 0.4265 0.5735 0.6471	1.1813 0.8483 1.2490 1.1104 0.6453 0.7728 0.8363	0.9912 0.7854 1.2490 0.9912 0.5796 0.6847 0.6847	1.2490 0.8861 1.2490 1.2490 0.6847	8.471 6.142 0.000 6.231 8.427	8 8 8 8 8	t-Stat	Critical	MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.8500 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875	1.0000 0.6618 1.0588 0.9412 0.4265 0.5735 0.6471 0.6912	1.1813 0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735	0.9912 0.7854 1.2490 0.9912 0.5796 0.6847 0.6847 0.7854	1.2490 0.8861 1.2490 1.2490 0.6847 0.8861	8.471 6.142 0.000 6.231 8.427 8.349	8 8 8 8 8	t-Stat	Critical	MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.8500 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375	1.0000 0.6618 1.0588 0.9412 0.4265 0.5735 0.6471 0.6912 0.8676	1.1813 0.8483 1.2490 1.1104 0.6453 0.7728 0.8363	0.9912 0.7854 1.2490 0.9912 0.5796 0.6847 0.6847	1.2490 0.8861 1.2490 1.2490 0.6847 0.8861 0.9912	8.471 6.142 0.000 6.231 8.427 8.349 11.268	8 8 8 8 8	t-Stat	Critical	MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.8500 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375	1.0000 0.6618 1.0588 0.9412 0.4265 0.5735 0.6471 0.6912	1.1813 0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735	0.9912 0.7854 1.2490 0.9912 0.5796 0.6847 0.6847 0.7854	1.2490 0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861	8.471 6.142 0.000 6.231 8.427 8.349 11.268 4.075	8 8 8 8 8	t-Stat	Critical	MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.8500 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375	1.0000 0.6618 1.0588 0.9412 0.4265 0.5735 0.6471 0.6912 0.8676 0.8676 0.9706	1.1813 0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459	0.9912 0.7854 1.2490 0.9912 0.5796 0.6847 0.6847 0.7854 0.8861	1.2490 0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071	8.471 6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056	8 8 8 8 8 8	t-Stat	Critical	MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.8500 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375 0.8250 0.7375	1.0000 0.6618 1.0588 0.9412 0.4265 0.5735 0.6471 0.6912 0.8676 0.8676 0.9706 0.8676	1.1813 0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393	0.9912 0.7854 1.2490 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912 0.8861	1.2490 0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071	8.471 6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056 5.802	8 8 8 8 8 8 8	t-Stat	Critical	MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872	0.8500 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375 0.8250 0.7375	1.0000 0.6618 1.0588 0.9412 0.4265 0.5735 0.6471 0.6912 0.8676 0.8676 0.9706	1.1813 0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459	0.9912 0.7854 1.2490 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912	1.2490 0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490	8.471 6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205	8 8 8 8 8 8 8 8 8 8	-2.157	1.761	MSD 0.0719		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 Control	0.8500 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.7375 0.8250 0.7375 0.9125	1.0000 0.6618 1.0588 0.9412 0.4265 0.5735 0.6471 0.6912 0.8676 0.8676 0.9706 0.8676 1.0735	1.1813 0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.2694	0.9912 0.7854 1.2490 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912 0.8861 1.2490	1.2490 0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490 1.4120	8.471 6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662	8 8 8 8 8 8 8 8 8 8 8 8				Skew	Kurt
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Test Shapiro-Wilk's	0.8500 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.9125 s	1.0000 0.6618 1.0588 0.9412 0.4265 0.5735 0.6471 0.6912 0.8676 0.9706 0.8676 1.0735	1.1813 0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.2694	0.9912 0.7854 1.2490 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912 0.8861 1.2490	1.2490 0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490 1.4120	8.471 6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		1.761		Skew -0.5126	Kurt 1.15065
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Test Shapiro-Wilk's F-Test indicate	0.8500 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.9125 s Test indica	1.0000 0.6618 1.0588 0.9412 0.4265 0.5735 0.6471 0.6912 0.8676 0.8676 0.8676 1.0735	1.1813 0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.2694	0.9912 0.7854 1.2490 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.9912 0.8861 1.2490	1.2490 0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.1071 1.2490 1.2490 1.4120	8.471 6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 721 3.01637	-2.157	1.761 Critica I 0.844 8.88539	0.0719	-0.5126	1.15065
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Test Shapiro-Wilk's	0.8500 0.5625 0.9000 0.8000 0.3625 0.4875 0.5500 0.5875 0.7375 0.8250 0.7375 0.9125 s Test indicals es equal varies (1-tail, (1.0000 0.6618 1.0588 0.9412 0.4265 0.5735 0.6471 0.6912 0.8676 0.9706 0.8676 1.0735 ttes norm riances (p	1.1813 0.8483 1.2490 1.1104 0.6453 0.7728 0.8363 0.8735 1.0360 1.0347 1.1459 1.0393 1.2694	0.9912 0.7854 1.2490 0.9912 0.5796 0.6847 0.7854 0.8861 0.9912 0.8861 1.2490	1.2490 0.8861 1.2490 1.2490 0.6847 0.8861 0.9912 0.8861 1.1071 1.2490 1.2490 1.4120	8.471 6.142 0.000 6.231 8.427 8.349 11.268 4.075 8.056 5.802 8.205 10.662	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	-2.157 MSDp	1.761 Critical 0.844 8.88539 MSB			

V 1 D-1	40/40/0004		Test ID:				Test-Grow Sample ID		Swan Creek		
tart Date:	12/10/2021			IN-2 - 1 00	•		Sample Ty		Sediment		
ind Date:	12/20/2021		Lab ID:				Test Speci		HA-Hyalelia az	toco	
Sample Date:			Protocol:				rest Speci	ies.	na-nyalella az	u c ca	
Comments:		2	3	4	5	6	7	8			
Conc-	1										
AT1-873		0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633			
AT1-862		0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620			
AT1-863		0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956			
AT1 - 864		0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775			
AT1-865		0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100			
AT1-866		0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860			
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640			
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650			
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325			
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486			
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413			
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586			
Control		0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022			
				Transforn	n: Untrans	sformed		Rank	1-Tailed		
Conc-	Mean	N-Mean ⁻	Меал	Min	Max	CV%	N	Sum	Critical		
AT1-873	0.0645	1.0000	0.0645	0.0389	0.1071	33.418	8				
AT1-862	0.0663	1.0268	0.0663	0.0417	0.0900	21.013	8	72.00	47.00		
AT1-863	0.0990	1.5348	0.0990	0.0922	0.1089	6.663	8	94.00	47.00		
AT1-864	0.0791	1.2259	0.0791	0.0575	0.1157	22.298	8	82.50	47.00		
AT1-865		1.0284	0.0664	0.0475	0.1100	33.281	8	71.00	47.00		
AT1-866	0.0640	0.9926	0.0640	0.0333	0.0925	35.445	8	68.50	47.00		
AT1-867	0.0556	0.8618	0.0556	0.0200	0.1350	62.180	8	56.00	47.00		
AT1-868	0.0515	0.7975	0.0515	0.0400	0.0650	18.111	8	56.00	47.00		
		0.4503	0.0291	0.0138	0.0486	43.921	8	40.00	47.00		
*AT1-869		0.4864	0.0314	0.0157	0.0486	32.559	8	39.00	47.00		
*AT1-869 *AT1-870	0.0314			0.0300	0.0578	17.690	8	47.50	47.00		
*AT1-870		0.6610	0.0426	0.0000			8	56.00			
*AT1-870 AT1-871	0.0426	0.6610 0.8168	0.0426 0.0527		0.0714	25.699					
*AT1-870 AT1-871 AT1-872	0.0426 0.0527	0.8168	0.0527	0.0288	0.0714 0.1544	25.699 15.754	8	97.00	47.00		
*AT1-870 AT1-871 AT1-872 Control	0.0426 0.0527 0.1249				0.0714 0.1544			97.00	47.00 Critical	Skew	Kurt
*AT1-870 AT1-871 AT1-872 Control Auxiliary Tes	0.0426 0.0527 0.1249	0.8168 1.9365	0.0527 0.1249	0.0288 0.1022	0.1544		8	97.00		Skew 1.23919	Kurt 4.1844
*AT1-870 AT1-871 AT1-872 Control	0.0426 0.0527 0.1249 ts Test Indica	0.8168 1.9365 ttes non-r	0.0527 0.1249 normal dist	0.0288 0.1022 ribution (p	0.1544 <= 0.01)		8 Statistic	97.00	Critical		

				Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/10/2021	-	Test ID:	TN-21-788			Sample ID);	Swan Cre	ek		
End Date:	12/20/2021		Lab ID:				Sample T	уре:	Sediment			
Sample Date:		ļ	Protocol:				Test Spec	ies:	HA-Hyale	lla azteca		
Comments:												
Conc-	1	2	3	4	5	6	7	8				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
				Transform	n: Untrans	sformed			1-Tailed			
Conc-	Mean I	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	0.0645	1.0000	0.0645	0.0389	0.1071	33.418	8					
AT1-862	0.0663	1.0268	0.0663	0.0417	0.0900	21.013	8	-0.191	1.761	0.0160		
AT1-863	0.0990	1.5348	0.0990	0.0922	0.1089	6.663	8					
AT1 - 864	0.0791	1.2259	0.0791	0.0575	0.1157	22,298	8					
AT1-865	0.0664	1.0284	0.0664	0.0475	0.1100	33.281	8					
AT1-866	0.0640	0.9926	0.0640	0.0333	0.0925	35.445	8					
AT1-867	0.0556	0.8618	0.0556	0.0200	0.1350	62.180	8					
AT1-868	0.0515	0.7975	0.0515	0.0400	0.0650	18.111	8					
AT1-869	0.0291	0.4503	0.0291	0.0138	0.0486	43.921	8					
AT1-870	0.0314	0.4864	0.0314	0.0157	0.0486	32.559	8					
AT1-871	0.0426	0.6610	0.0426	0.0300	0.0578	17.690	8					
AT1-872	0.0527	0.8168	0.0527	0.0288	0.0714	25.699	8					
Control	0.1249	1.9365	0.1249	0.1022	0.1544	15.754	8					
Auxiliary Test							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's	Test indica	tes norm	al di stri but	tion (p > 0.	01)		0.93852		0.844		0.70493	1.232
F-Test indicate	e s equal var	iances (p	= 0.27)				2.3989		8.88539			
Hypothesis Ta	est (1-tail, 0	0.05)					M\$Du	MSDp	MSB	MSE	F-Prob	df
Homoscedasti							0.01598	0.24771	1.2E-05	0.00033		1, 14

				Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/10/202	1	Test ID:	TN-21-788	3		Sample II);	Swan Cre	ek		
End Date:	12/20/202		_ab ID:				Sample T	ype:	Sediment			
Sample Date:	-		Protocol:				Test Spec		HA-Hyale	lla azteca		
Comments:							•		-			
Conc-	1	2	3	4	5	6	7	8				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
				Transform	n: Untran				1-Tailed			
Conc-	Mean	N-Mean -	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	0.0645	1.0000	0.0645	0.0389	0.1071	33.418	8					
AT1-862	0.0645 0.0663	1.0268	0.0663	0.0417	0.0900	21.013	8					
	0.0663 0.0990	1.0268 1.5348	0.0663 0.0990	0.0417 0.0922	0.0900 0.1089	21.013 6.663	8 8	-4.328	1.860	0.0148		
AT1-862 AT1-863 AT1-864	0.0663 0.0990 0.0791	1.0268 1.5348 1.2259	0.0663 0.0990 0.0791	0.0417 0.0922 0.0575	0.0900 0.1089 0.1157	21.013 6.663 22.298	8 8 8	-4.328	1.860	0.0148		
AT1-862 AT1-863 AT1-864 AT1-865	0.0663 0.0990 0.0791 0.0664	1.0268 1.5348 1.2259 1.0284	0.0663 0.0990 0.0791 0.0664	0.0417 0.0922 0.0575 0.0475	0.0900 0.1089 0.1157 0.1100	21.013 6.663 22.298 33.281	8 8 8	-4.328	1.860	0.0148		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	0.0663 0.0990 0.0791 0.0664 0.0640	1.0268 1.5348 1.2259 1.0284 0.9926	0.0663 0.0990 0.0791 0.0664 0.0640	0.0417 0.0922 0.0575 0.0475 0.0333	0.0900 0.1089 0.1157 0.1100 0.0925	21.013 6.663 22.298 33.281 35.445	8 8 8 8	-4.328	1.860	0.0148		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	1.0268 1.5348 1.2259 1.0284 0.9926 0.8618	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	0.0417 0.0922 0.0575 0.0475 0.0333 0.0200	0.0900 0.1089 0.1157 0.1100 0.0925 0.1350	21.013 6.663 22.298 33.281 35.445 62.180	8 8 8 8 8	-4.328	1.860	0.0148		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400	0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650	21.013 6.663 22.298 33.281 35.445 62.180 18.111	8 8 8 8 8 8	-4.328	1.860	0.0148		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138	0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8 8 8	-4.328	1.860	0.0148		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314	1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8 8	-4.328	1.860	0.0148		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426	1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8	-4.328	1.860	0.0148		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288	0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8	-4.328	1.860	0.0148		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8 8 8 8 8 8	-4.328		0.0148		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Test	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1544	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8	-4.328	Critical	0.0148	Skew	Kurt
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Test	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1544	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	-4.328	Critical 0.844	0.0148	Skew 1.09174	Kurt 3.39046
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Test Shapiro-Wilk's F-Test indicate	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365 ates norm	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1544	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 0.88346 10.6777		Critical 0.844 8.88539		1.09174	3.39046
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Test	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249 ts Test indicases unequal	1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365 ates norm variances 0.05)	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022 tion (p > 0.	0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0578 0.0714 0.1544	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 Statistic 0.88346 10.6777 MSDu	MSDp	Critical 0.844	MSE	1.09174 F-Prob	

				Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/10/202	-	Test ID:	TN-21-788			Sample II);	Swan Cre	ek		
End Date:	12/20/202		_ab ID:				Sample Ty	ype:	Sediment			
Sample Date:			Protocol:				Test Spec	ies:	HA-Hyale	lla azteca		
Comments:									-			
Conc-	1	2	3	4	5	6	7	8				.,
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
				Transforn	n: Untran:	sformed			1-Tailed			
Conc-	Mean	N-Mean ¯	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	0.0645	1.0000	0.0645	0.0389	0.1071	33.418	8					
AT1-862	0.0663	1.0268	0.0663	0.0417	0.0900	21.013	8					
AT1-862 AT1-863	0.0 66 3 0.0990	1.5348	0.0990	0.0922	0.1089	6.663	8					
	0.0663 0.0990 0.0791	1.5348 1.2259		0.09 2 2 0. 0 575	0.1089 0.1157	6.663 22.298	8 8	-1.480	1.761	0.0173		
AT1-863 AT1-864 AT1-865	0.0663 0.0990 0.0791 0.0664	1.5348 1.2259 1.0284	0.0990 0.0791 0.0664	0.0922 0.0575 0.0475	0.1089 0.1157 0.1100	6.663 22.298 33.281	8 8 8	<i>-</i> 1.480	1.761	0.0173		
AT1-863 AT1-864 AT1-865 AT1-866	0.0663 0.0990 0.0791 0.0664 0.0640	1.5348 1.2259 1.0284 0.9926	0.0990 0.0791 0.0664 0.0640	0.0922 0.0575 0.0475 0.0333	0.1089 0.1157 0.1100 0.0925	6.663 22.298 33.281 35.445	8 8 8	-1.480	1.761	0.0173		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	1.5348 1.2259 1.0284 0.9926 0.8618	0.0990 0.0791 0.0664 0.0640 0.0556	0.0922 0.0575 0.0475 0.0333 0.0200	0.1089 0.1157 0.1100 0.0925 0.1350	6.663 22.298 33.281 35.445 62.180	8 8 8 8	-1.480	1.761	0.0173		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	1.5348 1.2259 1.0284 0.9926 0.8618 0.7975	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650	6.663 22.298 33.281 35.445 62.180 18.111	8 8 8 8 8	-1.480	1.761	0.0173		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	6.663 22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8	-1.480	1.761	0.0173		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8 8	-1.480	1.761	0.0173		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426	1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8	-1.480	1.761	0.0173		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8	-1.480	1.761	0.0173		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 Control	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8 8 8	-1.480		0.0173		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 Control	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1544	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8	-1.480	Critical	0.0173	Skew	Kurt
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 Control Auxiliary Test Shapiro-Wilk's	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1544	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	-1.480	Critical 0.844	0.0173	Skew 1.00923	Kurt 0.88822
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Test Shapiro-Wilk's F-Test indicate	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249 ts	1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1544	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		Critical 0.844 8.88539		1.00923	0.88822
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 Control Auxiliary Test Shapiro-Wilk's	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249 ts Test indicates equal values (1-tail,	1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365 ates norminances (p	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0578 0.0714 0.1544	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	MSDp	Critical 0.844 8.88539 MSB	0.0173 MSE 0.00039	1.00923 F-Prob	

				Gro	wth and	Survival	Test-Grov	vth		*		
Start Date:	12/10/202	1	Test ID:	TN-21-788			Sample ID		Swan Cre	ek		-
End Date:	12/20/202		Lab ID:				Sample Ty		Sediment			
Sample Date:	•		Protocol:				Test Spec			lla azteca		
Comments:									,			
Conc-	1	2	3	4	5	6	7	8				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
				Transforn	n: Untran	sformed			1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	0.0645	1.0000	0.0645	0.0389	0.1071	33.418	8					
	0.00.0			~ ~								
AT1-862	0.0663	1.0268	0.0663	0.0417	0.0900	21.013	8					
AT1-862 AT1-863		1.0268 1.5348	0.0663 0.0990	0.0417 0.0922	0.0900 0.1089	6.663	8					
	0.0663	1.5348 1.2 2 59		0.0922 0.0575	0.1089 0.1157	6.663 22.29 8						
AT1-863 AT1-864 AT1-865	0.0663 0.0990 0.0791 0.0664	1.5348 1.2259 1.0284	0.0990 0.0791 0.0664	0.0922 0.0575 0.0475	0.1089 0.1157 0.1100	6.663 22.298 33.281	8 8 8	-0.168	1.761	0.0192		
AT1-863 AT1-864 AT1-865 AT1-866	0.0663 0.0990 0.0791	1.5348 1.2259 1.0284 0.9926	0.0990 0.0791 0.0664 0.0640	0.0922 0.0575 0.0475 0.0333	0.1089 0.1157 0.1100 0.0925	6.663 22.298 33.281 35.445	8 8 8	-0.168	1.761	0.0192		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.0663 0.0990 0.0791 0.0664	1.5348 1.2259 1.0284 0.9926 0.8618	0.0990 0.0791 0.0664 0.0640 0.0556	0.0922 0.0575 0.0475 0.0333 0.0200	0.1089 0.1157 0.1100 0.0925 0.1350	6.663 22.298 33.281 35.445 62.180	8 8 8 8	-0.168	1.761	0.0192		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	1.5348 1.2259 1.0284 0.9926 0.8618 0.7975	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650	6.663 22.298 33.281 35.445 62.180 18.111	8 8 8 8 8	-0.168	1.761	0.0192		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	6.663 22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8	-0.168	1.761	0.0192		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	1.5348 1.2259 1.0284 0.9926 0.8618 0.7975	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650	6.663 22.298 33.281 35.445 62.180 18.111	8 8 8 8 8 8 8	-0.168	1.761	0.0192		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	6.663 22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8 8 8	-0.168	1.761	0.0192		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8 8 8	-0.168	1.761	0.0192		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426	1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8 8 8 8	-0.168		0.0192		
AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control	0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1544	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8	-0.168	Critical	0.0192	Skew	Kurt
AT1-863 AT1-865 AT1-865 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Test	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1544	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 Statistic 0.88692	-0.168	Critical 0.844	0.0192		Kurt 0.35554
AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Test Shapiro-Wilk's F-Test indicate	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249 s Test indicates equal va	1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1544	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 Statistic 0.88692 1.04899		Critical 0.844 8.88539		0.92716	0.35554
AT1-863 AT1-865 AT1-865 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Test	0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249 s Test indicates equal values (1-tail,	1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365 ates norm	0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0578 0.0714 0.1544	6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 Statistic 0.88692	MSDp	Critical 0.844 8.88539 MSB	0.0192 MSE 0.00048		

