Ohio Environmental Protection Agency

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

September 28, 2015

The Burley Clay Products Co
455 Gordon Street
Roseville, Ohio 43777

32, Inc.
451 Gordon Street
P.O. Box 54
Roseville, Ohio 43777

Re: Burley Clay Products
Director's Final Findings and Orders (DFFO)
DFFO
Industrial Solid Waste Landfills
Muskingum County
ISWL019048

Subject: Final Findings and Orders of the Director

Dear Sir or Madam:

Transmitted herewith are the Final Findings and Orders of the Director concerning the matter indicated for The Burley Clay Products Company and 32, Inc.

If you have any questions, please contact Robin Nichols at (614) 644-3037.

Sincerely,

D. A. Crumiell-Hagens

Demitria Crumiell-Hagens, Administrative Professional 2
Division of Materials & Waste Management

Enclosure

cc: Kelly Jeter, DMWM, CO
Robin Nichols, Legal
Erika Jackson, DMWM, SEDO
Mark Mansfield, DMWM, SEDO
Joe Goicochea, DMWM, SEDO
Rich Fox, DMWM, SEDO
Bruce McCoy, DMWM CO

BEFORE THE
OHIO ENVIRONMENTAL PROTECTION AGENCY

In the Matter Of:

The Burley Clay Products Company 455 Gordon Street Roseville, Ohio 43777	:	Director's Final Findings and Orders
And	:	
32, Inc. 451 Gordon Street P.O. Box 54 Roseville, Ohio 43777	:	

Respondents

PREAMBLE

It is agreed by the parties hereto as follows:

I. JURISDICTION

These Director's Final Findings and Orders ("Orders") are issued to The Burley Clay Products Company and to 32, Inc. ("Respondents") pursuant to the authority vested in the Director of the Ohio Environmental Protection Agency ("Ohio EPA") under Ohio Revised Code ("ORC") Sections 3734.13 and 3745.01.

II. PARTIES BOUND

These Orders shall apply to and be binding upon Respondents and successors in interest liable under Ohio law. No change in ownership of Respondents or of the Disposal Area as hereinafter defined shall in any way alter Respondents' obligations under these Orders.

III. DEFINITIONS

Unless otherwise stated, all terms used in these Orders shall have the same meaning as defined in ORC Chapter 3734 and the rules promulgated thereunder.

IV. FINDINGS

The Director of Ohio EPA has determined the following findings:

1. The Burley Clay Products Company ("Respondent Burley Clay") owns and operates a garden pottery and birdbath manufacturing facility located at 455 Gordon Street, Roseville, Muskingum County, Ohio.

2. Respondent 32 Inc. is the owner of a 11.67 acre parcel of land located at 451 Gordon Street, Roseville, Muskingum County, Ohio. The parcel is further identified in the records of the Muskingum County Auditor's office as Parcel # 13-10-09-06-004 and is located adjacent to Respondent Burley Clay's manufacturing facility.

3. From approximately 1998 until 2009 Respondent Burley Clay illegally disposed of its fired and unfired pottery, off-spec clay, and broken plaster molds on Parcel # 13-10-09-06-004 (hereinafter known as the "Disposal Area").

4. Respondents are each a "person" as that term is defined in ORC Section 3734.01(G) and in OAC Rule 3745-27-01(P)(3).

5. Fired and unfired pottery, off-spec clay, and broken plaster molds are considered a solid waste, specifically an "industrial solid waste" as that term is defined in OAC Rule 3745-29-01(A).

6. Respondents Burley Clay and 32 Inc., by way of disposal activities or ownership interest, are in violation of ORC Section 3734.03 and OAC Rule 3745-27-05(C), which respectively state that "[n]o person shall dispose of solid wastes by open burning or open dumping ..." and "[n]o person shall conduct, permit, or allow open dumping. In the event that open dumping is occurring or has occurred at a property, the person(s) responsible for the open dumping, the owner of the property, or the person(s) who allow or allowed open dumping to occur, shall promptly remove and dispose or otherwise manage the solid waste in accordance with Chapter 3734. of the Revised Code, and shall submit verification that the solid waste has been properly managed."

7. Ohio EPA conducted inspections of the Disposal Area on September 16, 2009; November 17, 2011; March 29, 2012; August 9, 2012: and April 18, 2013, and observed violations of ORC Section 3734.03 and OAC Rule 3745-27-05(C). Ohio EPA documented these violations in Notice of Violation letters ("NOVs") to Respondent Burley Clay dated October 13, 2009; January 29, 2010; December 5, 2010; March 30, 2012; August 13, 2012: and April 19, 2013.

8. Ohio EPA conducted an additional inspection of the Disposal Area on June 12, 2013, and observed violations of ORC Section 3734.03 and OAC Rule 3745-27-05(C). Ohio EPA documented these violations in a NOV to Respondents Burley Clay and 32, Inc. dated June 17, 2013.

9. Respondent Burley Clay ceased disposal activities following Ohio EPA's September 16, 2009 inspection and has responded in writing to all NOVs issued by Ohio EPA.

10. To date, neither Respondent Burley Clay nor Respondent 32, Inc. have removed and properly disposed of the waste from the Disposal Area.

V. ORDERS

Respondents shall achieve compliance with ORC Chapter 3734 and the rules promulgated thereunder according to the following compliance schedule:

1. Respondents shall implement the Ground Water Monitoring Plan ("GWM Plan") attached hereto as Attachment A. Not later than September 1, 2016, Respondents shall begin to conduct ground water monitoring, sampling, analysis, and reporting in accordance with the GWM Plan.

2. Not later than thirty (30) days after the effective date of these Orders, Respondents shall install a cover system over the portion of the property referenced in Finding 2, above that is delineated in the map attached hereto as Attachment B.

3. The cover system installed in accordance with Order Number 2, above, shall consist of a minimum of six inches clean soil, have a maximum final slope of 25 percent, and be designed and installed in such a manner as to minimize erosion and support dense vegetative growth.

4. Not later than fourteen (14) days after completion of installation of the cover system, Respondents shall submit to Ohio EPA a report documenting installation of the cover system and satisfaction of all the criteria set forth in Orders Number 2 and 3, above.

5. After completion of installation of the cover system, but not later than 30 days after the effective date of these Orders, Respondents shall seed and place straw over the cover system.

6. Not later than two hundred ten (210) days after the cover has been seeded and covered with straw, Respondents shall ensure that dense vegetation is established on the portion of the property identified in Attachment B. Respondents shall continue to maintain a dense vegetative cover in this area after it has been established.

VI. TERMINATION

Respondents' obligations under these Orders shall terminate when the Respondents certify in writing and demonstrate to the satisfaction of Ohio EPA that Respondents have performed all obligations under these Orders and the Enforcement Coordinator of Ohio EPA's Division of Materials and Waste Management acknowledges, in writing, the termination of these Orders. If Ohio EPA does not agree that all obligations have been performed, then Ohio EPA will notify Respondents of the obligations that have not been performed, in which case Respondents shall have an opportunity to address any such deficiencies and seek termination as described above.

The certification shall contain the following attestation: "Burley Clay Products Company and 32, Inc. certify that the information contained in or accompanying this certification is true, accurate and complete."

This certification shall be submitted by the Respondents to Ohio EPA and shall be signed by a responsible official of each of the Respondents.

VII. OTHER CLAIMS

Nothing in these Orders shall constitute or be construed as a release from any claim, cause of action or demand in law or equity against any person, firm, partnership or corporation, not a party to these Orders, for any liability arising from, or related to, the operation of Respondents' Disposal Area

VIII. OTHER APPLICABLE LAWS

All actions required to be taken pursuant to these Orders shall be undertaken in accordance with the requirements of all applicable local, state and federal laws and regulations. These Orders do not waive or compromise the applicability and enforcement of any other statutes or regulations applicable to Respondents, or Respondents' Disposal Area

IX. MODIFICATIONS

These Orders may be modified by agreement of the parties hereto. Modifications shall be in writing and shall be effective on the date entered in the journal of the Director of Ohio EPA.

X. NOTICE

All documents required to be submitted by Respondents pursuant to these Orders shall be addressed to:

Ohio Environmental Protection Agency
Southeast District Office

Division of Materials and Waste Management
Attn: Solid Waste Supervisor
2195 Front Street
Logan, Ohio 43138

or to such persons and addresses as may hereafter be otherwise specified in writing by Ohio EPA.

XI. RESERVATION OF RIGHTS

Ohio EPA and Respondents each reserve all rights, privileges and causes of action, except as specifically waived in Section XII of these Orders.

