



# eDocument Workflow Data Ingestion Form

DERR - Hazardous Waste Permitting

**Note:** All HW Permitting Documents fall under "Permit-Intermediate" doc type.

## Keyword Summary:

<b>Secondary ID:</b>	OHD005108477	<b>Stamped date on doc:</b>	6/21/2021
<b>Facility Name:</b>	ALTIVIA Petrochemicals LLC		
<b>County:</b>	Scioto	<b>CBI/Trade Secret Info (see protocol below)</b>	
<b>Program:</b>	RCRA C – Hazardous Waste	Request contains CBI/TS claim?	Yes
<b>Permit Type:</b>	Permit to Install & Operate	Was a "public" copy included?	No
<b>Permit Subtype:</b>	Application & Support	<b>Financial Assurance Info (see protocol below)</b>	
<b>Permit Classification:</b>	Permit Application	Request contains FA policy/account # info?	Yes
<b>Permit Purpose:</b>	Renewal	<b>Contingency Plan Info (see protocol below)</b>	
<b>Confidentiality Status:</b>	Public Record for Publication	Request contains facility staff pers/home phone #'s?	Yes

### CBI/Trade Secret Protocol

Applications or requests that contain a claim of Confidential Business Information (CBI) or "trade secret" **are not be ingested** into the Agency's eDoc system. However, any claims must be made at the time of application submission, as required by both OAC rule 3745-49-03 and OAC rule 3745-50-30. Permittees must comply with the complete requirements of the above-cited rules, which include, among other things, submission of a corresponding "public" copy of the application or request which should be ingested into eDocs.

### Financial Assurance Info Protocol

If the application contains "original signature" financial assurance documents, these documents **must be forwarded** to CO FA staff (Shawn Sellers or Melissa Cheung) as these types of documents must be secured in CO's fireproof file cabinet. Also, even if the FA information included in a mod application is not "original signature", if it includes information like insurance policy, bank account, letter of credit or bond numbers, these impacted pages should simply be physically removed and not scanned/included as a part of the ingested application. In place of the removed page, a page can be inserted which states: "Pages of this application which contain financial assurance mechanism details specific to policy or account numbers have been removed from this web-available version of the document."

Regarding review of FA components of mods, ERAS has set up a [tracking/request system](#) on SharePoint where DO staff can make a review request the HW FA Review Request list which can be accessed from the DMWM's Financial Assurance site.

### Contingency Plan Info Protocol

If the application contains facility staff personal/home phone number information, the impacted pages should simply be physically removed and not scanned/included as a part of the ingested application. In place of the removed page, a page can be inserted which states: "Pages of this application which contain facility staff personal/home phone number information have been removed from this web-available version of the document."

**Form Completed by:** Halee Smith

8/2/2021

### Comments





ALTIVIA PETROCHEMICALS, LLC  
1019 Haverhill Ohio Furnace Road  
PO Box 180  
Haverhill OH 45636

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June 18, 2021

**Ohio EPA - Division of Environmental Response and Revitalization**  
**Southeast District Office**  
347 N. Dunbridge Road Bowling Green  
Ohio 43402

*Submitted electronically*

**Attn: Kristy Hunt**

**RE: ALTIVIA Petrochemicals, LLC, Haverhill, Ohio Facility**  
**EPA ID# OHD 005 108 477**  
**RCRA Permit— Hazardous Waste Facility Installation and Operation**  
**Part B Permit Renewal Application**

Dear Ms. Hunt,

ALTIVIA Petrochemicals, LLC, Haverhill, Ohio facility currently operates under an Ohio RCRA permit that became effective on December 16, 2011. The permit will expire on December 16, 2021.

Enclosed please find a Part B Permit Application for ALTIVIA Petrochemicals, LLC, Haverhill, Ohio plant. The facility intends to continue hazardous waste activities at the site. This information is required by Ohio Administrative Code 374550-40 (D).

A permit fee of 1,500 dollars is being submitted to the Office of Fiscal Administration under separate cover.

ALTIVIA appreciates Ohio EPA's review of the attached application and looks forward to working with you to obtain a renewed permit.



By this report, I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this report are true, accurate, and complete.

If you have any questions concerning this report, please contact Jason Patrick, ESH&S Manager, at (740) 533-5267.

Very truly yours,

**ALTIVIA PETROCHEMICALS, LLC**

A handwritten signature in blue ink, appearing to read 'Tim Albert', is written over a horizontal line.

**Tim Albert**  
**ALTIVIA, V.P. Manufacturing**



United States Environmental Protection Agency  
RCRA SUBTITLE C SITE IDENTIFICATION FORM



## 1. Reason for Submittal (Select only one.)

<input type="checkbox"/>	Obtaining or updating an EPA ID number for on-going regulated activities (Items 10-17 below) that will continue for a period of time.
<input type="checkbox"/>	Submitting as a component of the Hazardous Waste Report for _____ (Reporting Year)
<input type="checkbox"/>	Site was a TSD facility, a reverse distributor, and/or generator of $\geq 1,000$ kg of non-acute hazardous waste, $> 1$ kg of acute hazardous waste, or $> 100$ kg of acute hazardous waste spill cleanup in one or more months of the reporting year (or State equivalent LQG regulations)
<input type="checkbox"/>	Notifying that regulated activity is no longer occurring at this Site
<input type="checkbox"/>	Obtaining or updating an EPA ID number for conducting Electronic Manifest Broker activities
<input checked="" type="checkbox"/>	Submitting a new or revised Part A (permit) Form

## 2. Site EPA ID Number

O	H	D	0	0	5	1	0	8	4	7	7
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## 3. Site Name

ALTIVIA Petrochemicals, LLC

## 4. Site Location Address

Street Address	1019 Haverhill-Ohio Furnace Rd.		
City, Town, or Village	Haverhill	County	Scioto
State	Ohio	Country	United States
Zip Code			
Latitude	38.591	Longitude	-82.819
<input type="checkbox"/> Use Lat/Long as Primary Address			

## 5. Site Mailing Address

☐ Same as Location Street Address

Street Address	P.O. Box 180 - 1019 Haverhill-Ohio Furnace Rd.		
City, Town, or Village	Haverhill		
State	Ohio	Country	United States
Zip Code	45636		

## 6. Site Land Type

<input checked="" type="checkbox"/> Private	<input type="checkbox"/> County	<input type="checkbox"/> District	<input type="checkbox"/> Federal	<input type="checkbox"/> Tribal	<input type="checkbox"/> Municipal	<input type="checkbox"/> State	<input type="checkbox"/> Other
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## 7. North American Industry Classification System (NAICS) Code(s) for the Site (at least 5-digit codes)

A. (Primary)	325194	C.	
B.		D.	



EPA ID Number 

O	H	D	0	0	5	1	0	8	4	7	7
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OMB# 2050-0024; Expires 04/30/2024

## 8. Site Contact Information

☒ Same as Location Address

First Name	Jason	MI	Last Name	Patrick
Title				
EHS Manager				
Street Address				
City, Town, or Village				
State	Country		Zip Code	
Email				
jpatrick@altivia.com				
Phone	(740) 533-5267		Ext	Fax

## 9. Legal Owner and Operator of the Site

## A. Name of Site's Legal Owner

☐ Same as Location Address

Full Name	ALTIVIA Petrochemicals, LLC				Date Became Owner (mm/dd/yyyy)	11/6/2015
Owner Type	<input checked="" type="checkbox"/> Private <input type="checkbox"/> County <input type="checkbox"/> District <input type="checkbox"/> Federal <input type="checkbox"/> Tribal <input type="checkbox"/> Municipal <input type="checkbox"/> State <input type="checkbox"/> Other					
Street Address	1100 Louisiana Street, Suite 4800					
City, Town, or Village	Houston					
State	Texas	Country	United States	Zip Code	77002	
Email						
Phone	(713) 658-9000		Ext	Fax		
Comments						

## B. Name of Site's Legal Operator

☐ Same as Location Address

Full Name	ALTIVIA Petrochemicals, LLC				Date Became Operator (mm/dd/yyyy)	11/6/2015
Operator Type	<input checked="" type="checkbox"/> Private <input type="checkbox"/> County <input type="checkbox"/> District <input type="checkbox"/> Federal <input type="checkbox"/> Tribal <input type="checkbox"/> Municipal <input type="checkbox"/> State <input type="checkbox"/> Other					
Street Address	1100 Louisiana Street, Suite 4800					
City, Town, or Village	Houston					
State	Texas	Country	United States	Zip Code	77002	
Email						
Phone	(713) 658-9000		Ext	Fax		
Comments						



**10. Type of Regulated Waste Activity (at your site)**

Mark "Yes" or "No" for all current activities (as of the date submitting the form); complete any additional boxes as instructed.

**A. Hazardous Waste Activities**

<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	1. Generator of Hazardous Waste—If "Yes", mark only one of the following—a, b, c	
<input checked="" type="checkbox"/>	a. LQG	-Generates, in any calendar month, 1,000 kg/mo (2,200 lb/mo) or more of non-acute hazardous waste (includes quantities imported by importer site); or - Generates, in any calendar month, or accumulates at any time, more than 1 kg/mo (2.2 lb/mo) of acute hazardous waste; or - Generates, in any calendar month or accumulates at any time, more than 100 kg/mo (220 lb/mo) of acute hazardous spill cleanup material.
<input type="checkbox"/>	b. SQG	100 to 1,000 kg/mo (220-2,200 lb/mo) of non-acute hazardous waste and no more than 1 kg (2.2 lb) of acute hazardous waste and no more than 100 kg (220 lb) of any acute hazardous spill cleanup material.
<input type="checkbox"/>	c. VSQG	Less than or equal to 100 kg/mo (220 lb/mo) of non-acute hazardous waste.
<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	2. Short-Term Generator (generates from a short-term or one-time event and not from on-going processes). If "Yes", provide an explanation in the Comments section. <i>Note: If "Yes", you MUST indicate that you are a Generator of Hazardous Waste in Item 10.A.1 above.</i>	
<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	3. Treater, Storer or Disposer of Hazardous Waste—Note: Part B of a hazardous waste permit is required for these activities.	
<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	4. Receives Hazardous Waste from Off-site	
<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	5. Recycler of Hazardous Waste	
<input type="checkbox"/>	a. Recycler who stores prior to recycling	
<input type="checkbox"/>	b. Recycler who does not store prior to recycling	
<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	6. Exempt Boiler and/or Industrial Furnace—If "Yes", mark all that apply.	
<input type="checkbox"/>	a. Small Quantity On-site Burner Exemption	
<input type="checkbox"/>	b. Smelting, Melting, and Refining Furnace Exemption	

**B. Waste Codes for Federally Regulated Hazardous Wastes.** Please list the waste codes of the Federal hazardous wastes handled at your site. List them in the order they are presented in the regulations (e.g. D001, D003, F007, U112). Use an additional page if more spaces are needed.

D001	D002	D007	D008	D009	D018	
F002	F003	K022	U002	U055	U188	

**C. Waste Codes for State Regulated (non-Federal) Hazardous Wastes.** Please list the waste codes of the State hazardous wastes handled at your site. List them in the order they are presented in the regulations. Use an additional page if more spaces are needed.

D001	D002	D007	D008	D009	D018	
F002	F003	K022	U002	U055	U188	



**11. Additional Regulated Waste Activities (NOTE: Refer to your State regulations to determine if a separate permit is required.)****A. Other Waste Activities**

<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	1. Transporter of Hazardous Waste—If "Yes", mark all that apply.
<input type="checkbox"/>	a. Transporter
<input type="checkbox"/>	b. Transfer Facility (at your site)
<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	2. Underground Injection Control
<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	3. United States Importer of Hazardous Waste
<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	4. Recognized Trader—If "Yes", mark all that apply.
<input type="checkbox"/>	a. Importer
<input type="checkbox"/>	b. Exporter
<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	5. Importer/Exporter of Spent Lead-Acid Batteries (SLABs) under 40 CFR 266 Subpart G—If "Yes", mark all that apply.
<input type="checkbox"/>	a. Importer
<input type="checkbox"/>	b. Exporter

**B. Universal Waste Activities**

<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	1. Large Quantity Handler of Universal Waste (you accumulate 5,000 kg or more) - If "Yes" mark all that apply. Note: Refer to your State regulations to determine what is regulated.
<input type="checkbox"/>	a. Batteries
<input type="checkbox"/>	b. Pesticides
<input type="checkbox"/>	c. Mercury containing equipment
<input type="checkbox"/>	d. Lamps
<input type="checkbox"/>	e. Aerosol Cans
<input type="checkbox"/>	f. Other (specify) _____
<input type="checkbox"/>	g. Other (specify) _____
<input type="checkbox"/> Y <input type="checkbox"/> N	2. Destination Facility for Universal Waste Note: A hazardous waste permit may be required for this activity.

**C. Used Oil Activities**

<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	1. Used Oil Transporter—If "Yes", mark all that apply.
<input type="checkbox"/>	a. Transporter
<input type="checkbox"/>	b. Transfer Facility (at your site)
<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	2. Used Oil Processor and/or Re-refiner—If "Yes", mark all that apply.
<input type="checkbox"/>	a. Processor
<input type="checkbox"/>	b. Re-refiner
<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	3. Off-Specification Used Oil Burner
<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	4. Used Oil Fuel Marketer—If "Yes", mark all that apply.
<input type="checkbox"/>	a. Marketer Who Directs Shipment of Off-Specification Used Oil to Off-Specification Used Oil Burner
<input type="checkbox"/>	b. Marketer Who First Claims the Used Oil Meets the Specifications



**D. Pharmaceutical Activities**

<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	1. Operating under 40 CFR Part 266, Subpart P for the management of hazardous waste pharmaceuticals—if "Yes", mark only one. Note: See the item-by-item instructions for definitions of healthcare facility and reverse distributor.
<input type="checkbox"/>	a. Healthcare Facility
<input type="checkbox"/>	b. Reverse Distributor
<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	2. Withdrawing from operating under 40 CFR Part 266, Subpart P for the management of hazardous waste pharmaceuticals. Note: You may only withdraw if you are a healthcare facility that is a VSQG for all of your hazardous waste, including hazardous waste pharmaceuticals.

**12. Eligible Academic Entities with Laboratories**—Notification for opting into or withdrawing from managing laboratory hazardous wastes pursuant to 40 CFR Part 262, Subpart K.

<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	A. Opting into or currently operating under 40 CFR Part 262, Subpart K for the management of hazardous wastes in laboratories— If "Yes", mark all that apply. Note: See the item-by-item instructions for definitions of types of eligible academic entities.
<input type="checkbox"/>	1. College or University
<input type="checkbox"/>	2. Teaching Hospital that is owned by or has a formal written affiliation with a college or university
<input type="checkbox"/>	3. Non-profit Institute that is owned by or has a formal written affiliation with a college or university
<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	B. Withdrawing from 40 CFR Part 262, Subpart K for the management of hazardous wastes in laboratories.

**13. Episodic Generation**

<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	Are you an SQG or VSQG generating hazardous waste from a planned or unplanned episodic event, lasting no more than 60 days, that moves you to a higher generator category. If "Yes", you must fill out the Addendum for Episodic Generator.
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**14. LQG Consolidation of VSQG Hazardous Waste**

<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	Are you an LQG notifying of consolidating VSQG Hazardous Waste Under the Control of the Same Person pursuant to 40 CFR 262.17(f)? If "Yes", you must fill out the Addendum for LQG Consolidation of VSQG hazardous waste.
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**15. Notification of LQG Site Closure for a Central Accumulation Area (CAA) (optional) OR Entire Facility (required)**

<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	LQG Site Closure of a Central Accumulation Area (CAA) or Entire Facility.
A. <input type="checkbox"/> Central Accumulation Area (CAA) or <input type="checkbox"/> Entire Facility	
B. Expected closure date: _____ mm/dd/yyyy	
C. Requesting new closure date: _____ mm/dd/yyyy	
D. Date closed : _____ mm/dd/yyyy	
<input type="checkbox"/>	1. In compliance with the closure performance standards 40 CFR 262.17(a)(8)
<input type="checkbox"/>	2. Not in compliance with the closure performance standards 40 CFR 262.17(a)(8)



## 16. Notification of Hazardous Secondary Material (HSM) Activity

<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	Are you notifying under 40 CFR 260.42 that you will begin managing, are managing, or will stop managing hazardous secondary material under 40 CFR 260.30, 40 CFR 261.4(a)(23), (24), (25), or (27)? If "Yes", you must fill out the Addendum to the Site Identification Form for Managing Hazardous Secondary Material.
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## 17. Electronic Manifest Broker

☐ Y ☒ N Are you notifying as a person, as defined in 40 CFR 260.10, electing to use the EPA electronic manifest system to obtain, complete, and transmit an electronic manifest under a contractual relationship with a hazardous waste generator?

**18. Comments** (include item number for each comment)

[illegible]

**19. Certification** I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations. **Note: For the RCRA Hazardous Waste Part A permit Application, all owners and operators must sign (see 40 CFR 270.10(b) and 270.11).**

Signature of legal owner, operator or authorized representative 	Date (mm/dd/yyyy) 06/18/2021
Printed Name (First, Middle Initial Last) Timothy Albert	Title Vice President - Manufacturing
Email talbert@altivia.com	

Signature of legal owner, operator or authorized representative	Date (mm/dd/yyyy)
Printed Name (First, Middle Initial Last)	Title
Email	



EPA ID Number

O H D 0 0 5 1 0 8 4 7 7

OMB# 2050-0024; Expires 04/30/2024

United States Environmental Protection Agency  
HAZARDOUS WASTE PERMIT PART A FORM

## 1. Facility Permit Contact

First Name	Jason	MI	Last Name	Patrick
Title	EHS Manager			
Email	jpatrick@altivia.com			
Phone	(740) 533-5267	Ext	Fax	

## 2. Facility Permit Contact Mailing Address

Street Address	P.O. Box 180 - 1019 Haverhill-Ohio Furnace Rd.		
City, Town, or Village	Haverhill		
State	Ohio	Country	United States
Zip Code	45636		

## 3. Facility Existence Date (mm/dd/yyyy)

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## 4. Other Environmental Permits

A. Permit Type	B. Permit Number												C. Description
N	0	I	F	0	0	0	0	9					NPDES Permit
E	0	7	-	7	3	-	0	0	-	0	0	8	Title V Permit
R	O	H	D	0	0	5	1	0	8	4	7	7	U.S. EPA HW Management Permit
U	7	5	7	7	5	4	3	1	2				UIC Closure
R	0	4	-	7	3	-	0	2	5	1			Ohio EPA HWFB

## 5. Nature of Business

The Haverhill Plant, a chemical production facility, has multiple process areas that convert organic chemical feedstocks into bulk industrial chemicals. The primary process is the production of phenol and acetone from cumene. Other products include alpha-methyl styrene, and bisphenol A.



## 6. Process Codes and Design Capacities

Line Number	A. Process Code			B. Process Design Capacity		C. Process Total Number of Units	D. Unit Name
				(1) Amount	(2) Unit of Measure		
1	S	0	2	200,000	G	1	
2	S	0	2	250,000	G	1	
3	S	0	2	200,000	G	1	
4	T	8	0	380,000,000	I	2	

## 7. Description of Hazardous Wastes (Enter codes for Items 7.A, 7.C and 7.D(1) )

Line No.	A. EPA Hazardous Waste No.				B. Estimated Annual Qty of Waste	C. Unit of Measure	D. Processes									
							(1) Process Codes					(2) Process Description (If code is not entered in 7.D1))				
1	K	0	2	2	36,490	T	S	0	2	T	8	0				Distillation bottom tars
																production of phenol
																burned as fuel. Amount
																includes nonhazardous
																BPA.
2	D	0	0	1	10,370	T	S	0	2	T	8	0				Light hydrocarbon
																waste burned as fuel

## 8. Map

Attach to this application a topographical map, or other equivalent map, of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all spring, rivers, and other surface water bodies in this map area. See instructions for precise requirements.

## 9. Facility Drawing

All existing facilities must include a scale drawing of the facility. See instructions for more detail.

## 10. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment, and disposal areas; and sites of future storage, treatment, or disposal areas. See instructions for more detail.

## 11. Comments

All attachments requested above by the form have been previously submitted to U.S. EPA Region 5 with the previous permit applications and permit. These attachments are therefore not being resubmitted with this application for a renewed permit.



## Haverhill Facility – Hazardous Waste Tanks



**Figure 1:** Elevation View of Tank 2003-F

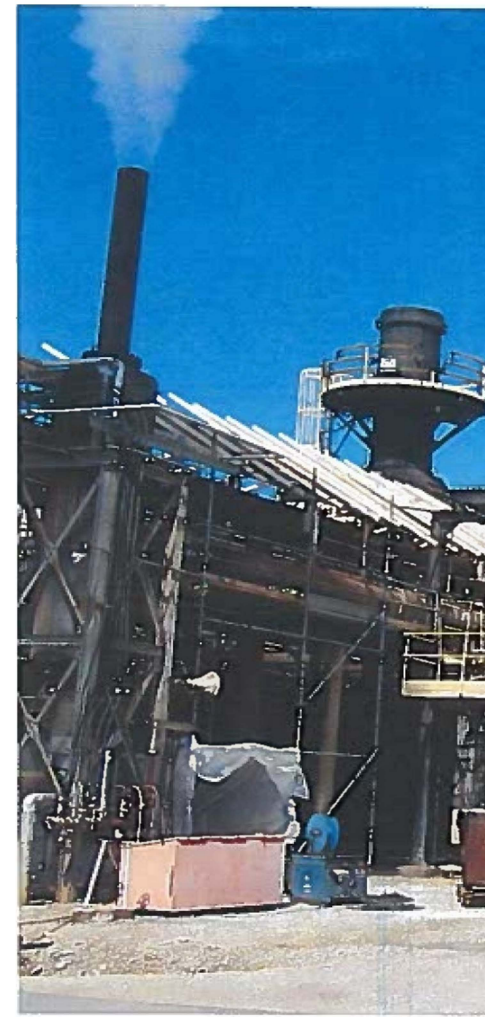


**Figure 2:** Elevation view of Tank 2104-F  
(2108-F and 2105-F are constructed identically)





2001-UE, looking Plant North



2001-UC, looking True North



## CERTIFICATION

This Permit Application is signed below in accordance with the requirements of  
OAC Rule 3745-50-42:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."



Timothy Albert, Vice President Manufacturing  
ALTIVIA

6/18/2021  
Date



# ALTIVIA Petrochemicals, LLC

## RCRA Part B Permit Renewal Application

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**Section J Attachments**

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**ALTIVIA Petrochemicals, LLC**  
**RCRA Part B Permit Renewal Application**  
**Summary of Changes**

Section	Page	Current Revision	Description of Change
A		6/18/2021	U.S. EPA – RCRA Subtitle C Identification Form
A		March 2022	Provided updated photos of Hazardous Waste Tanks
All		January 2022	Removed references to previous owners where necessary. Updated to ALTIVIA or Owner/Operator as appropriate.
B	B-1, B-3, B-4	January 2022	Removed references to Bisphenol-A (BPA) Process. Process has been dismantled.
B	B-iii, B-6	January 2022	Adjusted list of exhibits to remove BPA
B	B-2	January 2022	Updated boiler information to include heavy hydrocarbon fuel for 2001-UE per 2014 OEPA permit modification
B	B-3	January 2022	Added language to clarify that light hydrocarbons and heavy hydrocarbons are currently being sold as products, rather than combusted in the boilers.
B	B-7	January 2022	Updated frequency of hazardous waste pickups from 2-3/month to 1/quarter.
B	Exh. B-4	January 2022	Updated Phenol Process Flow Diagram
B	Exh. B-5	January 2022	BPA Process Flow Diagram Removed – all proceeding exhibit numbers adjusted accordingly
C	C-1, C-2	January 2022	Removed references to Bisphenol-A (BPA) Process. Process has been dismantled.
C	C-2	January 2022	Removed hazardous waste code D038. No longer apply to processes at the facility.
C	C-3	January 2022	Removed nonhazardous waste from the hazardous waste tank content description.
C	C-1, C-2, C-4, C-9, C-11	January 2022	Removed BPA Purification Bottoms, Phenol Spent Emission Scrubber Fluid, and Purification System Light Hydrocarbons from the waste stream descriptions. Processes no longer exist.
C	C-5, C-6	January 2022	Updated hazardous waste fuel analytical parameters to reflect current processes and constituents.
C	C-7	March 2022	Included language to specify that third-party lab is used for analysis of wastes, and SW-846 or equivalent methods are applied.
C	C-7	January 2022	Added language to specify that waste fuel analysis is not required when the waste streams are being sold as products.
C	C-7	January 2022	Added language to specify that WAP is part of FAP
C	C-10	January 2022	Updated Table C-4: Included sample requirements preservation/hold time information. Removed specific gravity, ash content, and heating value tests – do not apply to the waste stream.
C	C-1	January 2022	Updated LHC Flow Diagram
C	C-2	January 2022	Updated HHC Flow Diagram
C	C-3	January 2022	2022 LHC/HHC analytical data to replaced 2006 data
D	D-2	January 2022	Removed BPA Purification Bottoms, Phenol Spent Emission Scrubber Fluid, and Purification System Light Hydrocarbons from the waste stream descriptions. Processes no longer exist.



D	D-7	March 2022	Added language to clarify that containment pads for hazardous waste tanks were verified to have sufficient strength.
D	Exh. D-1	January 2022	Updated LHC Flow Diagram
D	Exh. D-2	January 2022	Updated HHC Flow Diagram
F	All	January 2022	Updated Subsection Labels to better align with checklist & correct OAC regulations
F	Exh. F-2	January 2022	Updated Emergency Equipment Inspection Schedule
G	G-3	January 2022	Removed references to Bisphenol-A (BPA) Process. Process has been dismantled.
G	G-4, G-6, G-14	January 2022	Updated Incident Command personnel assignments and descriptions of interaction.
G	G-5	January 2022	Updated Table G-1
G	G-10	January 2022	Added language to specify that API inspection of a leaking tank may conclude that no further material needs removed if the tank is found to be in sound condition.
G	G-12, G-13	January 2022	Table G-2: Updated analytical parameters to reflect current processes and constituents.
G	Att. G-5	January 2022	Updated Table with Agency information
H	H-2	January 2022	Removed references to "BIF"
H	H-2	January 2022	Updated list of position areas to reflect current processes.
H	H-6	January 2022	Updated language on training record maintenance
H	Exh. H-6	March 2022	Updated Exhibit H-6
I	I-2, I-3, I-6	January 2022	Removed hazardous waste codes D018 and D035. No longer apply to processes at the facility.
I	I-7	January 2022	Added language to specify that ash in Boiler UE will be considered K022 if HHC is combusted in the boiler.
I	I-10, I-11	January 2022	Table I-3: Updated analytical parameters to reflect current processes and constituents.
J	All	January 2022	Updated SWMU page numbering – reference only
J	J-1, J-2	January 2022	Updated list of RFI work that has taken place since the previous Part B permit renewal.
J	J-5	January 2022	Added language to include the 2019 No Further Action determination for SWMU #33
J	J-14	January 2022	Added language to include the 2019 and 2021 dismantling of 2001-UA and 2001-UB boilers.
L	All	6/18/2021	New certification page signed



## **SECTION B**

### **FACILITY DESCRIPTION**



## SECTION B. FACILITY DESCRIPTION

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## SECTION B. FACILITY DESCRIPTION

### LIST OF TABLES

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## **SECTION B. FACILITY DESCRIPTION**

### **LIST OF EXHIBITS**

Exhibit B-1	Location Map
Exhibit B-2	Site Plan
Exhibit B-3	RCRA Permitted Units
Exhibit B-4	Phenol Production Process Flow Diagram
Exhibit B-5	Current Biological Wastewater Treatment Process Flow Diagram
Exhibit B-6	Topographic Map 1000-Foot Facility Boundary and Windrose
Exhibit B-7	Surrounding Land Use and Property Line
Exhibit B-8	Floodplain Map
Exhibit B-9	Water Well Locations
Exhibit B-10	Subsurface Conduit Locations
Exhibit B-11	Pavement Design Typical Cross-Section



## **SECTION B. FACILITY DESCRIPTION**

The information provided in this section includes descriptions and illustrations of the Haverhill Plant's production processes (phenol). Please be informed that the Owner/operator has gone to great lengths to maintain the confidentiality of the process information and has limited disclosure even among its own employees and representatives. The Haverhill Plant believes that the production process information contained in this section provides sufficient detail for a thorough understanding of the specific process information related to the management of hazardous waste at the plant.