wv.				Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/10/202	1	Test ID:	TN-21-788			Sample IE		Swan Cre	ek		
End Date:	12/20/202		Lab ID:				Sample Ty	ype:	Sediment			
Sample Date:			Protocol:				Test Spec		HA-Hyale	lla azteca		
Comments:							·		•			
Conc-	1	2	3	4	5	6	7	8				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
AT1-862		0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-863		0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-864		0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865		0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866		0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867		0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869		0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870		0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
Control		0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
				Transform	n: Untran	sformed			1-Tailed			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Conc- AT1-873		N-Mean 1.0000	Mean 0.0645	Min 0.0389	Max 0.1071	CV% 33.418	N 8	t-Stat	Critical	MSD		
	0.0645							t-Stat	Critical	MSD		
AT1-873	0.0645 0.0663	1.0000	0.0645	0.0389 0.0417 0.0922	0.1071	33.418 21.013 6.663	8 8 8	t-Stat	Critical	MSD		
AT1-873 AT1-862	0.0645 0.0663 0.0990	1.0000 1.0268	0.0645 0.0663	0.0389 0.0417	0.1071 0.0900 0.1089 0.1157	33.418 21.013 6.663 22.298	8 8 8 8	t-Stat	Critical	MSD		
AT1-873 AT1-862 AT1-863	0.0645 0.0663 0.0990 0.0791 0.0664	1.0000 1.0268 1.5348 1.2259 1.0284	0.0645 0.0663 0.0990 0.0791 0.0664	0.0389 0.0417 0.0922 0.0575 0.0475	0.1071 0.0900 0.1089 0.1157 0.1100	33.418 21.013 6.663 22.298 33.281	8 8 8 8					
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925	33.418 21.013 6.663 22.298 33.281 35.445	8 8 8 8 8	t-Stat 0.043	Critical	MSD 0.0195		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350	33.418 21.013 6.663 22.298 33.281 35.445 62.180	8 8 8 8 8					
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111	8 8 8 8 8 8					
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	33.418 21.013 6.663 22.298 33.281 35.445 62.180	8 8 8 8 8 8					
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111	8 8 8 8 8 8 8					
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8 8 8					
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8 8					
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8 8 8 8		1.761			
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 Control	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0578 0.0714 0.1544	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8		1.761		Skew	Kurt
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-869 AT1-870 AT1-871 AT1-872 Control	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0578 0.0714 0.1544	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8		1.761 Critical 0.844		Skew 0.41899	Kurt -0.6512
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 Control	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0578 0.0714 0.1544	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 7 8 8 1.10833	0.043	1.761 Critical 0.844 8.88539	0.0195	0.41899	-0.6512
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 Control Auxiliary Test Shapiro-Wilk's	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249 ts Test indicates equal valest (1-tail,	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0578 0.0714 0.1544	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	0.043 MSDp	1.761 Critical 0.844	0.0195 MSE		

				Gro	wth and	Survival	Test-Grow	rth			
Start Date:	12/10/2021	1	Test ID:	TN-21-788			Sample ID	:	Swan Creek		
End Date:	12/20/2021	1	Lab ID:				Sample Ty	rpe:	Sediment		
Sample Date:			Protocol:				Test Speci	ies:	HA-Hyalella a	zteca	
Comments:											
Conc-	1	2	3	4	5	6	7	8			
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633	·		
AT1-862		0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620			
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956			
AT1 - 864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775			
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100			
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860			
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640			
AT1-868		0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650			
AT1-869		0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325			
AT1-870		0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486			
AT1 - 871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413			
AT1-872		0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586			
Control		0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022			
				Transform	n: Untrans	sformed		Rank	1-Tailed		
Conc-	Mean	N-Mean [^]	Mean	Min	Max	CV%	N	Sum	Critical		
AT1-873	0.0645	1.0000	0.0645	0.0389	0.1071	33.418	8				
AT1-862	0.0663	1.0268	0.0663	0.0417	0.0900	21.013	8				
AT1-863	0.0990	1.5348	0.0990	0.0922	0.1089	6.663	8				
AT1-864	0.0791	1.2259	0.0791	0.0575	0.1157	22.298	8				
AT1-865	0.0664	1.0284	0.0664	0.0475	0.1100	33.281	8				
AT1-866	0.0640	0.9926	0.0640	0.0333	0.0925	35.445	8				
AT1-867	0.0556	0.8618	0.0556	0.0200	0.1350	62.180	8	56.00	51.00		
AT1-868	0.0515	0.7975	0.0515	0.0400	0.0650	18.111	8				
AT1-869	0.0291	0.4503	0.0291	0.0138	0.0486	43.921	8				
AT1-870	0.0314	0.4864	0.0314	0.0157	0.0486	32.559	8				
AT1-871	0.0426	0.6610	0.0426	0.0300	0.0578	17.690	8				
AT1-872	0.0527	0.8168	0.0527	0.0288	0.0714	25.699	8				
	0.1249	1.9365	0.1249	0.1022	0.1544	15.754	8				
Control							Statistic		Critical	Skew	Kurt
Control Auxiliary Test	LO				z= 0.01)		0.8429		0.844		3.84354
Auxiliary Test		ates non-r	normal dis	tribution (p	· ~ - 0.0 ()		0.0723		0.011	1.10111	0.0-00-
Auxiliary Test Shapiro-Wilk's	Test indica			tribution (p	(- 0.01)		2.57157		8.88539	1.70.77	0.0400-
Auxiliary Test	Test indica	riances (p		tribution (p	0.01)					1.70.77	0.0-100-

				Gro	wth and	Survival	Test-Grov	vth				
Start Date:	12/10/202			TN-21-788	3		Sample II		Swan Cre			
End Date:	12/20/202	1 I	Lab ID:				Sample T		Sediment			
Sample Date:		ļ	Protocol:				Test Spec	cies:	HA-Hyale	lla azteca		
Comments:		*****		•								
Conc-	11	2	3	4	5	6	7	8				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
AT1-862		0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-864		0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-8 72	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
		_		Transforn	n: Untran				1-Tailed			
Conc-	Mean	N-Mean -	Mean	Min	Max	△\\/0/	3.1	4 04-4	C-141 1	Med		
		14-INCUIT	Moun	IAIIII		CV%	N	t-Stat	Critical	MSD		
AT1-873	0.0645	1.0000	0.0645	0.0389	0.1071	33.418	8	เ-จเลเ	Cillical	MOD		
AT1-862	0.0645 0.0663	1.0000 1.0268	0.0645 0.0663	0.0389 0.0417	0.1071 0.0900	33.418 21.013	8 8	i-Stat	Cilicai	חפוא		
AT1-862 AT1-863	0.0645 0.0663 0.0990	1.0000 1.0268 1.5348	0.0645 0.0663 0.0990	0.0389 0.0417 0.0922	0.1071	33.418 21.013 6.663	8 8 8	t-Stat	Cilical	MOD		
AT1-862 AT1-863 AT1-864	0.0645 0.0663 0.0990 0.0791	1.0000 1.0268 1.5348 1.2259	0.0645 0.0663 0.0990 0.0791	0.0389 0.0417 0.0922 0.0575	0.1071 0.0900 0.1089 0.1157	33.418 21.013 6.663 22.298	8 8 8	t-Stat	Cilicai	Man		
AT1-862 AT1-863 AT1-864 AT1-865	0.0645 0.0663 0.0990 0.0791 0.0664	1.0000 1.0268 1.5348	0.0645 0.0663 0.0990 0.0791 0.0664	0.0389 0.0417 0.0922 0.0575 0.0475	0.1071 0.0900 0.1089 0.1157 0.1100	33.418 21.013 6.663 22.298 33.281	8 8 8 8	i-Stat	Chuca	INIOD		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925	33.418 21.013 6.663 22.298 33.281 35.445	8 8 8 8 8	i-Stat	Chuca	Man		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350	33.418 21.013 6.663 22.298 33.281 35.445 62.180	8 8 8 8 8 8			Man	,	
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650	33.418 21.013 6.663 22.298 33.281 35.445	8 8 8 8 8	1.573	1.761	0.0146		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8 8					
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111	8 8 8 8 8 8 8					
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8 8 8 8					
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8 8					
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8 8 8 8 8 8		1.761			
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-872 Control Auxiliary Test	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1544	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8		1.761		Skew	Kurt
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1544	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		1.761 Critical 0.844		Skew 0.99099	Kurt 2.43202
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-872 Control Auxiliary Test Shapiro-Wilk's F-Test indicate	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249 ts Test indicates equal value	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1544	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 5 5 5 5 7 2 2 2 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	1.573	1.761 Critical 0.844 8.88539	0.0146	0.99099	2.43202
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-869 AT1-870 AT1-871 AT1-872 Control Auxiliary Test	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249 ts Test indicates equal values (1-tail,	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365 attes normariances (p.005)	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249 al distribut = 0.04)	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1544	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		1.761 Critical 0.844	0.0146 MSE	0.99099 F-Prob	