XII. WAIVER

In order to resolve disputed claims, without admission of fact, violation or liability, and in lieu of further enforcement action by Ohio EPA for only the violations specifically cited in these Orders, Respondents consent to the issuance of these Orders and agree to comply with these Orders. Compliance with these Orders shall be a full accord and satisfaction for Respondents' liability for the violations specifically cited herein. Respondents hereby waive the right to appeal the issuance, terms and conditions, and service of these Orders and Respondents hereby waive any and all rights Respondents may have to seek administrative or judicial review of these Orders either in law or equity.

Notwithstanding the preceding, Ohio EPA and Respondents agree that if these Orders are appealed by any other party to the Environmental Review Appeals Commission, or any court, Respondents retain the right to intervene and participate in such appeal. In such an event, Respondents shall continue to comply with these Orders notwithstanding such appeal and intervention unless these Orders are stayed, vacated or modified.

XIII. EFFECTIVE DATE

The effective date of these Orders is the date these Orders are entered into the Ohio EPA Director's journal.

XIV. SIGNATORY AUTHORITY

Each undersigned representative of a party to these Orders certifies that he or she is fully authorized to enter into these Orders and to legally bind such party to these Orders.

IT IS SO ORDERED AND AGREED:

Ohio Environmental Protection Agency

Craig W. Butler by JVC 9.28.15
Craig W. Butler, Director

IT IS SO AGREED:

The Burley Clay Products Company

Signature — Date: 9/24/15

James D. Vansbottenn
Printed or Typed Name

Chairman of Board
Title

32, Inc.

Signature — Date: 9/24/15

Stephen R. McCamy
Printed or Typed Name

President
Title

Attachment A

Ground Water Monitoring Plan

GROUNDWATER DETECTION MONITORING PLAN

BURLEY CLAY PRODUCTS
455 GORDON STREET
ROSEVILLE, MUSKINGHAM COUNTY, OHIO

September 2015

Prepared for:

Burley Clay Products
455 Gordon Street
Roseville, Ohio 43777

Prepared by:

HZW ENVIRONMENTAL
CONSULTANT LLC

6105 Heisley Road ♦ Mentor, Ohio 44060
440-357-1260 ♦ Fax 440-357-1510

H14202-01

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Appendix C – Field Information Form
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Appendix E – Appendix I Parameters and Associated PQLs
Appendix F – Sampling & Analysis Plan

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GROUNDWATER DETECTION MONITORING PLAN

Burley Clay Products
455 Gordon Street
Roseville, Muskingum County, Ohio

On behalf of Burley Clay Products (BCP), HzW Environmental Consultants, LLC (HzW) is pleased to submit this Groundwater Detection Monitoring Plan (GDMP) to satisfy the requirements set forth by Ohio Administrative Code (OAC) 3745-27-10 (D). This GDMP was written in accordance with HzW's proposal dated September 24, 2014, which was authorized by Mr. Peter Petratsas, a representative of BCP, on September 24, 2014.

This GDMP has been certified by a Qualified Groundwater Scientist as specified in OAC 3745-27-10(A)(5). Refer to **Appendix A** for the Certification Document.

1.0 BACKGROUND

BCP is located at 455 Gordon Street, Roseville, Muskingum County, Ohio (the Property). Refer to **Figure 1** for a site location map. Historically, the Property, as well as a significant portion of Village of Roseville, has been involved with the manufacturing of clay pottery. According to the BCP, the Property has been used for the manufacture of clay pottery since at least 1923. BCP has occupied the Property since 1998, and manufactures unglazed and glazed clay pottery (bird baths, lawn ornaments, etc.).

On August 25, 2014, HzW met with representatives of the Ohio Environmental Protection Agency (Ohio EPA) at the Property to discuss an appropriate course of action regarding the agency's determination that BCP's disposal of fired and un-fired clay in the northeastern portion of the Property constituted a "Solid Waste Landfill" (SWL). The wastes in the SWL –based upon what can be observed at ground surface – consist primarily of clay pottery by-products (fired clay shards, etc). Refer to **Figure 2** for a site plan for the approximate limits of the SWL of the Property.

Following the August 25, 2014 meeting, BCP authorized HzW to prepare a GDMP to the Ohio EPA that would satisfy the "core elements" of OAC 3745-27-10 (D). During the meeting, representatives of the Ohio EPA expressed a desire to be flexible, and suggested that submittal of a GDMP that addressed the core elements outlined in OAC 3745-27-10 (D) would be an appropriate step in evaluating groundwater conditions associated with the alleged SWL. The purpose of this GDMP will be to address the following pertinent requirements set forth in OAC 3745-27-10 (D):

- The installation of detection groundwater monitoring well network;
- Monitoring well construction details;
- Anticipated sampling protocols;
- The analytical parameters to be monitored;
- Statistical evaluation of the analytical data; and
- Termination criteria.

Each of these elements is described in subsequent subsections of this GDMP.

2.0 DETECTION MONITORING NETWORK

The detection monitoring well network will consist of four (4) monitoring wells. According to the 2002 Revised Crooksville, Ohio, quadrangle United States Geological Survey (USGS) bedrock topography map, the Property is located at an elevation of approximately 810 feet above National Geodetic Vertical Datum (NGVD). In addition, the Property is located in an area of level bedrock, situated at an elevation of approximately 700 feet above NGVD (based upon Ohio Department of Natural Resources bedrock topography maps). The topography and bedrock within the vicinity of the Property slope to the north towards the Moxahala Creek.

Based on an anticipated direction of groundwater flow to the north, three (3) monitoring wells will be installed northwest, north and east of the observed limits of the SWL. These three (3) monitoring wells will be used to evaluate the quality of groundwater immediately down-gradient of the limits of "solid waste" placement. The remaining monitoring well will be installed up-gradient of the facility operations to evaluate groundwater quality as it enters onto the Property in an area presumed to be unaffected by past placement of pottery shards/clay by-products. Refer to **Figure 3** for a map depicting the locations of proposed monitoring wells. Please note that proposed monitoring well locations depicted on Figure 3 were selected by the Ohio EPA.

3.0 MONITORING WELL INSTALLATION

Monitoring Well Construction

As stated above, four (4) monitoring wells (designated "MW-01" through "MW-04") will be installed on the Property to evaluate groundwater quality and groundwater flow direction. Each groundwater monitoring well will be installed using rotary drilling techniques. The borehole for each well will be advanced using 6.25-inch outside diameter follow stem augers. The terminal depth for each well is anticipated to be twenty (20) feet below ground surface; however, this depth may be altered depending on the lithology encountered in bore holes, with the goal that all four (4) monitoring wells are screened in the uppermost aquifer system (UAS). Upon achievement of terminal depth, a 2-inch diameter well casing consisting of ten (10) feet of slotted (0.01-inch) polyvinylchloride (PVC) screen, flush-threaded with a section of solid 2-inch diameter PVC riser pipe will be installed into the bore hole. The annular space around the well screen will be packed with washed, medium grained sand. The sand pack will extend above the top of the screened interval a distance of 2 feet, and will be topped with a 2-foot thick hydrated bentonite pellet seal. The remaining annular space will be filled with a neat cement grout. Each well will be completed either flush with existing grade or above existing grade, with the wellhead protected by a lockable casing (above grade installations) or a locking expansion plug and aluminum manhole cover (flush-mount installations). Typical monitoring well construction diagrams for both flush-mounted and above grade "stick-up" installations are included in **Appendix B**.

Monitoring Well Development

Each monitoring well will be properly developed within 48 hours after installation to remove fines and to facilitate the flow of formation water to the well screen. Well development activities will be conducted in accordance with the *Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring* (TGM) published by the Ohio EPA in 1995. Development will include surging, bailing and/or pumping techniques. The well will be developed until water can

enter as readily as hydraulic conditions allow and are representative of formation water. Ideally, the groundwater will be visibly clear of sediments (i.e. turbidity of <10 NTU) and pH, temperature and specific conductance will have stabilized to +/- 10% over at least 3 successive well volumes. Well development activities and field readings will be documented on a field information form. An example of a field information form has been provided as **Appendix C**.

Horizontal and Vertical Control

The monitoring wells will be surveyed by an Ohio registered surveyor. Each well will be located horizontally based on state plane coordinates (accurate to 0.1 feet). Vertical control will be established for each well using an established bench mark, the elevation of which is based on a United States Geological Survey (USGS) datum. Top of well casing elevations will be established to an accuracy of 0.01 feet.