Also contained in this section are the uses of the land surrounding the facility, zoning information, surface waters, drainage, and floodplain information. Traffic patterns are discussed at the end of this section. Additionally, details on topographical, geological, and meteorological features of the facility are provided. More complete details of the specific hazardous waste activities the Owner/operator can be found in the appropriate sections of this permit application.

### **B-1 GENERAL DESCRIPTION: OAC 3745-50-44**

The Haverhill Plant is a chemical production facility located in southern Ohio along the Ohio River bordering Kentucky (see Exhibit B-1, Location Map). The property comprises 640 acres, and the active portion of the site occupies approximately 60 acres. The plant operates 24 hours per day, 7 days a week, and employs approximately 150 people, of which approximately 135 are plant employees. Additional pertinent information is as follows:

Facility Address: ALTIVIA Petrochemicals, LLC  
1019 Haverhill-Ohio Furnace Road  
Haverhill, Ohio 45636

Facility Owner: ALTIVIA Petrochemicals, LLC  
1100 Louisiana St. Suite 4800  
Houston, TX 77002

Facility Operator: ALTIVIA Petrochemicals, LLC  
1100 Louisiana St. Suite 4800  
Houston, TX 77002

Facility Contact: Jason Patrick, Environmental, Safety, Health & Security Manager

Telephone Number: (740) 532-3420



The Owner/operator is seeking a RCRA Permit renewal for the tank storage of hazardous wastes generated during production processes.

The site plan provided as Exhibit B-2 displays the location of the facility's hazardous waste management units. This exhibit does not present all process equipment at the facility; however, process equipment for various units is outlined in this section. Exhibit B-3 lists the RCRA permitted units, along with their operational status. It should be noted that several exhibits incorporated throughout this permit application present the name and logo of USS Chemicals, Aristech Chemical Corporation, Sunoco Chemicals, ~~or~~ Haverhill Chemicals or ALTIVIA Petrochemicals, who have been the previous/current owners and operators of the plant.

The plant operates two steam boilers that burn hazardous waste (K022 and D001) fuels which is generated on-site for energy recovery. The two boilers operate under an Ohio EPA RCRA permit. Boiler UE is permitted to accept light and heavy hydrocarbon via the RCRA permit and is allowed to combust (a performance test is required per 40 CFR 63, Subpart EEE to demonstrate the compliance. Boiler UC can simultaneously burn HHC and LHC fuels with minimal or no natural gas feed. In 2009, Sunoco notified Ohio EPA & USEPA that the boilers comply with 40 CFR 63, Subpart EEE (The HWC MACT Standards). In accordance with OAC 3745-266-100(B), Owner/operator removed the operating limits of the boilers from the RCRA permit. Only the following sections of RCRA regulations will continue to apply to the hazardous waste boilers: Contingency Planning, Closure, Post-Closure, Standards for Direct Transfer, and Standards for Regulation of Residues.

Additionally, the plant historically operated two UIC-regulated injection wells (three wells were installed) but closure of these three wells was completed in 1996; Ohio EPA approved RCRA Closure of the Phenol Wastewater Treatment System (PWWTS) which was RCRA closed in 2000; two BPA lagoons that were RCRA closed in 2002 and two utility steam boilers: (2001-UA and 2001-UB that were regulated under the BIF Rule); Ohio EPA approved the RCRA closure of these boilers in June 2012. The plant also operates three hazardous waste storage tanks: two greater than 90 day waste storage tanks (2104-F & 2105-F), a less-than 90 day waste accumulation tank, 2108-F; a less-than 90 day hazardous waste container storage area, (BD-908), and a biological wastewater treatment system to process non-RCRA wastewaters from the production units.

### **B-1a Process Descriptions**

The facility produces industrial organic chemicals. The facility consists of separate units that are



physically separated but functionally integrated. The production units consist of two phenol units. Table B-1 lists the principal raw materials and commercial chemical products for each unit.

**TABLE B-1. PRINCIPAL RAW MATERIALS AND COMMERCIAL CHEMICAL PRODUCTS**

Unit	Raw Material	Commercial Chemical Products
Phenol	cumene	phenol, acetone, alphas-methyl styrene (AMS)

Raw materials are received via barge, railcar, and tank-truck. Commercial chemical products are stored in aboveground storage tanks. Products are shipped using barge, railcar, and tank-truck.

The Phenol operations begin with the air oxidation of cumene into cumene hydroperoxide (CHP) followed by stripping off the excess cumene. Next, the CHP is directed to the “cleaver” where the CHP is spilt into crude phenol and acetone using sulfuric acid. From the cleaver, the process mixture is neutralized, and the crude phenol, acetone, and AMS are distilled and refined into the commercial chemical products. During the distillation and refining steps, light hydrocarbon impurities (RCRA characteristic hazardous waste D001) and a residual heavy hydrocarbon waste (RCRA listed waste K022) are continuously purged from separate pieces of equipment from the process to the aboveground waste fuel storage tanks. This material is currently not being combusted as a waste fuel, but it is sold as products; AMS Intermediates and ACP Solution. If the material is not sold, it can be fed to the boilers for energy recovery. Exhibit B-4 presents the phenol unit operation process flow diagrams.

Air emissions from the cumene oxidation section are directed to a thermal oxidizer. Major process vents in the distillation and refining sections are controlled using ammonia chilled condensers. Process wastewater is pretreated then directed to the wastewater storage tanks prior to on-site biological treatment and discharge to the Ohio River.

The facility is subject to RCRA corrective action and has submitted an RFI Work Plan to U.S. EPA for review and approval as described in Section J.

Major air emission sources include utility boilers, process heaters, process vessels, storage tanks, and material handling activities (barge, tank-truck, and railcar). Air emission controls include a thermal oxidizer, ammonia condensers, closed vent systems with fume scrubbers, and internal floating roofs for tanks storing volatile organic liquids. In addition, the facility maintains a leak



detection and repair program regulated under RCRA subpart BB and CC that is included in the Federal RCRA permit.

Plantwide RCRA hazardous contaminated trash and debris are collected from various satellite accumulation areas throughout the plant. Drummed wastes are managed in less than 90-day drum storage areas.

## **B-1b Waste Management Activities**

### **B-1b(1) Tank Systems**

The facility operates three existing hazardous waste storage tank systems to be permitted. The three tank systems (as defined in 40 CFR 264.190, OAC 3745-55-90) are as follows:

<u>I.D. #</u>	<u>Capacity</u>	<u>Contents</u>
2104-F	200,000 gallons	Phenol Distillation Column Bottoms (K022)
2105-F	250,000 gallons	Phenol Distillation Column Bottoms (K022)
2003-F	200,000 gallons	Light Hydrocarbon Waste (D001)

All three tanks manage byproduct hazardous waste prior to being combusted in the plant's utility boilers. Further details on the process description are provided in Section D.



## **B-2 TOPOGRAPHIC MAP**

### **B-2a General Map Requirements: OAC 3745-50-44**

The following maps are being submitted in order to comply with the map requirements of 270.14(b)(19), OAC 3745-50-44. These maps are:

Exhibit B-1	Location Map
Exhibit B-6	Topographic Map 1,000 Foot Facility Boundary and Windrose
Exhibit B-7	Surrounding Land Use and Property Line
Exhibit B-8	Floodplain Map
Exhibit B-9	Water Well Locations
Exhibit B-10	Subsurface Conduit Locations
Exhibit B-2	Site Plan (shows Traffic Flow)

Table B-2 provides an index for required map information.

### **B-2b Additional Map Requirements for Land Disposal Facilities: OAC 3745-50-44, 3745-54-95, 3745-54-97**

The plant is not a RCRA-regulated land disposal facility. The requirements of this section do not apply.

**TABLE B-2. MAP INFORMATION**

Information	Exhibit Number
General location of the facility	B-1
Topographic map (1" = 200')	B-6
Contours indicating surface water flow	B-6
Legal boundaries of the facility	B-1, -7
Location of access control	B-2
Buildings and structures	B-2
Water wells	B-9
Subsurface conduit	B-10
Surrounding land use	B-7
100-year floodplain area	B-8
Windrose	B-6
Site Plan (shows Traffic Flow)	B-2



### **B-3    LOCATION INFORMATION: OAC 3745-50-44**

#### **B-3a    Seismic Standard: OAC 3745-50-44, 3745-54-18**

The plant is not a new facility. The requirements of this section do not apply. Additionally, the facility is located in Scioto County, Ohio, which is not one of the political jurisdictions listed in 40 CFR 264 Appendix VI.

#### **B-3b    Floodplain Standard**

The Haverhill Plant does not lie within a 100-year floodplain. The limits of the 100-year floodplain of the Ohio River are shown in Exhibit B-8.

These limits were obtained from the FEMA National Flood Insurance Program maps for Haverhill, Ohio.

### **B-4    TRAFFIC INFORMATION: OAC 3745-50-44**

Facility roads are shown on the Site Plan in Exhibit B-2. Exhibit B-2 also presents the direction of traffic flow (and thus traffic patterns), the most heavily used roads with respect to volume and traffic, and control devices (stop signs). Paved roads as well as gravel composite roads also are noted in this exhibit. Typically, roadways consist of a 20-foot-wide wearing course with 2 ft-6 in. shoulders on each side. None of the roads on site are designated as "One Way." Stop signs are posted at intersections, and the posted speed limit is 15 miles per hour. Pedestrian and railroad crossings signs are posted where appropriate. During a typical 24-hour period, approximately 10 passenger cars (primarily employees), 15 tractor-trailers/tank trucks, and 15 service/delivery trucks enter and leave the plant. These vehicles are associated primarily with production and other plant operational activities -- not hazardous wastes.

The principal method of transporting hazardous waste on site is via aboveground pipeline. Typically, licensed haulers transport a truckload of hazardous waste in containers or in bulk over facility roads each quarter, and a tanker truck of non-hazardous oil recovered on a regular basis. These wastes are transported off site to licensed/permitted disposal facilities and/or reclaimers.

Facility roads were designed and constructed in the early 1960s. Roads have been maintained and are in good condition. Original road wearing surfaces were either asphaltic concrete (2 inches thick) or water bound macadam (6 inches thick). A typical cross-section of the design pavement is presented in Exhibit B-11. Bearing capacity and required strength calculations are also included in Exhibit B-11. Facility roads have a subgrade strength equal to 7,000 psi.

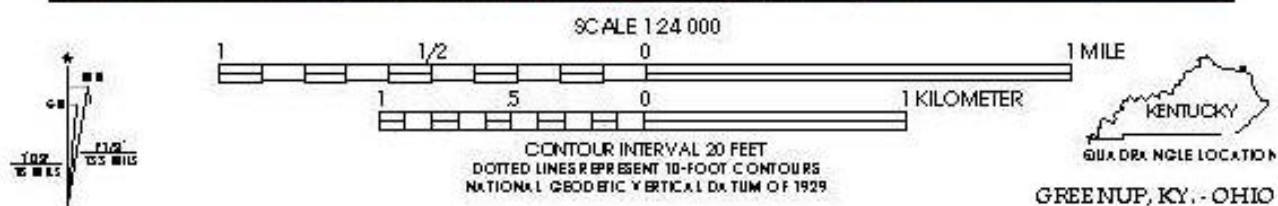
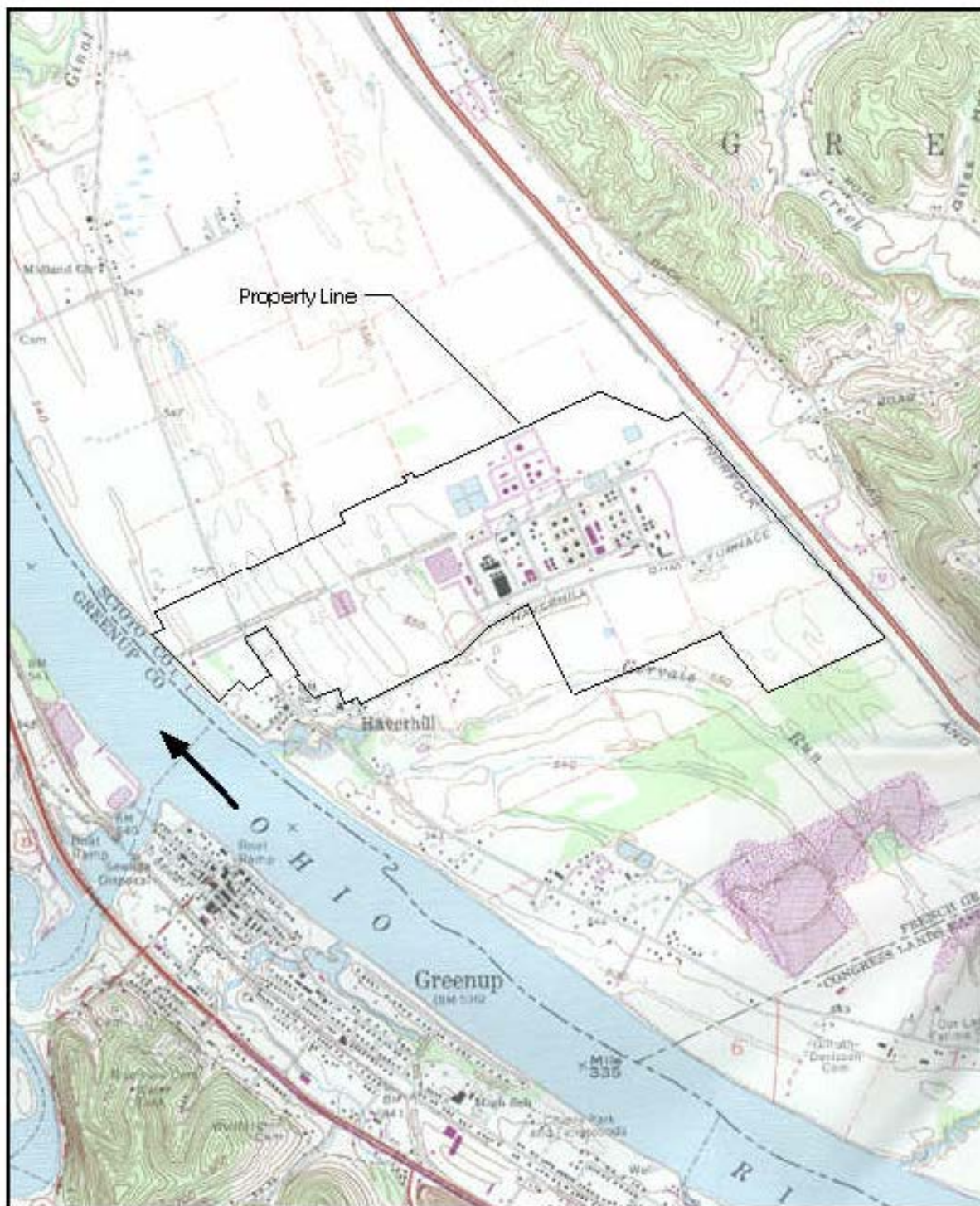


7,000 psi.



EXHIBIT B-1  
LOCATION MAP





**General Location of Facility**

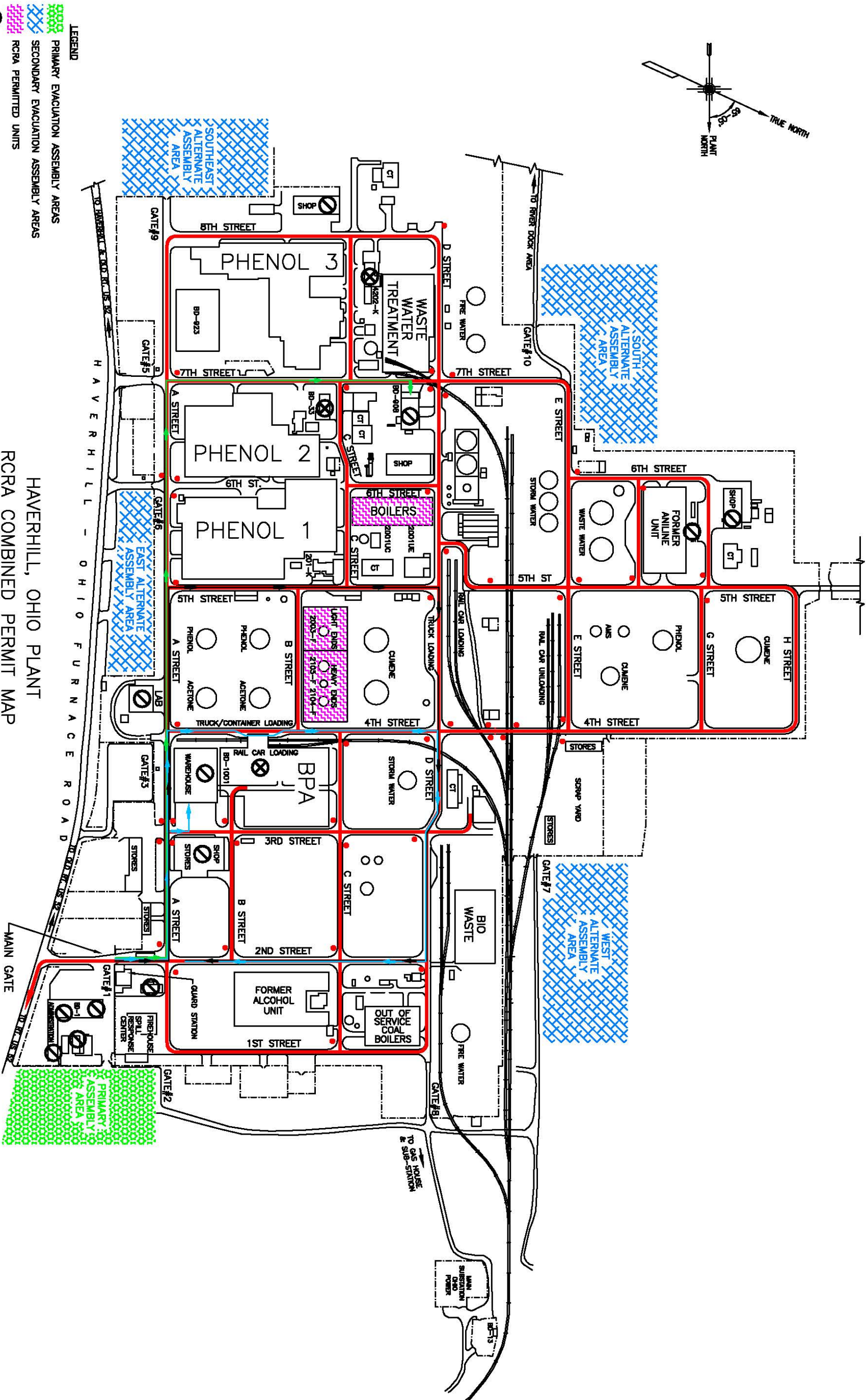
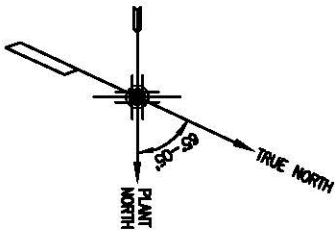
Exhibit B -1: Location Map



## EXHIBIT B-2

### SITE PLAN





LEGEND

- PRIMARY EVACUATION ASSEMBLY AREAS
- SECONDARY EVACUATION ASSEMBLY AREAS
- RCRA PERMITTED UNITS
- CONTROL ROOMS & SHELTER-IN-PLACE W/ MUSTER READERS
- SHELTER-IN-PLACE W/ MUSTER READERS
- EVACUATION ROUTES
- PHENOL/ACETONE/AMS TRUCK ROUTE
- BPA TRUCK ROUTES (RETRACES BACK)
- CONTAINER REMOVAL TRUCK (RETRACES ROUTES TO EXIT)
- STOP SIGNS

HAVERHILL, OHIO PLANT  
RCRA COMBINED PERMIT MAP

0 100' 200' 400'  
GRAPHIC SCALE

NOTES:

ONLY GATE #1 (MAIN GATE) IS MANNED 24 HOURS/DAY  
GATES #1, #5, #5 & #6 HAVE CARD READER TURNSTILES  
ALL OTHER PERIMETER GATES ARE LOCKED



## EXHIBIT B-3

### RCRA PERMITTED UNITS



**Exhibit B-3**  
**RCRA PERMITTED UNITS**

<b>Unit No.</b>	<b>Name or Contents</b>	<b>Operational Status</b>	<b>Function</b>	<b>Status Under RCRA</b>
2104-F	K022 Waste Fuel Storage Tank	Active	Storage	RCRA Regulated
2105-F	K022 Waste Fuel Storage Tank	Active	Storage	RCRA Regulated
2003-F	D001 Waste Fuel Storage Tank	Active	Storage	RCRA Regulated
2001-UC	Utility Boiler	Active	Energy Recovery	RCRA Regulated
2001-UE	Utility Boiler	Active	Energy Recovery	RCRA Regulated