			•	Gro	wth and	Survival	Test-Gro	wth	· · · · · · · · · · · · · · · · · · ·			-
Start Date: End Date: Sample Date: Comments:	12/10/202 12/20/202	1	Test ID: Lab ID: Protocol:	TN-21-788			Sample I Sample Test Spe	D: Гуре:	Swa n Cre Sedimen HA-Hyale		l	
Солс-	1	2	3	4	5	6	7	8				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633		-		
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900						
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944					
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575						
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475						
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425						
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400						
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417						
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283						
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214						
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300						
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550		0.0586				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033						
			-	Transforn	n: Untran:	sformed			1-Tailed		_	
Солс-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	0.0645	1.0000	0.0645	0.0389	0.1071	33.418	8					
AT1-862	0.0663	1.0268	0.0663	0.0417	0.0900	21.013	8					
AT1-863	0.0990	1.5348	0.0990	0.0922	0.1089	6.663	8					
AT1 - 864	0.0791	1.2259	0.0791	0.0575	0.1157	22.298	8					
AT1-865	0.0664	1.0284	0.0664	0.0475	0.1100	33.281	8					
AT1-866	0.0640	0.9926	0.0640	0.0333	0.0925	35.445	8					
AT1-867	0.0556	0.8618	0.0556	0.0200	0.1350	62.180	8					
AT1-868	0.0515	0.7975	0.0515	0.0400	0.0650	18.111	8					
*AT1-869	0.0291	0.4503	0.0291	0.0138	0.0486	43.921	8	4.004	1.761	0.0156		
AT1-8 7 0	0.0314	0.4864	0.0314	0.0157	0.0486	32.559	8					
AT1-871	0.0426	0.6610	0.0426	0.0300	0.0578	17.690	8					
AT1-872	0.0527	0.8168	0.0527	0.0288	0.0714	25.699	8					
Control	0.1249	1.9365	0.1249	0.1022	0.1544	15.754	8					
Auxiliary Test							Statistic	_	Critical	·	Skew	Kurt
	Test indica	tes norm		ion (p > 0.	01)		0.95752		0.844		0.83815	1.27428
Shapiro-Wilk's												
F-Test indicate	s equal var		= 0.19)				2.8549		8.88539			
-	s equal var est (1-tail, 0	.05)		····	 		2.8549 MSDu	MSDp	8.88539 MSB	MSE	F-Prob	df

				Gro	wth and	Survival	Test-Grov	wth				
Start Date:	12/10/202	1	Test ID:	TN-21-788	3		Sample II	D:	Swan Cre	ek		
End Date:	12/20/202	1	Lab ID:				Sample T	ype:	Sediment			
Sample Date:			Protocol:				Test Spec	cies:	HA-Hyale	lla azteca		
Comments:												
Conc-	1	2	3	4	5	6	7	8				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
A T 1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
				Transform	n: Untran	sformed			1-Tailed			
Conc-	Mean	N-Mean	Mean	Min		A1 /A7			A 144 1	HOD		
		14-INCall	INCALL	IAIILI	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873		1.0000	0.0645	0.0389	0.1071	33.418	8	t-Stat	Critical	M2D	***	
AT1 - 873 AT1 - 862	0.0645							t-Stat	Critical	MSD		
	0.0645 0.0663	1.0000 1.0268 1.5348	0.0645	0.0389 0.0417 0.0922	0.1071 0.0900 0.1089	33.418 21.013 6.663	8 8 8	t-Stat	Critical	M2D		
AT1-862	0.0645 0.0663 0.0990	1.0000 1.0268 1.5348 1.2259	0.0645 0.0663 0.0990 0.0791	0.0389 0.0417 0.0922 0.0575	0.1071 0.0900	33.418 21.013	8 8 8	t-Stat	Critical	MSD		
AT1-862 AT1-863	0.0645 0.0663 0.0990 0.0791	1.0000 1.0268 1.5348 1.2259 1.0284	0.0645 0.0663 0.0990 0.0791 0.0664	0.0389 0.0417 0.0922 0.0575 0.0475	0.1071 0.0900 0.1089 0.1157 0.1100	33.418 21.013 6.663 22.298 33.281	8 8 8 8	t-Stat	Critical	<u> </u>		
AT1-862 AT1-863 AT1-864	0.0645 0.0663 0.0990 0.0791 0.0664	1.0000 1.0268 1.5348 1.2259	0.0645 0.0663 0.0990 0.0791	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925	33.418 21.013 6.663 22.298 33.281 35.445	8 8 8 8 8	t-Stat	Critical	<u> </u>		
AT1-862 AT1-863 AT1-864 AT1-865	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618	0.0645 0.0663 0.0990 0.0791 0.0664	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200	0.1071 0.0900 0.1089 0.1157 0.1100	33.418 21.013 6.663 22.298 33.281 35.445 62.180	8 8 8 8 8	t-Stat	Critical	MSD		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111	8 8 8 8 8	t-Stat	Critical	MSD		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350	33.418 21.013 6.663 22.298 33.281 35.445 62.180	8 8 8 8 8			MSD		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8 8	3.928	1.761	0.0149		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-868	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8 8 8 8					
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 *AT1-870	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8 8					
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 *AT1-870 AT1-871	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8 8 8 8 8 8		1.761			
AT1-862 AT1-863 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 *AT1-870 AT1-871 AT1-872 Control	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1544	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8		1.761		Skew	Kurt
AT1-862 AT1-863 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 *AT1-870 AT1-871 AT1-872	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1544	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8		1.761		Skew 0.9172	Kurt 2.15668
AT1-862 AT1-863 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 *AT1-870 AT1-871 AT1-872 Control	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1544	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 9 9 4.45247	3.928	1.761 Critical 0.844 8.88539	0.0149	0.9172	2.15668
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 Control Auxiliary Tes Shapiro-Wilk's	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249 ts Test indicates equal values (1-tail,	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365 ates norm riances (p	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249 al distributor	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1544	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 9 4.45247 MSDu	3.928 MSDp	1.761 Critical 0.844 8.88539 MSB		0.9172 F-Prob	

				Gro	wth and	Survival	Test-Gro	wth				
Start Date:	12/10/202	1	Test ID:	TN-21-788	3		Sample II	D:	Swan Cre	ek		
End Date:	12/20/202	1	Lab ID:				Sample T	ype:	Sediment	t		
Sample Date:			Protocol:				Test Spe			ella azteca		
Comments:							•		•			
Conc-	1	2	3	4	5	6	7	8				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633				
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
				Transforn	n: Untran:	sformed			1-Tailed			
Conc-		N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	0.0645	1.0000	0.0645	0.0389	0.1071	33.418	8					
AT1-862	0.0663	1.0268	0.0663	0.0417	0.0900	21.013	8					
AT1-863	0.0990	1.5348	0.0990	0.0922	0.1089	6.663	8					
A T1- 864	0.0791	1.2259	0.0791	0.0575	0.1157	22.298	8					
AT1-865	0.0664	1.0284	0.0664	0.0475	0.1100	33.281	8					
AT1-866	0.0640	0.9926	0.0640	0.0333	0.0925	35.445	8					
AT1-867	0.0556	0.8618	0.0556	0.0200	0.1350	62.180	8					
AT1-868	0.0515	0.7975	0.0515	0.0400	0.0650	18.111	8					
AT1-869	0.0291	0.4503	0.0291	0.0138	0.0486	43.921	8					
AT1-870	0.0314	0.4864	0.0314	0.0157	0.0486	32.559	8					
*AT1-871	0.0426	0.6610	0.0426	0.0300	0.0578	17.690	8	2.708	1.761	0.0142		
AT1-872	0.0527	0.8168	0.0527	0.0288	0.0714	25.699	8					
Control	0.1249	1.9365	0.1249	0.1022	0.1544	15.754	8					
Auxiliary Test							Statistic		Critical		Skew	Kurt
Shapiro-Wilk's	Test indica	ates norm	al distribu	tion (p > 0.	01)		0.89829		0.844		1.05641	3.13024
F-Test indicate	es equal va	riances (p	0.01				8.16768		8.88539			
Hypothesis Te							MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic	c t Test ind	icates sig	nificant di	fferences			0.01423	0.22047	0.00191	0.00026	0.01698	1, 14