Water level measurements will be collected from all wells prior to the removal of any water from any monitoring well in accordance with OAC 3745-27-10(C)(3). The results will be recorded on the Groundwater Elevation Field Sheet provided in **Appendix D**, or a similar form. Measurements of the total well depth will also be made as part of each sampling event to evaluate potential sediment accumulation in the well.

The groundwater surface elevation data will be evaluated as part of each event to determine the hydrogeologic location of each monitoring well with respect to the SWL, in order to continually evaluate the adequacy of the groundwater monitoring network, as required by OAC 3745-27-10(B)(5). Groundwater potentiometric flow maps will be prepared and submitted as a part of each groundwater monitoring report submitted to the Ohio EPA.

4.0 SAMPLING PROGRAM

The monitoring well network will be sampled on a quarterly basis to evaluate temporal variations. As earlier stated, the "solid waste" material at the Property is comprised of pottery by-products and non-glazed clay shards. Because the composition of the "waste" is comprised primarily of clay, there is no reason to believe that volatile organic compounds (VOCs) would be in or derived from the clay "waste". Typically, the parameters required to be sampled under a detection monitoring program would be the 66 constituents referred to as the "Appendix I" parameters. Based on the observation that VOCs would not be expected in the clay "waste", samples collected at the Property will only be analyzed for the inorganic constituents and general chemistry parameters listed in **Appendix E**, in addition to the field parameters (measured in the field, and not the laboratory) pH, turbidity, temperature and specific conductance. It should also be noted that the target practical quantitation limits (PQLs) that are documented in the Ohio EPA Guidance Document #406 will be used for groundwater sampling activities and have also been provided in **Appendix E**. A *Sampling & Analysis Plan* for the Property is included in **Appendix F**.

5.0 DATA EVALUATION & STATISTICAL ANALYSIS

Groundwater analytical results will be collected quarterly for a period of two (2) years, unless the termination criteria outlined in Section 7 is met. The data will be evaluated using inter-well statistics to evaluate the data by using the statistical approach outlined below:

1. Inter-well comparisons will be performed for the monitoring data using 8 sets of non-outlier data collected during the background monitoring period. Note that initially a determination will be performed managing non-detects, when non-detects comprise no more than 15% of the total, half the detection limit will be substituted for these values during the statistical evaluation. When non-detects comprise more than 15% of the total, a censored estimation technique will be used such as the Kaplan-Meier Estimator or Robust ROS. This approach is consistent with the Unified Guidance.

2. Background data screening will be performed via the development of probability (q-q) plots. A goodness of fit analysis will be performed to visually see how closely the data fit a pattern of a normal distribution and to see which data are possible outliers. Linear and transformed plots will be generated and reviewed. This screening process will assist in identifying outliers and the data distribution. Note that all data will be utilized to develop the plots, however, only known concentrations will be plotted to determine if a known distribution is present. This approach is consistent with the Unified Guidance.

3. All background data will be pooled and tested for outliers. For data sets less than or equal to 25 samples the Dixon's Test will be performed. For data sets greater than 25 samples the Rosner's Test will be performed. If an outlier is initially identified, the data will be transformed and the outlier test re-performed. If the transformed value is still found to be an outlier, the value will be removed from the data set. The outlier test will then be rerun with the untransformed data to determine if any outliers are still present. This procedure will be continued until all outliers are eliminated. Outliers can only be excluded for the analytical event in which they are determined. Previously determined outlier results will be re-checked when background is updated to confirm that these results are still outliers. The outliers will be flagged and not used for statistical analysis but will remain in the database. Note all data will be compared to the 5% level critical points.

4. After outliers have been removed, background data from the well will be checked for normality via the Shapiro Wilk w Test and log transformed as required. Note all data will be compared to the 5% significance level.

5. After the performance of the background data evaluation, if the data is found to be normally distributed (normal or transformed), a one-sided normal (or transformed) tolerance limit with 95 percent confidence and 95 percent coverage will be calculated. If the data is *not* found to be normally distributed and cannot be transformed, a nonparametric limit will be calculated.

6. The calculated tolerance limit will then be compared to the data collected during the latest sampling event as well as historical data to determine if groundwater compliance trigger level has been exceeded. Note the data will be transformed as required.

Statistical analysis shall be performed on the site specific parameter list that are numbered 1-15 and 63-66 in Appendix I of OAC rule 3745-27-10. BCP will perform statistics on: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, nickel, selenium, silver, thallium, vanadium, zinc, ammonia nitrogen, chloride, sodium, and potassium.

6.0 REPORTING

A report including a narrative of sampling methods, laboratory data sheets, field sampling sheets, field and laboratory quality assurance/quality control (QA/QC) data, chain-of-custody forms, sample receipt forms (including preservation methods), data summary tables, groundwater flow direction information (including a groundwater potentiometric surface map for the unit monitored) and the results of statistical analyses will be submitted to the Ohio EPA on a quarterly basis within 75 days of the well sampling event, in accordance with OAC 3745-27-10(C)(10). The field-measured pH, temperature, turbidity and specific conductance at each well will be included in the report, in accordance with OAC 3745-27-10(D)(5)(d).

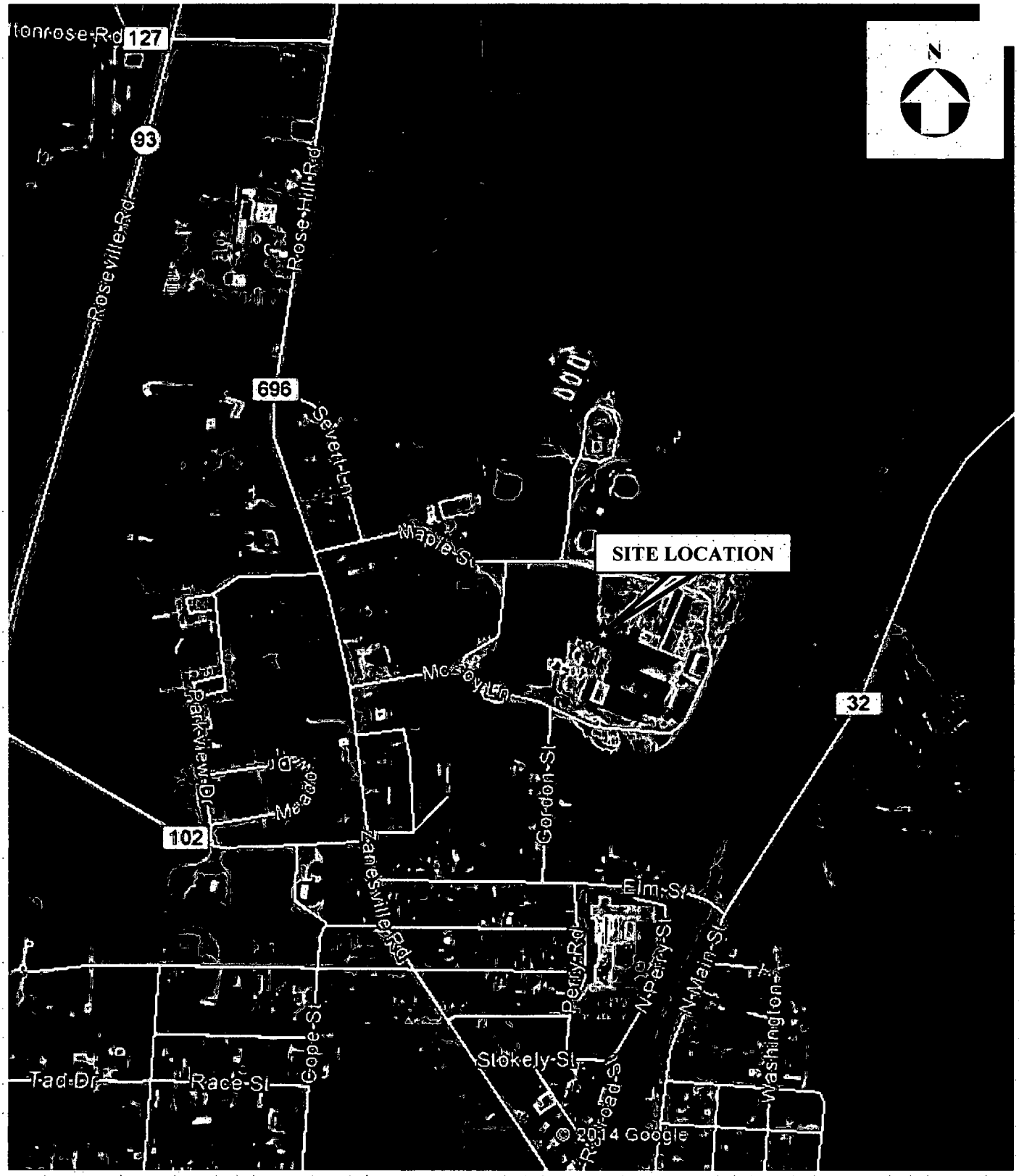
7.0 TERMINATION CRITERIA

The termination criteria for this program will be when one of the following is met:

1. Should analytical results for the first year of sampling be reported near or below respective PQLs for inorganic parameters, then BCP will request termination from the program, as additional sampling is not likely to yield different results.