EXHIBIT B-4

PHENOL PRODUCTION PROCESS FLOW DIAGRAM



# Phenol Units Process and Interconnections

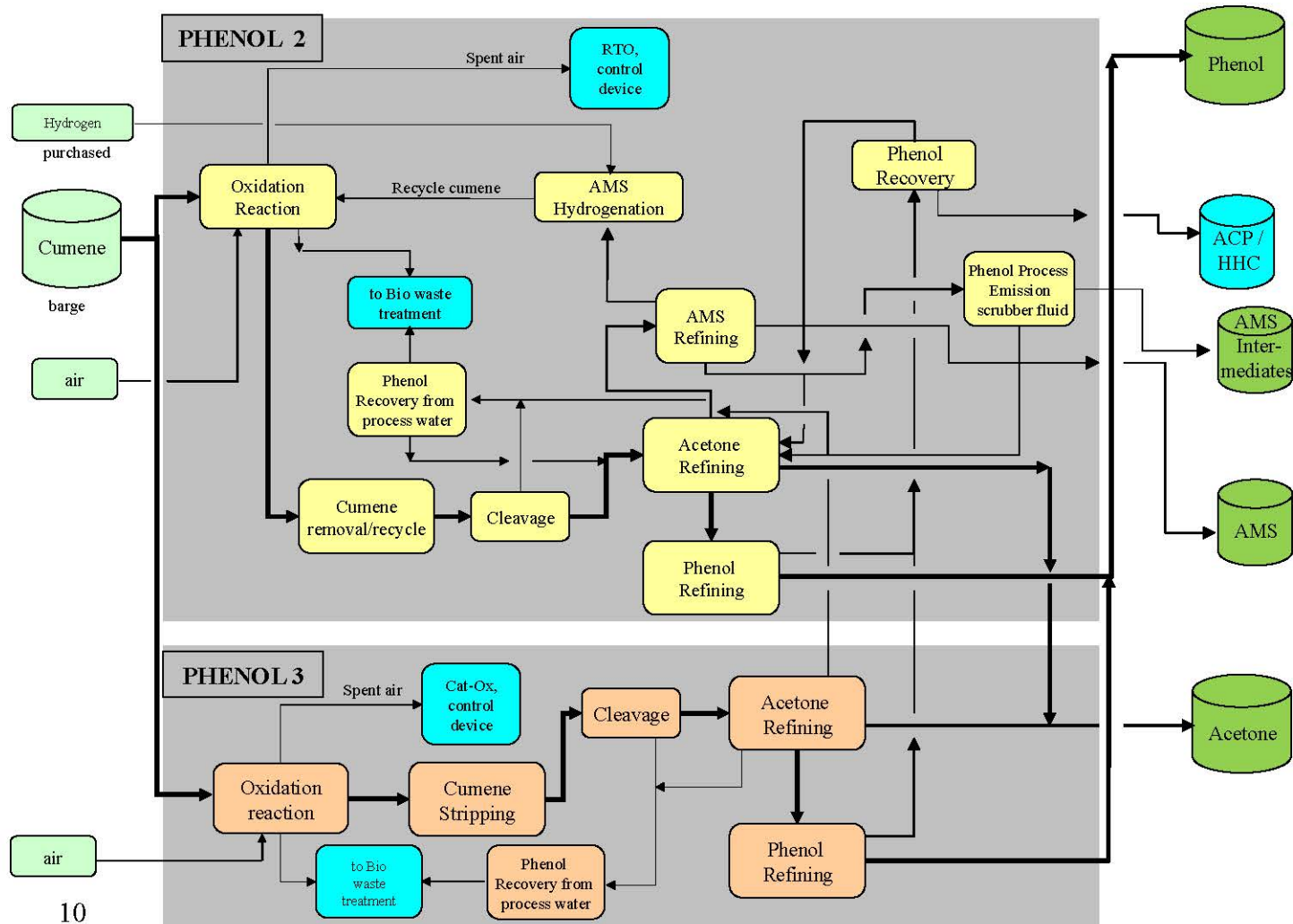




EXHIBIT B-5

CURRENT BIOWASTEWATER TREATMENT PROCESS FLOW DIAGRAM



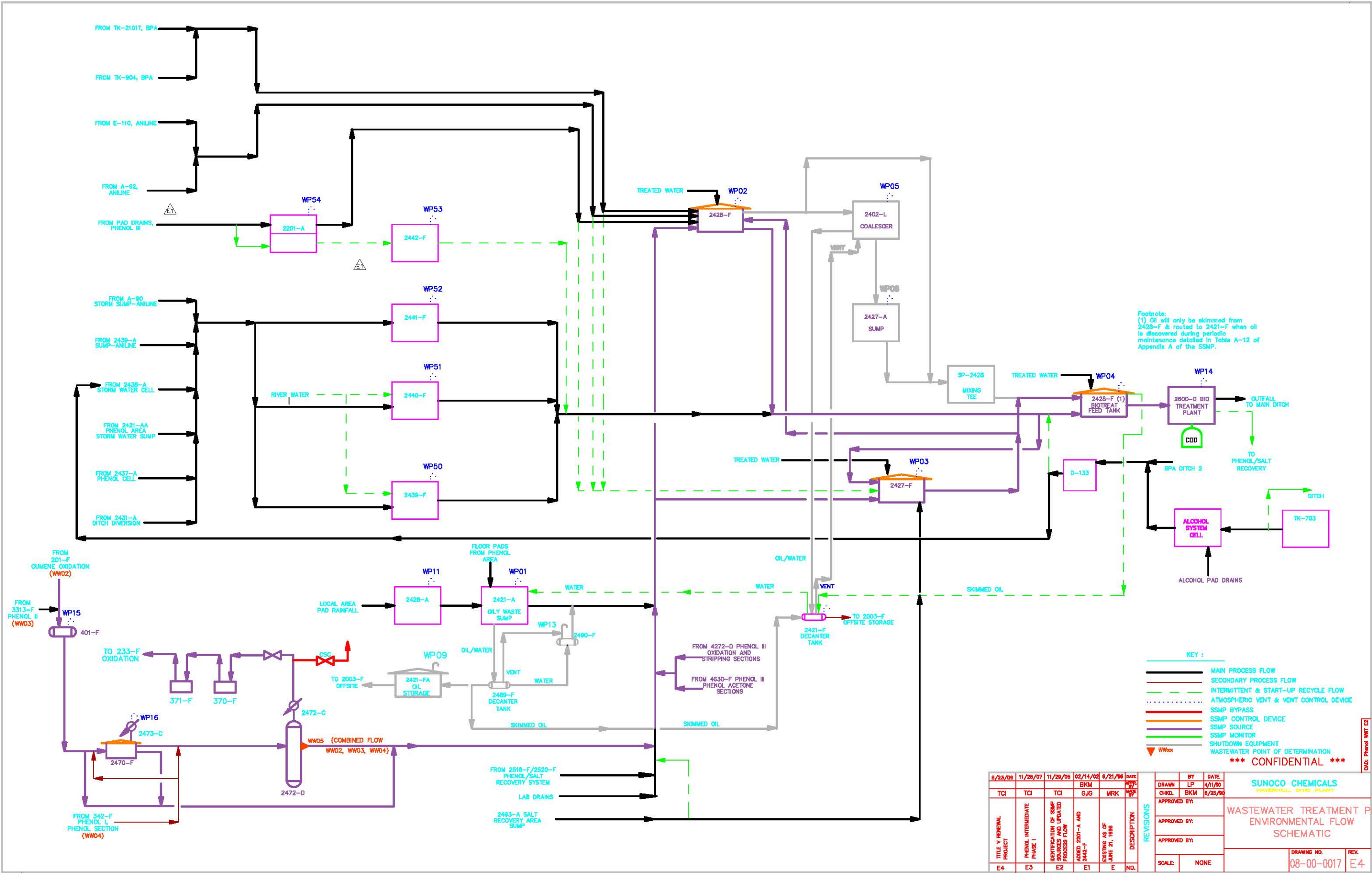
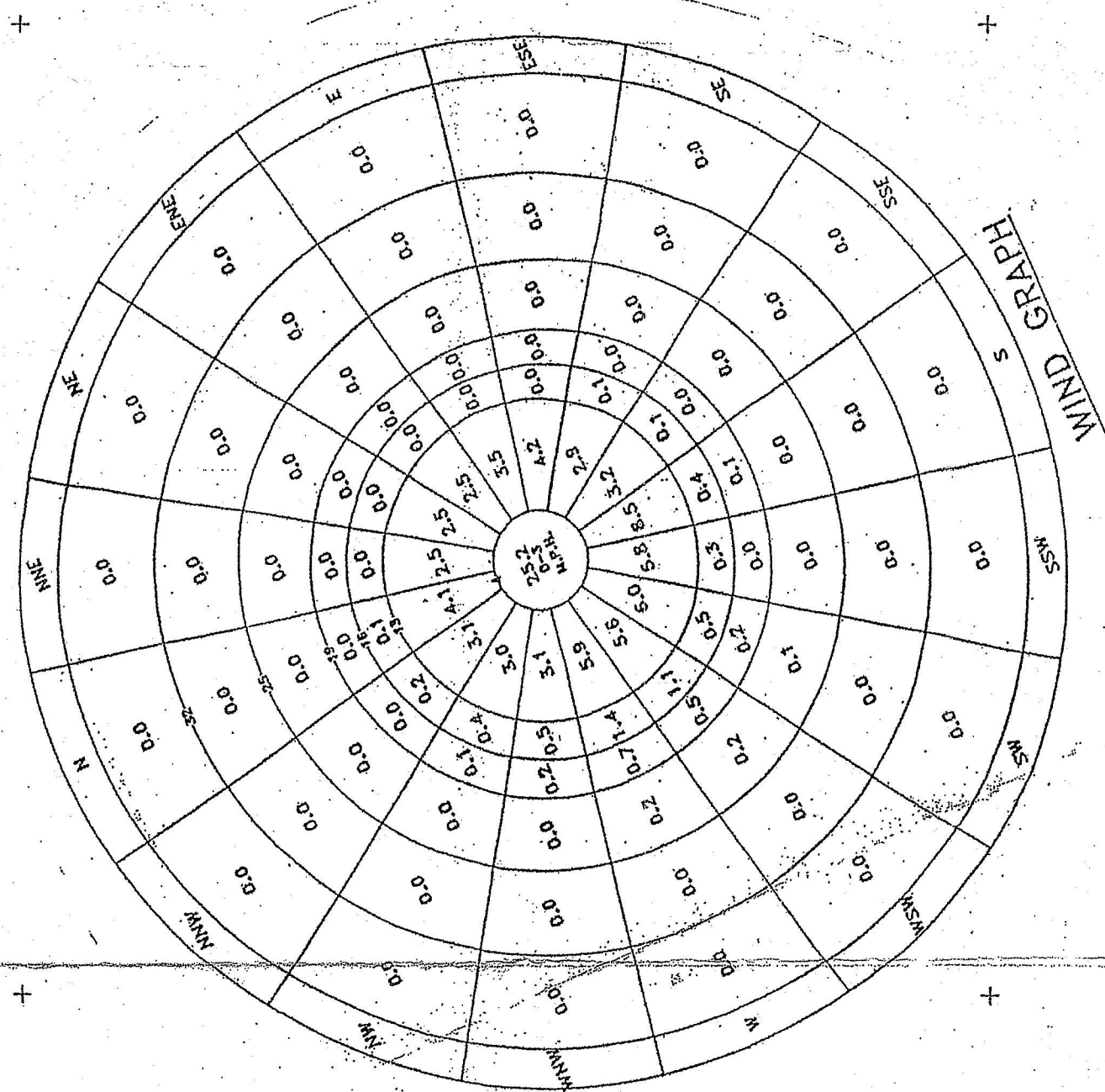




EXHIBIT B-6

TOPOGRAPHIC MAP 1000-FOOT FACILITY BOUNDARY AND WINDROSE





Scale		North Arrow	
1:50,000		True North	
1:100,000		Magnetic North	
1:200,000		Grid North	
1:500,000		Universal Transverse Mercator	
1:1,000,000		World Map	
1:2,000,000		World Map	
1:5,000,000		World Map	
1:10,000,000		World Map	
1:20,000,000		World Map	
1:50,000,000		World Map	
1:100,000,000		World Map	
1:200,000,000		World Map	
1:500,000,000		World Map	
1:1,000,000,000		World Map	

00039  
16 2011  
DEC 16 2011



EXHIBIT B-7

SURROUNDING LAND USE AND PROPERTY LINE



Over all view of one mile limit



OHIO EPA DWMW  
OCT 29 2001  
000420

00042

OHIO EPA DWMW DEC 16 2011

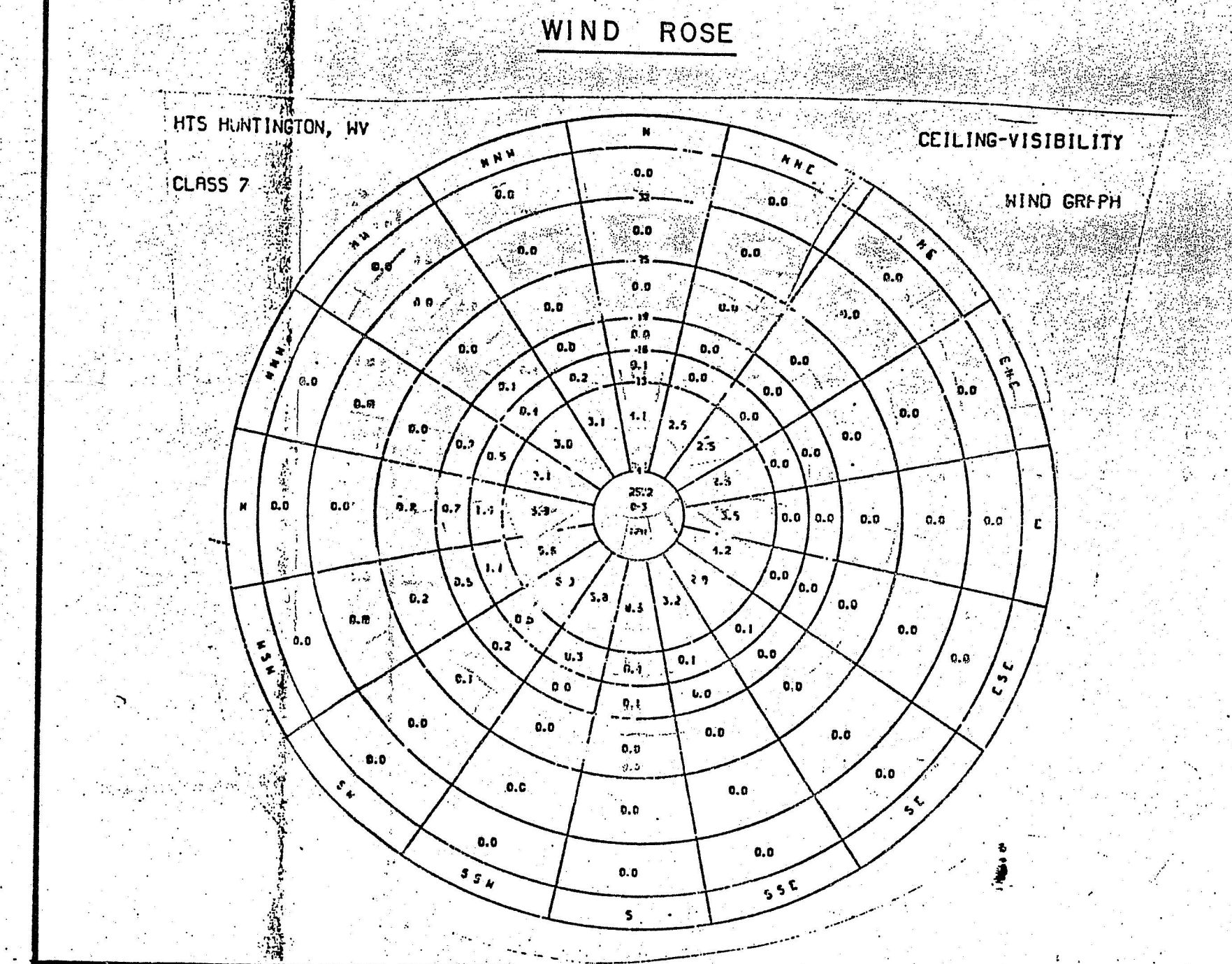
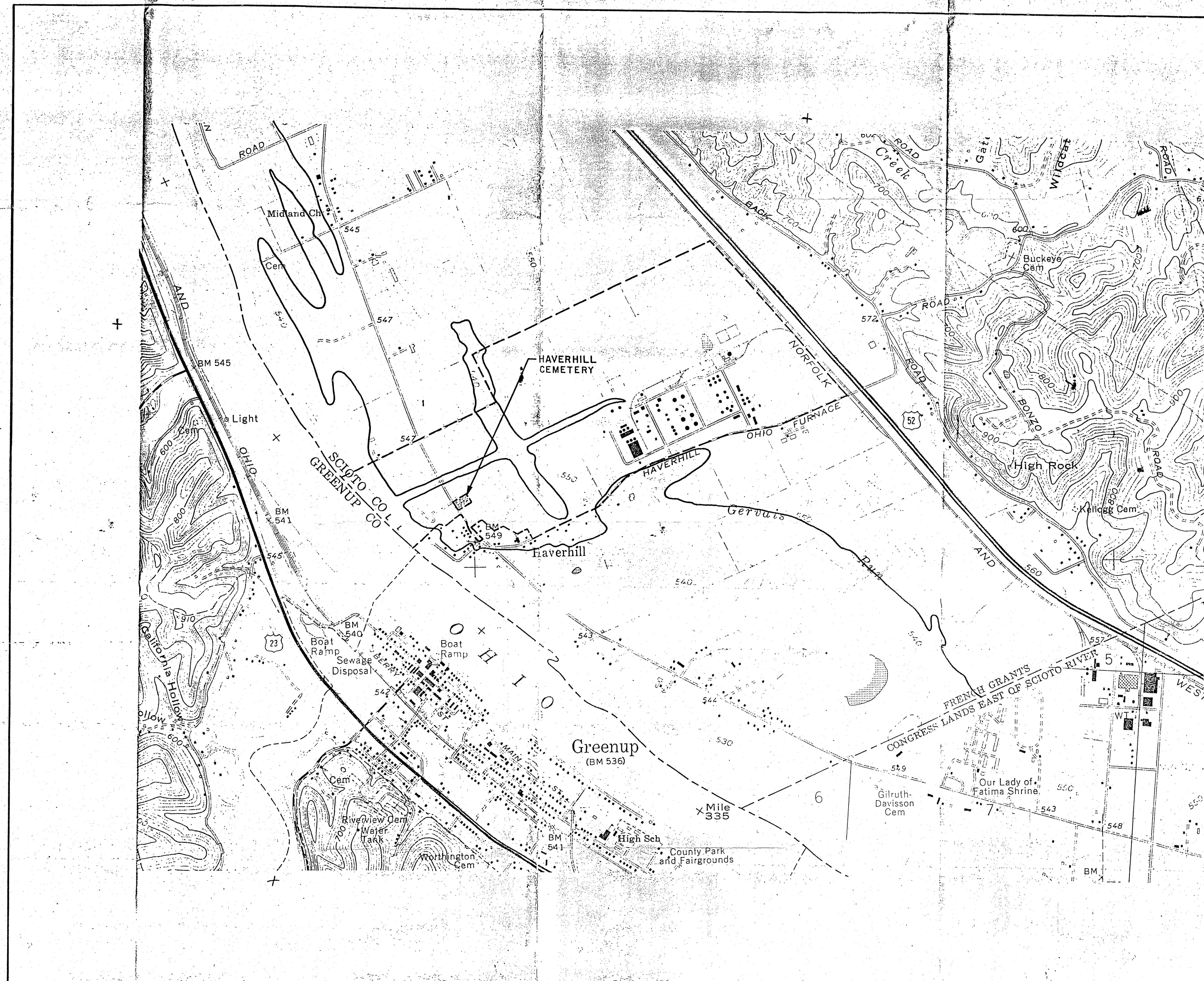






EXHIBIT B-8  
FLOODPLAIN MAP





LEGEND

— LIMITS OF 100-YEAR FLOOD PLAIN

- - - LEGAL BOUNDARY OF USS CHEMICALS, HAVERHILL PLANT

General Notes:

1. Mapping is enlargement of United States Department of the Interior Geological Survey (USGS), 7.5 Minute Series (topographic), Greenup Quadrangle, 1972, photorevised 1975.
2. Limits of 100-year floodplain obtained from Federal Emergency Management Agency (FEMA) Flood Boundary and Floodway Map and Flood Insurance Study for the City of Greenup, Kentucky dated July 5, 1982.
3. Due to scale of topographic map small areas outside the flood boundaries may lie below the flood elevations and be subject to backchannel ponding.
4. Wind rose was obtained from the U.S. National Oceanic and Atmospheric Administration. It was prepared for the FAA for the Huntington, West Virginia Airport.

REVISIONS	DESIGNED DRAWN CHECKED REVIEWED S.O.	NORTH 	ARISTECH CHEMICAL CORP, HAVERHILL PLANT	 Michael Baker, Jr., Inc.	EXHIBIT B-16 TOPOGRAPHIC MAP WITH 100-YEAR FLOODPLAIN BOUNDARIES	SHEET NO.  OF
			BAKER / TSA BEAVER, PENNSYLVANIA			



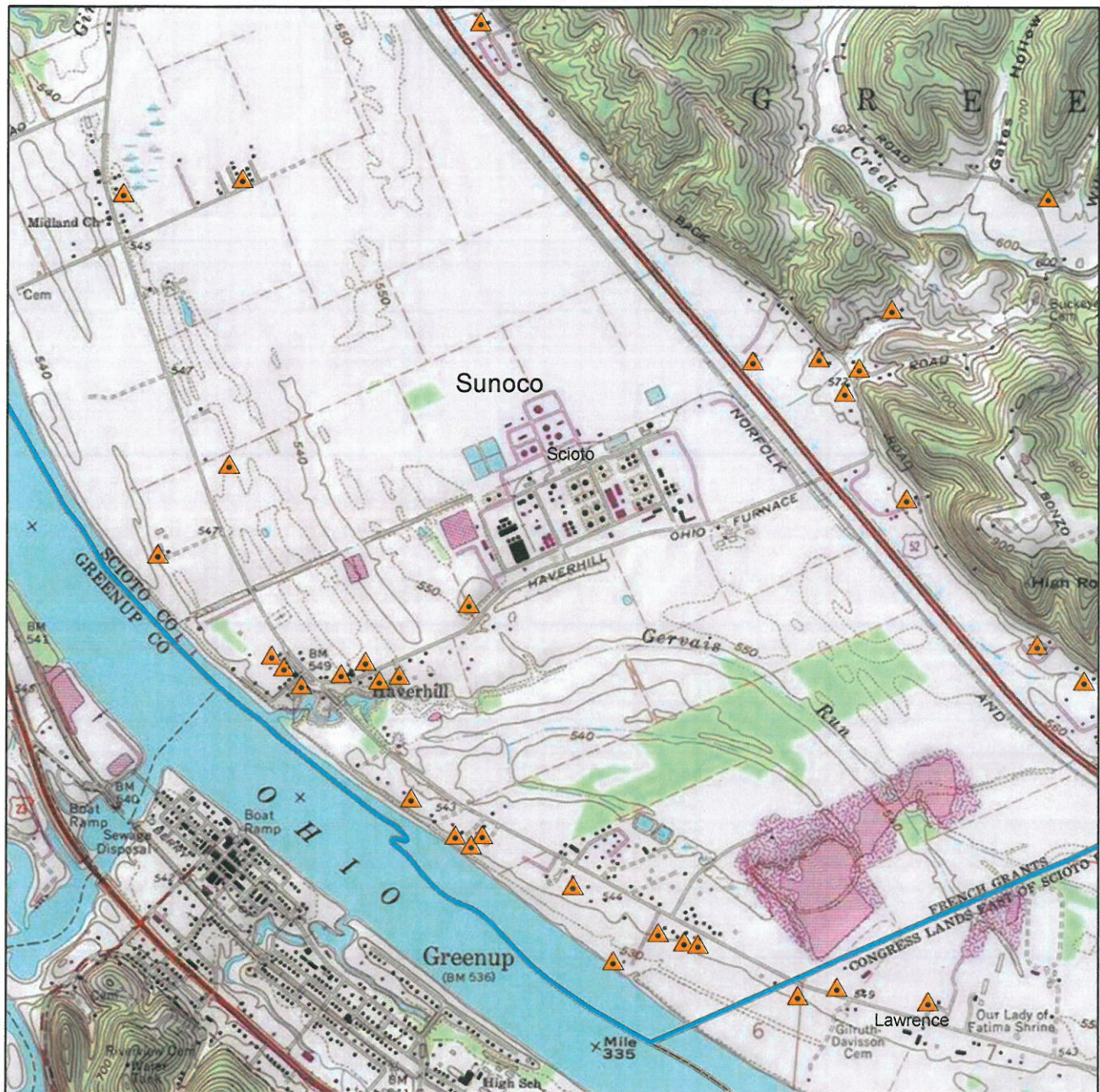
## EXHIBIT B-9

### WATER WELL LOCATIONS

Owner/operator received the following drawing from Ohio DNR in June 2011. Owner/operator's records indicate the well location shown south-west of and closest to the facility may actually represent up to 15 wells. Owner/operator has closure reports for at least 9 of these wells. Owner/operator is continuing to investigate the status of this well location with Ohio DNR and will submit an updated map when the matter is resolved.



# ODNR Water Well Locations



0 700 1,400 2,800 4,200 5,600  
Feet

## Legend

▲ ODNR Well Locations and Formations

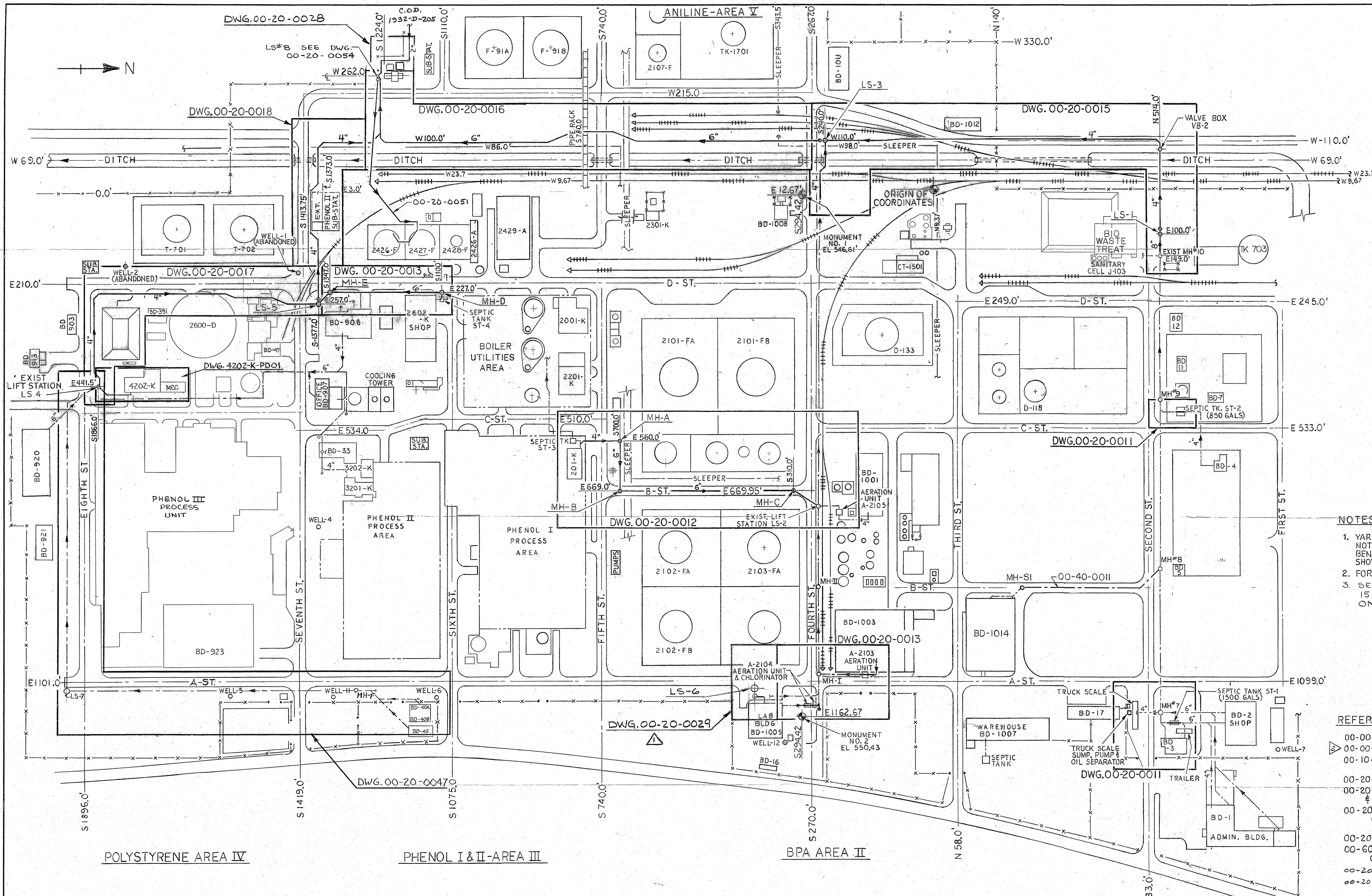
⊕ PWS Wells - Active

□ County Boundaries

NGS USA Topographic Maps







- NOTES:**
1. YARD GRADE ELEVATION VARIES, ELEVATIONS NOTED ON THESE DRAWINGS ARE BASED ON BENCH MARK ELEVATIONS AT MONUMENTS #1 & 2 SHOWN ON THIS DWG.
  2. FOR GENERAL NOTES REFER TO DWG 00-20-0011
  3. SEE DWG 4032-5-5036 & 1512-1-5B-5 FOR INFORMATION ON EXISTING MAN HOLES

- REFERENCE DWGS:**
- 00-00-0063 DEMOLITION KEY PLAN
  - 00-00-0072 BLOCK FLOW DIAGRAM
  - 00-10-0010 THRU 00-10-0014 MANHOLES & LIFT STATIONS
  - 00-20-0010 PIPING FLOW DIAGRAM
  - 00-20-0011 THRU 00-20-0019 PIPING GA'S & DETAILS
  - 00-20-0020 THRU 00-20-0025 PIPING - GRAVITY & PRESSURE SEWER PROFILES
  - 00-20-0027 PIPING BILL OF MATERIAL
  - 00-60-0015 THRU 00-60-0021 ELEC. ARRGM'T & DETAILS
  - 00-20-0028 PIPING POLYMER BLDG.
  - 00-20-0029 PIPING CHEM. LAB WASTE

COAL BOILER & ADMIN. BLDG - AREA I

REV	DATE	DESCRIPTION	APP'D
7	5-10-12	ADDED 2302-K EXTENSION & 4" AROUND	GJG
6	3-23-04	ADDED LS#8 & CONNECTION TO 2426/2427-F	GJG
5	10-12-99	ADDED PHENOL III & DWG 4202-K-PDO1	GJG
4	9-25-98	ADDED 98 SEWER EXTENSION, 00-20-0047	GJG
3	10-11-91	ADDED MAN HOLE NOS	GJG

2	6-8-87	00-00-0072 WAS 0064	
1		ADD POLYMER ADD. SYS. FALTER LAB BLDG. BD-1005 CHEM. WASTE DRAIN 2-2-6	
0	12/8/85	FOR CONSTRUCTION	
REV #	DATE	DESCRIPTION	APP'D
USS CHEMICALS HAVERHILL OHIO SITE SEWAGE SYSTEM CENTRALIZATION			

ORBITAL ENGINEERING, INC.		PIITTSBURGH	PROJECT E-2308	DENVER
SCALE 1"=100'-0"		DATE 15 APR 85		
DRWN R.KRIEG	CHK'D PMG 4-18-85	APP'D		
GRAVITY SEWERS & MANHOLES PRESSURE SEWERS & LIFT STATIONS PLOT PLAN				
DWG. NO.		00-00-0062		



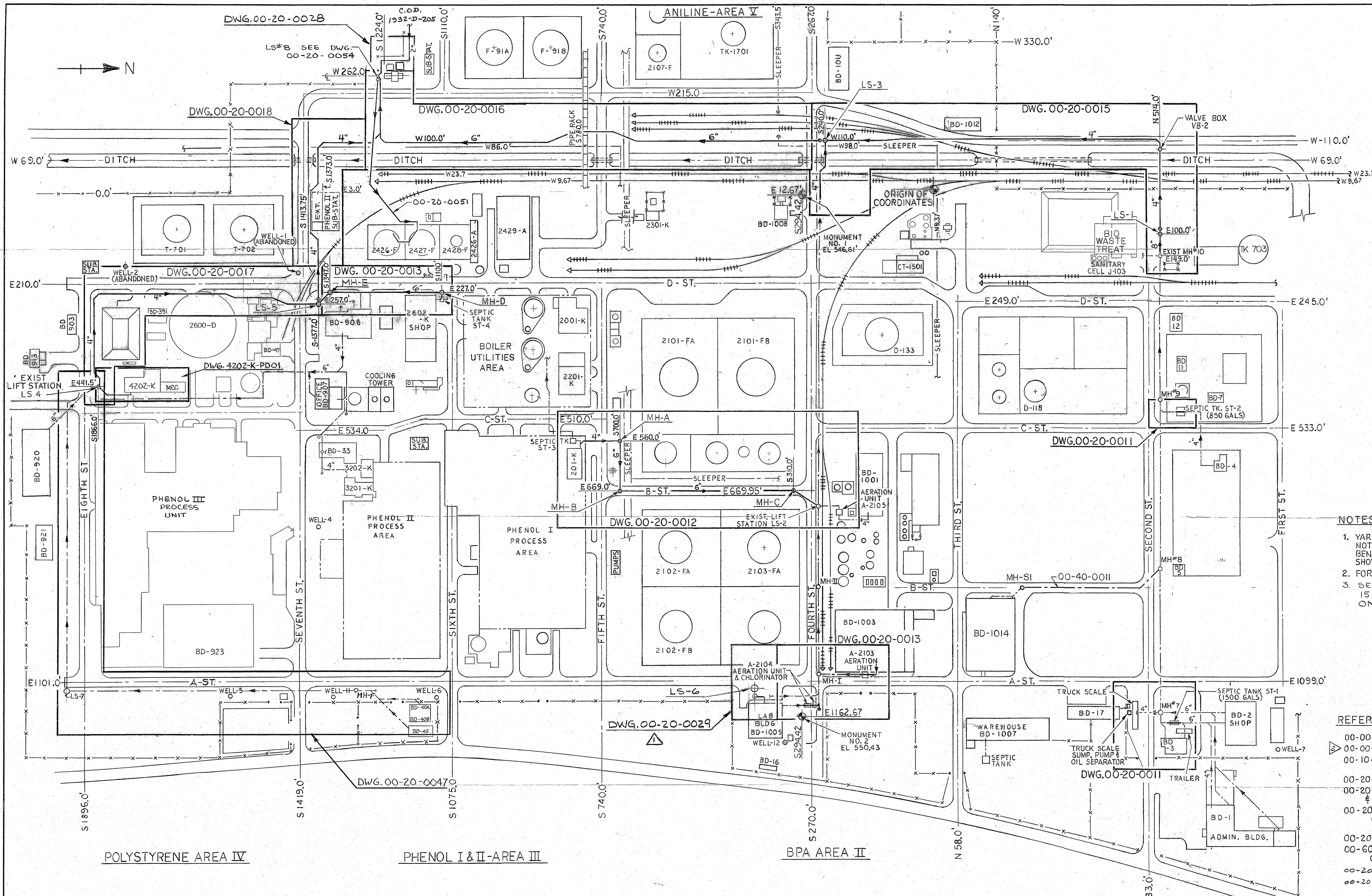




EXHIBIT B-10

SUBSURFACE CONDUIT LOCATIONS





- NOTES:**
1. YARD GRADE ELEVATION VARIES, ELEVATIONS NOTED ON THESE DRAWINGS ARE BASED ON BENCH MARK ELEVATIONS AT MONUMENTS #1 & 2 SHOWN ON THIS DWG.
  2. FOR GENERAL NOTES REFER TO DWG 00-20-0011
  3. SEE DWG 4032-5-5036 & 1512-1-5B-5 FOR INFORMATION ON EXISTING MAN HOLES