				Gro	wth and	Survival	Test-Grov	wth				
Start Date: End Date: Sample Date: Comments:	12/10/202 12/20/202	1	Test ID: Lab ID: Protocol:			<u>oui vivai</u>	Sample II Sample T Test Spec	D: ype:	Swan Cre Sediment HA-Hyale			
Conc-	1	2	3	4	5	6	7	8				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756	0.0389	0.0633			·····	·-····
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900	0.0580	0.0620				
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089	0.0944	0.0956				
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575	0.0725	0.0775				
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475	0.0767	0.1100				
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0425	0.0460	0.0860				
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400	0.1350	0.0640				
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483	0.0650				
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283	0.0486	0.0325				
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157	0.0486				
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444	0.0413				
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
				Transforn	n: Untran	cformod			1-Tailed			
				i i di i Si Oi i	ii. Oiluani	SIUIIIIEU			i-ranca			
Conc-	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD		
Conc- AT1-873		N-Mean 1.0000					N	t-Stat		MSD	· ••••·	
	0.0645	1.0000 1.0268	Mean	Min	Max	CV%		t-Stat		MSD	· · · · · · · · · · · · · · · · · · ·	
AT1-873	0.0645	1.0000 1.0268 1.5348	Mean 0.0645	Min 0.0389	Max 0.1071	CV% 33.418	8	t-Stat		MSD		
AT1-873 AT1-862	0.0645 0.0663	1.0000 1.0268 1.5348 1.2259	Mean 0.0645 0.0663 0.0990 0.0791	Min 0.0389 0.0417 0.0922 0.0575	Max 0.1071 0.0900	33.418 21.013 6.663 22.298	8 8 8	t-Stat		MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865	0.0645 0.0663 0.0990	1.0000 1.0268 1.5348 1.2259 1.0284	Mean 0.0645 0.0663 0.0990 0.0791 0.0664	Min 0.0389 0.0417 0.0922 0.0575 0.0475	Max 0.1071 0.0900 0.1089 0.1157 0.1100	CV% 33.418 21.013 6.663 22.298 33.281	8 8 8 8	t-Stat		MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926	Mean 0.0645 0.0663 0.0990 0.0791 0.0664 0.0640	Min 0.0389 0.0417 0.0922 0.0575 0.0475 0.0333	Max 0.1071 0.0900 0.1089 0.1157 0.1100 0.0925	CV% 33.418 21.013 6.663 22.298 33.281 35.445	8 8 8 8 8	t-Stat		MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618	Mean 0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	Min 0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200	Max 0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350	CV% 33.418 21.013 6.663 22.298 33.281	8 8 8 8 8	t-Stat		MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975	Mean 0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	Min 0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400	Max 0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111	8 8 8 8 8	t-Stat		MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503	Mean 0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	Min 0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200	Max 0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	33.418 21.013 6.663 22.298 33.281 35.445 62.180	8 8 8 8 8 8	t-Stat		MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864	Mean 0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	Min 0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	Max 0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111	8 8 8 8 8 8 8	t-Stat		MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503	Mean 0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426	Min 0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	Max 0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8 8 8 8	t-Stat		MSD		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864	Mean 0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	Min 0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	Max 0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8 8	t-Stat		MSD 0.0159		
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-869 AT1-870 AT1-871 AT1-872 Control	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610	Mean 0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426	Min 0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	Max 0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		Critical			
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	Mean 0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	Min 0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	Max 0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0578 0.0714 0.1544	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8		1.761		Skew	Kurt
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 Control Auxiliary Test Shapiro-Wilk's	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	Mean 0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249 al distribut	Min 0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	Max 0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0578 0.0714 0.1544	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		1.761 Critical 0.844		Skew 0.63831	Kurt 1.18339
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 Control Auxiliary Test Shapiro-Wilk's F-Test indicate	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	Mean 0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249 al distribut	Min 0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	Max 0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0578 0.0714 0.1544	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 2.53452	1.313	1.761 Critical 0.844 8.88539	0.0159	0.63831	1.18339
AT1-873 AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 Control Auxiliary Test Shapiro-Wilk's	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249 ts Test indicates equal values (1-tail,	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365 attes normalizances (p	Mean 0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249 al distributi	Min 0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	Max 0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1544	21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 2.53452 MSDu	1.313 MSD p	1.761 Critical 0.844 8.88539 MSB		0.63831 F-Prob	

				Gr	owth and	Survival	Test-Gra	wth				
Start Date:	12/10/202	21	Test ID:	TN-21-78		Out At AG	Sample I		Swan Cr	ook.		
End Date:	12/20/202		Lab ID:	114-21-700	5		Sample		Sedimen			
Sample Date:	,_,_,		Protocol:				Test Spe				_	
Comments:							rest ope	cics.	I IA-I Iyali	ella azteca	1	
Conc-	1	2	3	4	5	6	7	8				
AT1-873	0.0733	0.0588	0.0567	0.1071	0.0425	0.0756						
AT1-862	0.0650	0.0733	0.0667	0.0733	0.0417	0.0900						
AT1-863	0.0922	0.0956	0.1078	0.1033	0.0944	0.1089						
AT1-864	0.0925	0.0700	0.1157	0.0738	0.0733	0.0575						
AT1-865	0.0475	0.0525	0.0475	0.0725	0.0767	0.0475						
AT1-866	0.0620	0.0880	0.0333	0.0925	0.0620	0.0475						
AT1-867	0.0200	0.0433	0.0380	0.0517	0.0529	0.0400						
AT1-868	0.0500	0.0517	0.0650	0.0400	0.0500	0.0417	0.0483					
AT1-869	0.0150	0.0443	0.0200	0.0300	0.0138	0.0283						
AT1-870	0.0300	0.0400	0.0338	0.0329	0.0288	0.0214	0.0157					
AT1-871	0.0578	0.0413	0.0429	0.0425	0.0411	0.0300	0.0444					
AT1-872	0.0650	0.0714	0.0400	0.0288	0.0529	0.0550	0.0500	0.0586				
Control	0.1544	0.1256	0.1356	0.1356	0.1389	0.1033	0.1040	0.1022				
				Transform			0.10.10	OTTOLL	1-Tailed			
Conc-	Mean	N-Mean	Mean									
\		14-1410-011	INICALI	Min	Max	CV%	N	t-Stat	Critical	MSD		
AT1-873	0.0645	1.0000	0.0645	0.0389	0.1071			t-Stat	Critical	MSD		-
AT1-862						33.418 21.013	8	t-Stat	Critical	MSD		
AT1-862 AT1-863	0.0645	1.0000	0.0645	0.0389	0.1071	33.418	8	t-Stat	Critical	MSD		
AT1-862 AT1-863 AT1-864	0.0645 0.0663 0.0990 0.0791	1.0000 1.0268	0.0645 0.0663	0.0389 0.0417	0.1071 0.0900	33.418 21.013	8 8 8	t-Stat	Critical	MSD		
AT1-862 AT1-863 AT1-864 AT1-865	0.0645 0.0663 0.0990 0.0791 0.0664	1.0000 1.0268 1.5348 1.2259 1.0284	0.0645 0.0663 0.0990	0.0389 0.0417 0.0922	0.1071 0.0900 0.1089	33.418 21.013 6.663	8 8 8 8	t-Stat	Critical	MSD		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926	0.0645 0.0663 0.0990 0.0791	0.0389 0.0417 0.0922 0.0575	0.1071 0.0900 0.1089 0.1157	33.418 21.013 6.663 22.298	8 8 8	t-Stat	Critical	MSD		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.0645 0.0663 0.0990 0.0791 0.0664	1.0000 1.0268 1.5348 1.2259 1.0284	0.0645 0.0663 0.0990 0.0791 0.0664	0.0389 0.0417 0.0922 0.0575 0.0475	0.1071 0.0900 0.1089 0.1157 0.1100	33.418 21.013 6.663 22.298 33.281	8 8 8 8	t-Stat	Critical	MSD		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925	33.418 21.013 6.663 22.298 33.281 35.445	8 8 8 8 8	t-Stat_	Critical	MSD		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350	33.418 21.013 6.663 22.298 33.281 35.445 62.180	8 8 8 8 8 8	t-Stat_	Critical	MSD		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111	8 8 8 8 8 8	t-Stat_	Critical	MSD		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921	8 8 8 8 8 8 8	t-Stat_	Critical	MSD		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-869 AT1-870 AT1-871	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559	8 8 8 8 8 8 8 8 8	t-Stat_	Critical	MSD		
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 Control	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610	0.0645 0.0663 0.0990 0.0791 0.0664 0.0640 0.0556 0.0515 0.0291 0.0314 0.0426	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690	8 8 8 8 8 8 8 8 8 8 8					
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-868 AT1-869 AT1-870 AT1-871 AT1-872 Control	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0578 0.0714 0.1544	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 15.754	8 8 8 8 8 8 8 8 8	-5.854	1.761 Critical	MSD	Skew	Kurt
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 Control Auxiliary Tests Shapiro-Wilk's	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0578 0.0714 0.1544	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 15.754	888888888888888888888888888888888888888		1.761		Skew 0.48995	Kurt -0.2516
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 Control Auxiliary Tests Shapiro-Wilk's F-Test indicates	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249 s	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0578 0.0714 0.1544	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 15.754	8 8 8 8 8 8 8 8 8 8 8 8 8	-5.854	1.761 Critical		Skew 0.48995	Kurt -0.2516
AT1-862 AT1-863 AT1-864 AT1-865 AT1-866 AT1-867 AT1-868 AT1-870 AT1-871 AT1-872 Control Auxiliary Tests Shapiro-Wilk's	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249 s Test indicas s equal va st (1-tail,	1.0000 1.0268 1.5348 1.2259 1.0284 0.9926 0.8618 0.7975 0.4503 0.4864 0.6610 0.8168 1.9365	0.0645 0.0663 0.0990 0.0791 0.0664 0.0556 0.0515 0.0291 0.0314 0.0426 0.0527 0.1249	0.0389 0.0417 0.0922 0.0575 0.0475 0.0333 0.0200 0.0400 0.0138 0.0157 0.0300 0.0288 0.1022	0.1071 0.0900 0.1089 0.1157 0.1100 0.0925 0.1350 0.0650 0.0486 0.0486 0.0578 0.0714 0.1544	33.418 21.013 6.663 22.298 33.281 35.445 62.180 18.111 43.921 32.559 17.690 25.699 15.754	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 9 8 9	-5.854	1.761 Critical 0.844			



ATTACHMENT VI

Data Sheets from *Lumbriculus variegatus* Toxicity Tests (13 pages)