2. Should no SSIs be detected during the quarterly sampling events.

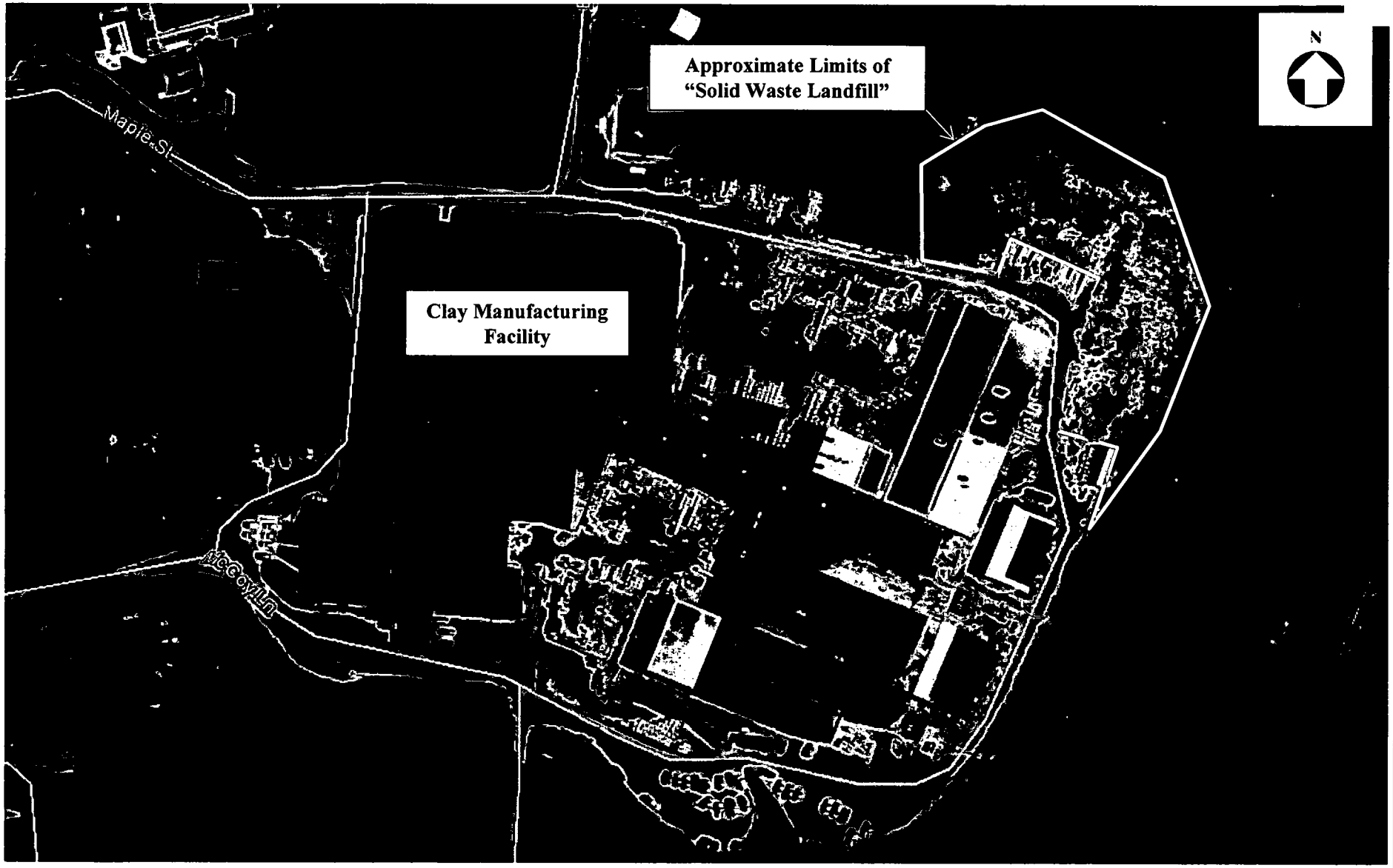
FIGURES



HzW Environmental Consultants, LLC

Figure 1: Site Location Map

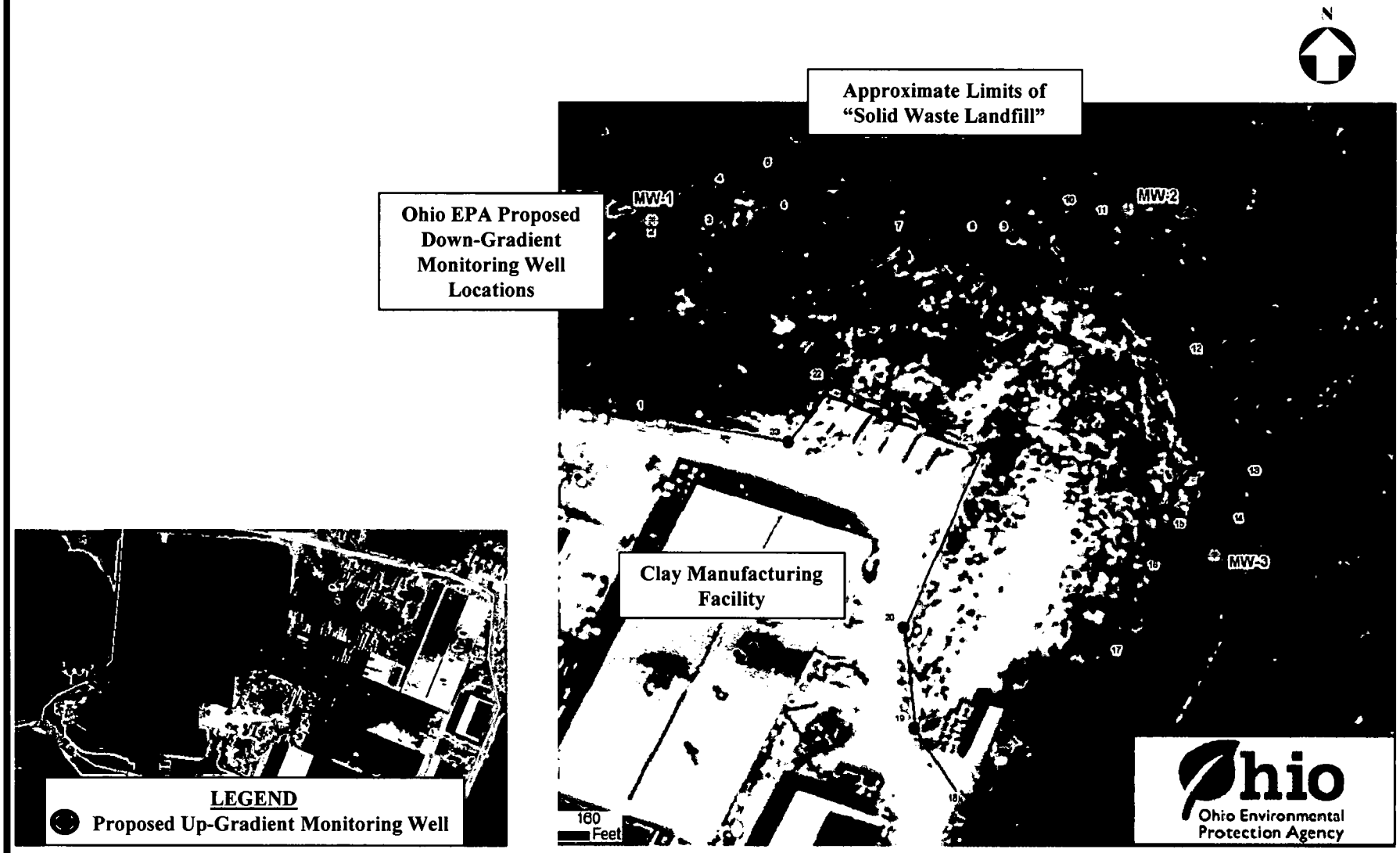
Burley Clay Products
455 Gordon Street
Roseville, Muskingham County, Ohio
H14202-01



HzW Environmental
Consultants, LLC

Figure 2: Site Plan

Burley Clay Products
455 Gordon Street
Roseville, Muskingham County, Ohio
H14202-01



HZW ENVIRONMENTAL CONSULTANTS, LLC

Figure 3: Proposed Monitoring Well Location Map

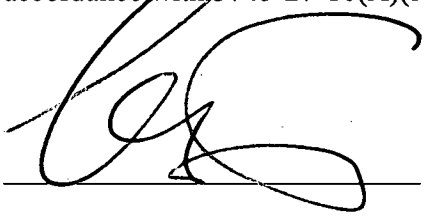
Burley Clay Products
455 Gordon Street
Roseville, Muskingham County, Ohio
H14202-01

APPENDIX A

CERTIFICATION DOCUMENT

Qualified Ground Water Scientist Certification

I, Mr. Matthew D. Knecht, a certified ground water scientist, has certified this report in accordance with 3745-27-10(A)(5).