- REFERENCE DWGS:**
- 00-00-0063 DEMOLITION KEY PLAN
  - 00-00-0072 BLOCK FLOW DIAGRAM
  - 00-10-0010 THRU 00-10-0014 MANHOLES & LIFT STATIONS
  - 00-20-0010 PIPING FLOW DIAGRAM
  - 00-20-0011 THRU 00-20-0019 PIPING GA'S & DETAILS
  - 00-20-0020 THRU 00-20-0025 PIPING - GRAVITY & PRESSURE SEWER PROFILES
  - 00-20-0027 PIPING BILL OF MATERIAL
  - 00-60-0015 THRU 00-60-0021 ELEC. ARRGM'T & DETAILS
  - 00-20-0028 PIPING POLYMER BLDG.
  - 00-20-0029 PIPING CHEM. LAB WASTE

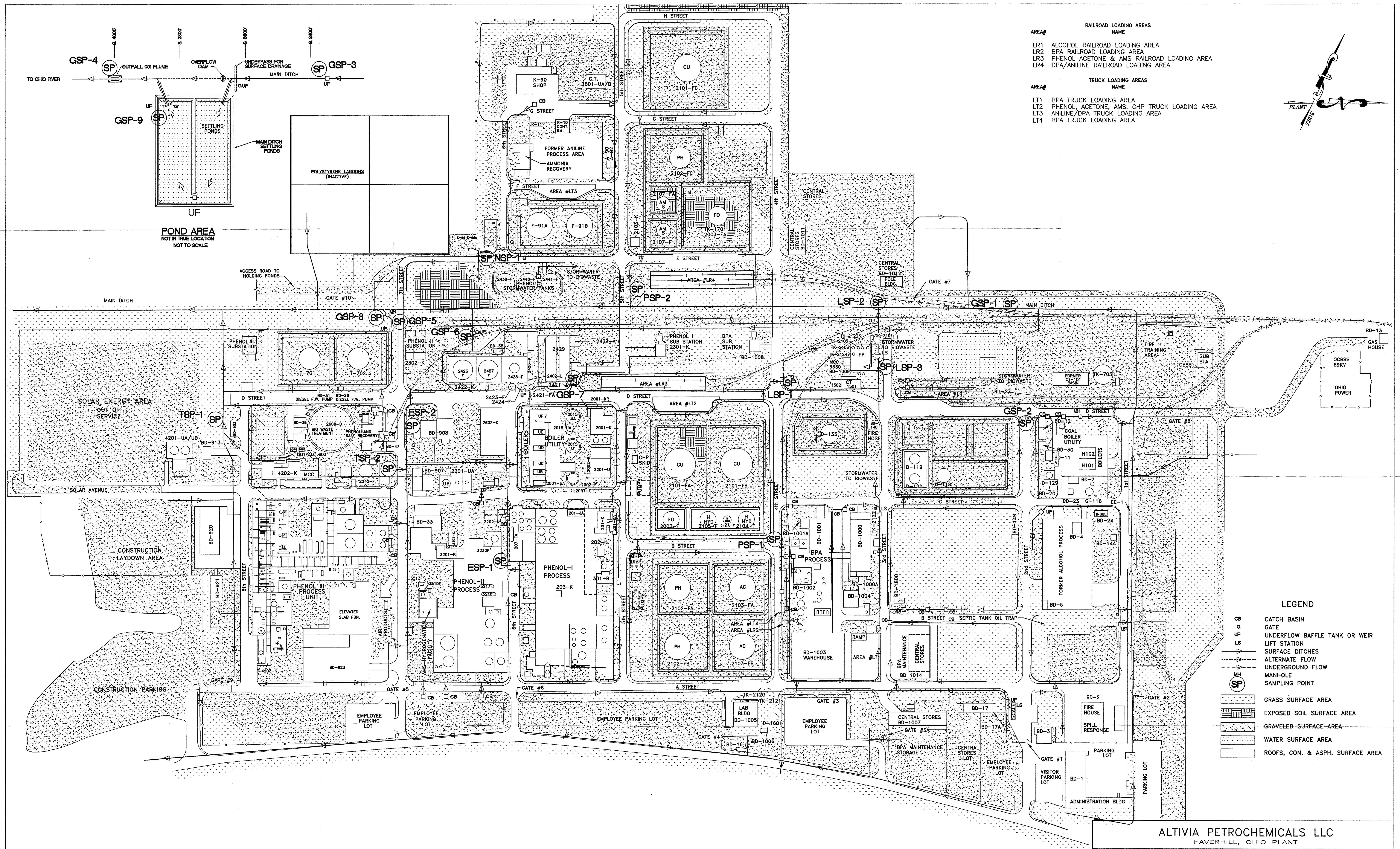
COAL BOILER & ADMIN. BLDG - AREA I

REV	DATE	DESCRIPTION	APP'D
7	5-10-12	ADDED 2302-K EXTENSION & 4" AROUND	GJG
6	3-23-04	ADDED LS#8 & CONNECTION TO 2426/2427-F	GJG
5	10-12-99	ADDED PHENOL III & DWG 4202-K-PD01	GJG
4	9-25-98	ADDED 98 SEWER EXTENSION, 00-20-0047	GJG
3	10-11-91	ADDED MAN HOLE NOS	GJG

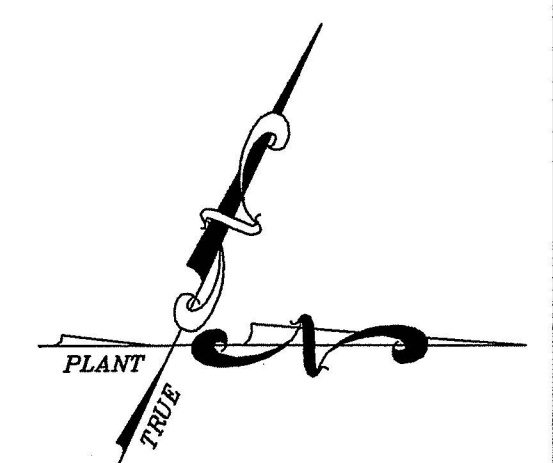
2	6-8-87	00-00-0072 WAS 0064	
1		ADD POLYMER ADD. SYS. ALTERED LAB BLDG. BD-1005 CHEM. WASTE DRAIN 2-2-6	
0	12/8/85	FOR CONSTRUCTION	
REV #	DATE	DESCRIPTION	APP'D
USS CHEMICALS HAVERHILL OHIO SITE SEWAGE SYSTEM CENTRALIZATION			

ORBITAL ENGINEERING, INC.		PIZZA
PITTSBURGH PROJECT E-2308		DENVER
SCALE 1"=100'-0"	DATE 15 APR 85	
DRAWN R.KRIEG	CHK'D PMG 4-18-85	APP'D
GRAVITY SEWERS & MANHOLES PRESSURE SEWERS & LIFT STATIONS PLOT PLAN		
DWG. NO.		00-00-0062





- RAILROAD LOADING AREAS**
- AREA# NAME
- LR1 ALCOHOL RAILROAD LOADING AREA
- LR2 BPA RAILROAD LOADING AREA
- LR3 PHENOL ACETONE & AMS RAILROAD LOADING AREA
- LR4 DPA/ANILINE RAILROAD LOADING AREA
- TRUCK LOADING AREAS**
- AREA# NAME
- LT1 BPA TRUCK LOADING AREA
- LT2 PHENOL, ACETONE, AMS, CHP TRUCK LOADING AREA
- LT3 ANILINE/DPA TRUCK LOADING AREA
- LT4 BPA TRUCK LOADING AREA



- LEGEND**
- CB CATCH BASIN
- G GATE
- UB UNDERFLOW BAFFLE TANK OR WEIR
- LS LIFT STATION
- SD SURFACE DITCHES
- AF ALTERNATE FLOW
- UF UNDERGROUND FLOW
- MH MANHOLE
- SP SAMPLING POINT
- GRASS SURFACE AREA
- EXPOSED SOIL SURFACE AREA
- GRAVELED SURFACE AREA
- WATER SURFACE AREA
- ROOFS, CON. & ASPH. SURFACE AREA

APPROXIMATE GRAPHIC SCALE

7	3/19/20	GJG	SHOW NEW RAILCAR SPUR AND REMOVED TRAILERS AND OTHER UPDATES
6	6/10/14	RIS	SHOW CATCH BASIN AT SALT RECOVERY AS PER MOC# P3.2-2014-17
5	2/07/12	GJG	UPDATED MAP WITH PLANT CHANGES AS PER PED
4	6/14/05	GJG	UPDATED AREA SURFACE COVERING AS PER PED
3	5/25/04	GJG	ADDED SAMPLE POINTS & UPDATED MAP
2	5/1/03	GJG	UPDATED MAP WITH PLANT CHANGES AS PER PED
1	10/20/98	GJG	UPDATED MAP WITH PLANT CHANGES AS PER PED
0	2/27/95		Formerly ERM, Inc. SITE MAP #1(AR6-BM2/29003.02)
REV	DATE	BY	DESCRIPTION

TITLE				NPDES			
				HAVERHILL, OHIO			
				STORMWATER DITCHES, STRUCTURAL CONTROLS,			
				TREATMENT UNITS AND SAMPLING POINTS			
				SITE MAP			
DN.BY	DIG	DATE 1/02/95	CH.BY	DATE	SCALE	As Shown	
				00-00-0143			
				7			
				DWG. NO.			
				REV.			

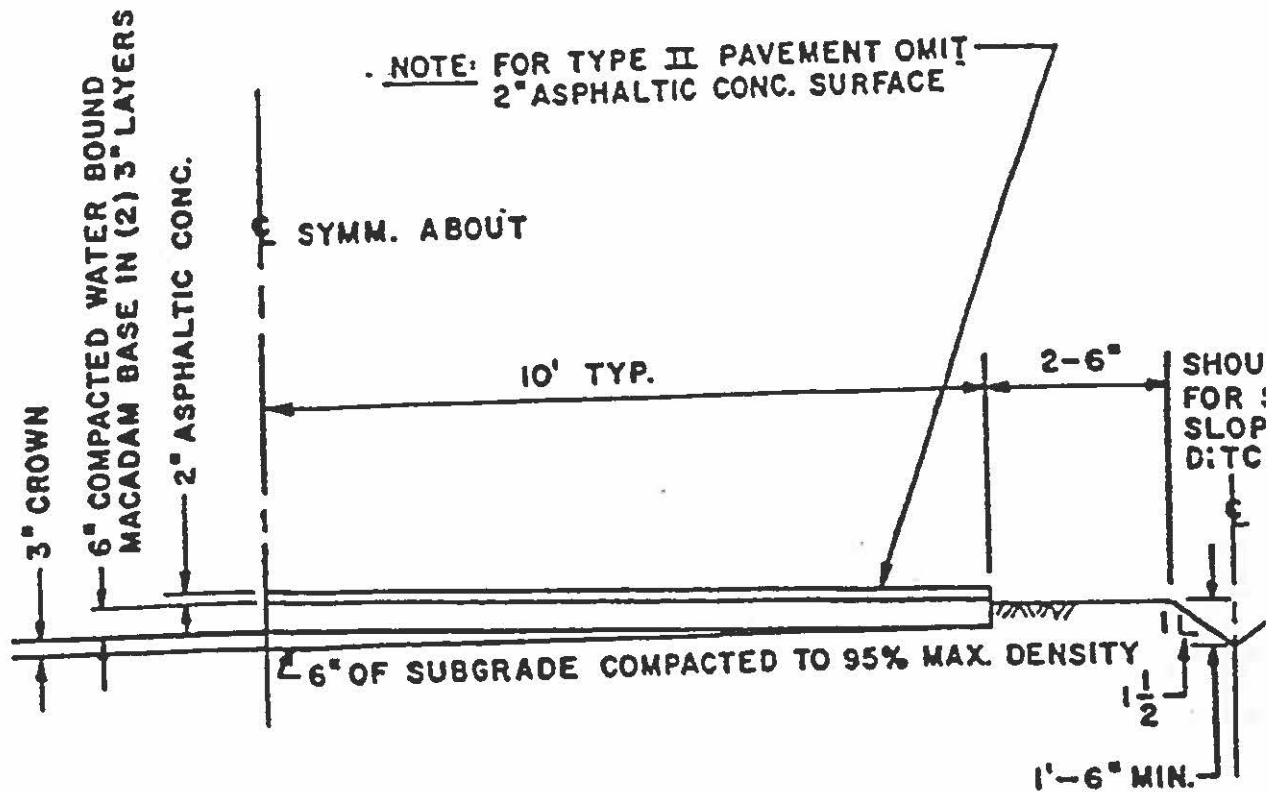


EXHIBIT B-11

PAVEMENT DESIGN TYPICAL CROSS-SECTION



Revision: 4B  
Date: 2-25-93



NOTE: ALL ROADS SHOWN TO BE TYPE I PAVEMENT  
UNLESS OTHERWISE NOTED

PAVEMENT DESIGN  
TYPICAL CROSS-SECTION  
N.T.S.

OHIO EPA. DHWM

OCT 29 2001

00080



MICHAEL BAKER, JR., INC.  
THE BAKER ENGINEERS

Box 280  
Beaver, Pa. 15009

Subject Facility Roads S.O. No. 15220-0  
Bearing Capacity and Sheet No. 1 of 1  
Required Strength Drawing No. -  
Computed by CYJ Checked by FBH Date 3-28-84

Revision: 4B  
Date: 2-25-93

### Pavement Bearing Capacity

Source ; Ohio Dept. of Transportation  
Division of Highways  
Pavement Design Manual

Fig B-5 shows the asphalt design;  
assume asphalt is flexible pavement; then for Type I & II roads  
the strength of the subgrade controls bearing capacity

#### Soil Characterization

From well installation logs;

0-6' - Medium stiff to stiff, sandy to clayey SILT

From Figure 1301-1; Classification by Visual Inspection

Group Index = 8

#### Subgrade Strength;

from Figure 1301-3, using  $GI = 8$

• Soil Support Value (SSV) = 4.8

• California Bearing Ratio (CBR) = 7

CBR = 7 is equivalent to 7000 psi

Subgrade strength = 7000 psi

#### Required Subgrade Strength

Assume trucks weigh 80 kips; Maximum legal limit

Critical truck is tri-axle, assume weight on two rear axles

EQ<sup>+</sup> distributed over 8 tires = 10,000 lbs/tire

Assume tire is 10" wide w/ 10" track

Maximum pressure =  $10,000 \text{ lbs}/100" = 100 \text{ psi}$

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00053

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OCT 29 2001

~~00081~~



MICHAEL BAKER, JR., INC.  
THE BAKER ENGINEERS

Box 280  
Beaver, Pa. 15009

Subject Facility Roads

Bearing Capacity and  
Required Strength

Computed by C.V.J.

Checked by B.H.

S.O. No. 15720-0

Sheet No. 1 of 1

Drawing No. -

Date 3-28-84

Revision: 4B  
Date: 2-25-93

### Pavement Bearing Capacity

Source ; Ohio Dept. of Transportation  
Division of Highways  
Pavement Design Manual

Fig B-5 shows the asphalt design;  
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Eq<sup>d</sup> distributed over 8 tires = 10,000 lbs/tire

Assume tire is 10" wide w/ 10" track

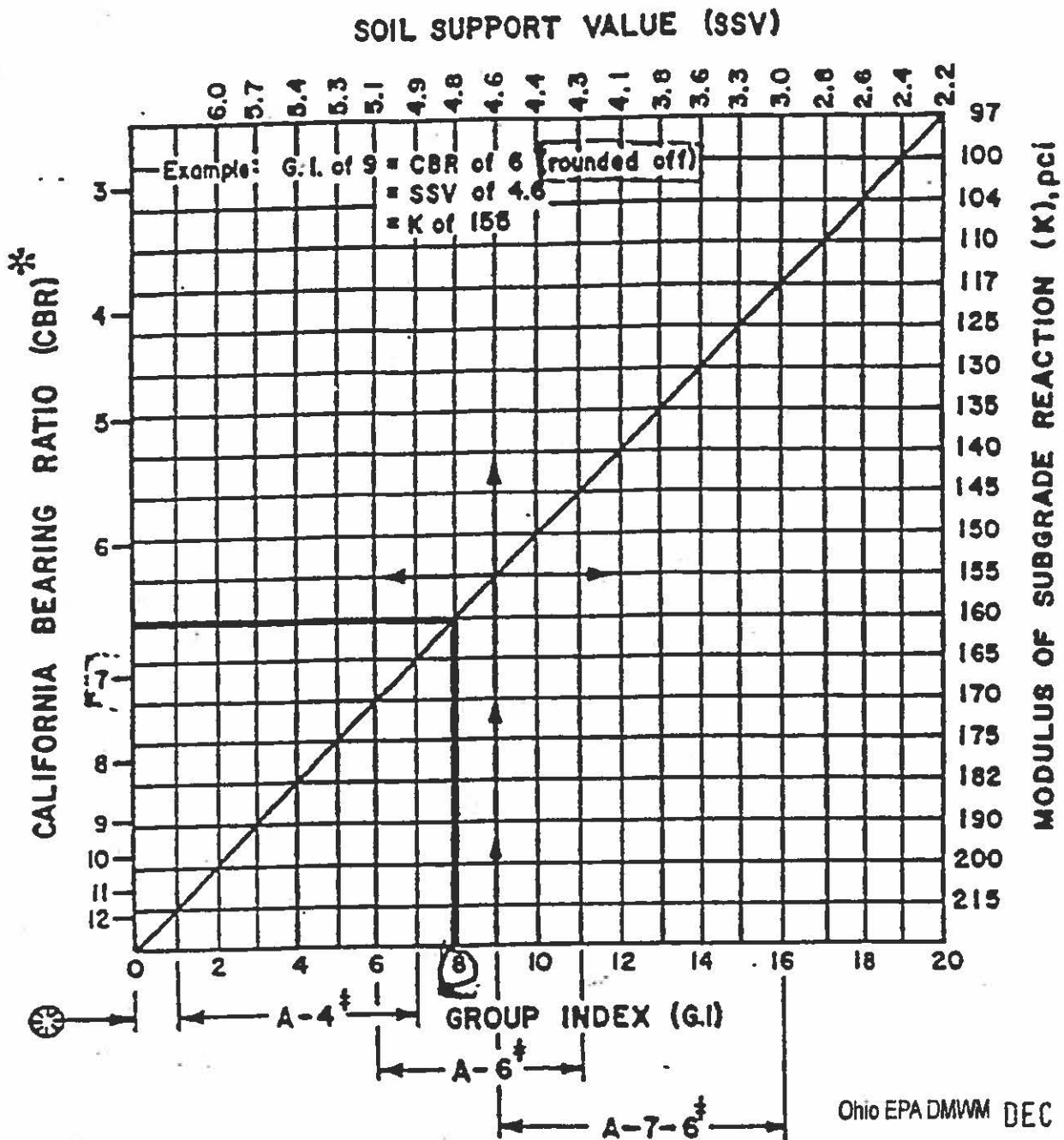
Maximum pressure =  $10,000 \text{ lbs}/100" = 100 \text{ psi}$

OHIO EPA. DHWM

OCT 29 2001

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⊗ AASHTO Classes A-1, A-2 & A-3 lie below 0. SSV=6-10; K=200+.

‡ Usual range of AASHTO Classes.

\* 5-1/2 Lb. hammer, 12" drop, 4 layers, 45 blows per layer, compacted at optimum moisture as determined by AASHTO T-99.

OHIO EPA. DMWM

**CORRELATION CHART FOR  
SUBGRADE STRENGTHS**

00054

OCT 29 2001

~~CCC82~~



OHIO DEPARTMENT OF TRANSPORTATION  
TESTING LABORATORY

LEGEND AND CLASSIFICATION OF SOILS FOR HIGHWAY INVESTIGATIONS

SYMBOL	LEGEND DESCRIPTION	GROUP DESIGNATION		PASS. #10 %	PASS. #40 %	PASS. #200 %	LIQUID LIMIT (LL)	PLASTICITY INDEX (PI)	GROUP INDEX MAX.	REMARKS
		H.R.B.	OHIO							
00000	GRAVEL AND/OR STONE FRAGMENTS	A-1-a	A-1-a	50 MAX	30 MAX	15 MAX		6 MAX	0	
00000	GRAVEL AND/OR STONE FRAGMENTS WITH SAND	A-1-b	A-1-b		50 MAX	25 MAX		6 MAX	0	
00000	FINE SAND	A-3	A-3		51 MIN	10 MAX	NON-PLASTIC		0	
00000	COARSE AND FINE SAND	A-3a	A-3a			30 MAX		6 MAX	0	MIN OF 50% COMBINED COARSE AND FINE SAND SIZES
00000	GRAVEL AND/OR STONE FRAGMENTS WITH SAND & SILT	A-2-a	A-2-a			30 MAX	20 MAX	10 MAX	0	
00000	GRAVEL AND/OR STONE FRAGMENTS WITH SAND, SILT, & CLAY	A-2-b	A-2-b			35 MAX	41 MIN	11 MIN	4	
00000	SANDY SILT	A-4	A-4			36 MIN	40 MAX	10 MAX	0	LESS THAN 50% SILT SIZES
00000	SILT	A-4b	A-4b			50 MIN	40 MAX	10 MAX	0	50% OR MORE SILT SIZES
00000	ELASTIC SILT & CLAY WITH OR WITHOUT ORGANIC MATERIAL	A-5	A-5			36 MIN	41 MIN	10 MAX	12	
00000	SILT AND CLAY	A-6a	A-6a			36 MIN	40 MAX	11 - 13	10	
00000	SILTY CLAY	A-6b	A-6b			36 MIN	40 MAX	16 MIN	16	
00000	ELASTIC CLAY	A-7-5	A-7-5			36 MIN	41 MIN	311-30	20	
00000	CLAY	A-7-6	A-7-6			36 MIN	41 MIN	LL-30	20	
00000	TOP SOIL									
00000	BERM MATERIAL									
00000	CINDERS WITH OR WITHOUT SOIL									
00000	ROCK-SOIL MIXTURE									
00000	PEAT OR ORGANIC MATERIAL									
00000	COAL OR COAL BLOSSOM									60-100% LARGER THAN 3 MS
00000	LIMESTONE									
00000	SANDSTONE									
00000	SHALE									

CLASSIFIED BY NEUSJAL INSPECTION

Ohio EPA DMWM DEC 16 2001  
00055

CLASSIFICATION PROCEDURE

WITH THE REQUIRED TEST DATA, PROCEED FROM TOP TO BOTTOM ON ABOVE CHART AND CORRECT GROUP WILL BE FOUND BY PROCESS OF ELIMINATION. THE FIRST GROUP FROM THE TOP INTO WHICH TEST DATA FITS IS THE CORRECT CLASSIFICATION.

ABBREVIATIONS & SYMBOLS

H.R.B. - HIGHWAY RESEARCH BOARD  
CLAS - LESS THAN OR EQUAL TO



## **SECTION C**

### **WASTE CHARACTERISTICS AND WASTE ANALYSIS PLAN**



## SECTION C. WASTE CHARACTERISTICS AND WASTE ANALYSIS PLAN

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C-1c Waste in Piles: OAC 3745-56-50 .....	C-6
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## **SECTION C. WASTE CHARACTERISTICS AND WASTE ANALYSIS PLAN**

### **LIST OF TABLES**

<b><u>Section</u></b>	<b><u>Page</u></b>
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C-2 HAZARDOUS WASTE FUEL ANALYTICAL RESULTS .....	C-5
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## **SECTION C. WASTE CHARACTERISTICS AND WASTE ANALYSIS PLAN**

### **LIST OF EXHIBITS**

Exhibit C-1	Tank Systems 2104-F and 2105-F Waste Flow Diagram
Exhibit C-2	Tank System 2003-F Waste Flow Diagram
Exhibit C-3	Analytical Data for Tank Systems



## **SECTION C. WASTE CHARACTERISTICS AND WASTE ANALYSIS PLAN**

### **C-1 CHEMICAL AND PHYSICAL ANALYSIS: OAC 745-50-44(a)(3), 3745-54-13**

Section C defines waste characteristics and the waste analysis plan (WAP) for the Owner/operator and is designed to meet the requirements of OAC 3745-54-13.

The Haverhill Plant is a chemical processing plant with phenol production units.

The Phenol units produce phenol, acetone, and alpha-methylstyrene (AMS). Details of the production operations are provided in Section B.

Various hazardous wastes are generated on site. These wastes may be handled in several ways as outlined below:

- Shipped off site for treatment, storage, and disposal in DOT-approved containers (e.g., 55-gallon drums, roll-off boxes, bulk tank trucks, railcars, barges, etc.) and analyzed in accordance with pertinent requirements.
- Handled on site by accumulation, storage, treatment, and disposal including:
  - Less-than-90-day container accumulation, which is exempt from RCRA permitting by OAC 3745-52-34; all containerized wastes are ultimately shipped off site for treatment, storage, and disposal.
  - Less-than-90-day accumulation in tanks, exempt from RCRA permitting by OAC 3745-52-34.
  - Tank treatment, exempt from RCRA permitting by OAC 3745-54-01 prior to wastewater treatment.
  - Tank storage, subject to RCRA permitting by OAC 3745-54, prior to energy recovery in the on-site industrial boilers subject to OAC 3745-58.

The waste managed on site within RCRA-permitted treatment, storage, and disposal units includes:

- Wastes pumped to the on-site industrial boilers for heat recovery include:
  - Heavy Hydrocarbon Process Streams
    - Phenol distillation column bottoms (K022)
  - Light Hydrocarbon Process Streams
    - AMS distillation column bottoms (D001)



Exhibits C-1 and C-2 present the movement of the waste streams from generation to storage prior to being burned in the industrial boilers.

Wastes that are shipped off site for treatment and disposal are stored for less than 90 days prior to shipment. Contaminated debris includes construction materials (e.g., insulation, wood, etc.) that may come in contact with hazardous wastes. Contaminated soils from a spill or release are removed and placed in containers for shipment off site. Spent filters from process operations are changed out and placed in drums for disposal. Tank sludges are collected during tank maintenance and placed in drums (or other acceptable containers.) Off-specification products may be shipped off site for treatment and disposal, if they are not recycled back into their respective processes. Both liquid and solid hazardous wastes are generated by the laboratory. The liquid wastes include F002, F003, D001, D002, , U188, U002, U055, U220, and K022 listed hazardous wastes codes, which are sent off site for incineration. Materials contaminated by hazardous wastes are segregated by placing them in properly labeled DOT-approved containers prior to shipment for disposal off site.

Additionally, wastewaters from the various production operations are treated prior to discharge under the plant's NPDES permit. These include:

- Phenol process wastewater & stormwater (nonhazardous)

#### **C-1a Containerized Waste: OAC 3745-50-44(c)(1)**

Hazardous wastes are stored on site in containers for less than 90 days and are not regulated under this permit. The containers are properly labeled and DOT-approved. The wastes are analyzed in accordance with OAC 3745-51.

#### **C-1b Waste in Tank Systems: OAC 3745-55-92**

The Owner/operator stores hazardous waste generated from on-site processes that have recoverable heat value in permitted Tanks 2104-F, 2105-F, and 2003-F, and in the less-than-90-day tank 2108-F, shown on the site plan in Exhibit B-2. All wastes stored in these tank systems are generated on site and fed to the plant's utility boilers for energy recovery. Further details on those operations are provided in Section D.