SEDIMENT TOXICITY TEST SET-UP BENCH SHEET

the second secon							
roject Number:	70019.TOX						
Swan Cr	reek						
QC Test Number:	TN-21-787						
QC Test Number					1		
	$\sim_{ m T} \sim_{ m T}$	EST ORGANIS	SM INFORMA	TION	All a finish to the		
	Oligochaete		Adults Isolated	(Time, Date).			
Common Name:	V Lincolan varien		Neonates Pulle	ed (Time, Date):			
Scientific Name:	Lumbriculus variego		A 1 importion:	<24 hours	Age: _	Adult]
Lot Number:	1V-025		Culture Water	(T/S): 23.1	°C	<u> </u>	ppt
Source: Gast	m Agustus		Culture Water	(1/2)/			
				aa waa aa baraa aa	V (**)		
		TEST	NITIATION	1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		The Physics of the Company of the Co	
Date	Time	<u>Initials</u>		<u>Activity</u>	1	ala and	Ì
1 र्वर्गाद्ध	1350	ino) Arg		Sediment Add			1
	1418	AG		Overlying Wa	ter Added	to Chambers	3
*				Organisms Tr	ansferred		•
12/8/n	1100						
				water the state of the second	MARKET COM		10 AT 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
		TES	ST SET-UP		<u>, 1838 - 1838 - 183</u>	Charles I to the Second Second Second Second Second Second Second Second Second Second Second Second Second Se	
		_ _					
			26 - 060 AT	r1 973			
Sample Number(s)): <u>AT1-697 (Lab Co</u>	ntrol), AT1-8	66 -▶ 868, A	<u>Γ1-873</u>			
Sample Number(s) Overvling Water:): <u>AT1-697 (Lab Co</u> <u>Dechlor</u>	ntrol), AT1-8	66→868, A	<u>Г1-873</u> —			
Overyling Water:	Dechlor			_	ne Overlyi	ng Water	
Sample Number(s) Overyling Water: Overlyng (5) plulate Treatment	Dechlor	ontrol), AT1-8		_	ne Overlyi		
Overyling Water: Overlyng (5) philate Treatment	Dechlor V	Volume Test S	Sediment	_		ng Water L	
Overyling Water: Overlyng (5) plulet of Treatment AT1-697 (La	Dechlor	Volume Test S		_			
Overyling Water: Overlyng (5) philate Treatment	Dechlor V	Volume Test S	Sediment	_			
Overyling Water: Overlyng (5) plulet of Treatment AT1-697 (La	Dechlor V	Volume Test S	Sediment	_			
Overyling Water: Overlyng (5) plulet of Treatment AT1-697 (La	Dechlor V	Volume Test S	Sediment	_			
Overyling Water: Overlyng (5) ploled of Treatment AT1-697 (La	Dechlor V	Volume Test S	Sediment	_			
Overyling Water: Overlyng (5) ploled of Treatment AT1-697 (La	Dechlor V	Volume Test S	Sediment	_			
Overyling Water: Overlyng (5) plobed Treatment AT1-697 (La	Dechlor V	Volume Test S	Sediment	_			
Overyling Water: Overlyng (5) plobed Treatment AT1-697 (La	Dechlor V	Volume Test S	Sediment	_			
Overyling Water: Overlyng (5) clicked Treatment AT1-697 (La	Dechlor V	Volume Test S	Sediment	_			
Overyling Water: Overlyng (5) clicked Treatment AT1-697 (La	Dechlor V	Volume Test S	Sediment	_			



TOXICOLOGY LABORATORY BENCH SHEET - ORGANISM RECOVERY RECORD

Project Number:			
Client: Swan Creel		· · · · · · · · · · · · · · · · · · ·	***************************************
QC Test Number:	TN-21-787	Scientific Name:	Lumbriculus variegatus
Organisms Recovered (dai	te, time, initials):	UAD 1-5-22/ Me 1/5/2	<u> </u>
Treatment	Replicate	Weight of Organisms Loaded	Weight of Organisms Recovered
AT1-697	A	159	15 9
(Lab Control)	В		15
	С		15
	D		15
	E		15
AT1-866	A		15_
	В		15
	C		
	D		15
	E		15
AT1-867	A		15
-	В		10 1
	C		10
	D		12
			11
ATT1 060	E		15
AT1-868	A		10
	В		9
	С		i 9
	D		8
	Е		8
AT1-873	A		11
	В		12
	C		
	D		13
	·E		
	 		10 4
		:	
	.g		·

TARGET VALUES: Temp: 23 °C pH: 6.0 - 9.0 DO: >4.0 mg/L Salinity: 0 ppt Photoperiod: 16 l, 8 d Light Intensity: 50 - 100 fc

···																	F								
	Ter	Temperature (°C)	(C) 2					ļ	Hd					Dissolved Oxygen (mg/L)	ved Ox	ygen (mg/L)			Ü	Conduc	tivity (Conductivity (µS/cm)	$\overline{}$	
Sample#	0 1 2	3	4	5	9	0	_	7	m	4	5	9	0	1 2	2 3	4	ις.	9	0	_	2	m	4	2	9
AT1-697 Control	22.6					82						<u> </u>	2.				_		347						
AT1-866	07.00					8						7	2						404						
ATI-867	N.C					<u>-</u> ض				-	-	<u>د۔</u> ا	ぶ			-		_	42						
AT1-868	9.5%					8						س ر	<u></u>						2		<u> </u>				
AT1-873	No					a Sign						<u> </u>	0.0						59						
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Meter Number 680	er (295					999						20	<i>S</i> ₆	_	\vdash	_	_		989						
Tin	Time office					9 860				_		0	9680						88						
Initials	1s - Co					2						J	Ş						9						
								1	1	-	-	-	-	\dashv		\downarrow	4								

ATS-T13 06/21/06



Project Number: 70019.TOX	TEST ORGANISM		Beginning Date:	12/2/11	Time: 1600
Client: Swan Creek	Common Name:	Oligochaete	Ending Date:	1/2/20	Time: 1600
OC Test Number: TN-21-787	Scientific Name:	Lumbriculus variegatus			

>4.0 mg/L Salinity: _0_ppt Photoperiod: __161,8 d Light Intensity: 50 - 100 fc TARGET VALUES Temp: 23 °C pH: 6.0 - 9.0 DO:

			T	Temperature (°C)	ature ((o.)					Hd					Dissol	Dissolved Oxygen (mg/L)	ygen (mg/L)			S	nancı	Conductivity (µS/cm)	(cm)	
Sample #		1	2	3	4	2	2 9	7	2	m	4	2	9	7	-	7	3	4 5	9	7	-	7	3	4	5 6	6 7
AT1-697	Control	22.02	21.2	3,73	306	2.0%	22.022.1 23,733.0 22.022.0 22.0 8.0 8.1	00	181	8.5	8.1	7.6	1/8	7.7 4	1.8 5	195	9 9	87	86.0	170	8.58.1 7.68,1 7.7 4.8 5.9 5.9 5.8 7.8 6.9 7 6 344 331 346 344 348 338 338	331 3	346	3443	A 33	8 33
AT1-866		22.0	2 422	3.12	3.0 %	21/2	22.0224 23.125.0 22.122.0 22.2 7-9 8.0 8.5 8.0 7.5 8.0 7.7 5.1 5.9 5.9 5.7 4.5 5.6 6.0 868 353 325 357 371 350 350	170	180	8,5	8.0	755	8.0	77	5.1.5	5 6	9 8	1/2	55.6	00	368	353	365	3573	71 35	0 35
AT1-867		20.22	3.0 2	3.23	3.0	202	21.0 330 23.2 33.0 21.0 22.0 22.7 7.9	270	8.0	3.4	8.0	75	8,0	7.7	- S	.8 5	7 5	カカ	5.5	5.7	8.0 8.4 8.0 75 8.6 7.7 5.1 5.8 5.7 5.4 4.1 5.8 5.7 280 359 31 364377552 35	359	371	3643	7735	235
AT1-868		22.0	13.12	333	3.0 %	702	22.073.123.33.0 11.022.122.7.9	17.0	1 3.C	3.4	29	75	0.8	7.7	5.1.5	5	5	4.	0 6.0	556	3.0 8.4 7.9 7.5 8.0 7.7 8.1 5.7 5.6 5.4 4.0 6.0 5.6 374 354 363 370 354353	35il -	3712	363 2	35 92	435
AT1-873		22.0	13.1 2	33	305	202	2.023.1233 330 220 22.122.124 7.9 8.3 2.9 7.5 7.9 7.7 4.6 5.6 5.5 5.4 4.1 6.0 5.6 377 359 369 364 384 386359	17,4	67.9	8.3	62	75.	7.9'	1.7	465	,6 S	30	4.	-64	5.6	377	359	69%	364 2	32	5635
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	Tim	Time lada (506) 1407 1406 1407 1403 1404 1508 1407 1440 1508 1404 1508 1408 1608	50g	n Loh	100	2011	H 98	43 101	19 150	0h18	MAG	38	1430	1644	bho	508 NH	5	300	40/43	144.5	Short	158	LOhi	Ichas	200	30 14
	Initia	Initials MT MT MT MT MT MT MT MT MT MT MT MT MT	1	5	1/2 6	3	NT L	5	TWI T	IM.	· M	3	TX	TW	1 +1	MTM	AT L	7, 6	11	TWI	TY	TW7	7	X	37	7-1-5



Project Number: 70019.TOX	TEST ORGANISM		Beginning Date:	12/5/21	Time: 1600
Client: Swan Creek	Common Name:	Oligochaete	Ending Date:	1/5/12	Time: 1600
OC Test Number: TN-21-787	Scientific Name:	Lumbriculus variegatus			

TARGET VALUES Temp: 23 °C pH: 6.0 - 9.0 DO: >4.0 mg/L Salinity: 0 ppt Photoperiod: 16 l, 8 d Light Intensity: 50 - 100 fc