Matthew D. Knecht, C.P.G.
President

HzW Environmental
Consultants, LLC

Matthew D. Knecht, CP, CPG

President – HzW Environmental Consultants, LLC

Education

- Earlham College, Richmond, IN, Bachelor of Arts, Major in Geology, 1982
- Miami University, Oxford, OH, Masters in Geology, 1988

Employment Record

- Floyd Browne Associates, Ltd., Marion, OH, Hydrogeologist, 1985-1986
- Resource Engineering & Planning, Inc., West Palm Beach, FL, Senior Hydrogeologist, 1986-1989
- HzW Environmental Consultants, Inc., Mentor, OH, Director of Operations, 1989-1994
- HzW Environmental Consultants, Inc., Mentor, OH, Vice President, 1994-1997
- HzW Environmental Consultants, Inc., Mentor, OH, President, 1997-2004
- HzW Environmental Consultants, LLC, Mentor, Ohio, President, 2004-Present

Professional Organizations

- Past President, Northeast Ohio Chapter of Hazardous Materials Managers
- Association of Ground Water Scientists and Engineers
- Geological Society of America
- American Institute of Professional Geologists
- National Ground Water Association
- Sigma Xi Research Society

Experience

Mr. Knecht directs the day-to-day project and administrative operations at HzW. Responsibilities include development and maintenance of quality assurance guidelines for data gathering and report writing; coordination and training of professional and technical staff; client development and coordination; development and administration of corporate programs; and direct technical management of selected projects.

Mr. Knecht's primary areas of expertise are hydrogeology and hazardous waste management. During his career, Mr. Knecht has provided direct technical management of over 500 projects, including site assessments, remedial investigations, RCRA and CERCLA corrective actions, groundwater remediation, voluntary actions, asbestos abatement activities, underground storage tank and litigation support projects.

As a project manager, Mr. Knecht has been responsible for developing and implementing groundwater monitoring plans, contamination assessment plans, remedial investigations and hazardous waste management programs. He has designed and supervised the installation of monitoring well networks, recovery wells and remediation systems, and directed a variety of hydrogeological studies. Familiar with a wide variety of environmental regulations, Mr. Knecht provides comprehensive capabilities in the areas of hydrogeology and environmental management related to site assessment; spill prevention; environmental auditing; facility closure; groundwater assessment; site remediation; wetlands permitting; and asbestos/lead assessment and abatement.

Mr. Knecht is recognized by the Ohio Environmental Protection Agency (OEPA) as a Certified Professional under Ohio's Voluntary Action Program (VAP). Under Mr. Knecht's direction, HzW prepared the No Further Action letters resulting in issuance of the first two Covenants Not to Sue issued by Ohio EPA under the VAP. Mr. Knecht also has completed voluntary clean-up actions in Indiana and Pennsylvania as part of those state's "Brownfields" programs. A listing of environmental services and associated years of experience for Mr. Knecht is presented below:

HzW Environmental Consultants, LLC

Matthew D. Knecht, CP, CPG

President – HzW Environmental Consultants, LLC

Certifications

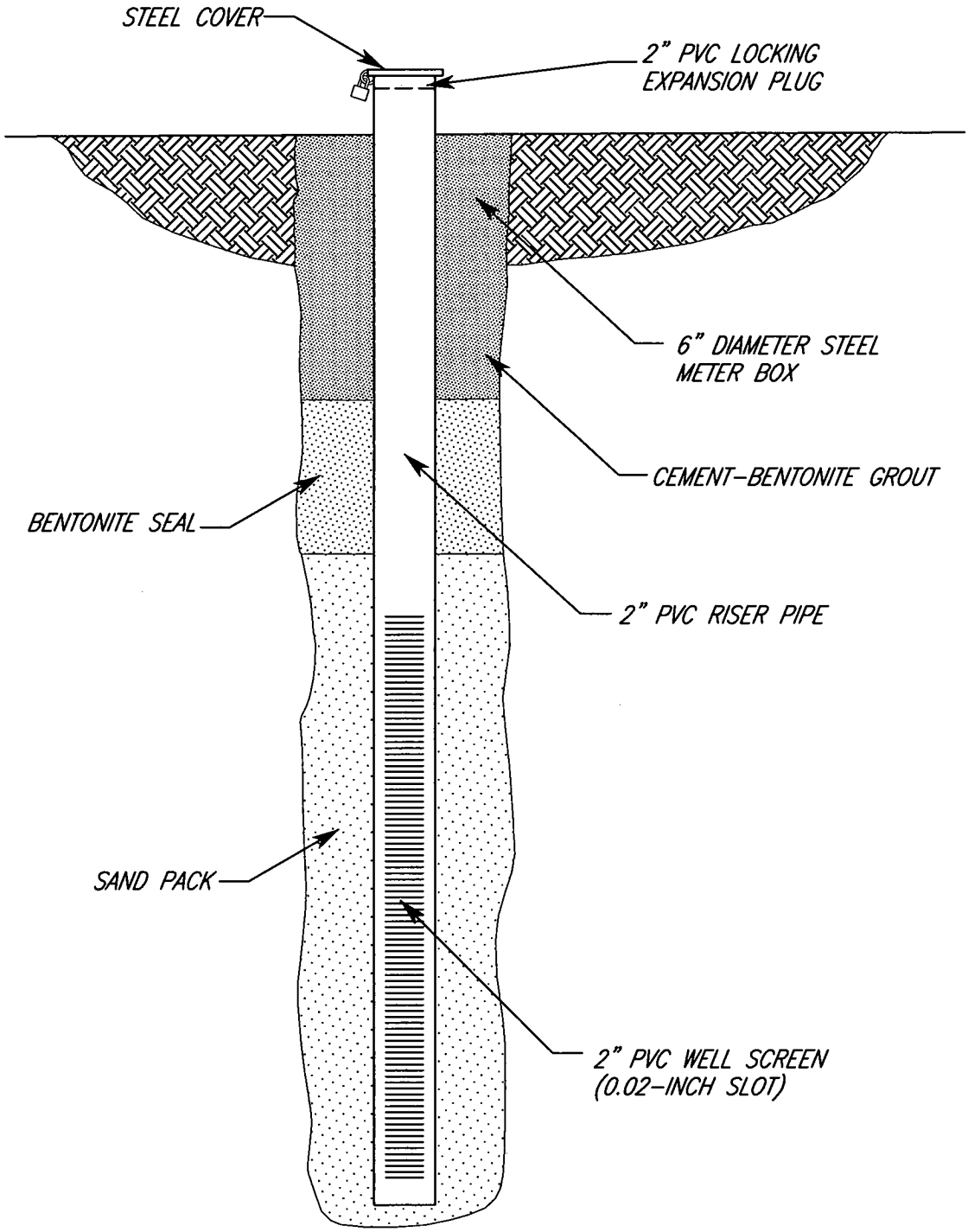
- OEPA VAP Certified Professional, No. 105, 1996-Present
- Certified Professional Geologist, No. 9533, 1996 - Present
- Professional Geologist, State of Indiana No. 1571, 1994 - Present