Two basic types of wastes are managed in the tank systems. Tank 2003-F manages light hydrocarbons that exhibit the characteristics of ignitability (D001). Tanks 2104-F, 2105-F, and 2108-F store heavy hydrocarbon waste fuels that are process-listed hazardous waste (K022).



Specific waste streams that enter tank systems 2104-F, 2105-F, 2108-F, and 2003-F are described in Table C-1. Exhibit C-3 presents representative analytical data for the waste stored in the tank systems. Hazardous characteristics of these waste streams also are presented in this table. Characteristics for the combined waste stream stored in each tank system are presented in Table C-2. Table C-1 presents major constituents. Table C-2 presents analytical data showing all constituents detected.

The analyses for Tank System 2003-F (Light Ends) and 2104-F/2105-F (Heavy Ends) are different because the heavy ends K022 distillation tars are sent off-site, on occasion, disposal (for energy recovery) while the light ends are monitored in-house to monitor process conditions.



**TABLE C-1. WASTESTREAM IDENTIFICATION, DESCRIPTION, AND CHARACTERISTICS**

Waste	Code	Tanks	Description	Characteristics	
HHC Waste Streams					
Phenol Distillation Column Bottoms	K022	2104-F/2015-F/ 2108-F	Black, viscous, tar-like heavy hydrocarbons waste stream that is a listed hazardous waste.	Specific gravity Flashpoint (°F) Heating Value (BTU/lb) % Weight Ash Major Constituents	1.07 >240 15,400 to 16,000 <0.1 - 5 Acetophenone
LHC Waste Streams					
AMS Distillation Column Bottoms	D001	2003-F	Dark organic light hydrocarbon liquid waste stream that exhibits the RCRA hazardous characteristic of ignitability.	Heating Value (BTU/lb) % Weight Ash Major Constituents	17,800 to 18,300 <0.1 AMS Butylbenzene Acetophenone



**TABLE C-2. HAZARDOUS WASTE FUEL ANALYTICAL RESULTS<sup>a</sup>**

Parameters	Constituent	Units	LHC (Analysis 2-3-2013 SETTEK Rpt. 1301980)	HHC (Analysis 2-10-2014 SETTEK Rpt. 1400261)
Physical/Chemical	Heat Content	Btu/lb	17,101	15,858
	Density	g/ml	0.906	1.12
	Ash	%w/w	< 0.10	0.06
Metals and Chlorine	Antimony	ppm	< 0.5	< 0.5
	Arsenic	ppm	< 0.5	< 0.5
	Barium	ppm	< 0.5	< 0.5
	Beryllium	ppm	< 0.05	< 0.05
	Cadmium	ppm	< 0.05	< 0.05
	Chromium	ppm	< 0.02	0.02
	Lead	ppm	< 0.5	< 0.5
	Mercury	ppm	< 0.02	< 0.02
	Total Chlorine/Chloride	ppm	266	231
Volatile Organics	sec-Butylbenzene	ppm	8,880	NA
	tert-Butylbenzene	ppm	6,542	NA
	Isopropyl benzene	ppm	1,983	NA
	p-Isopropyl toluene	ppm	196	NA
	n-Propyl benzene	ppm	91	NA
Semi-volatile Organics	Acetophenone	ppm	NA	156,000
	2,4-Dimethylphenol	ppm	260	160
	α-Methyl Styrene	ppm	66,391	NA
	Phenol	ppm	NA	31,000
	Phenolic Polymers	ppm	NA	NA
	Cumyl Phenol	ppm	NA	48,200

<sup>a</sup>Data presented are the average of run-specific data collected during the 2013 and 2014 analysis dates specified in the table. The organic compounds listed were detected in at least one test run unless otherwise noted.

NA = Analyzed, Not present at detectable levels.



**C-1c Waste in Piles: OAC 3745-56-50**

There are no waste piles at the Haverhill Plant.

**C-1d Landfilled Wastes: OAC 3745-57-14**

There are no landfills at the Haverhill Plant.

**C-1e Waste Incinerated and Wastes Used in Performance Tests: OAC 3745-50-62**

There are no incinerators at the Haverhill Plant.

**C-1f Waste to be Land Treated: OAC 3745-50-44(c)(5), 3745-56-71, 3745-51-Appendix VIII**

There are no RCRA land treatment units at the Haverhill Plant.

**C-1g Waste in Miscellaneous Treatment Units: OAC 3745-50-44(c)(9)**

There are no miscellaneous treatment units at the Haverhill Plant.

**C-2 WASTE ANALYSIS PLAN: OAC 3745-50-44, 3745-50-43, 3745-59-07**

Informational Statement : The boilers are regulated by Title 40 Code of Federal Regulations (CFR) Part 63 Subpart EEE, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Hazardous Waste Combustors (HWCs), Boiler Industrial Furnace requirements no longer apply to the onsite boiler(s). The Feedstream Analysis Plan required by the HWC regulates the Parameters to be analyzed in each feedstream. The HWC Combustor MACT requires that the Plan be maintained and available for onsite inspection.

These procedures are provided in Tables C-3 through C-5. In addition, this plan specifies that annual analysis of the waste fuel streams will be performed (analysis not required when the materials listed in Table C-3 are products). This frequency was determined to be sufficient since the waste streams generated at the site are consistent in composition.

**C-2a Parameters and Rationale: OAC 3745-54-13**

For each hazardous waste, Table C-3 gives the parameters to be tested as well as the rationale for testing.

**C-2b Test Methods: OAC 3745-54-13**

Table C-4 presents the analytical methods to be used to test for each of the parameters specified in Table C-3. All analyses are consistent with SW-846 or equivalent methods.



**TABLE C-3. WASTE ANALYSES PARAMETERS AND RATIONALES**

<b>Waste</b>	<b>Rationale</b>
Phenol Distillation Column Bottoms	Measure of suitability for use as a boiler fuel
	Measure of suitability for use as a boiler fuel
	Measure of ignitability characteristic
	Use in checking structural compatibility of storage tank and identifying changes in the waste stream
	Used to ensure waste to waste compatibility
AMS Distillation Column Bottoms	Determine if material is characteristically hazardous.
	Measure of suitability for use as a boiler fuel
	Measure of suitability for use as a recycled boiler fuel
	Measure of ignitability characteristic
	Use in checking structural compatibility of storage tank and identifying changes in the waste stream
	Used to ensure waste to waste compatibility
Off-Specification for Off-Site Shipment	Determine whether land disposal restricted



**TABLE C-4. ANALYTICAL METHODS<sup>1</sup>**

Parameter	Samples Required	Sample Preservation,	Preparation	Analysis SW-846 <sup>2</sup>	Other Reference <sup>3</sup>
TCLP – Volatiles	1 – 250mL glass, Tightly capped, minimal headspace, PTFE cap preferred	No preservative. Refrigerate, -6°C; 14 Day Hold	SW-846 1311	Method 8260	
TCLP – Metals	1 – 500 mL glass	HNO <sub>3</sub> to pH < 2; 28 Day Hold	SW-846 1311	Method 3010A/6010C Method 7470A (HG only)	--
Flash Point	1 – 500 mL glass <sup>6</sup>	—	--	Method 1010	--
Compatibility	—	—	--	--	--
Chloride	1 – 250mL glass, Tightly capped, minimal headspace, PTFE cap preferred	No preservative. Refrigerate, -6°C; 14 Day Hold	SW-846 9075 or ASTM D4208	Method 9075 (XRF) or 9056 (IC)	ASTM D4208 (SIE)
<b>METALS</b>					
AS (Arsenic)	1 – 500 mL glass; one container sufficient for multiple metals	HNO <sub>3</sub> to pH < 2; 28 Day Hold	SW-846 3051 or 3052	Method 6010C	--
CD (Cadmium)	1 – 500 mL glass; one container sufficient for multiple metals	HNO <sub>3</sub> to pH < 2; 28 Day Hold	SW-846 3051 or 3052	Method 6010C	--
CR (Chromium)	1 – 500 mL glass; one container sufficient for multiple metals	HNO <sub>3</sub> to pH < 2; 28 Day Hold	SW-846 3051 or 3052	Method 6010C	--
PB (Lead)	1 – 500 mL glass; one container sufficient for multiple metals	HNO <sub>3</sub> to pH < 2; 28 Day Hold	SW-846 3051 or 3052	Method 6010C	--

<sup>1</sup> One or more of the methods are used in a modified, amended, revised, or updated form in accordance with the following quotations from the Federal Register, February 8, 1990, pages 4440-4445, EPA Proposed Rules - Preamble to SW-846 3<sup>rd</sup> edition:  
This notice, or the subsequent final rule, should not be constructed to require the use of SW-846, Third Edition methods except where specifically prescribed by regulation.  
Except for those situations where the RCRA regulations specify use of a particular method, it is appropriate for the chemist to use judgment, tempered by experience, in selecting an appropriate set of methods from SW-846 or the scientific literature for preparing and analyzing a given sample.

Implicit in the preceding argument is the fact that SW-846 was designed largely for use in showing that a waste does not contain certain hazardous constituents or characteristics. In that regard, many SW-846 sample preparation methods are designed around trace analysis rather than the percent level determinations often required for concentrated wastes. These methods, however, might be suitable for percent level determination analysis when appropriately modified by the analyst.

<sup>2</sup> SW-846 "Test Methods for Evaluating Solid Waste," July 1997.

<sup>3</sup> Methods are from American Society for Testing and Materials.



**C-2c Sampling Methods: OAC 3745-54-13, OAC 3745-51-20**

To ensure the integrity and representativeness of each sample, SW-846 sampling and decontamination procedures are employed. The phenol bottoms sample is hot when taken, and therefore is in the liquid phase. Splash shields, gloves and Pyrex glass special equipment are used to obtain the phenol bottoms, light hydrocarbon samples, and soured compressor oil. These samples are taken directly from the drainpipe on the pump associated with the tank (column).

The sampling methods and sampling locations for each hazardous waste stream are given in Table C-5.

**TABLE C-5. SAMPLING METHODS AND LOCATIONS**

<b>Waste</b>	<b>Sample Container</b>	<b>Sample Type</b>	<b>Rationale</b>
Phenol Distillation Column Bottoms	Glass	Grab	Sample from wash system vaporizer discharge pump. This is a representative sample of the phenol bottoms because the waste has been circulated through the recycle lines and thoroughly mixed.
AMS Distillation Column Bottoms	Glass	Grab	Sample from column bottoms discharge pump.



**C-2d Frequency of Analysis: OAC 3745-54-13**

Hazardous wastes stored at the Haverhill Plant will be re-analyzed on an annual basis, or after any process change that could significantly alter waste properties. Tables C-3 through C-5 present the wastes to be tested, the sampling method, the parameters chosen for analysis, the rationale for their selection, and the analytical methods to be used.

**C-2e Additional Requirements for Waste Generated Off Site: OAC 3745-54-13**

Not applicable; the Haverhill Plant will not accept any waste generated off site.

**C-2f Additional Requirements for Ignitable, Reactive or Incompatible Wastes:  
OAC 3745-54-13, 3745-54-13**

There are no reactive or incompatible wastes stored in units requesting permits. The only ignitable waste stored is in Tank 2003-F. There are no waste streams that could possibly enter this tank that would cause any of the ignition, reactivity, or incompatibility hazards as explained in OAC 3745-54-17. This is based on engineering literature and practical operating experience. The prevention procedures for nonchemical ignition are detailed in Section F-5.

**C-3 WASTE ANALYSIS REQUIREMENTS PERTAINING TO LAND DISPOSAL  
RESTRICTIONS: OAC 3745-50-44, 3745-54-13, 3745-59-07, 3745-59-08, 3745-59-30, 3745-59-31, 3745-59-32, 3745-59-33, 3745-59-34, 3745-59-41, 3745-59-42, 3745-59-43, 3745-59-50, 3745-59-07**

**C-3a Waste Characteristics: OAC 3745-54-13, 3745-59-07, 3745-59 30 through 35, 3745-59 41 through 43**

As characterized by the analytical results in Table C-2 and by process knowledge, hazardous wastes stored in the boiler fuel tank systems at the Haverhill facility are restricted from land disposal, as specified in OAC 3745-59. Any waste, including any tank sludges or residues, that does not meet any of the criteria for use as a boiler fuel as previously defined in Section C-1, and that contains substances restricted from land disposal, will be shipped off site with all the proper land disposal restriction notifications (Section C-3b).

Boiler feed wastes contain first third waste (e.g., K022) for which a standard has been set. Refer to Sections C-3(a), (b), and (c) for characterization handling methods and notifications/certifications and storage requirements.



### **C-3b Notification and Certification Requirements: OAC 3745-59-07**

Proper notification and certification requirements will be used for a land disposal restricted waste generated on site and shipped off site according to OAC 3745-59-07. The notification will include the following:

- EPA hazardous waste code
- Manifest number
- Waste analysis data; if previously submitted, however, the data will be incorporated by reference
- Applicable treatment standards.

The facility maintains, for at least five years, documentation associated with notification and certification of land disposal restricted waste. These records are maintained at the facility.

### **C-3c Additional Requirements Pertaining to Storage of Restricted Wastes: OAC 3745-59-50**

The Haverhill Plant stores hazardous wastes that are restricted from land disposal in accordance with OAC 3745-59-50. These wastes are stored on site in tanks or containers for the sole purpose of accumulating sufficient quantities of hazardous waste necessary to facilitate proper recovery, treatment, or disposal. Operational records are maintained to identify the contents of the tank, the quantity of each hazardous waste stream entering the tank, and the date of accumulation. These records are maintained at the facility.

Information on the tank contents, quantity of waste received, and date of accumulation for each of the tanks is kept in operating records maintained at the facility.

### **C-4 WASTE ANALYSIS FOR BIF RULE COMPLIANCE**

In the past, the plant operated four hazardous waste burning boilers in compliance with 40 CFR 266, Subpart H: The BIF Rule. Waste analysis to demonstrate compliance with the BIF Rule was described in Section C-4. In 2009, Sunoco notified EPA that the remaining waste boilers (2001 UC & UE) comply with 40 CFR 63, Subpart EEE (The HWC MACT Standards) including waste analysis requirements. Therefore, waste analysis associated with the boiler waste fuel has been removed from this plan.

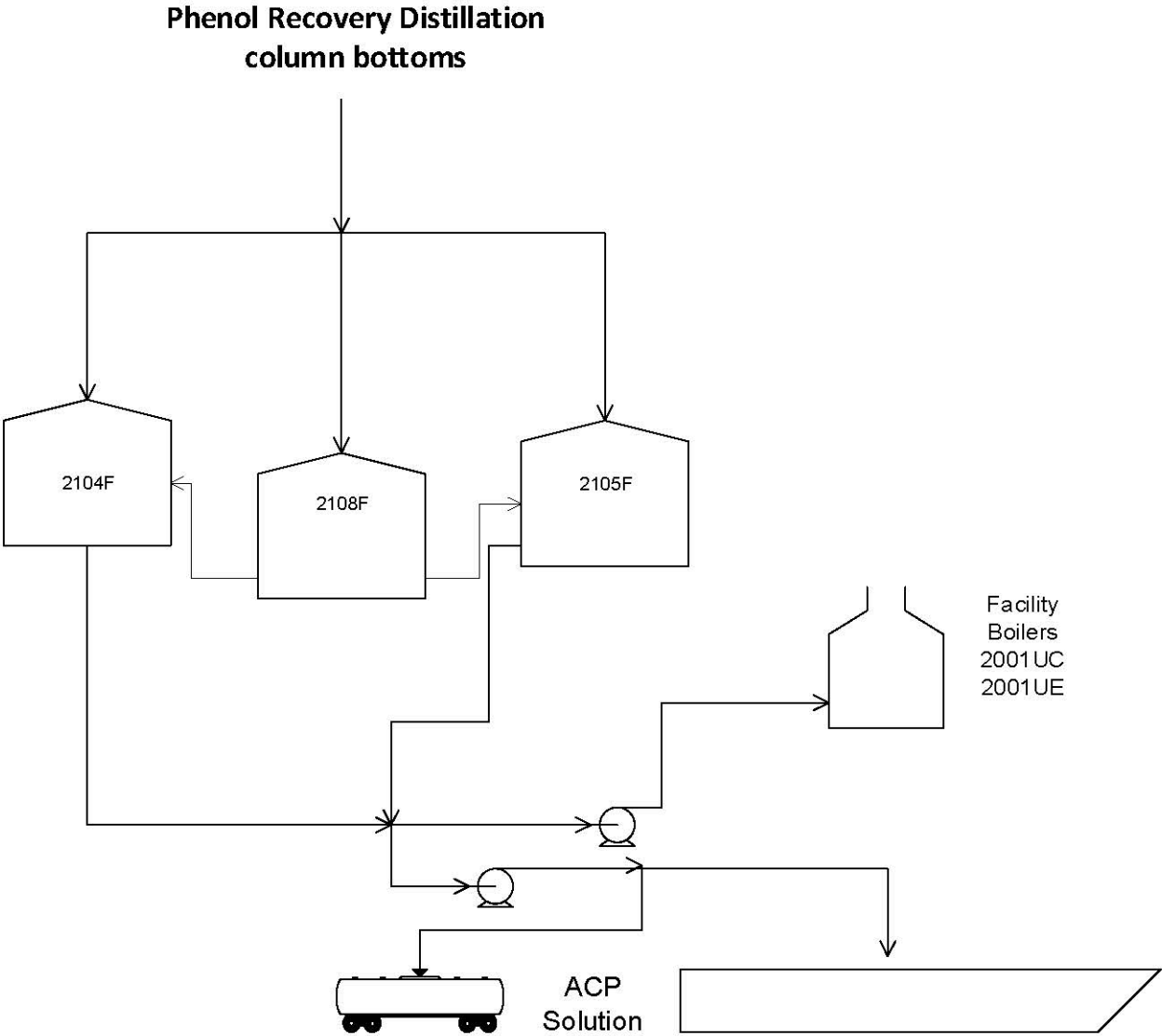


EXHIBIT C-1

TANK SYSTEMS 2104-F AND 2105-F WASTE FLOW DIAGRAM



Heavy Hydrocarbon Flow  
Diagram



TANK SYSTEMS 2104-F AND 2105-F FLOW DIAGRAM

Exhibit C-1  
Heavy Hydrocarbon Flow Diagram



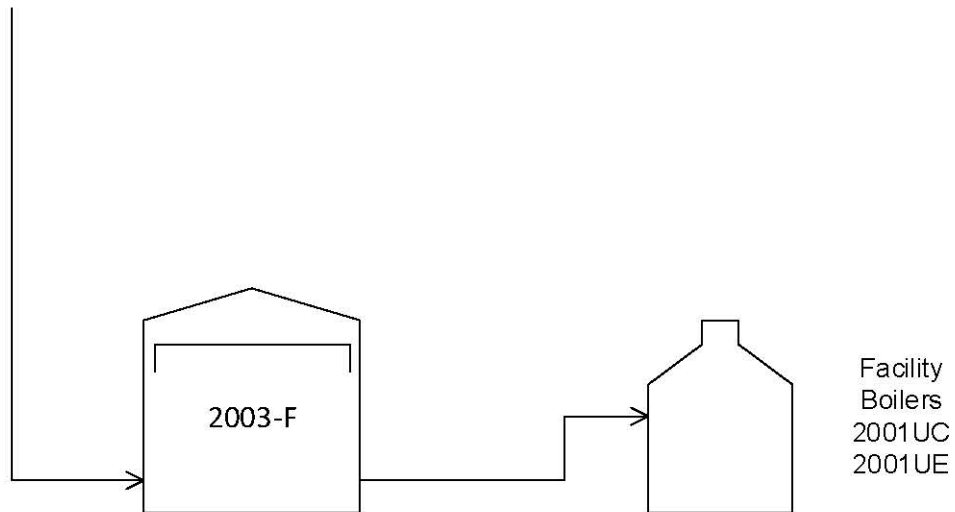
EXHIBIT C-2

TANK SYSTEM 2003-F WASTE FLOW DIAGRAM



## Light Hydrocarbon Flow Diagram

Phenol Process Spent  
Emission Scrubber Fluid  
(D001)



### TANK SYSTEM 2003-F FLOW DIAGRAM

Exhibit C-2  
Light Hydrocarbon Flow Diagram



## EXHIBIT C-3

### ANALYTICAL DATA FOR TANK SYSTEMS





*Summit Environmental Technologies, Inc.*  
3310 Win St.  
Cuyahoga Falls, Ohio 44223  
TEL: (330) 253-8211 FAX: (330) 253-4489  
Website: <http://www.settek.com>

January 07, 2022

Jason Patrick  
Altivia Petrochemical  
1019 Haverhill Ohio Furnace Rd  
Haverhill, OH 45636  
TEL: 740-533-5295  
FAX:  
RE:

Dear Jason Patrick:

Order No.: 21121541

Summit Environmental Technologies, Inc. received 2 sample(s) on 12/22/2021 for the analyses presented in the following report.

There were no problems with the analytical events associated with this report unless noted in the Case Narrative.

Quality control data is within laboratory defined or method specified acceptance limits except where noted.

If you have any questions regarding these tests results, please feel free to call the laboratory.

Sincerely,

*Sara Kidd*

Sara E. Kidd  
Project Manager  
3310 Win St.  
Cuyahoga Falls, Ohio 44223

Arkansas 88-0735, California 2943, Colorado, Connecticut PH-0108, Florida NELAC E87688, Idaho OH00923, Illinois 200061, Indiana C-OH13, Kansas E-10347, Kentucky (Underground Storage Tank) 3, Kentucky 90146, Maryland 339, Michigan 9988, Minnesota 1780279, Nevada OH009232020-1, New Hampshire 2996, New Jersey OH006, New York 11777, North Carolina 39705 and 631, North Dakota R-201, Ohio DW, Ohio VAP CL0052, Oklahoma 2019-155, Oregon OHE00001, Pennsylvania 011, Rhode Island LA000317, South Carolina 92016001, Texas T104704466-19-16, Utah OH009232020-12, Virginia VELAP 10381, West Virginia 9957C





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TEL: (330) 253-8211 FAX: (330) 253-4489  
Website: <http://www.settek.com>

## Case Narrative

WO#: 21121541  
Date: 1/7/2022

---

**CLIENT:** Altivia Petrochemical

**Project:**

---

### WorkOrder Narrative:

21121541: This report in its entirety consists of the following documents: Cover Letter, Case Narrative, Analytical Results, QC Summary Report, Applicable Accreditation Information, Chain-of-Custody, Cooler Receipt Form, and other applicable forms as necessary. All documents contain the Summit Environmental Technologies, Inc., Work Order Number assigned to this report.

Summit Environmental Technologies, Inc., holds the accreditations/certifications listed at the bottom of the cover letter that may or may not pertain to this report. Please refer to the "Accreditation Program Analytes Report" for accredited analytes list.

The information contained in this analytical report is the sole property of Summit Environmental Technologies, Inc. and that of the customer. It cannot be reproduced in any form without the consent of Summit Environmental Technologies, Inc. or the customer for which this report was issued. The results contained in this report are only representative of the samples received. Conditions can vary at different times and at different sampling conditions. Summit Environmental Technologies, Inc. is not responsible for use or interpretation of the data included herein.

All results for Solid Samples are reported on an "as received" or "wet weight" basis unless indicated as "dry weight" using the "-dry" designation on the reporting units.

This report is believed to meet all of the requirements of the accrediting agency, where applicable. Any comments or problems with the analytical events associated with this report are noted below.

### Analytical Sequence Sample Notes:

21121541-001A and -002A SVOC-MSTR\_S(8270): Surrogate recovery unable to be reliably evaluated due to dilution; Sample diluted due to matrix; Reporting Limits adjusted accordingly.

---

Original





Summit Environmental Technologies, Inc.  
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Cuyahoga Falls, Ohio 44223  
TEL: (330) 253-8211 FAX: (330) 253-4489  
Website: <http://www.settek.com>

## Workorder Sample Summary

WO#: 21121541  
07-Jan-22

CLIENT: Altivia Petrochemical

Project:

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
21121541-001	2003FLHC			12/22/2021 2:25:00 PM	Shdgc
21121541-002	2105FHHC			12/22/2021 2:25:00 PM	Shdgc





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# Analytical Report

(consolidated)

WO#: 21121541

Date Reported: 1/7/2022

CLIENT: Altivia Petrochemical

Collection Date:

Project:

Lab ID: 21121541-001

Matrix: SLUDGE

Client Sample ID: 2003F LHC

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>MERCURY ANALYSIS (7471)</b>						
					<b>SW7471A</b>	<b>SW7471A</b> Analyst: KLC
Mercury	ND	0.048		mg/Kg	1	1/7/2022 12:36:00 PM
<b>METALS ANALYSIS (6010D)</b>						
					<b>SW6010</b>	<b>SW3050B</b> Analyst: MSK
Lead(Pb)	ND	2.45		mg/Kg	1	12/27/2021 2:27:00 PM
<b>ALCOHOLS- SW-846: 8015D</b>						
					<b>SW8015</b>	Analyst: KDL
Methanol	ND	1.00		mg/Kg	1	12/23/2021 5:22:00 PM
Surr: Cyclohexanol	76.0	70 - 130	m	%Rec	1	12/23/2021 5:22:00 PM
<b>HAVERHILL POLLUTANTS-SVOC-SOLID 98270)</b>						
					<b>SW8270C</b>	<b>SW3580A</b> Analyst: SFG
<b>SVOC 8270 STANDARD MASTER LIST-SOLID</b>						
Surr: 2-Fluorophenol	0	14 - 110	S	%Rec	50	1/5/2022 8:19:00 PM
Surr: Phenol-d6	0	10 - 110	Sd	%Rec	50	1/5/2022 8:19:00 PM
Surr: Nitrobenzene-d5	0	11 - 110	Sd	%Rec	50	1/5/2022 8:19:00 PM
Surr: 2,4,6-Tribromophenol	0	13 - 125	S	%Rec	50	1/5/2022 8:19:00 PM
Surr: 2-Fluorobiphenyl	0	10 - 110	Sd	%Rec	50	1/5/2022 8:19:00 PM
Surr: p-Terphenyl-d14	0	14 - 135	Sd	%Rec	50	1/5/2022 8:19:00 PM
TIC: 1,12-Benzperylene	ND	0.500		mg/Kg	50	1/5/2022 8:19:00 PM
TIC: 4-Cumylphenol	ND	0.500		mg/Kg	50	1/5/2022 8:19:00 PM
TIC: Bisphenol A	ND	0.500		mg/L	50	1/5/2022 8:19:00 PM
TIC: Cumene hydroperoxide	ND	0.500		mg/Kg	50	1/5/2022 8:19:00 PM
TIC: Dicumyl Peroxide	ND	0.500		mg/Kg	50	1/5/2022 8:19:00 PM
TIC: Mesityl oxide	ND	0.500		mg/Kg	50	1/5/2022 8:19:00 PM
TIC: Picoline	ND	0.500		mg/L	50	1/5/2022 8:19:00 PM
<b>SVOC-SOLID-8270C--</b>						
					<b>SW8270C</b>	<b>SW3580A</b> Analyst: SFG
<b>SVOCs BY GC/MS (SW8270C)</b>						
Diphenylamine	ND	12.5		mg/Kg	50	1/5/2022 8:19:00 PM
Benzo(g,h,i)perylene	ND	7.50		mg/Kg	50	1/5/2022 8:19:00 PM
Phenol	ND	7.50		mg/Kg	50	1/5/2022 8:19:00 PM
Surr: 2,4,6-Tribromophenol	0	49.1 - 159	S	%Rec	50	1/5/2022 8:19:00 PM
Surr: 2-Fluorobiphenyl	0	20 - 147	Sd	%Rec	50	1/5/2022 8:19:00 PM

## Qualifiers:

B Analyte detected in the associated Method Blank  
H Holding time: for preparation or analysis exceeded  
N Tentatively identified compounds  
PL Permit Limit  
RL Reporting Detection Limit

E Value above quantitation range  
M Manual Integration used to determine area response  
ND Not Detected  
E RPD outside accepted max. any limit  
W Sample container temperature is out of limit as specified at the time of analysis

Original





Summit Environmental Technologies, Inc.  
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Website: <http://www.settek.com>

# Analytical Report

(consolidated)

WO#: 21121541

Date Reported: 1/7/2022

CLIENT: Altivia Petrochemical

Collection Date:

Project:

Lab ID: 21121541-001

Matrix: SLUDGE

Client Sample ID: 2003F LHC

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>SVOC-SOLID-8270C--</b>						
<b>SVOCs BY GC/MS (SW8270C)</b>						
					<b>SW8270C</b>	<b>SW3580A</b> Analyst: <b>SFG</b>
Surr: 2-Fluorophenol	0	37.8 - 134	S	%Rec	50	1/5/2022 8:19:00 PM
Surr: Nitrobenzene-d5	0	21.4 - 145	Sd	%Rec	50	1/5/2022 8:19:00 PM
Surr: p-Terphenyl-d14	0	63.2 - 137	Sd	%Rec	50	1/5/2022 8:19:00 PM
Surr: Phenol-d6	0	20 - 214	Sd	%Rec	50	1/5/2022 8:19:00 PM
TIC: 7,12-Dimethylbenz(a)anthracene	ND	7.50		mg/Kg	50	1/5/2022 8:19:00 PM
TIC: Acetophenone	ND	7.50		mg/Kg	50	1/5/2022 8:19:00 PM
TIC: o-Toluidine	ND	7.50		mg/Kg	50	1/5/2022 8:19:00 PM
TIC: Toluene 2,4-diisocyanate	ND	7.50		mg/Kg	50	1/5/2022 8:19:00 PM
<b>HAVERHILL POLLUTANTS-VOC-SOLID (8260)</b>						
<b>VOC BY GC/MS (8260)</b>						
					<b>SW8260</b>	Analyst: <b>MES</b>
Acetone	ND	250		mg/Kg	5000	12/23/2021 3:29:00 AM
Benzene	ND	25.0		mg/Kg	5000	12/23/2021 3:29:00 AM
Butyl Benzene	ND	50.0		mg/Kg	5000	12/23/2021 3:29:00 AM
Cumene	131	25.0		mg/Kg	5000	12/23/2021 3:29:00 AM
Ethylbenzene	ND	25.0		mg/Kg	5000	12/23/2021 3:29:00 AM
Isopropyl acetate	ND	25.0		mg/Kg	5000	12/23/2021 3:29:00 AM
n-Amyl Acetate	ND	25.0		mg/Kg	5000	12/23/2021 3:29:00 AM
n-Butylbenzene	ND	25.0		mg/Kg	5000	12/23/2021 3:29:00 AM
Styrene	ND	100		mg/Kg	5000	12/23/2021 3:29:00 AM
Toluene	ND	25.0		mg/Kg	5000	12/23/2021 3:29:00 AM
Surr: 4-Bromofluorobenzene	99.9	70 - 130		%Rec	5000	12/23/2021 3:29:00 AM
Surr: Dibromofluoromethane	96.0	70 - 130		%Rec	5000	12/23/2021 3:29:00 AM
Surr: Toluene-d8	98.5	70 - 130		%Rec	5000	12/23/2021 3:29:00 AM
TIC: alpha-Methylstyrene	5460	25.0		mg/Kg	5000	12/23/2021 3:29:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding time for preparation or analysis exceeded	M	Manual Integration used to determine area response
	N	Identically identified compounds	ND	Not Detected
	PL	Permit Limit	R	RPD outside accepted methodology limits
	RL	Reporting Detection Limit	W	Sample container temperature is out of limit as specified at the time of original





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# Analytical Report

(consolidated)

WO#: 21121541

Date Reported: 1/7/2022

CLIENT: Altivia Petrochemical

Collection Date:

Project:

Lab ID: 21121541-002

Matrix: SLUDGE

Client Sample ID: 2105F HHC

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>MERCURY ANALYSIS (7471)</b>						
					<b>SW7471A</b>	<b>SW7471A</b> Analyst: KLC
Mercury	ND	0.044		mg/Kg	1	1/7/2022 12:39:00 PM
<b>METALS ANALYSIS (6010D)</b>						
					<b>SW6010</b>	<b>SW3050B</b> Analyst: MSK
Lead(Pb)	ND	2.40		mg/Kg	1	12/27/2021 2:33:00 PM
<b>ALCOHOLS- SW-846: 8015D</b>						
					<b>SW8015</b>	Analyst: KDL
Methanol	ND	1.00		mg/Kg	1	12/23/2021 5:40:00 PM
Surr: Cyclohexanol	73.9	70 - 130		%Rec	1	12/23/2021 5:40:00 PM
<b>HAVERHILL POLLUTANTS-SVOC-SOLID 98270)</b>						
					<b>SW8270C</b>	<b>SW3580A</b> Analyst: SFG
<b>SVOC 8270 STANDARD MASTER LIST-SOLID</b>						
Surr: 2-Fluorophenol	0	14 - 110	S	%Rec	50	1/5/2022 8:52:00 PM
Surr: Phenol-d6	9240	10 - 110	S	%Rec	50	1/5/2022 8:52:00 PM
Surr: Nitrobenzene-d5	0	11 - 110	Sd	%Rec	50	1/5/2022 8:52:00 PM
Surr: 2,4,6-Tribromophenol	0	13 - 125	S	%Rec	50	1/5/2022 8:52:00 PM
Surr: 2-Fluorobiphenyl	0	10 - 110	Sd	%Rec	50	1/5/2022 8:52:00 PM
Surr: p-Terphenyl-d14	3080	14 - 135	S	%Rec	50	1/5/2022 8:52:00 PM
TIC: 1,12-Benzperylene	ND	0.500		mg/Kg	50	1/5/2022 8:52:00 PM
TIC: 4-Cumylphenol	48200	0.500	N	mg/Kg	50	1/5/2022 8:52:00 PM
TIC: Bisphenol A	ND	0.500		mg/L	50	1/5/2022 8:52:00 PM
TIC: Cumene hydroperoxide	ND	0.500		mg/Kg	50	1/5/2022 8:52:00 PM
TIC: Dicumyl Peroxide	ND	0.500		mg/Kg	50	1/5/2022 8:52:00 PM
TIC: Mesityl oxide	ND	0.500		mg/Kg	50	1/5/2022 8:52:00 PM
TIC: Picoline	ND	0.500		mg/L	50	1/5/2022 8:52:00 PM
<b>SVOC-SOLID-8270C--</b>						
					<b>SW8270C</b>	<b>SW3580A</b> Analyst: SFG
<b>SVOCs BY GC/MS (SW8270C)</b>						
Diphenylamine	ND	12.5		mg/Kg	50	1/5/2022 8:52:00 PM
Benzo(g,h,i)perylene	ND	7.50		mg/Kg	50	1/5/2022 8:52:00 PM
Phenol	41000	7.50		mg/Kg	50	1/5/2022 8:52:00 PM
Surr: 2,4,6-Tribromophenol	0	49.1 - 159	S	%Rec	50	1/5/2022 8:52:00 PM
Surr: 2-Fluorobiphenyl	0	20 - 147	Sd	%Rec	50	1/5/2022 8:52:00 PM

## Qualifiers:

B Analyte detected in the associated Method Blank  
H Holding time: for preparation or analysis exceeded  
N Tentatively identified compounds  
PL Permit Limit  
RL Reporting Detection Limit

E Value above quantitation range  
M Manual Integration used to determine area response  
ND Not Detected  
E RPD outside accepted max. variability  
W Sample container temperature is out of limit as specified at the time of analysis

Original





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# Analytical Report

(consolidated)

WO#: 21121541

Date Reported: 1/7/2022

CLIENT: Altivia Petrochemical

Collection Date:

Project:

Lab ID: 21121541-002

Matrix: SLUDGE

Client Sample ID: 2105F HHC

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>SVOC-SOLID-8270C--</b>						
<b>SVOCs BY GC/MS (SW8270C)</b>						
					<b>SW8270C</b>	<b>SW3580A</b> Analyst: <b>SFG</b>
Surr: 2-Fluorophenol	0	37.8 - 134	S	%Rec	50	1/5/2022 8:52:00 PM
Surr: Nitrobenzene-d5	0	21.4 - 145	Sd	%Rec	50	1/5/2022 8:52:00 PM
Surr: p-Terphenyl-d14	3080	63.2 - 137	S	%Rec	50	1/5/2022 8:52:00 PM
Surr: Phenol-d6	9240	20 - 214	S	%Rec	50	1/5/2022 8:52:00 PM
TIC: 7,12-Dimethylbenz(a)anthracene	ND	7.50		mg/Kg	50	1/5/2022 8:52:00 PM
TIC: Acetophenone	156000	7.50	N	mg/Kg	50	1/5/2022 8:52:00 PM
TIC: o-Toluidine	ND	7.50		mg/Kg	50	1/5/2022 8:52:00 PM
TIC: Toluene 2,4-diisocyanate	ND	7.50		mg/Kg	50	1/5/2022 8:52:00 PM
<b>HAVERHILL POLLUTANTS-VOC-SOLID (8260)</b>						
<b>VOC BY GC/MS (8260)</b>						
					<b>SW8260</b>	Analyst: <b>MES</b>
Acetone	ND	250		mg/Kg	5000	12/23/2021 3:55:00 AM
Benzene	ND	25.0		mg/Kg	5000	12/23/2021 3:55:00 AM
Butyl Benzene	ND	50.0		mg/Kg	5000	12/23/2021 3:55:00 AM
Cumene	ND	25.0		mg/Kg	5000	12/23/2021 3:55:00 AM
Ethylbenzene	ND	25.0		mg/Kg	5000	12/23/2021 3:55:00 AM
Isopropyl acetate	ND	25.0		mg/Kg	5000	12/23/2021 3:55:00 AM
n-Amyl Acetate	ND	25.0		mg/Kg	5000	12/23/2021 3:55:00 AM
n-Butylbenzene	ND	25.0		mg/Kg	5000	12/23/2021 3:55:00 AM
Styrene	ND	100		mg/Kg	5000	12/23/2021 3:55:00 AM
Toluene	ND	25.0		mg/Kg	5000	12/23/2021 3:55:00 AM
Surr: 4-Bromofluorobenzene	96.1	70 - 130		%Rec	5000	12/23/2021 3:55:00 AM
Surr: Dibromofluoromethane	92.9	70 - 130		%Rec	5000	12/23/2021 3:55:00 AM
Surr: Toluene-d8	95.8	70 - 130		%Rec	5000	12/23/2021 3:55:00 AM
TIC: alpha-Methylstyrene	ND	25.0		mg/Kg	5000	12/23/2021 4:48:00 PM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding time for preparation or analysis exceeded	M	Manual Integration used to determine area response
	N	Intentionally identified compounds	ND	Not Detected
	PL	Permit Limit	R	RPD outside accepted recovery limits
	RL	Reporting Detection Limit	W	Sample container temperature is out of limit as specified at the time of original





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## QC SUMMARY REPORT

WO#: 21121541  
07-Jan-22

Client: Altivia Petrochemical

Project:

BatchID: 53981

Sample ID: 21121541-001AMS	SampType: MS	TestCode: MI-I-CP_S(60	Units: mg/Kg	Prep Date: 12/23/2021	RunNo: 138112						
Client ID: 2003F LHC	Batch ID: 53981	TestNo: SW6010	SW3050B	Analysis Date: 12/27/2021	SeqNo: 3646725						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead(Pb)	77.7	2.23	89.29	0	87.0	75	125				

Sample ID: 21121541-001AMSD	SampType: MSD	TestCode: MI-I-CP_S(60	Units: mg/Kg	Prep Date: 12/23/2021	RunNo: 138112						
Client ID: 2003F LHC	Batch ID: 53981	TestNo: SW6010	SW3050B	Analysis Date: 12/27/2021	SeqNo: 3646726						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead(Pb)	85.7	2.27	90.91	0	94.3	75	125	77.65	9.86	20	

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analy
	J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response	MC	Value is below Minimum Compound
	ND	Not Detected	OG1		P	Second column confirmation exceeds
	PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Original





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## QC SUMMARY REPORT

WO#: 21121541  
07-Jan-22

Client: Altivia Petrochemical

Project:

BatchID: 53981

Sample ID: <b>MB-53981</b>	SampType: <b>MBLK</b>	TestCode: <b>MI-ICP_S(60)</b>	Units: <b>mg/Kg</b>	Prep Date: <b>12/23/2021</b>	RunNo: <b>138112</b>						
Client ID: <b>PBS</b>	Batch ID: <b>53981</b>	TestNo: <b>SW6010</b>	<b>SW3050B</b>	Analysis Date: <b>12/27/2021</b>	SeqNo: <b>3646643</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead(Pb)	ND	2.50									

Sample ID: <b>LCS-53981</b>	SampType: <b>LCS</b>	TestCode: <b>MI-HCP_S(60</b>	Units: <b>mg/Kg</b>	Prep Date: <b>12/23/2021</b>	RunNo: <b>138112</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>53981</b>	TestNo: <b>SW6010</b>	<b>SW3050B</b>	Analysis Date: <b>12/27/2021</b>	SeqNo: <b>3646644</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead(Pb)	92.6	2.50	100.0	0	92.6	80	120				

Sample ID: <b>MB-53981</b>	SampType: <b>MBLK</b>	TestCode: <b>MI-HCP_S(60</b>	Units: <b>mg/Kg</b>	Prep Date: <b>12/23/2021</b>	RunNo: <b>138112</b>						
Client ID: <b>PBS</b>	Batch ID: <b>53981</b>	TestNo: <b>SW6010</b>	<b>SW3050B</b>	Analysis Date: <b>12/27/2021</b>	SeqNo: <b>3646647</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead(Pb)	ND	2.50									

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analy
	J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response	MC	Value is below Minimum Compound
	ND	Not Detected	OG1		P	Second column confirmation exceeds
	PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Original





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## QC SUMMARY REPORT

WO#: **21121541**  
07-Jan-22

**Client:** Altivia Petrochemical

**Project:**

**BatchID:** 54091

Sample ID: 21121541-001AMS	SampType: MS	TestCode: SVOC-MSTR	Units: mg/Kg	Prep Date: 1/3/2022	RunNo: 138544						
Client ID: 2003F LHC	Batch ID: 54091	TestNo: SW8270C	SW3580A	Analysis Date: 1/5/2022	SeqNo: 3656362						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(g,h,i)perylene	25800	7.50	28000	0	92.0	10	130				
Phenol	26000	12.5	28000	0	92.7	10	130				
Surr: 2,4,6-Tribromophenol	0		5000		0	49.1	159				Sd
Surr: 2-Fluorobiphenyl	0		5000		0	20	147				Sd
Surr: 2-Fluorophenol	0		5000		0	37.8	134				S
Surr: Nitrobenzene-d5	0		5000		0	21.4	145				Sd
Surr: p-Terphenyl-d14	0		5000		0	63.2	137				Sd
Surr: Phenol-d6	0		5000		0	20	214				Sd

Sample ID: 21121541-001AMSD	SampType: MSD	TestCode: SVOC-MSTR	Units: mg/Kg	Prep Date: 1/3/2022	RunNo: 138544						
Client ID: 2003F LHC	Batch ID: 54091	TestNo: SW8270C	SW3580A	Analysis Date: 1/5/2022	SeqNo: 3656363						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(g,h,i)perylene	25300	7.50	28000	0	90.5	10	130	25770	1.70	57.2	
Phenol	25900	12.5	28000	0	92.7	10	130	25960	0.0539	38.7	
Surr: 2,4,6-Tribromophenol	0		5000		0	49.1	159		0		Sd
Surr: 2-Fluorobiphenyl	0		5000		0	20	147		0		Sd
Surr: 2-Fluorophenol	0		5000		0	37.8	134		0		S
Surr: Nitrobenzene-d5	0		5000		0	21.4	145		0		Sd
Surr: p-Terphenyl-d14	0		5000		0	63.2	137		0		Sd
Surr: Phenol-d6	0		5000		0	20	214		0		Sd

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analy
	J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response	MC	Value is below Minimum Compound
	ND	Not Detected	OG1		P	Second column confirmation exceeds
	PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Original





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## QC SUMMARY REPORT

WO#: 21121541

07-Jan-22

Client: Altivia Petrochemical

Project:

BatchID: 54091

Sample ID: <b>MB-54091</b>	SampType: <b>MBLK</b>	TestCode: <b>SVOC-MSTR</b>	Units: <b>ppm</b>	Prep Date: <b>1/3/2022</b>	RunNo: <b>138544</b>						
Client ID: <b>PBW</b>	Batch ID: <b>54091</b>	TestNo: <b>SW8270C</b>	<b>SW3580A</b>	Analysis Date: <b>1/5/2022</b>	SeqNo: <b>3656337</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(g,h,i)perylene	ND	12.0									
Phenol	ND	12.0									
Surr: 2-Fluorophenol	103		100.0		103	16.5	146				
Surr: Phenol-d6	95.5		100.0		95.5	10	150				
Surr: Nitrobenzene-d5	79.7		100.0		79.7	63.8	130				
Surr: 2,4,6-Tribromophenol	56.3		100.0		56.3	10	163				
Surr: 2-Fluorobiphenyl	86.5		100.0		86.5	68.2	130				
Surr: p-Terphenyl-d14	90.7		100.0		90.7	70	146				

Sample ID: <b>LCS-54091</b>	SampType: <b>LCS</b>	TestCode: <b>SVOC-MSTR</b>	Units: <b>ppm</b>	Prep Date: <b>1/3/2022</b>	RunNo: <b>138544</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>54091</b>	TestNo: <b>SW8270C</b>	<b>SW3580A</b>	Analysis Date: <b>1/5/2022</b>	SeqNo: <b>3656338</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(g,h,i)perylene	491	12.0	560.0	0	87.6	64.5	147				
Phenol	483	12.0	560.0	0	86.2	70	130				
Surr: 2-Fluorophenol	99.4		100.0		99.4	70	150				
Surr: Phenol-d6	101		100.0		101	70	150				
Surr: Nitrobenzene-d5	84.1		100.0		84.1	70	139				
Surr: 2,4,6-Tribromophenol	85.4		100.0		85.4	70	166				
Surr: 2-Fluorobiphenyl	91.3		100.0		91.3	67.9	146				
Surr: p-Terphenyl-d14	97.4		100.0		97.4	70	176				

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analy
	J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response	MC	Value is below Minimum Compound
	ND	Not Detected	OG1		P	Second column confirmation exceeds
	PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Original





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## QC SUMMARY REPORT

WO#: 21121541  
07-Jan-22

Client: Altivia Petrochemical

Project:

BatchID: 54208

Sample ID: <b>MB-54208</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_S(7471)</b>	Units: <b>mg/Kg</b>	Prep Date: <b>1/7/2022</b>	RunNo: <b>138618</b>						
Client ID: <b>PBS</b>	Batch ID: <b>54208</b>	TestNo: <b>SW7471A</b>	<b>SW7471A</b>	Analysis Date: <b>1/7/2022</b>	SeqNo: <b>3658485</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	ND	0.042									
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Sample ID: <b>LCS-54208</b>	SampType: <b>LCS</b>	TestCode: <b>HG_S(7471)</b>	Units: <b>mg/Kg</b>	Prep Date: <b>1/7/2022</b>	RunNo: <b>138618</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>54208</b>	TestNo: <b>SW7471A</b>	<b>SW7471A</b>	Analysis Date: <b>1/7/2022</b>	SeqNo: <b>3658486</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.32	0.042	0.33	0	97.3	80	120				
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Sample ID: <b>LCSD-54208</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_S(7471)</b>	Units: <b>mg/Kg</b>	Prep Date: <b>1/7/2022</b>	RunNo: <b>138618</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>54208</b>	TestNo: <b>SW7471A</b>	<b>SW7471A</b>	Analysis Date: <b>1/7/2022</b>	SeqNo: <b>3658487</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.32	0.042	0.33	0	95.8	80	120	0.32	1.55	20	
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<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analy
	J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response	MC	Value is below Minimum Compound
	ND	Not Detected	OG1		P	Second column confirmation exceeds
	PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Original





Summit Environmental Technologies, Inc.  
3310 Win St.  
Cuyahoga Falls, Ohio 44223  
TEL: (330) 253-8211 FAX: (330) 253-4489  
Website: <http://www.settek.com>

## QC SUMMARY REPORT

WO#: **21121541**  
07-Jan-22

**Client:** Altivia Petrochemical

**Project:**

**BatchID:** R137675

Sample ID: <b>21120910-005AMS</b>	SampType: <b>MS</b>	TestCode: <b>VOC-MSTR_</b>	Units: <b>%Rec</b>	Prep Date:	RunNo: <b>137675</b>						
Client ID: <b>BatchQC</b>	Batch ID: <b>R137675</b>	TestNo: <b>SW8260</b>		Analysis Date: <b>12/14/2021</b>	SeqNo: <b>3635258</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	60.0		59.43		101	70	130				
Surr: Dibromofluoromethane	60.5		59.43		102	70	136				
Surr: Toluene-d8	61.4		59.43		103	70	130				

Sample ID: 21120910-005AMSD	SampType: MSD	TestCode: VOC-MSTR_	Units: %Rec	Prep Date:	RunNo: 137675						
Client ID: BatchQC	Batch ID: R137675	TestNo: SW8260		Analysis Date: 12/14/2021	SeqNo: 3635259						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	62.6		59.43		105	70	130		0	30	
Surr: Dibromofluoromethane	60.4		59.43		102	70	136		0	30	
Surr: Toluene-d8	59.7		59.43		101	70	130		0	30	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analy
	J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response	MC	Value is below Minimum Compound
	ND	Not Detected	OG1		P	Second column confirmation exceeds
	PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

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## QC SUMMARY REPORT

WO#: 21121541  
07-Jan-22

Client: Altivia Petrochemical

Project:

BatchID: R137675

Sample ID: <b>LCS-137675</b>	SampType: <b>LCS</b>	TestCode: <b>VOC-MSTR_</b>	Units: <b>%Rec</b>	Prep Date:	RunNo: <b>137675</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>R137675</b>	TestNo: <b>SW8260</b>		Analysis Date: <b>12/14/2021</b>	SeqNo: <b>3635196</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	51.6		50.00		103	66.2	130				
Surr: Dibromofluoromethane	49.4		50.00		98.8	70	130				
Surr: Toluene-d8	50.5		50.00		101	70	130				

Sample ID: <b>MB-137675</b>	SampType: <b>MBLK</b>	TestCode: <b>VOC-MSTR_</b>	Units: <b>%Rec</b>	Prep Date:	RunNo: <b>137675</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R137675</b>	TestNo: <b>SW8260</b>		Analysis Date: <b>12/14/2021</b>	SeqNo: <b>3635247</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	44.9		50.00		89.8	70	130				
Surr: Dibromofluoromethane	50.8		50.00		102	70	130				
Surr: Toluene-d8	52.7		50.00		105	70	130				

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analy
	J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response	MC	Value is below Minimum Compound
	ND	Not Detected	OG1		P	Second column confirmation exceeds
	PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

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## QC SUMMARY REPORT

WO#: **21121541**  
07-Jan-22

**Client:** Altivia Petrochemical

**Project:**

**BatchID:** R137990

Sample ID: <b>21121427-002AMS</b>	SampType: <b>MS</b>	TestCode: <b>VOC-MSTR_</b>	Units: <b>%Rec</b>	Prep Date:	RunNo: <b>137990</b>						
Client ID: <b>BatchQC</b>	Batch ID: <b>R137990</b>	TestNo: <b>SW8260</b>		Analysis Date: <b>12/21/2021</b>	SeqNo: <b>3643313</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	56.4		54.98		103	70	130				
Surr: Dibromofluoromethane	55.6		54.98		101	70	136				
Surr: Toluene-d8	54.7		54.98		99.6	70	130				

Sample ID: 21121427-002AMSD	SampType: MSD	TestCode: VOC-MSTR_	Units: %Rec	Prep Date:	RunNo: 137990						
Client ID: BatchQC	Batch ID: R137990	TestNo: SW8260		Analysis Date: 12/21/2021	SeqNo: 3643314						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	56.8		54.98		103	70	130		0	30	
Surr: Dibromofluoromethane	56.9		54.98		104	70	136		0	30	
Surr: Toluene-d8	55.1		54.98		100	70	130		0	30	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analy
	J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response	MC	Value is below Minimum Compound
	ND	Not Detected	OG1		P	Second column confirmation exceeds
	PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

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## QC SUMMARY REPORT

WO#: **21121541**  
07-Jan-22

**Client:** Altivia Petrochemical

**Project:**

**BatchID:** R137990

Sample ID: <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>VOC-MSTR_</b>	Units: <b>%Rec</b>	Prep Date:	RunNo: <b>137990</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>R137990</b>	TestNo: <b>SW8260</b>		Analysis Date: <b>12/21/2021</b>	SeqNo: <b>3643307</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	51.4		50.00		103	66.2	130				
Surr: Dibromofluoromethane	50.8		50.00		102	70	130				
Surr: Toluene-d8	49.1		50.00		98.2	70	130				

Sample ID: <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>VOC-MSTR_</b>	Units: <b>%Rec</b>	Prep Date:	RunNo: <b>137990</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R137990</b>	TestNo: <b>SW8260</b>		Analysis Date: <b>12/21/2021</b>	SeqNo: <b>3643308</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	49.2		50.00		98.5	70	130				
Surr: Dibromofluoromethane	49.4		50.00		98.8	70	130				
Surr: Toluene-d8	50.0		50.00		100	70	130				

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analy
	J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response	MC	Value is below Minimum Compound
	ND	Not Detected	OG1		P	Second column confirmation exceeds
	PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

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## QC SUMMARY REPORT

WO#: 21121541  
07-Jan-22

Client: Altivia Petrochemical

Project:

BatchID: R138036

Sample ID: 21121298-013AMS	SampType: MS	TestCode: VOC-MSTR_	Units: mg/Kg-dry	Prep Date:	RunNo: 138036						
Client ID: BatchQC	Batch ID: R138036	TestNo: SW8260	Analysis Date: 12/23/2021	SeqNo: 3644648							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acetone	57.0	28.6	57.2	0	99.7	10	300				
Benzene	10.5	2.86	11.4	0	91.9	41.8	130				
Cumene	10.7	2.86	11.4	0	93.5	10	130				
Ethylbenzene	11.1	2.86	11.4	1.23	86.7	10	130				
Isopropyl acetate	9.82	2.86	11.4	0	85.8	10	179				
n-Amyl Acetate	4.56	2.86	5.72	0	79.8	10	130				
n-Butylbenzene	10.7	2.86	11.4	0	93.7	10	130				
Styrene	ND	11.4	11.4	0	97.4	10	130				
Toluene	10.6	2.86	11.4	0	92.8	10	131				
Surr: 4-Bromofluorobenzene	33000		34320		96.1	70	130				
Surr: Dibromofluoromethane	32000		34320		93.1	70	136				
Surr: Toluene-d8	32100		34320		93.5	70	130				

Sample ID: 21121298-013AMSD	SampType: MSD	TestCode: VOC-MSTR_	Units: mg/Kg-dry	Prep Date:	RunNo: 138036						
Client ID: BatchQC	Batch ID: R138036	TestNo: SW8260	Analysis Date: 12/23/2021	SeqNo: 3644649							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acetone	56.4	28.6	57.2	0	98.6	10	300	57.0	1.12	30	
Benzene	11.9	2.86	11.4	0	104	41.8	130	10.5	12.0	30	
Cumene	12.5	2.86	11.4	0	109	10	130	10.7	15.7	30	
Ethylbenzene	13.0	2.86	11.4	1.23	103	10	130	11.1	15.6	30	
Isopropyl acetate	9.80	2.86	11.4	0	85.6	10	179	9.82	0.216	30	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analy
	J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response	MC	Value is below Minimum Compound
	ND	Not Detected	OG1		P	Second column confirmation exceeds
	PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Original





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## QC SUMMARY REPORT

WO#: 21121541

07-Jan-22

Client: Altivia Petrochemical

Project:

BatchID: R138036

Sample ID: 21121298-013AMSD	SampType: MSD	TestCode: VOC-MSTR_	Units: mg/Kg-dry	Prep Date:	RunNo: 138036						
Client ID: BatchQC	Batch ID: R138036	TestNo: SW8260	Analysis Date: 12/23/2021	SeqNo: 3644649							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
n-Amyl Acetate	4.85	2.86	5.72	0	84.8	10	130	4.56	6.16	30	
n-Butylbenzene	12.1	2.86	11.4	0	106	10	130	10.7	12.5	30	
Styrene	12.5	11.4	11.4	0	109	10	130	11.1	11.6	30	
Toluene	12.2	2.86	11.4	0	107	10	131	10.6	14.1	30	
Sur: 4-Bromofluorobenzene	34500		34320		100	70	130		0	30	
Sur: Dibromofluoromethane	32500		34320		94.8	70	136		0	30	
Sur: Toluene-d8	32800		34320		95.6	70	130		0	30	