				Tem	peratu	Temperature (°C)	(Hd					Diss	olved	Oxyge	Dissolved Oxygen (mg/L)	(L)			S .	nancu	Conductivity (µS/cm)	s/cm)	
Sample #		∞	6	01	=	12	13	14	∞	6	10	11	12	13	14	00	6	10	11	12	13	14	8	6	10	111	12 1	13 14
AT1-697	Control	1.22	0.72	24.0	23	011,	022.0	22.0	80	7.9	2.8	7.8	202	8.0	7.8	200	(4.4)	2:0	4.0	1.0	22.1 22.0 24.0 25022,0220 22.0 8.0 7.9 8,2 7.8 2.08.0 7.8 6.1 6.4 6.2 4,0 5.1 6.4 7.3 313 349 335 342 363341 330	7.3 2	43 3	4993	35 2	E 21%	633	4133
AT1-866		422	22.0	23.4	3	022	022.6	\$22.0	29	2.8	8,0	8:2	7.6	29	7.7	5.7	5.9	0.0	40	4.0	24 22.0 234 23.0 22.0 22.0 22.0 7.8 8.0 7.8 7.6 2.9 7.7 5.7 5.9 6.0 4.0 4.0 6.3 5.7 357 360 352 377 385857 347	5.7 3	33	603	22	572	5533	736
AT1-867		22.4	27.0	13.2	17.	722.	27.0	27.4 22.0 23.2 22.7 22.1 22.0 22.0 7.9	29		8.0	7.8	7.6	29	1.7	5.7	5,4	7	4,0	Q.H	7.8 8.5 7.8 7.67.9 7.7 5.7 5.4 5.4 4.0 4.0 6.1 5.6 358 360 353 37236 553 350	0,	358 3	60 3	53	5723	5 33	38 35
AT1-868		4.22	11.17	23.1	2.1	77.	122.2	22.4 22.4 23.1 22,7 22.1 22.0 22.0 7.9	7.9		8.0	7.8	75	6'6	11	5:7	5.3	2	40	4.6	7.8 8.0 7.8 7.57.9 7.7 5.7 5.3 5.1 4.0 4.0 6.1 5.5 389 361 353 374386 357 350	S	156 3	3613	53	377	863	5) 3
AT1-873		72.4	2.5	23.0	34.	123	122.0	224 225 230 27 22, 22.0 22.0 7.9	7.9	1	8,0	7.7	7.5	2,9	7.7	5.7	5.3	2.5	1.4	04	7.8 8.0 7.7 7.57.9 2.7 5.7 5.3 5.2 4.1 4.06.4 5.6363 362357 378 394362353	5,6	63.3	673	57	378	343	229
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	Initial	Initials (MT MT MT KI SI MT MT	4	IMT	V	5	3	MT	5	MA	MTMT	81	2	12	TM	11	TVV	MT	16	2	31 51 MF MT 117 MAT BY SI SI MT MT MT MT MT MT MT MT MT MT MT MT MT	MT	FIT	MYM	TV	76	7	77



Project Number: 70019.TOX	TEST ORGANISM		Beginning Date:	12/3/21	Time:	1600
Client: Swan Creek	Common Name:	Oligochaete	Ending Date:	115/12	Time:	1600
QC Test Number: TN-21-787	Scientific Name:	Lumbriculus variegatus		1 1		

Temp: 23_°C pH: 6.0 - 9.0 DO: >4.0 mg/L Salinity: 0 ppt Photoperiod: 16 l, 8 d Light Intensity: 50 - 100 fc TARGET VALUES

			Ľ	Temperature (°C)	rature	(°C)					Hd					Disso	lved O	xygen	Dissolved Oxygen (mg/L)			O	onduct	Conductivity (µS/cm)	(S/cm)	
Sample #		15	16	17	18	19	20 2	21 15	5 16	17	18	19	20	21	15	16	17	18 1	19 20	20 21	15	91	17	18	19	20 21
AT1-697	Control	22.0	120 320		32.03	3.12	22- 331 22-072.58.1	5	-	8.08		81 77 8081	90	5.3	7 7'0	9:	386	33	3 7	0,0	6,4 6.6 68 6.3 5.7 7.2 6,6 339 340 331 336 333344 319	540	33)	336	3333	73
AT1-866		22.0	22.0 21.0 22.0 22.0 32 4 22.0 22.4 8.0 8-1	20.02	1.00	200	30 22	6	08.1		1.0	7.6	8	- 3	-	1.	5	10	07	05.5	81 21 76 81 81 61 11 66 6 50 705.8 355 351 356 351 39360 33	355	356	381	333	3
AT1-867		27.0	22.03	202	203	343	11-220 120 334 220 223 8.0	3	D 8.1		1.8	7.6	8	0,0	0,0	1.0	5.9	5	56	1 6.0	8 2 31 7.6 8-1 8.1 6.0 6.1 5.9 6.5 5.5 64 6.0 359 35+ 356 359 357 340 330	135+	356	353	3.413	603
AT1-868		22.0	22.0 120 22.0 12.0 23.5 22.022.2 8.0	200	12.03	35 2	2.022	2	1-8 Q		8.1	2.6	3	8.1	0.0	3	©. ⊗	5	<u>ن</u>	50	82 81 26 8281606 5861 54 6261 35736 38 20 347 360332	7356	388	360	347 3	603
AT1-873		2.2	11.0	22.67	33	33 2	12.5 22.6 22.0 22.1 8.0	8	0 8.1	2.8	فك	2,6	8.1	0.0	3,9	7.	8	15	10	36.	82 81 76 8180 591658 1655 636,2358 359 350 354360 333	35.5	357	350	3543	603
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	Initials	MY	1	0	8	1	- BMT MT	X		2	A	5	7	7 TN TAN 67	45	7	10	1	×	A dA	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	A		0	0



Project Number: 70019.TOX	TEST ORGANISM		Beginning Date:	12/2/21	Time: /600
Client: Swan Creek	Common Name: O	igochaete	Ending Date:	1/5/22	Time: / 600
QC Test Number: TN-21-787	Scientific Name:	Lumbriculus variegatus			

TARGET VALUES Temp: 23 °C pH: 6.0 - 9.0 DO: >4.0 mg/L Salinity: 0 ppt Photoperiod: 161,8 d Light Intensity: 50 - 100 fc

Sumple # 22 23 24 25 25 24 24 25 25 25 25 24 24 25 25 25 25 24 24 25 25 25 25 24 24 25 25 25 25 24 24 25 25 25 25 24 24 25 25 25 24 24 25 25 25 25 24 24 25 25 25 25 24 24 25 25 25 25 25 25 24 24 25 25 25 25 25 24 24 25 25 25 25 25 25 25 25 24 24 25 25 25 25 25 25 25 25 25 25 25 25 25					Теп	Temperature (°C)	ure (°	()					Hd					D	vlossi	xO pa.	Dissolved Oxygen (mg/L)	mg/L)				Conductivity (µS/cm)	ctivity	lo/S/cı	(m	
Control 22.6 32.0 23.3 22.8 33.3 33.0 30.07.8 7.7 7.5 32.0 23.0 27.8 7.7 7.5 32.0 23.0 27.8 7.7 7.5 32.0 23.0 27.0 7.8 7.7 7.5 32.0 23.0 27.0 7.8 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7	Sample #		22							- 2						-		-					1	7-11					27	
22.6 32.0 25.0 25.1 32.4 32.0 22.0 7.8 1.2 22.4 32.4 32.0 22.0 7.8 1.2 22.4 32.4 32.0 22.0 7.8 1.2 22.4 32.4 22.4 25.2 22.4 25.2 22.4 25.2 22.4 25.2 22.4 25.2 22.4 25.2 22.4 25.4 25	AT1-697	Control	226	033.	323	326	1833	133	CC 0.1	5.72		38	5.8	100	8.L.	0.	15.4	h	96.6	05	25	5	3	33	1 35	333	18	353	345	38
22.5 32.2 22.6 23.4 32.0 23.0 7.8 7.7 7.8 7.2 22.4 32.4 32.0 23.0 7.8 7.7 7.8 7.2 22.4 32.4 32.0 23.0 7.8 7.7 7.8 7.2 22.4 32.4 22.8 23.4 32.0 23.0 7.8 7.7 7.8 7.8 2.4 22.8 23.4 22.8 23.4 22.0 23.0 7.8 7.7 7.8 2.4 22.4 32.4 22.8 23.4 22.8 23.4 22.8 23.4 22.8 23.4 22.8 23.4 22.8 23.4 22.8 23.4 23.4 23.4 23.4 23.4 23.4 23.4 23.4	AT1-866		22.6	33	0 25.	53	Cr).	F. 33	.023	0	3.7	3	18	90	3 1.8	7.	3	2	5.0	941	0.50	9	740	34	3 37	1 256	136	1364	1360	2 40
11.5 32.2 21.9 25.2 33.4 32.0 20.0 7.8 7.8 7.8 7.8 7.8 7.8 7.8 7.8 7.8 7.8	AT1-867		22.5	33.	£ 23.	623	133	5.	1660	27,	8 7.8	1.8 S	8	85	378	-	3	5.5	0	0.5	05	9	5	734	137	355	33	7365	365	199
22.4 32.4 22.8 25.222.3 3320 32.0 7.8 7.7 7.8 7.7 7.8 7.8 7.8 7.8 7.8 7.8	AT1-868		377	323.	7 T.	623	133	CE 1.	320	27.5	578	3 8:1	18	00	37.8	10	15,5	2	N	74.	<u>.</u>	1 (6.	7	3 84.	333	1351	3	5364	36	5
Meter Number 681 1320 681 685 120 120 120 120 120 120 120 120 120 120	AT1-873		22.1	133	4 12.	8 23	120	3 33	0.33	0 7.8	3.1	3 84	8	08	17	7.0	5.03	S	150	7 14	15.8	35.0	3	7 34º	1 378	355	33	137	368	Ph P
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TOXICOLOGY LABORATORY BENCH SHEET - RENEWAL RECORD

Project Number:	70019.TOX	
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Client: Swan Creek

QC Test Number: TN-21-787

Date	Time	Initials
12/8/21	AM 0930	To Mr
	PM	
12 9 2	AM 1030	MT
	PM	
12/10/21	AM 1353	MT
[[[[]]]	PM	
12/11/31	AM 1320	MT
1-1	PM	
10/12/21	AM 1433	Aly .
la la la la la la la la la la la la la l	PM	
12/13/21	AM 0967	SL
1-1-01-01	PM	
12/14/21	AM (GOO	
	PM 1337	MT
12/15/21	AM 1346	h
	PM 1346	lori
12/16/21		MT
· · ·	PM 1330 AM	17(1
12/17/21	PM 134(0	MT
	AM	1-11
12/18/21	PM 1330	MT
17/10/11	AM	36
12/19/21	PM 1552	ÐL
12/22/21	AM 1025	SL
12/20/21	PM	
12/21/21	AM	
ILIUIU	PM 1437	MT
12/22/21	AM	
	PM 1324	MT