	Total Applicable Experience
• **Ohio VAP – Completed NFA Letters** - Project Manager - 39 NFA Letters through January 2014	**18 years**
• **Phase I Environmental Site Assessments** - ASTM – E-1527-97 - ASTM – E-1527-00, -05 - ASTM – E-1528-00 - Ohio VAP Phase I PAs (OAC 3745-300)	**28 years**
• **Phase II Environmental Site Assessments** - ASTM – E-1903-97 - Ohio VAP Phase II PAs (OAC 3745-300) - ODOT ROW acquisition ESAs	**24 years**
• **RCRA** - RCRA Closure Plans - RCRA/CERCLA Corrective Action	**24 years**
• **Environmental Audits** - Hazardous Waste/Material Management - Compliance Evaluations	**14 years**
• **Hydrogeological Investigations** - Wellhead Protection Planning	**24 years**
• **UST Investigations** - UST Closures - Tier I, II, and III Investigations	**8 years**
• **Spill Prevention Control and Countermeasure Plans** - RCRA Contingency Plans	**9 years**
• **Asbestos Surveys** - Asbestos Hazard Emergency Response Act (AHERA) Compliance - Air Clearance Testing - Project Oversight	**10 years**

APPENDIX B

WELL COMPLETION DIAGRAMS

C:\TYPICALMW2.DWG (DSV)



HzW ENVIRONMENTAL
CONSULTANTS,LLC
6105 Heisley Rd. ▪ Mentor, OH 44060
440-357-1260 ▪ Fax 440-357-1510

TYPICAL MONITORING WELL CONSTRUCTION DETAIL

APPENDIX C

FIELD INFORMATION FORM

HzW Environmental Consultants, LLC

HzW Job Number: _____

Monitoring Well ID: _____

MONITORING WELL FIELD DATA FORM

PROJECT NAME: _____

ARRIVAL TIME: _____ *DEPARTURE TIME:* _____

PURPOSE OF SITE MONITORING: _____

PERSONNEL ON-SITE: _____

WEATHER CONDITIONS: _____

STATIC WATER LEVEL: _____

TOTAL DEPTH OF MW: _____

WELL VOLUME CALCULATIONS:

TD	- SWL	= Water Column	ft. x (0.163 gal/ft) = One (1) Well Volume
_____	_____	_____	_____

PURGE DATE: _____ *DATE EQUIPMENT CALIBRATED:* _____

TIME PURGE BEGAN: _____ *TIME PURGE COMPLETED:* _____

FIELD PARAMETER MEASUREMENTS:

Time/Vol.	SWL	pH	Conductivity	Turbidity	DO	Temp (C)	TDS	ORP

Stabilization Criteria

pH: ± 0.2 standard units	Conductivity: ± 3%	Temperature: ± 0.5°C
DO: ± 0.3 mg/L	Turbidity: ≤10 NTUs or ± 10% (>10 NTUs)	ORP: ± 20 millivolts

VOLUME PURGED: _____ (minimum of one [1] well volume)

SAMPLING DATE: _____

TIME SAMPLING BEGAN: _____ *TIME SAMPLING ENDED:* _____

APPEARANCE OF SAMPLE: _____ *ODOR?* YES NO

COLOR? _____ *TURBID?* _____

ADDITIONAL NOTES:

SWL stabilized @ _____

_____ SAMPLER NAME (PRINT)

_____ SIGNATURE OF SAMPLER

APPENDIX D

GROUNDWATER ELEVATION FIELD SHEET

GROUNDWATER ELEVATION FIELD SHEET

Location	Zone	Measurement Date	Reference Elevation [1] (ft amsl)	Depth to Water (ft)	Groundwater Elevation (feet)

[1] ALL REFERENCE ELEVATIONS WERE MEASURED AT THE TOP OF THE PVC CASING (NORTH SIDE)

APPENDIX E

LIST OF PARAMETERS

AND ASSOCIATED PQLs

ANALYTICAL PARAMETERS TO BE ANALYZED IN GROUNDWATER SAMPLES AT BURLEY CLAY PRODUCTS

	Parameter	Target PQL
1	Antimony	3
2	Arsenic	3
3	Barium	10
4	Beryllium	2
5	Cadmium	2
6	Chromium	10
7	Cobalt	10
8	Copper	10
9	Lead	3
10	Nickel	15
11	Selenium	5
12	Silver	10
13	Thallium	1
14	Vanadium	20
15	Zinc	20
16	Ammonia Nitrogen	0.2
17	Nitrate Nitrogen	1
18	Nitrite Nitrogen	0.1
19	Chloride	5
20	Sodium	1000
21	Potassium	1000
22	Alkalinity	10
23	Sulfate	5
24	Magnesium	1000
25	Calcium	1000
26	Iron	50
27	Manganese	10

Note: pH, Temperature, Turbidity and Specific Conductance to be measured in the field

APPENDIX F

SAMPLING & ANALYSIS PLAN

SAMPLING & ANALYSIS PLAN

BURLEY CLAY PRODUCTS
455 GORDON STREET
ROSEVILLE, MUSKINGHAM COUNTY, OHIO

OCTOBER 2014

Prepared for:

Burley Clay Products
455 Gordon Street
Roseville, Ohio 43777

Prepared by:

HZW ENVIRONMENTAL
CONSULTANTS LLC

6105 Heisley Road ♦ Mentor, Ohio 44060
440-357-1260 ♦ Fax 440-357-1510

H14202-01

SAMPLING & ANALYSIS PLAN

Burley Clay Products
455 Gordon Street
Roseville, Muskingum County, Ohio

On behalf of Burley Clay Products, HzW Environmental Consultants, LLC (HzW) is pleased to submit this Sampling & Analysis Plan (SAP) as required by the Groundwater Detection Monitoring Plan (GDMP) requirements set forth by Ohio Administrative Code (OAC) 3745-27-10 (D). The SAP shall, at a minimum, include a detailed description of the equipment, procedures, and techniques to be used for the following:

(a) Measurement of ground water elevations.

Upon arrival at the monitoring well, field personnel shall inspect the well head and record any signs of degradation of the surface seal as per OAC 3745-27-10(B)(3)(e). Observations should include the condition of the well protector; any degradation in the lock and hasp; evidence of frost-heaving, vandalism, insect, or animal intrusion; and any degradation in the condition of the well cap. Also, evidence of any activity near the well that may affect the sampling event should be noted. In particular, activities that may be a source of potential contaminants should be noted and fully documented in the notes of the sampling event. The inspection details will be recorded on a Field Information Form (FIF), or similar form. Refer to **Appendix A** for a copy of the FIF. Any observed damage or degradation noted on the groundwater monitoring well record form during a sampling event shall be submitted to the Client as soon as possible. All noted damage or degradation to wells will be repaired as soon as possible, but no later than the next regularly scheduled sampling event. Documentation of the maintenance will be submitted to the facility's operating record.

An electric water level measuring tape or a measuring tape with a stainless steel "plopper" should be used to make the readings. Measurements are to be made from the proper measuring point, i.e., typically, the north side of the top of the PVC riser for each well. Water levels will be measured to the nearest 0.01 foot prior to purging and recorded on the FIFs. A second verification measurement should be made and recorded. The depth to the bottom of the well should be measured annually and recorded (applicable only to wells not equipped with dedicated pumps). The water level measuring equipment shall be decontaminated as discussed below before and after use at each location.

(b) Detection of immiscible layers.

An optical/electrical probe specifically designed to detect the interface between immiscible layers will be used to detect an immiscible liquid in the well. In this set of measurements the most accurate results are obtained by moving the probe as slowly as possible to the top of the fluid column during the initial reading. Due to the disturbance of the interface between the liquids by the probe, it may not be possible to make more than one set of measurements per sampling event. Record the location of the measurement point for each well in the permanent records of the sampling event.

(c) Collection of ground water samples, including the following:

(i) Well evacuation.

The purpose of well evacuation is to remove water from the well that is not representative of the groundwater within the formation. The evacuation (volumetric) methods set forth in this

groundwater monitoring plan should be reviewed, and if necessary based upon water level and well depth measurements at the time of sampling, revised in the field. The procedures used to purge the well and the amount of water removed will be recorded in the permanent records of the sampling event. Deviations from the monitoring plan requirements will be noted in the permanent records of the sampling event. Nitrile gloves will be worn during sampling activities and changed between wells to prevent possible contamination of samples.

Low Flow purging/sampling

Low flow purging/sampling techniques will be employed using a QED Micropurge® MP-15 bladder pump. The objective of low-flow purging is to minimize drawdown of the water column in the well, avoid disturbance of the stagnant water above the well screen, and draw fresh water through the screen at a rate that minimizes sample disturbance. This procedure further reduces the total volume required for purging and reduces interferences due to turbidity. Groundwater will be pumped between 100 and 500 milliliters per minute (ml/min) during purging and sampling. One entire volume of the discharge tubing and pump must be evacuated and the drawdown water level stabilized prior to the measurement of and recording of the indicator field parameters. A water level measurement will be collected prior to pumping to determine drawdown stabilization and to assist in calculating the purge volume. To calculate the purge volume, the equation in the above paragraph will be utilized. The radius of the tubing is typically 0.021 feet, and as opposed to the height of the water column, the total depth of the well will be used to assure that the one entire volume of the discharge tubing and pump is removed. Note the intake for the pump will be positioned in the center of the water column to help prevent the disturbance of sediments typically present in the base of a well. Indicator field parameters (pH, specific conductance, temperature, and turbidity) shall be measured at 3 to 5 minute intervals using portable digital or analog equipment and recorded during purging. Monitoring wells will be purged until the indicator field parameters stabilize.