**Qualifiers:**  
B Analyte detected in the associated Method Blank  
J Analyte detected below quantitation limits  
ND Not Detected  
PL Permit Limit

E Value above quantitation range  
M Manual Integration used to determine area response  
OG1  
R RPD outside accepted recovery limits

H Holding times for preparation or analy  
MC Value is below Minimum Compound  
P Second column confirmation exceeds  
RL Reporting Detection Limit

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## QC SUMMARY REPORT

WO#: 21121541  
07-Jan-22

Client: Altivia Petrochemical

Project:

BatchID: R138036

Sample ID: <b>LCS-138036</b>	SampType: <b>LCS</b>	TestCode: <b>VOC-MSTR_</b>	Units: <b>mg/Kg</b>	Prep Date:	RunNo: <b>138036</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>R138036</b>	TestNo: <b>SW8260</b>		Analysis Date: <b>12/22/2021</b>	SeqNo: <b>3644635</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acetone	59.0	25.0	50.0	0	118	39	196				
Benzene	10.6	2.50	10.0	0	106	50.7	141				
Cumene	11.2	2.50	10.0	0	112	10	165				
Ethylbenzene	10.6	2.50	10.0	0	106	10	180				
Isopropyl acetate	9.58	2.50	10.0	0	95.8	10	435				
n-Amyl Acetate	4.58	2.50	10.0	0	45.8	10	130				
n-Butylbenzene	10.8	2.50	10.0	0	108	10	180				
Styrene	11.2	10.0	10.0	0	112	10	168				
Toluene	10.5	2.50	10.0	0	105	26.8	149				
Surr: 4-Bromofluorobenzene	30000		30000		100	66.2	130				
Surr: Dibromofluoromethane	29900		30000		99.8	70	130				
Surr: Toluene-d8	29100		30000		97.1	70	130				

Sample ID: <b>RLC</b>	SampType: <b>RLC</b>	TestCode: <b>VOC-MSTR_</b>	Units: <b>mg/Kg</b>	Prep Date:	RunNo: <b>138036</b>						
Client ID: <b>BatchQC</b>	Batch ID: <b>R138036</b>	TestNo: <b>SW8260</b>		Analysis Date: <b>12/23/2021</b>	SeqNo: <b>3644636</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acetone	ND	0.0500	0.0250	0	98.6	50	150				
Benzene	ND	0.00500	0.00500	0	98.4	50	150				
Cumene	ND	0.00500	0.00500	0	97.6	50	150				
Ethylbenzene	ND	0.00500	0.00500	0	97.3	50	150				
Isopropyl acetate	ND	0.00500	0.00500	0	79.8	50	150				

**Qualifiers:**

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analy
J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response	MC	Value is below Minimum Compound
ND	Not Detected	OG1		P	Second column confirmation exceeds
PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

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## QC SUMMARY REPORT

WO#: 21121541

07-Jan-22

Client: Altivia Petrochemical

Project:

BatchID: R138036

Sample ID: <b>RLC</b>	SampType: <b>RLC</b>	TestCode: <b>VOC-MSTR_</b>	Units: <b>mg/Kg</b>	Prep Date:	RunNo: <b>138036</b>						
Client ID: <b>BatchQC</b>	Batch ID: <b>R138036</b>	TestNo: <b>SW8260</b>		Analysis Date: <b>12/23/2021</b>	SeqNo: <b>3644636</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
n-Amyl Acetate	ND	0.00500	0.00250	0	0	50	150				S
n-Butylbenzene	ND	0.00500	0.00500	0	96.2	50	150				
Styrene	ND	0.0200	0.00500	0	0	50	150				S
Toluene	ND	0.00500	0.00500	0	99.2	50	150				
Sum: 4-Bromofluorobenzene	49.9		50.00		99.9	50	150				
Sum: Dibromofluoromethane	49.9		50.00		99.8	50	150				
Sum: Toluene-d8	49.9		50.00		99.8	50	150				
TIC: 1,2,3-Trimethylbenzene	ND		0.00500	0	0	50	150				S

Sample ID: <b>MB-138036</b>	SampType: <b>MBLK</b>	TestCode: <b>VOC-MSTR_</b>	Units: <b>mg/Kg</b>	Prep Date:	RunNo: <b>138036</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R138036</b>	TestNo: <b>SW8260</b>		Analysis Date: <b>12/23/2021</b>	SeqNo: <b>3644637</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acetone	ND	25.0									
Benzene	ND	2.50									
Cumene	ND	2.50									
Ethylbenzene	ND	2.50									
Isopropyl acetate	ND	2.50									
n-Amyl Acetate	ND	2.50									
n-Butylbenzene	ND	2.50									
Styrene	ND	10.0									
Toluene	ND	2.50									

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analy
	J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response	MC	Value is below Minimum Compound
	ND	Not Detected	OG1		P	Second column confirmation exceeds
	PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

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Website: <http://www.settek.com>

## QC SUMMARY REPORT

WO#: 21121541  
07-Jan-22

Client: Altivia Petrochemical

Project:

BatchID: R138036

Sample ID: <b>MB-138036</b>	SampType: <b>MBLK</b>	TestCode: <b>VOC-MSTR_</b>	Units: <b>mg/Kg</b>	Prep Date:	RunNo: <b>138036</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R138036</b>	TestNo: <b>SW8260</b>		Analysis Date: <b>12/23/2021</b>	SeqNo: <b>3644637</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	29000		30000		96.8	70	130				
Surr: Dibromofluoromethane	30100		30000		100	70	130				
Surr: Toluene-d8	30000		30000		100	70	130				

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analy
	J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response	MC	Value is below Minimum Compound
	ND	Not Detected	OG1		P	Second column confirmation exceeds
	PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

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TEL: (330) 253-8211 FAX: (330) 253-4489  
Website: <http://www.settek.com>

## QC SUMMARY REPORT

WO#: 21121541  
07-Jan-22

Client: Altivia Petrochemical

Project:

BatchID: R138086

Sample ID: <b>RLC 1PPM</b>	SampType: <b>RLC</b>	TestCode: <b>ALCOHOLS_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>138086</b>						
Client ID: <b>BatchQC</b>	Batch ID: <b>R138086</b>	TestNo: <b>SW8015</b>	Analysis Date: <b>12/23/2021</b>	SeqNo: <b>3645733</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methanol	1.72	1.00	1.000	0	172	69.3	137				Sm
Surr: Cyclohexanol	0		1.000		0	50	150				S

Sample ID: <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>ALCOHOLS_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>138086</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R138086</b>	TestNo: <b>SW8015</b>		Analysis Date: <b>12/23/2021</b>	SeqNo: <b>3645734</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methanol	ND	1.00									
Surr: Cydohexanol	353		500.0		70.6	70	130				

Sample ID: <b>LCS 500PPM</b>	SampType: <b>LCS</b>	TestCode: <b>ALCOHOLS_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>138086</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R138086</b>	TestNo: <b>SW8015</b>		Analysis Date: <b>12/23/2021</b>	SeqNo: <b>3645735</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methanol	406	1.00	500.0	0	81.2	70	130				m
Surr: Cyclohexanol	415		500.0		82.9	70	130				

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analy
	J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response	MC	Value is below Minimum Compound
	ND	Not Detected	OG1		P	Second column confirmation exceeds
	PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Original





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## QC SUMMARY REPORT

WO#: 21121541  
07-Jan-22

Client: Altivia Petrochemical

Project:

BatchID: R138086

Sample ID: 21121595-001AMS	SampType: MS	TestCode: ALCOHOLS_	Units: mg/L	Prep Date:	RunNo: 138086						
Client ID: BatchQC	Batch ID: R138086	TestNo: SW8015	Analysis Date: 12/23/2021	SeqNo: 3645736							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methanol	3750	10.0	5000	0	75.0	10	178				m
Sur: Cyclohexanol	3730		5000		74.7	70	130				

Sample ID: 21121595-001MSD	SampType: MSD	TestCode: ALCOHOLS_	Units: mg/L	Prep Date:	RunNo: 138086						
Client ID: BatchQC	Batch ID: R138086	TestNo: SW8015		Analysis Date: 12/23/2021	SeqNo: 3645737						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methanol	3720	10.0	5000	0	74.3	10	178	3751	0.955	30	m
Sur: Cyclohexanol	3700		5000		74.0	70	130		0	0	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analy
	J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response	MC	Value is below Minimum Compound
	ND	Not Detected	OG1		P	Second column confirmation exceeds
	PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Original





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## QC SUMMARY REPORT

WO#: 21121541  
07-Jan-22

Client: Altivia Petrochemical

Project: BatchID: R138128A

Sample ID: <b>LCS-138128A</b>	SampType: <b>LCS</b>	TestCode: <b>VOC-MSTR_</b>	Units: <b>%Rec</b>	Prep Date:	RunNo: <b>138128</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>R138128A</b>	TestNo: <b>SW8260</b>		Analysis Date: <b>12/23/2021</b>	SeqNo: <b>3646872</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	54200		55000		98.5	66.2	130				
Surr: Dibromofluoromethane	51800		55000		94.1	70	130				
Surr: Toluene-d8	50900		55000		92.5	70	130				

Sample ID: <b>MB-138128A</b>	SampType: <b>MBLK</b>	TestCode: <b>VOC-MSTR_</b>	Units: <b>%Rec</b>	Prep Date:	RunNo: <b>138128</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R138128A</b>	TestNo: <b>SW8260</b>		Analysis Date: <b>12/23/2021</b>	SeqNo: <b>3646874</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	48400		55000		88.1	70	130				
Surr: Dibromofluoromethane	55700		55000		101	70	130				
Surr: Toluene-d8	53200		55000		96.8	70	130				

Sample ID: <b>21121554-007AMS</b>	SampType: <b>MS</b>	TestCode: <b>VOC-MSTR_</b>	Units: <b>%Rec</b>	Prep Date:	RunNo: <b>138128</b>						
Client ID: <b>BatchQC</b>	Batch ID: <b>R138128A</b>	TestNo: <b>SW8260</b>		Analysis Date: <b>12/23/2021</b>	SeqNo: <b>3646888</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	50800000		50000000		102	66.2	130				
Surr: Dibromofluoromethane	48100000		50000000		96.3	70	130				
Surr: Toluene-d8	46900000		50000000		93.9	70.2	130				

**Qualifiers:**

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analy
J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response	MC	Value is below Minimum Compound
ND	Not Detected	OG1		P	Second column confirmation exceeds
PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Original





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Website: <http://www.settek.com>

## QC SUMMARY REPORT

WO#: **21121541**  
07-Jan-22

**Client:** Altivia Petrochemical

**Project:** **BatchID: R138128A**

Sample ID: <b>21121554-007AMSD</b>		SampType: <b>MSD</b>		TestCode: <b>VOC-MSTR_</b>		Units: <b>%Rec</b>		Prep Date:		RunNo: <b>138128</b>	
Client ID: <b>BatchQC</b>		Batch ID: <b>R138128A</b>		TestNo: <b>SW8260</b>		Analysis Date: <b>12/23/2021</b>		SeqNo: <b>3646889</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	50800000		50000000		102	66.2	130		0	30	
Surr: Dibromofluoromethane	47300000		50000000		94.5	70	130		0	30	
Surr: Toluene-d8	47600000		50000000		95.1	70.2	130		0	30	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analy	Original
	J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response	MC	Value is below Minimum Compound	
	ND	Not Detected	OG1		P	Second column confirmation exceeds	
	PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	



These commonly used Qualifiers and Acronyms may or may not be present in this report.

#### Qualifiers

U	The compound was analyzed for but was not detected above the MDL.
J	The reported value is greater than the Method Detection Limit but less than the Reporting Limit.
H	The hold time for sample preparation and/or analysis was exceeded. Not Clean Water Act compliant.
D	The result is reported from a dilution.
E	The result exceeded the linear range of the calibration or is estimated due to interference.
MC	The result is below the Minimum Compound Limit.
*	The result exceeds the Regulatory Limit or Maximum Contamination Limit.
m	Manual integration was used to determine the area response.
d	Manual integration in which peak was deleted
N	The result is presumptive based on a Mass Spectral library search assuming a 1:1 response.
P	The second column confirmation exceeded 25% difference.
C	The result has been confirmed by GC/MS.
X	The result was not confirmed when GC/MS Analysis was performed.
B	The analyte was detected in the Method Blank at a concentration greater than the RL.
MB+	The analyte was detected in the Method Blank at a concentration greater than the MDL.
G	The ICB or CCB contained reportable amounts of analyte.
QC-/+	The CCV recovery failed low (-) or high (+).
R/QDR	The RPD was outside of accepted recovery limits.
QL-/+	The LCS or LCSD recovery failed low (-) or high (+).
QLR	The LCS/LCSD RPD was outside of accepted recovery limits.
QM-/+	The MS or MSD recovery failed low (-) or high (+).
QMR	The MS/MSD RPD was outside of accepted recovery limits.
QV-/+	The ICV recovery failed low (-) or high (+).
S	The spike result was outside of accepted recovery limits.
W	Samples were received outside temperature limits (0° – 6° C). Not Clean Water Act compliant.
Z	Deviation; A deviation from the method was performed; Please refer to the Case Narrative for additional information.

#### Acronyms

ND	Not Detected	RL	Reporting Limit
QC	Quality Control	MDL	Method Detection Limit
MB	Method Blank	LOD	Level of Detection
LCS	Laboratory Control Sample	LOQ	Level of Quantitation
LCSD	Laboratory Control Sample Duplicate	PQL	Practical Quantitation Limit
QCS	Quality Control Sample	CRQL	Contract Required Quantitation Limit
DUP	Duplicate	PL	Permit Limit
MS	Matrix Spike	RegLvl	Regulatory Limit
MSD	Matrix Spike Duplicate	MCL	Maximum Contamination Limit
RPD	Relative Percent Different	MinCL	Minimum Compound Limit
ICV	Initial Calibration Verification	RA	Reanalysis
ICB	Initial Calibration Blank	RE	Reextraction
CCV	Continuing Calibration Verification	TIC	Tentatively Identified Compound
CCB	Continuing Calibration Blank	RT	Retention Time
RLC	Reporting Limit Check	CF	Calibration Factor

This list of Qualifiers and Acronyms reflects the most commonly utilized Qualifiers and Acronyms for reporting. Please refer to the Analytical Notes in the Case Narrative for any Qualifiers or Acronyms that do not appear in this list or for additional information regarding the use of these Qualifiers on reported data.





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## Analysis Request / Chain of Custody

Refer to Terms and Conditions at [www.settek.com](http://www.settek.com).

[illegible]



## Sample Log-In Check List

Client Name: **HAV-OH-45636**

Work Order Number: **21121541**

RcptNo: **1**

Logged by: **Christina H. Jager** **12/22/2021 2:25:00 PM**

*C. Jager*

Completed By: **Christina H. Jager** **12/22/2021 3:27:32 PM**

*C. Jager*

Reviewed By: **Sara E. Kidd** **12/22/2021 5:01:54 PM**

*Sara Kidd*

### Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐  
2. How was the sample delivered? Client

### Log In

3. Coolers are present? Yes ☒ No ☐ NA ☐  
4. Shipping container/cooler in good condition? Yes ☒ No ☐  
Custody seals intact on shipping container/cooler? Yes ☐ No ☐ Not Present ☒  
No. Seal Date: Signed By:  
5. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐  
6. Were all samples received at a temperature of  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? Yes ☒ No ☐ NA ☐  
7. Sample(s) in proper container(s)? Yes ☒ No ☐  
8. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐  
9. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐  
10. Was preservative added to bottles? Yes ☐ No ☒ NA ☐  
11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes ☐ No ☐ No VOA Vials ☒  
12. Were any sample containers received broken? Yes ☐ No ☒  
13. Does paperwork match bottle labels? Yes ☒ No ☐  
(Note discrepancies on chain of custody)  
14. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐  
15. Is it clear what analyses were requested? Yes ☒ No ☐  
16. Were all holding times able to be met? Yes ☒ No ☐  
(If no, notify customer for authorization.)

### Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:  Date:   
By Whom:  Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person  
Regarding:   
Client Instructions:

18. Additional remarks:

### Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.9	Good	Not Present			



**SECTION D**  
**PROCESS INFORMATION**



## SECTION D. PROCESS INFORMATION

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## SECTION D. PROCESS INFORMATION

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## **SECTION D. PROCESS INFORMATION**

### **LIST OF EXHIBITS**

Exhibit D-1	Tank Systems 2104-F and 2105-F Flow Diagram
Exhibit D-2	Tank System 2003-F Flow Diagram
Exhibit D-3	Batch Flow Process Diagram Tanks 2104-F and 2105-F
Exhibit D-4	P&ID - Tanks 2104-F and 2105-F
Exhibit D-5	P&ID - Tank 2003-F
Exhibit D-6	Containment Coating Specification



## **SECTION D. PROCESS INFORMATION**

### **LIST OF ATTACHMENTS**

Attachment D-1 Tank Technical Data Sheets

Attachment D-2 Tanks 2104-F and 2105-F Design Drawings

Attachment D-3 Tank 2003-F Design Drawings

Attachment D-4 Secondary Containment Capacity Calculations

Attachment D-5 Tank Assessments (2104-F, 2105-F, and 2003-F)

Attachment D-6 Tank Assessments (2108-F)



## SECTION D. PROCESS INFORMATION

This section provides details on the regulated units identified in this permit application.

### **D-1 CONTAINERS: OAC 3745-50-44(c)(1), 3745-55-70 through 78**

Containers are used to accumulate hazardous wastes on site for 90 days or less. Therefore, as provided in OAC 3745-52-34, container handling/storage areas are not identified as permitted units.

### **D-2 TANK SYSTEMS: OAC 3745-50-44(c)(2), 3745-55-91 through 94**

#### **D-2a Tank Systems Description: OAC 3745-55-44, 3745-55-94**

As noted in Section B of this permit application, the facility has three existing hazardous waste storage tank systems to be permitted under OEPA's RCRA program. The three tank systems (OAC 3745-55-90) are as follows:

<u>I.D. #</u>	<u>Capacity</u>	<u>Contents</u>	<u>Estimated Annual Quantity of Waste Report and Part A</u>
2104-F	200,000 gallons	Phenol Distillation Column Bottoms (K022)	(1)
2105-F	250,000 gallons	Phenol Distillation Column Bottoms (K022)	(1)
2003-F	200,000 gallons	Light Hydrocarbon Waste (D001)	10,370 tons

- (1) As listed in the Part A Application, the quantity of K022 waste stored in 2104-F and 2105-F is 36,490 tons.

Technical data sheets for these tanks are provided in Attachment D-1.



### **Tank Systems 2104-F and 2105-F**

Tanks 2104-F and 2105-F are accumulation/storage tanks for K022 listed hazardous waste fuels. The accumulated hazardous waste fuels are fed to the Utility boilers for energy recovery. The tank systems consist of two adjacent steel tanks and three discharge pumps. The locations of the tanks are shown in Exhibit B-2. Technical Data Sheets are located in Attachment D-1. Exhibit D-1 presents the process flow diagram for these tanks. Tank design drawings are provided in Attachment D-2.

The tanks receive distillation column bottoms (K022) generated from the phenol unit. The waste is received via overhead and ground-level piping that extends from the point of generation to Tanks 2104-F and 2105-F.

The wastes that are pumped to the on-site industrial boilers for heat recovery include:

- Phenol distillation column bottoms (K022); and

### **Tank System 2003-F**

Tank System 2003-F consists of an aboveground stainless steel tank, two discharge pumps, and associated piping. The tank is used to accumulate/store hazardous waste fuels prior to feeding to Utility boilers. Tank 2003-F is located adjacent to Tanks 2104-F and 2105-F, as shown in Exhibit B-2. A Technical Data Sheet is provided in Attachment D-1. Tank design drawings are provided in Attachment D-3. Exhibit D-2 presents a process flow diagram for this tank system.

Tank 2003-F receives several light hydrocarbon process waste streams. They are:

- AMS distillation column bottoms (D001); and

As shown in Exhibit D-2, the incoming waste streams to 2003-F are ignitable (D001). Aboveground piping is used to transport the waste fuels from the point of generation in the phenol unit to Tank 2003-F. The 2003-F tank dike area is paved with concrete. Surface drainage from the dike area is collected, tested, and manually drained for further processing in biological treatment or to the stormwater ditch system.

Feed pumps are used to feed the contents of Tank 2003-F to the Utility boilers. These pumps are located directly south of Tank 2003-F within a separate concrete secondary containment area.



**D-2a(1) Dimensions and Capacity of Each Tank: OAC 3745-50-44(c)(2)**

Tank system dimensions and capacities are presented in Table D-1 for tanks 2104-F, 2105-F, and 2003-F.

**TABLE D-1. TANK SYSTEM DIMENSIONS AND CAPACITIES**

Tank Number	Dimensions	Design Shell Thickness	Capacity
2104-F	32'8" ID × 32'0" height	0.4375 in.	200,000 gallons
2105-F	36'4" ID × 32'3" height	0.1875 in.	250,000 gallons
2003-F	32'8" ID × 32'0" height	0.1875 in.	200,000 gallons

**D-2a(2) Description of Feed Systems, Safety Cutoffs, Bypass Systems, and Pressure Controls: OAC 3745-50-44(c)(2), 3745-55-94**

The following information is provided in response to OAC 3745-50-44(c)(2), and to demonstrate compliance with the requirements of OAC 3745-55-94.

Table D-2 presents a listing of tanks and associated high level alarms.

**TABLE D-2. TANK SYSTEM ALARMS**

Tank	Alarm
2104-F	L12104F
2105-F	L12105F
2003-F	HL2003F

**Tanks 2104-F and 2105-F**

These tanks share common pumps and piping systems. Materials stored in the tanks can be products for sale or wastes that are accumulated in either tank to maintain a working volume of 50-60 percent capacity. Most HHC waste streams stored in 2104-F and 2105-F are normally generated on a continuous basis in the production units. Haverhill stores and feeds these waste streams to the boilers on a batch basis, using 2104-F and 2105-F in conjunction with the 90-day accumulation tank 2108-F. In general, one tank will receive and accumulate as a batch all HHC wastes generated by the facility. One of the other tanks will serve as a feed tank for the boilers.



The third tank will be used for temporary storage of HHC wastes that are generated after a complete batch is accumulated and while the sampling and analysis is occurring. Exhibit D-3 presents the batch flow process for these tanks. To prevent overfilling, continuous internal levels are maintained. Because the tank can only be filled via known capacity pumping, the continuous monitoring ensures that the tank is not overfilled. High level alarms have been installed on these tanks. Both tanks are equipped with a closed vent vapor collection system. Since either tank can be used, a tank can be bypassed if necessary. Emergency and spill control procedures are described in Sections F and G of this permit application.

### **Tank 2003-F**

The liquid level in Tank 2003-F is maintained in the range of 50-60 percent capacity under typical operations. The product is sold and waste fuels are fed to the boilers by manually controlling the discharge pumps. The tank is equipped with an external level gauge, which is monitored at least twice in every 24 hour period, and a high level alarm to prevent overfilling. The tank is operated at atmospheric pressure and does not include pressure controls, bypass systems, or safety cutoffs. Because the tank can only be filled via known capacity pumping, however, the noted frequent monitoring ensures that the tank is not overfilled. The tank is equipped with an internal floating roof. This minimizes atmospheric venting. Emergency and spill control procedures are described in Sections F and G of this permit application.

### **D-2a(3) Diagram of Piping, Instrumentation and Process Flow: OAC 3745-50-44(c)(2)**

In response to OAC 3745-50-44, piping and instrumentation diagrams for Tanks 2104-F, 2105-F, and 2003-F and associated pumps are provided in Exhibits D-4 and D-5. In addition, simplified conceptual process flow diagrams are provided in Exhibits D-1, D-2, and D-3. A description of each inflow waste stream is provided in Section D-2a of this permit application.

### **D-2a(4) Ignitable, Reactive, and Incompatible Wastes: OAC 3745-50-44(c)(2), OAC 3745-54-17, 3745-55-98, 3745-55-99**

The required information is presented in Table D-3 for tanks 2104-F, 2105-F, and 2003-F. The aboveground storage tanks are located at least 50 feet from the property line, in accordance with National Fire Protection Association buffer zone requirements. Ignitable wastes are handled so that they do not:

- 1) Become subject to extreme heat or pressure, fire or explosion, or a violent reaction. The tanks are vented and kept at atmospheric temperature to minimize the potential for pressure build up. Smoking and open flames are prohibited near the waste tanks.



- 2) Produce uncontrolled toxic mists, fumes, dusts, or gases in quantities sufficient to threaten human health.
- 3) Produce uncontrolled fires or gases in quantities sufficient to pose a risk of fire or explosion. "No Smoking" signs are posted in areas where wastes are handled or stored.

Additionally, Section F-5 provides detailed information concerning the prevention of reaction of ignitable, reactive and incompatible waste.

**TABLE D-3. TANK SYSTEM OPERATING INFORMATION**

Tank	Operating Pressure	Operating Temperature
2104-F	Atmospheric	<234° F
2105-F	Atmospheric	<234° F
2003-F	Atmospheric	Ambient

As provided in OAC 3745-55-98, the ignitable wastes stored in these tanks are managed (i.e., through procedures, practices, and facilities) to protect them from any material or condition that may cause them to ignite. The procedures/practices are described in Sections F and G.

#### **D-2a(5) External Corrosion Protection**

Tanks 2003-F, 2104-F & 2105-F will be inspected per the API 653 Standards as required by OAC 3745-55-92. Corrosion protection will be applied as necessary based on the results of the API 653 inspections. 2003-F is constructed of stainless steel and will not be painted. All the hazardous wastes tanks at the facility are inspected daily for signs of wear, corrosion, or leakage.

#### **D-2b Existing Tank System: OAC 3745-55-91, 3745-50-44(c)(2)**

Table D-4 identifies the year of installation for each tank system. Based on the date of installation, existing tank systems include 2104-F, 2105-F, and 2003-F. All of these existing tank systems have secondary containment meeting the requirements of OAC 3745-55-93. A written assessment of their integrity is included as Attachment D-5. Section D-2d of this permit application provides a detailed description of the secondary containment areas.



**TABLE D-4. INSTALLATION DATES OF TANKS**

Tank	Year Installed
2104-F	1968
2105-F	1968
2003-F	1968*

\*Tank 2003-F was originally put in service in 1968.  
This tank was replaced with a new tank in 2006.

**D-2c New Tank Systems: OAC 3745-55-92, 3745-50-44(c)(2)**

New tank systems require certified assessments prior to being placed into service.

**D-2d Containment and Detection of Releases: OAC 3745-55-93**

In compliance with the requirements of OAC 3745-55-93, secondary containment has been provided for Tanks 2104-F, 2105-F, and 2003-F.

**D-2d(l) Plans and Description of Design, Construction and Operation of Secondary Containment Systems: OAC 3745-55-93, 3745-55-92(c)(2)**

**D-2d(l)(a) Tank Age Determination: OAC 3745-55-93, 3745-55-92(c)(2)**

Secondary containment, as required in OAC 3745-55-93, has been provided for the storage tanks identified in this permit application. Therefore, compliance with the intent of tank age determination has been achieved.

**D-2d(l)(b) and (c) Requirements of Secondary Containment and Leak Detection: OAC 3745-55-93, 3745-55-92(c)(2)**

In response to OAC 3745-55-92(c)(2), the design drawings for secondary containment and leak detection are provided in Attachments D-2 and D-3 for the tank systems. These secondary containment and leak detection systems comply with the requirement of OAC 3745-55-93. Additionally, Attachment D-6 presents the tank assessment for Tank 2108-F that was installed within the secondary containment of Tanks 2104-F and 2105-F. This assessment presents information showing that the addition of 2108-F maintains the integrity of the containment pad and that sufficient strength is available to support the tanks.

For Tanks 2104-F, 2105-F, and 2003-F, the secondary containment system consists of exterior diked areas that are paved with concrete and coated with a material compatible with the waste.