TOXICOLOGY LABORATORY BENCH SHEET - RENEWAL RECORD

Project Number:	70019.TOX
-	

Client: Swan Creek

QC Test Number: TN-21-787

Date		Time	Initials
12/02/01	AM	E001	MT
12 23 21	PM		
	AM		
12/24/14	PM	136>	<i></i>
11176171	AM		
12125121	PM	1255	6
rala.l.	AM		
(4w/n	PM	1100	
12/27/21	AM		
12/2/12/	PM	1515	R
1212817	AM	0845	P
1000V	PM		
12/29/21	AM	6927	MT
10,0919	PM		
12/30/21	AM	0250	MT
10(30(0)	PM		
12131121	AM	0930	Ay
10 () () 3	PM	1-22	
13/1/22	AM	<u> </u>	MT
111100	PM	1007	Q1
1/2/22	AM	1023	3L
	PM AM	3.00.3	1.00
1/3/22	PM	1041	UAD
-1 100	AM	1265	1
114122	PM	1060	-
, , , , ,	AM		
	PM		
	AM		
	PM	<u> </u>	



TOXICOLOGY LABORATORY BENCH SHEET - TESTING LOCATION

Project Numb	per:70019.TOX	
Client:	Swan Creek	
QC Test Num	aber: <u>TN-21-787</u>	

Day	Testing Location	Date	Time	Initials
0				
$\frac{0}{1}$	516, \$3A,53B	12/3/21	1603	117
-	528,53A,53B	12/9/21	1630	M
2	528,53A,53B	13/10/31	1745	V 10
3	518, 53A, 53B	12/11/21	1407	101
4	52B, 53A, 53B	12/12/21	1433	AG.
5	52B, 53A, 53B	19/13/1	1730	CAD
6	52B, 53A, 538	12/14/2)	1331	MT
7	528, 53A, 53B	12/15/21	1346	MT
8	51B, 53A, 53B	12/16/21	1331	MT
9	52B. 53A. 53B	12/17/4	1346	MT
10	SLB, 53A, 53B	15/8/131	1330	MT
11	52B.53A.53B	12/19/121	1449	MT SL
12	528,53A,53B	1.2/20/21	1020	SL
13	52B,53A,53B	12/21/21	1436	MT
14	52B,53A, 83B	12/22/21	1324	MT
15	528,53A.53B	12/23/21	1604	MT
16	520, 53A, 63B	12/24/21	1400	m
17	52B,53A,53B	12125121	1300	P
18	525,57A,54B	12/26/21	1900	,—
19	528,53A 53B	12/27/21	1516	JR
20	52B ,53A ,53B	12128(2)	0915	JR B
21	52B, 53A, 53B	12/29/21	<i>৩</i> ४३७	MT
22	52B, 53A, 53B	12/30/21	०४८५	M7
23	52B, 53A,53B	12/31/21	0930	AG
24	52B 53A 53B	1/1/22	[000]	MT
25	52 B, 53A, 53B	12/27	1019	<u> </u>
26	52B 53A 53B	1(3)23	Chal	UND
27	528, 53A, 53B	114/122	WOOD	Ay
28	528, 53A, 53B 52B, 53A, 53B 53B, 53A, 53B 52B, 53A, 53B 52B, 53A, 53B	1/5/22	0851	(m)
29	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	-, -		
30				



TOXICOLOGY LABORATORY BENCH SHEET

Project Number:	7001 <u>9.TOX</u>	
Client: Swan	Creek	. <u></u>
QC Test Number:	TN-21-787	
Date/Time/Initials		Comments/Activity



TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number: 70019.TOX
Client: Swan Creek
QC Test Number: TN-21-787
Correction Explanations
(a) Technician Error-Mathematical
(b) Technician Error-Manual Data Recording
(c) Technician Error-Head Count Observation
(d) Technician Error-Overwrite
(e) Technician Error-Missing Data
(f) Technician Error-Lost Organism
(g) Technician Error-Transcription Error
(h) Technician Error-Other:
(i) Meter Malfunction

ATTACHMENT VII

Report Quality Assurance Record (2 pages)





REPORT QUALITY ASSURANCE RECORD

Clie	ent: Swan Crek	Project Number:	70027. Tuk
Aut	hor M. Chan-	EA Report Number: _	8748
	QA/QC ITEM	T CHECKLIST REVIEWER	DATE
1.	Samples collected, transported, and received according to study plan requirements.	Juffer	2/1/22
2.	Samples prepared and processed according to study plan requirements.	- pulle	2/1/22
3.	Data collected using calibrated instruments and equipment.	Mh	2/1/22
4.	Calculations checked: - Hand calculations checked	helle	2/1/22
	 Documented and verified statistical procedure used. 	willed	2/1/22
5.	Data input/statistical analyses complete and correct.	grand m Redilis	2/8/2022
6.	Reported results and facts checked against original sources.	Ess M Rediff	2/8/2022
7.	Data presented in figures and tables correct and in agreement with text.	lus M Rells	2/8/2027
3.	Results reviewed for compliance with study plan requirements.	Mhr	- 2/1/22
		V	
		<u>AUTHOR</u> /	DATE
).	Commentary reviewed and resolved.	m/K CB	2/11/22
0.7	All study plan and quality assurance/control require	ements have been met and th	e report is
	•	PROJECT MANAGER	2/11/2L DATE
	-	Sus M Ridel.	<u> </u>
		QUALITY CONTROL OFFICER	DATE
		SENIOR TECHNICAL REVIEW	



APPENDIX E: SCREENING CRITERIA



SEDIMENT SCREENING LEVELS

Analyte	Units	TEC a	PEC a	Ohio SRV b	Region 5 ECO c	Region 4 ESV ^d
TAL Metals + Mercury (n	ng/kg)					
Aluminum	mg/kg			42000		25000
Antimony	mg/kg			0.84		2
Arsenic	mg/kg	9.79	33	11	9.79	9.8
Barium	mg/kg			210		20
Beryllium	mg/kg			0.8		
Cadmium	mg/kg	0.99	4.98	0.96	0.99	1
Calcium	mg/kg			110000		
Chromium	mg/kg	43.4	111	51	43.4	43.4
Cobalt	mg/kg			12	50	50
Copper	mg/kg	31.6	149	42	31.6	31.6
ron .	mg/kg			44000		20000
Lead	mg/kg	35.8	128	47	35.8	35.8
Magnesium	mg/kg			29000		
Manganese	mg/kg			1000		460
Mercury	mg/kg	0.18	1.06	0.12	0.174	0.18
Nickel	mg/kg	22.7	48.6	36	22.7	22.7
Potassium	mg/kg			12000		
Selenium	mg/kg			1.4		0.72
Sodium	mg/kg					
Silver	mg/kg			0.43	0.5	1
Thallium	mg/kg			4.7		
Vanadium	mg/kg			40		
Zinc	mg/kg	121	459	190	121	121
PAHs (µg/kg)	mg/kg	121	737	170	121	121
2-Methylnaphthalene	μg/kg				20.2	20.2
Acenaphthene	μg/kg μg/kg				6.71	6.7
Acenaphthylene	μg/kg				5.87	5.9
Anthracene	μg/kg μg/kg	57.2	845		57.2	57
Benzo(a)anthracene	μg/kg μg/kg	108	1050		108	108
Benzo(a)pyrene	μg/kg μg/kg	150	1450		150	150
Benzo(b)fluoranthene	μg/kg μg/kg				10400	190
Benzo(g,h,i)perylene	μg/kg μg/kg				170	170
Benzo(k)fluoranthene	μg/kg μg/kg				240	240
Chrysene	μg/kg μg/kg	166	1290		166	166
Dibenzo(a,h)anthracene	μg/kg μg/kg	33	1290		33	33
Fluoranthene	μg/kg μg/kg	423	2230		423	423
Fluorene	μg/kg μg/kg	77.4	536		77.4	77
ndeno(1,2,3-cd)pyrene	μg/kg μg/kg		330		200	200
Naphthalene	μg/kg μg/kg	176	561		176	176
Phenanthrene		204	1170		204	204
Pyrene	μg/kg	204 195	1520		204 195	195
Total PAH17 ND=1/2RL	μg/kg	1610	22800		195	195
Total PAH1/ ND=1/2RL	μg/kg	1610	22800			
	μg/kg	1010	22800			
PCBs (µg/kg)	/I II	50.0	(7)		50.0	£0.0
Total PCBs (ND=0)	μg/kg	59.8	676		59.8	59.8
Other (mg/kg)	₀ II				ı	
Oil and Grease	mg/kg					
ORO-ORO	mg/kg					340
Cyanide	mg/kg				0.0001	

CAS = Chemical Abstracts Service

CLP = Contract Laboratory Program

EPA = U.S. Environmental Protection Agency

ESV = Ecological Screening Values

mg/kg = Milligram(s) per kilogram

NA = Not applicable

PAH = Polycyclic Aromatic Hydrocarbon

PCB = Polychlorinated biphenyl

PEC = Probable effect concentration

 $SRV = Sediment \ reference \ value$

TEC = Threshold effect concentration

 $\mu g/kg = Microgram(s) \ per \ kilogram$

a. TEC and PEC from Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000).

b. Ecological Risk Assessment Guidance Document (Ohio EPA 2018)

c. Ecological Screening Levels (EPA Region 5, RCRA 2003).

d. Ecological Screening Values (EPA Region 4, 2018).

^{-- =} No screening level available.