The following table presents the stabilization criteria.

Parameter	Stabilization Criteria
pH	± 0.2 Standard unit
Specific Conductance	± 3 %
Temperature	± 0.5° Celsius
Turbidity	Less than or equal to 10 NTUs, or ± 10% (When > 10 NTUs)

Note the pH criteria may not always be achieved. Therefore, professional judgment may be needed.

Sampling will proceed when three successive measurements of the drawdown and the field parameters have stabilized. A turbidity level of less than 10 NTUs is desirable.

Note if the recharge rate of the well is less than the lowest achievable pumping rate, and the well is essentially dewatered during purging, a sample will be taken as soon as the water level has recovered sufficiently to collect the sample, even if the parameters have not stabilized. A final set of field readings will be recorded.

Indicator field parameters (pH, specific conductance, temperature, and turbidity) shall be measured using portable digital or analog equipment and recorded during both purging and sampling (the values recorded during sampling will be the values recorded in the semiannual groundwater monitoring report). Monitoring wells will typically be purged until the indicator field parameters stabilize (within ± 5 %) for three successive measurements, until the well de-waters or until three well bore volumes of water are removed. Indicator field parameter measurements, appearance of the groundwater, pumping rate, amount of water removed from the well, and the equipment used shall be recorded on the FIF, or similar form.

Field water quality measurements, appearance of the groundwater, pumping rate, amount of water removed from the well, and the equipment used shall be recorded on the FIFs, or similar form.

(ii) Sample withdrawal.

The objective of sampling is to obtain a representative sample of the groundwater from the screened formation. Wells that do not dewater during purging shall be sampled the same day that they are purged. Wells that are purged dry shall be sampled within 24 hours after purging has been completed. In the event that one or more of the monitoring wells recovers so slowly that sampling within 24 hours of purging is precluded, redevelopment of the well should be undertaken.

Low Flow purging/sampling

As indicated previously, sampling will proceed when three successive measurements of the drawdown and the field parameters have stabilized. Care will be taken to avoid placing clean sampling equipment on the ground or other potentially contaminated surfaces prior to insertion into a monitoring well. All sampling devices will be lowered slowly into each monitoring well to minimize disturbance and aeration of the water column.

(iii) Sample containers and handling.

Sample bottles will be provided by the analytical laboratory. The sample bottles will be filled completely, but will not be overflowed during sample collection. The prioritized sampling order as shown below will be followed in the event that insufficient water is available to completely fill all of the required bottles.

- Total metals,
- Chloride, Sodium and Potassium
- Ammonia

(iv)Sample preservation.

Required preservatives will be placed in sample bottles by the analytical laboratory prior to sampling. The specific analytes, sampling containers, and sample preservation requirements are presented in **Appendix B**.

*(d) **Performance of field analysis, including the following:***

(i) Procedures and forms for recording raw data and the exact location, time, and facility-specific conditions associated with the data acquisition.

Sampling log sheets, and chain-of-custody records shall be maintained as per OAC 3745-27-10(C)(2). The following information will be recorded:

- Identification of the well
- Reference elevation
- Well depth
- Static water level depth and measurement technique
- Well purging procedures and equipment
- Sample withdrawal procedure and equipment
- Date and time of sample collection
- Types of sample containers used
- Sample identification numbers
- Preservative(s) used
- Parameters requested for analysis
- Field analysis data and method(s), if applicable
- Field equipment identification numbers, if applicable
- Sample transportation
- Field observations during sampling event
- Name of collector.

Immiscible layers are typically not a primary concern related to the types of wastes disposed at this solid waste landfill. However, if immiscible layers are noted, sampling log sheets shall record the following:

- Presence of immiscible layers
- Detection methods
- Collection methods for immiscible layers.

In addition to Appendix I parameters, parameters 67 (temperature), 68 (pH), and 69 (specific conductance), Appendix I parameter 76 (turbidity) will be field analyzed during each sampling event.

(ii) Calibration of field devices.

Each piece of field equipment shall be calibrated prior to the sampling event. Pertinent calibration information shall be recorded on sampling log sheets and kept for each piece of field equipment requiring calibration. This calibration record shall be maintained by the sampling entity. Equipment calibration procedures shall be those set forth in the manufacturer's instructions. The information recorded shall include the equipment calibration date, the equipment calibration operator, the calibration standards used, and any other pertinent calibration adjustments performed. In addition, field calibrations will be performed at a minimum of once per day (at the beginning of each day), or as needed should field readings indicate results significantly different from historical field results. Field calibrations performed during a sampling event will be noted on the field sampling sheets. When possible, the same equipment should be used for subsequent sampling events.

(e) Decontamination of equipment.

The objective of equipment decontamination is to ensure collection of representative samples and to prevent contamination of wells due to sampling. Since all purging and sampling equipment (disposable bailers and twine) at the site is disposed of after use at each well, decontamination is not typically required of sampling equipment. If the use of non-dedicated purging/sampling equipment is required, purging and sampling will progress from the monitoring wells least likely to be contaminated (i.e., up-gradient wells) to those most likely to be contaminated (i.e., down-gradient wells). The equipment will be decontaminated between wells as follows:

- Wash with non-phosphate detergent and potable water.
- Rinse with potable water.
- Rinse liberally with deionized/distilled water.
- Air-dry thoroughly before using.

Reusable equipment such as water level meters and water quality field parameter sensors (even though they never contact samples collected for lab analysis) will be decontaminated. Care will be taken to prevent clean equipment from touching the ground or other potentially contaminated surfaces prior to insertion into a monitoring well.

The water level meter and the water quality field parameter sensors will be decontaminated between wells as follows:

Water Level Meter

- The water level meter (the probe and the length of tape that entered the well bore) will be hand washed with phosphate-free detergent and a scrubber, then thoroughly rinsed with distilled water.

Water Quality Field Parameter Sensors

- Water quality field parameter sensors will be rinsed with distilled water between sampling locations. No other decontamination procedures are necessary or recommended for these probes since they are sensitive. After the sampling event, the sensors must be cleaned and maintained per the manufacturer's specifications.

(f) Chain of custody control, including the following:

(i) Standardized field tracking, reporting forms to record sample custody in the field prior to and during shipment.

(ii) Sample labels containing all information necessary for effective sample tracking.

Coolers shall be used for the shipment of samples. All ice, ice packs, and coolers should be prepared in areas that are remote from the laboratory and reagent or solvent storage areas. Interim storage of coolers, ice, distilled water, and sample containers shall be remote from solvent or chemical storage areas.

Each sample shall be clearly identified and labeled in the field. The labels shall be sufficiently durable to remain legible even when wet and should contain the following information:

- Sample identification number
- Name of collector
- Date and time of collection
- Place of collection (site and well identification)
- Parameter(s) to be analyzed
- Preservative type within sample bottle

Seals shall be used on the sample cooler if the cooler is going to be shipped by a common carrier to the laboratory. A unique sample numbering system shall be used to identify each collected sample. Chain of custody records will maintain a listing of the sample identification numbers with written descriptions of sample locations, analyses requested, sampler's name, and data.

Chain of custody will be initiated by the field personnel as part of the sampling event and completed by the receiving laboratory. A copy of the form should be returned with the analytical report. A sample chain-of-custody form is included in **Appendix C**.

(g) Field and laboratory quality assurance and quality control, including the following:

(i) Collection of duplicate samples during each sampling event.

(ii) Collection of field and equipment blanks if non-dedicated sampling equipment is used.

(iii) Collection of trip blanks.

The number of duplicate samples, field blanks, trip blanks, and equipment blanks shall be enough to adequately demonstrate the accuracy of the analysis results.

The goal of field quality assurance / quality control (QA/QC) is to ensure that the sampling protocol is being executed faithfully and that situations leading to error can be recognized. Equipment blanks can account for changes in samples that occur after sample collection. QA/QC for field sampling of the groundwater samples will be achieved and maintained during the life of the facility and for post-closure monitoring periods by the submittal of additional samples for analytical testing. The additional samples submitted for QA/QC will include:

- At least one (1) equipment rinse blank and one (1) duplicate sample will be collected during each sampling event.

The equipment blank sample will consist of a portable submersible pump rinse sample. The rinse sample will consist of deionized water poured into, and then sampled from a portable submersible pump decontaminated or cleaned using the cleaning and rinse sequence described above. This will provide a QA check on the field decontamination procedures employed for the sampling equipment between wells.

Analytical results shall be evaluated to determine if the potential for interferences exists.

(h) *The identification of well maintenance problems encountered during routine sampling of the wells and the process to assure that necessary maintenance is performed.*

Wells in the groundwater detection monitoring network will be inspected every time the wells are sampled. All noted damage or degradation to wells will be repaired as soon as possible, but no later than the next regularly scheduled sampling event. Documentation of the maintenance will be submitted to the facility's operating record.

APPENDIX A

FIELD INFORMATION FORM

HzW Environmental Consultants, LLC

HzW Job Number: _____

Monitoring Well ID: _____

MONITORING WELL FIELD DATA FORM

PROJECT NAME: _____

ARRIVAL TIME: _____ *DEPARTURE TIME:* _____

PURPOSE OF SITE MONITORING: _____

PERSONNEL ON-SITE: _____

WEATHER CONDITIONS: _____

STATIC WATER LEVEL: _____

TOTAL DEPTH OF MW: _____

WELL VOLUME CALCULATIONS:			
_____ -	_____ =	_____ ft. x (0.163 gal/ft) =	_____
TD	SWL	Water Column	One (1) Well Volume

PURGE DATE: _____ *DATE EQUIPMENT CALIBRATED:* _____

TIME PURGE BEGAN: _____ *TIME PURGE COMPLETED:* _____

FIELD PARAMETER MEASUREMENTS:

Time/Vol.	SWL	pH	Conductivity	Turbidity	DO	Temp (C)	TDS	ORP

Stabilization Criteria		
pH: ± 0.2 standard units	Conductivity: ± 3%	Temperature: ± 0.5°C
DO: ± 0.3 mg/L	Turbidity: ≤10 NTUs or ± 10% (>10 NTUs)	ORP: ± 20 millivolts

VOLUME PURGED: _____ (minimum of one [1] well volume)

SAMPLING DATE: _____

TIME SAMPLING BEGAN: _____ *TIME SAMPLING ENDED:* _____

APPEARANCE OF SAMPLE: _____ *ODOR?* YES NO

COLOR? _____ *TURBID?* _____

ADDITIONAL NOTES:

SWL stabilized @ _____

_____ _____

SAMPLER NAME (PRINT) SIGNATURE OF SAMPLER

APPENDIX B

SAMPLE PRESERVATION

SAMPLING BOTTLE SPECIFICATIONS

OAC 3745-27-10 Appendix I Parameter No.	**Parameter** Name	Bottle Size	No. Each	**Material 1**	**Preservative**	Holding Time	**Comments**	Method
I	Antimony	1L	1	P,G	pH < 2 - HN03 / 4 C	6 months	Unfiltered	7041
2	Arsenic	1L	1	P,G	pH < 2 - HN03 / 4 C	6 months	Unfiltered	7060
3	Barium	1L	1	P,G	pH < 2 - HN03 / 4 C	6 months	Unfiltered	6010
4	Beryllium	1L	1	P,G	pH < 2 - HN03 / 4 C	6 months	Unfiltered	7091
5	Cadmium	1L	1	P,G	pH < 2 - HN03 / 4 C	6 months	Unfiltered	6010
6	Chromium	1L	1	P,G	pH < 2 - HN03 / 4 C	6 months	Unfiltered	6010
7	Cobalt	1L	1	P,G	pH < 2 - HN03 / 4 C	6 months	Unfiltered	6010
8	Copper	1L	1	P,G	pH < 2 - HN03 / 4 C	6 months	Unfiltered	6010
9	Lead	1L	1	P,G	pH < 2 - HN03 / 4 C	6 months	Unfiltered	7421
10	Nickel	1L	1	P,G	pH < 2 - HN03 / 4 C	6 months	Unfiltered	6010
11	Selenium	1L	1	P,G	pH < 2 - HN03 / 4 C	6 months	Unfiltered	7740
12	Silver	1L	1	P,G	pH < 2 - HN03 / 4 C	6 months	Unfiltered	7761
13	Thallium	1L	1	P,G	pH < 2 - HN03 / 4 C	6 months	Unfiltered	7841
14	Vanadium	1L	1	P,G	pH < 2 - HN03 / 4 C	6 months	Unfiltered	6010
15	Zinc	1L	1	P,G	pH < 2 - HN03 / 4 C	6 months	Unfiltered	6010
16-27, 30-62	vocs	40 ml	2	G, T	pH<2-HCL/4 C	14 days		8260
28-29	vocs	40 ml	2	G, T	Na2S203/4 C	14 days		504. 1
63	Ammonia	500 ml	1	T, P	H2S04/4 C	28 days		350.1
64	Chloride	1L	1	T, P	4 c	28 days		325.3
65	Sodium	1L	1	T, G	pH < 2 - HN03 / 4 C	6 months	Unfiltered	6010
66	Potassium	1L	1	P,G	pH < 2 - HN03 / 4 C	6 months	Unfiltered	6010
67	Temperature	50 ml	1	G, p	None, Field determined	< 1 hour	Field Measure	
68	pH	50 ml	1	G, P	None, Field determined	< 1 hour	Field Measure	9040
69	Specific Conductance	100 ml	1	G, P	None, Field determined	< 1 hour	Field Measure	9050
70	Total Dissolved Solids	1L	1	T, P	4 c	7 days		160
71	Total Alkalinity	1L	1	T, P	4 c	14 days		310
72	Nitrate/Nitrite	500 ml	1	T, P	H2SO4 C	28 days		353
73	Sulfate	1L	1	T, P	4 c	28 days		375
74	Magnesiun1	1L	1	1'.G	pH < 2 - HN03 / 4 C	6 months	Unfi ltered	6010
75	Calcium	1L	1	P,G	pH < 2 - HN03 / 4 C	6 months	Unfiltered	6010
76	Turbiditv - FIELD	50 ml	1	G. P	NONE. FIELD DETERMINED	< 1 hour	Field Measure	180
76	Turbiditv - LAB	1L	1	T. P.	4 c	2 days	Unfiltered	180
77	Iron	1L	1	P,G	pH < 2 - HN03 / 4 C	6 months	Unfiltered	6010
78	Manganese	1L	1	P,G	pH < 2 - HN03 / 4 C	6 months	Unfiltered	6010

1G = glass; T = Teflon; P = Plastic

APPENDIX C

CHAIN OF CUSTODY

GEO Analytical, Inc.

9263 Ravenna Rd. Suite A-7
Twinsburg, OH 44087
Phone Number 330 963 6990
Fax Number 330 963 6975
customerservice@geoanalytical.com

CHAIN OF CUSTODY RECORD

COMPANY NAME AND ADDRESS						NO. OF CONTAINERS	PROJECT: PROJECT MANAGER OR REPORT TO:								
SAMPLER SIGNATURES:							Analysis Requested							VAP	
STA.#	DATE	TIME	COMP.	GRAB.	STATION LOCATION										NOTES

COOLER TEMP ON RECEIPT _____ °C

CHAIN OF CUSTODY SIGNATURES *(Name, Company, Date, Time)*

1. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
2. Relinquished By: _____
   Received By: _____
4. Submitted to Laboratory By: _____
   Received for Laboratory By: _____

Attachment B

Cover System Delineation

Burley Clay Products - Approximate Soil Cover Boundary

Burley Clay Products
Approximate Boundary Points for Cover Placement

Control Point	Latitude	Longitude
1	39.81460	-82.07222
2	39.81493	-82.07220
3	39.81495	-82.07209
4	39.81503	-82.07207
5	39.81506	-82.07198
6	39.81498	-82.07195
7	39.81494	-82.07173
8	39.81494	-82.07159
9	39.81494	-82.07153
10	39.81499	-82.07140
11	39.81497	-82.07134
12	39.81471	-82.07116
13	39.81448	-82.07105
14	39.81439	-82.07108
15	39.81438	-82.07119
16	39.81430	-82.07124
17	39.81414	-82.07131
18	39.81386	-82.07162
19	39.81401	-82.07172
20	39.81420	-82.07174
21	39.81454	-82.07159
22	39.81466	-82.07188
23	39.81455	-82.07196