Exhibit D-6 presents the specifications of this coating. Expansion joints within the concrete area include rubber water stops. In addition, each of these tanks is constructed with a double bottom plate for leak detection and collection (valved drain system).

Therefore, releases from any part of the tank will be visually detected within the secondary containment area.

The secondary containment facilities for each storage tank are designed with capacities greater than that of the tanks. Table D-5 presents a comparison of tank capacities versus secondary capacities. Secondary containment calculations are presented in Attachment D-4 for 2104-F, 2105-F, and 2003-F.

**TABLE D-5. TANK CAPACITIES VERSUS CONTAINMENT CAPACITIES**

Tank	Tank Capacity (gallons)	Secondary Containment Capacity (gallons)
2104-F	200,000	1,049,302
2105-F	250,000	1,049,302
2003-F	200,000	482,849

The diked secondary containment areas prevent surface water run-on from outside the secondary containment area. In the secondary calculations, precipitation data from a 25-year, 24-hour rainfall event was obtained from the U.S. Department of Commerce, Weather Bureau Technical Report No. 40, Rainfall Atlas of the United States.

**D-2d(1)(d) Secondary Containment for Ancillary Equipment: OAC 3745 55-93, 3745-55-92(c)(2)**

In compliance with the requirements OAC 3745 55-93, all pumps associated with hazardous waste tanks to be permitted are contained within secondary containment areas surrounding the tanks, or in separate curbed containment areas. All associated piping has welded or welded-flange connections that are either within secondary containment areas, or (principally) are inspected daily. In accordance with the provisions of OAC 3745-55-93, daily visual inspection of aboveground welded piping is an acceptable substitute for secondary containment of aboveground piping. Details on inspection procedures that comply with the requirements of OAC 3745-55-94 and 3745-55-95 are provided in Section F of this permit application.



Following are discussions of the ancillary equipment associated with each tank.

### **Tank Systems 2104-F and 2105-F**

These two tanks have common ancillary equipment. Ancillary equipment includes inflow pumps discharge pumps; and associated valves and piping. The piping that extends between pumps and between Tanks 2104-F and 2105-F is inspected daily in accordance with the requirements of OAC 3745-55-93, 3745-55-94, and 3745-55-95. The piping system is a welded/welded flange system. A roof has been erected over the pumps and all associated equipment to divert precipitation away from these facilities. A design drawing for the roof is provided in Attachment D-2.

Discharge pumps are located within the Utility boiler pump pad, which consists of coated concrete paving and curbing. The concrete is coated with an industrial sealant resistant to the waste. In addition, these pumps are located within inner curbed areas that have been cleaned and coated with the same sealant. Piping, which has welded, screwed, and/or welded-flange connections, extending between the pumps and the Utility boilers are inspected daily. A structure is present to divert precipitation away from these pumps. Secondary containment and precipitation diversion structures exist around and over the injector ends of the boilers. Design drawings are provided in Attachment D-2.

All remaining ancillary equipment, including valves used to alternate flow between the tanks, is located within the diked areas of Tanks 2104-F and 2105-F within the concrete containment pad and is inspected daily.

### **Tank System 2003-F**

The ancillary equipment associated with Tank 2003-F includes discharge pumps and associated valves and piping.

The inflow piping for Tank 2003-F at the point of generation is located within the Phenol production area, which provides secondary containment. Piping, which has welded, screwed, and/or welded-flange connections, extends between these pumps and Tank 2003-F. In accordance with 40 CFR 264.193(f), OAC 3745-55-93, these pumps are provided with containment to prevent releases to the plant's stormwater collection system. In accordance with 40 CFR 264.194 and 264.195, OAC 3745-55-94 and 3745-55-95, the piping and valves are visually inspected daily.



Discharge pumps are located within the Utility boiler pump pad, which consists of coated concrete paving and curbing. The concrete is coated with an industrial sealant resistant to the waste. Aboveground piping extends between the pumps and the Utility boilers. This piping has welded, screwed, and/or welded-flange pipe connections, and is visually inspected daily (per 40 CFR 264.194 and 264.195, OAC 3745-55-94 and 3745-55-95). A precipitation diversion structure is located over the discharge pumps. Design drawings for the roof are provided in Attachment D-3.

**D-2d(2) Requirements for Tank Systems Until Secondary Containment is Implemented: OAC 3745-55-93**

As previously stated, the storage tank systems identified as permitted units have secondary containment that complies with OAC 3745-55.

**D-2d(3) Variance from Secondary Containment Requirements: OAC 3745-55-93, 3745-50-44(c)(2)**

There are no variances [as available under OAC 3745-50-44(c)(2) and 3745-55-93] requested from secondary containment requirements.

**D-2e Controls and Practices to Prevent Spills and Overflows: OAC 3745-55-94, 3745-55-94, 3745-50-44(c)(2)**

Section D-2a(2) describes the controls and practices to prevent spills and overflows.

**D-3 WASTE PILES: OAC 3745-50-44(c)(4), 3745-56-50 through 60**

This plant has no waste piles as defined in OAC 3745-56-50 through 3745-56-60 and 3745-50-44(c)(4).

**D-4 SURFACE IMPOUNDMENTS**

This facility does not use surface impoundments (as described in OAC 3745-55-20 through 3745-55-33) to treat, store, or dispose of hazardous waste.

**D-5 INCINERATORS: OAC 3745-50-44(c)(8), 3745-57-40 through 51**

This plant does not operate a hazardous waste incinerator as described in OAC 3745-57-40 through 3745-57-51 and 3745-50-44(c)(8).

**D-6 LANDFILLS: OAC 3745-50-44(c)(7), 3745-57-02 through 18**

This plant does not own or operate a landfill [as described in OAC 3745-57-01 through 3745-57-18 and OAC 3745-50-44(c)(7)] to dispose of hazardous waste.



**D-7 LAND TREATMENT: OAC 3745-50-44(c)(5), 3745-56-70 through 83**

This plant does not own or operate facilities [as described in OAC 3745-56-70 through 3745-56-83 and 3745-50-44(c)(5)] that treat or dispose of hazardous waste in treatment units.

**D-8 MISCELLANEOUS UNITS: OAC 3745-57-91, 3745-50-44(c)(9)**

This plant does not own or operate facilities [as described in OAC 3745-57-90 through 3745-57-93 and 3745-50-44(c)(9)] that treat, store, or dispose of hazardous waste in miscellaneous units.

**D-9 BOILERS AND INDUSTRIAL FURNACES BURNING HAZARDOUS WASTE [OAC RULE 3745-50-44(C)(9)]**

In 2009, Sunoco notified Ohio EPA that the boilers comply with 40 CFR 63, Subpart EEE (The HWC MACT Standards). Only the following sections of RCRA regulations will continue to apply to the hazardous waste burning boilers: Contingency Planning, Closure, Post-Closure, Standards for Direct Transfer, and Standards for Regulation of Residues.

**D-9a Direct Transfer**

The plant does not employ direct transfer for feeding materials to the boilers. All hazardous waste feed to the boilers comes from on-site storage tanks.

**D-9b Residues**

Utility boiler deposit are generated periodically during boiler clean-out. The plant has collected samples of this material during past boiler clean-out episodes. Historically, this material has exhibited the RCRA characteristic of toxicity for chromium (D007) and is therefore managed as a residue, derived from the combustion of a RCRA-listed hazardous waste (K022). The utility boiler deposit is accumulated on site for less than 90 days and sent to an approved, off-site RCRA Subtitle C Facility for treatment and disposal. To maintain an ongoing characterization, a random grab sample of this material is collected when the boiler is down for refractory maintenance and then analyzed for TCLP metals. (The preceding information is contained in the Waste Analysis Plan)

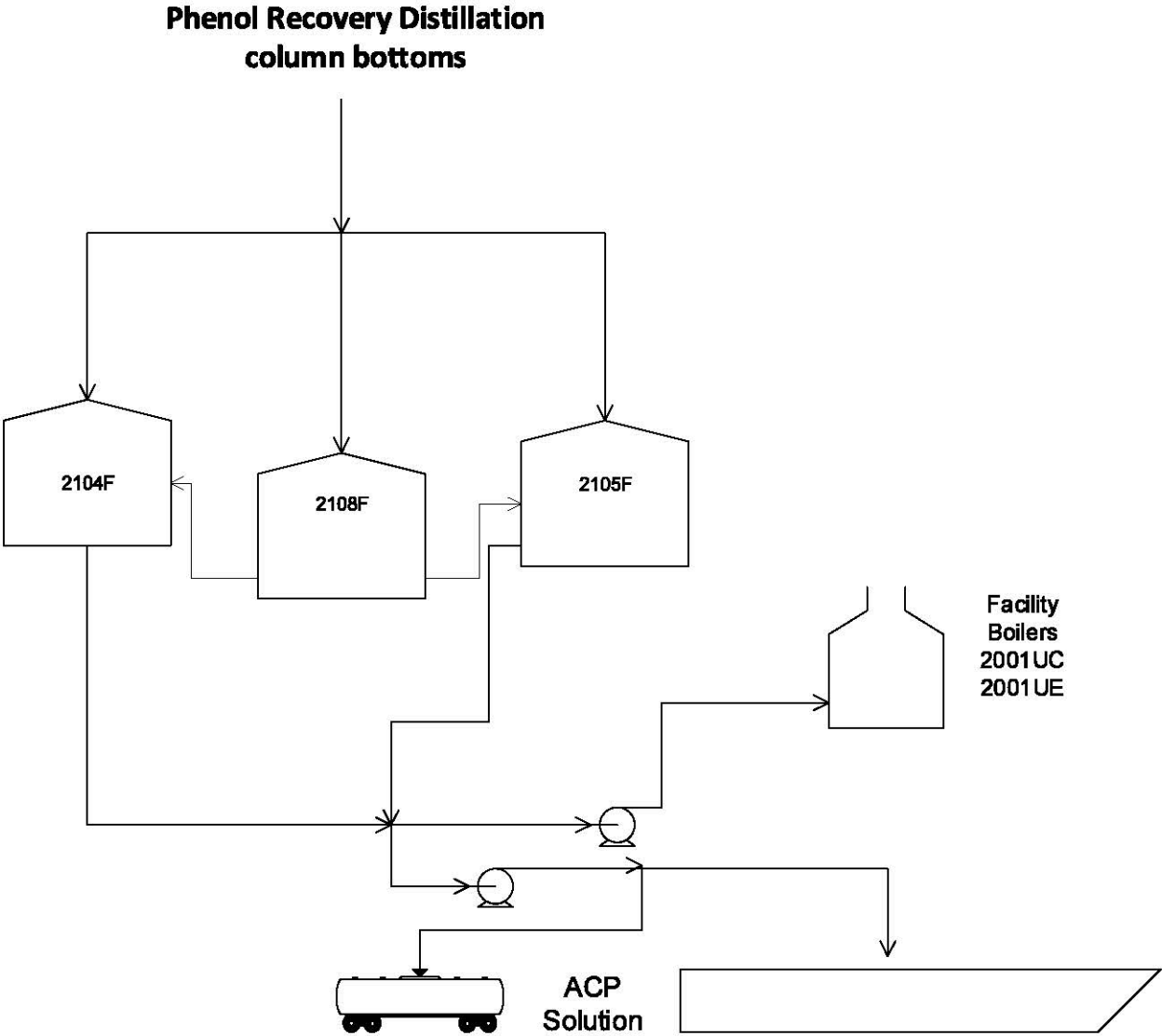


EXHIBIT D-1

TANK SYSTEMS 2104-F AND 2105-F FLOW DIAGRAM



**Heavy Hydrocarbon Flow  
Diagram**



**TANK SYSTEMS 2104-F AND 2105-F FLOW DIAGRAM**

**Exhibit D-1  
Heavy Hydrocarbon Flow Diagram**



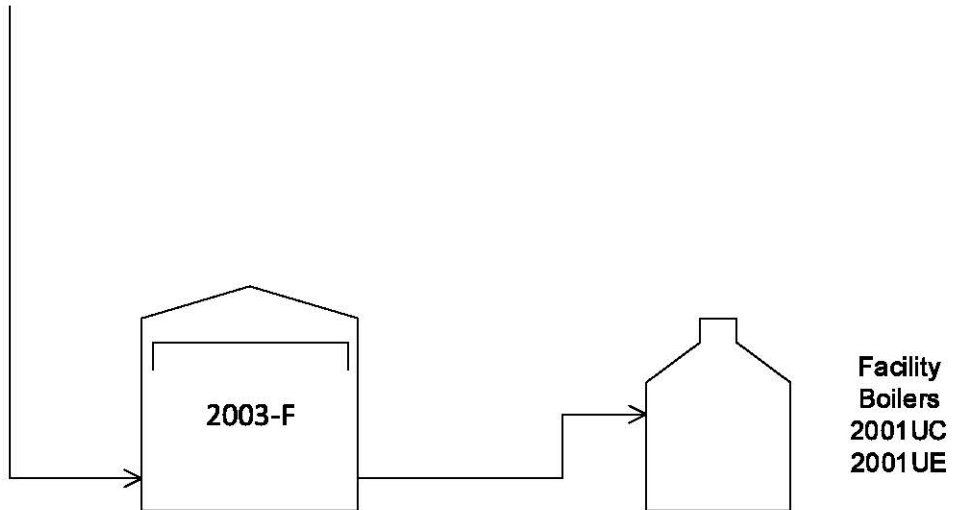
EXHIBIT D-2

TANK SYSTEM 2003-F FLOW DIAGRAM



## Light Hydrocarbon Flow Diagram

Phenol Process Spent  
Emission Scrubber Fluid  
(D001)



### TANK SYSTEM 2003-F FLOW DIAGRAM

Exhibit D-2  
Light Hydrocarbon Flow Diagram



EXHIBIT D-3

BATCH FLOW PROCESS DIAGRAM TANKS 2104-F AND 2105-F



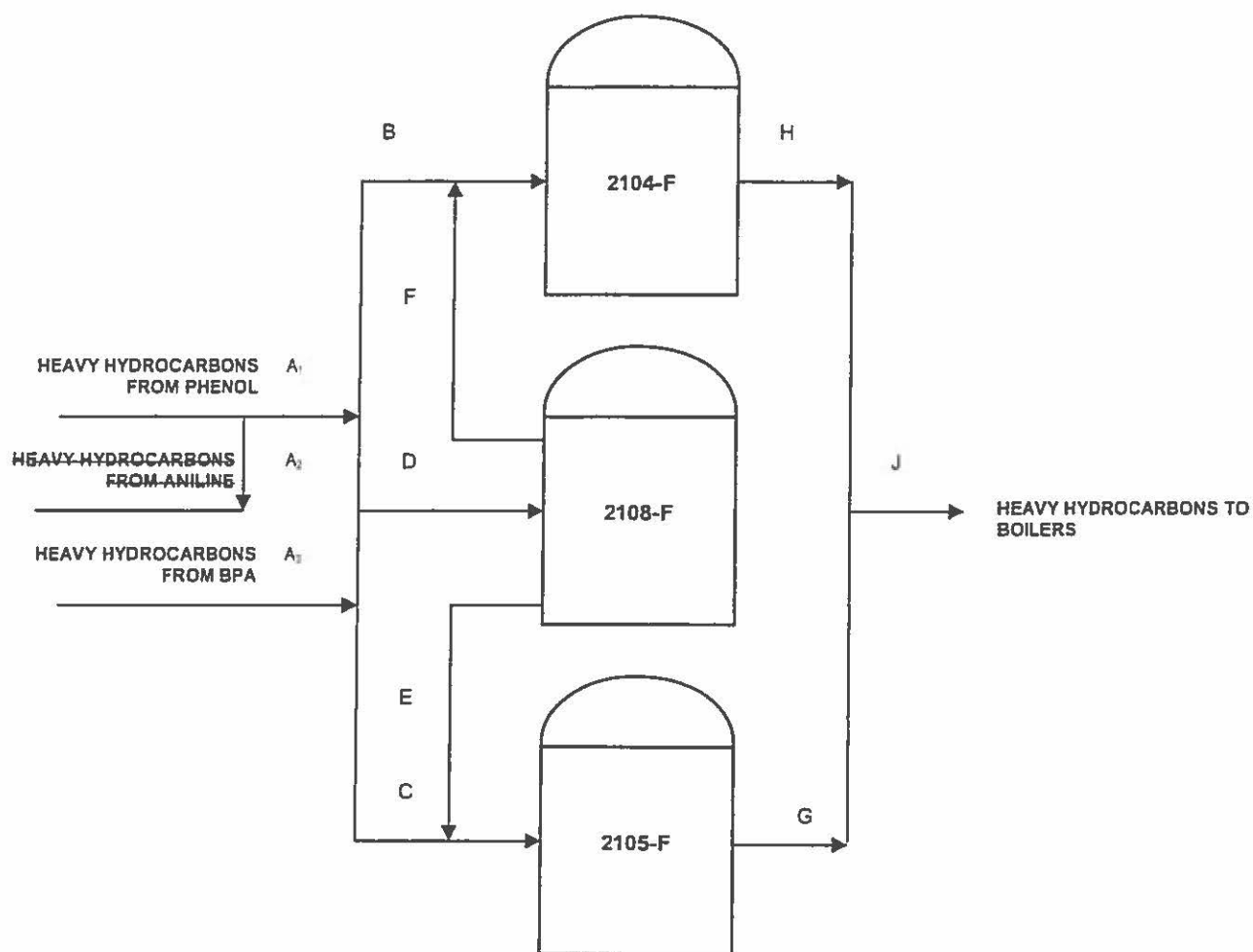


Exhibit D-3

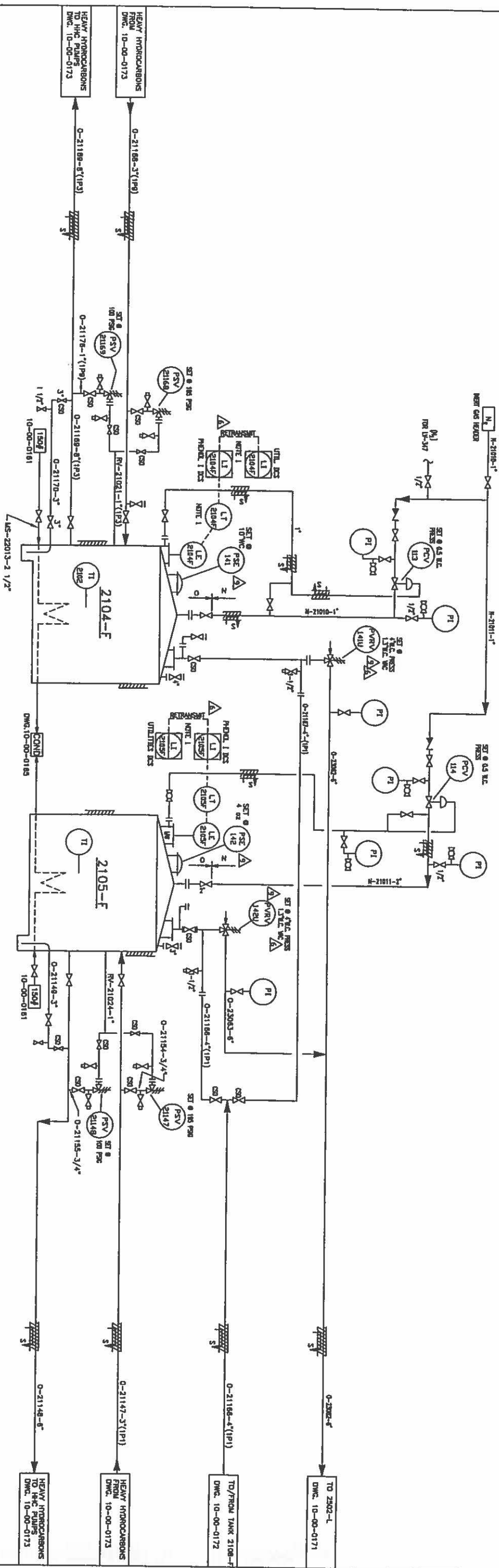
BATCH FLOW PROCESS DIAGRAM TANKS 2104-F AND 2105-F



EXHIBIT D-4

PID – TANKS 2104-F AND 2105-F





NOTES:  
1. SEE TAG NAME "HYDRO" IN PNEUM. I'S OR UTILITIES DCS FOR HEAVY DIOS INVENTORY. SEE TAG NAME "TOLUENE" AND SELECT TANK TO SEE BURN/INDE IN UTILITIES DCS ONLY.

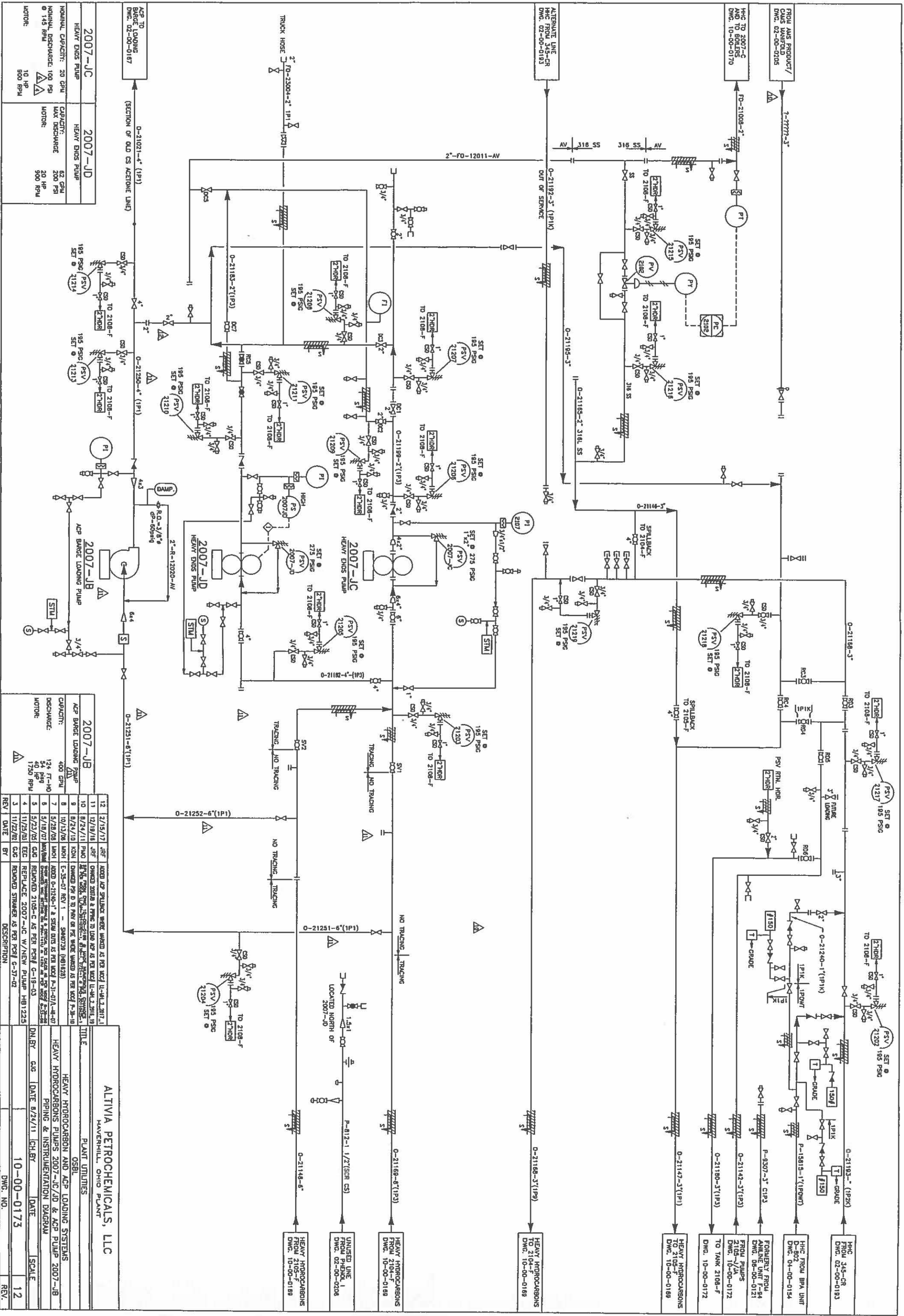
2104-F	2105-F
HYDROCARBONS STORAGE TANK	HYDROCARBONS STORAGE TANK
CAPACITY: 250,000 GALS.	CAPACITY: 250,000 GALS.
SIZE: 137.0' DIA. X 32'-3\"	SIZE: 137.0' DIA. X 32'-3\"
OPERATING: 0.5 TO 4.0\"	OPERATING: 0.5 TO 4.0\"
MATERIALS: A131 GR. B (SHELL)	MATERIALS: A131 GR. B (SHELL)
A283 GR. C (ROOF)	A283 GR. B (ROOF)

10	8/24/11	PMO	SHUT OFF DIA. & LARGEST CORNER AS PER ULLAGE 2104-1 & 2105-1
9	8/24/10	ICOM	CHANGED PER 8 TO PER DIA. PER ULLAGE 2104-1 & 2105-1
8	10/13/08	WNY	E-3-07 REV 1 - SHEETS (08120)
7	5/28/08	WNY	ADDED 0-21168-1' & STOD DMS AS PER ULLAGE 2104-1 & 2105-1
6	5/18/07	WNY	ADDED 0-21168-1' & STOD DMS AS PER ULLAGE 2104-1 & 2105-1
5	5/23/06	ICG	REMOVED 2105-1 AS PER PUMP 0-18-01
4	11/25/01	EEC	REPLACE 2007-JC W/NEW PUMP H81225
3	11/22/01	ICG	REMOVED STRAINER AS PER PUMP 0-37-02
2	5/29/02	ICG	CORRECTED PRESS. SETTINGS ON PER-21168 & 21167 PER BMA
1	2/9/02	ICG	REDRAWN FROM 53-02A
REV	DATE	BY	DESCRIPTION
SUNOCO CHEMICALS HAVERHILL, OHIO PLANT			
TITLE			
PLANT UTILITIES			
OFFSITE			
HEAVY HYDROCARBON STORAGE TANKS 2104-F & 2105-F			
PIPING & INSTRUMENTATION DIAGRAM			
DN.BY	DATE	SCALE	REV.
ICG	2/5/02	10-00-0169	10
DWG. NO.			









2007-JC		2007-JD	
HEAVY ENDS PUMP		HEAVY ENDS PUMP	
CAPACITY: 20 GPM		CAPACITY: 20 GPM	
MAX DISCHARGE: 100 PSI		MAX DISCHARGE: 200 PSI	
MOTOR: 10 HP		MOTOR: 900 RPM	
NOMINAL CAPACITY: 20 GPM		NOMINAL CAPACITY: 20 GPM	
NOMINAL DISCHARGE: 100 PSI		NOMINAL DISCHARGE: 200 PSI	
MOTOR: 10 HP		MOTOR: 900 RPM	
MOTOR: 10 HP		MOTOR: 900 RPM	

2007-JB	
ACP BARGE LOADING PUMP	
CAPACITY: 400 GPM	
MAX DISCHARGE: 124 PSI	
MOTOR: 1750 RPM	
NOMINAL CAPACITY: 400 GPM	
NOMINAL DISCHARGE: 124 PSI	
MOTOR: 1750 RPM	

REV	DATE	BY	DESCRIPTION
1	11/22/03	CAC	REMOVED STRAINER AS PER P&ID 5-31-02
2	11/22/03	CAC	REMOVED STRAINER AS PER P&ID 5-31-02
3	11/22/03	CAC	REMOVED STRAINER AS PER P&ID 5-31-02
4	11/22/03	CAC	REMOVED STRAINER AS PER P&ID 5-31-02
5	5/23/05	CAC	REMOVED STRAINER AS PER P&ID 5-31-02
6	5/23/05	CAC	REMOVED STRAINER AS PER P&ID 5-31-02
7	5/23/05	CAC	REMOVED STRAINER AS PER P&ID 5-31-02
8	5/23/05	CAC	REMOVED STRAINER AS PER P&ID 5-31-02
9	5/23/05	CAC	REMOVED STRAINER AS PER P&ID 5-31-02
10	5/23/05	CAC	REMOVED STRAINER AS PER P&ID 5-31-02
11	5/23/05	CAC	REMOVED STRAINER AS PER P&ID 5-31-02
12	5/23/05	CAC	REMOVED STRAINER AS PER P&ID 5-31-02

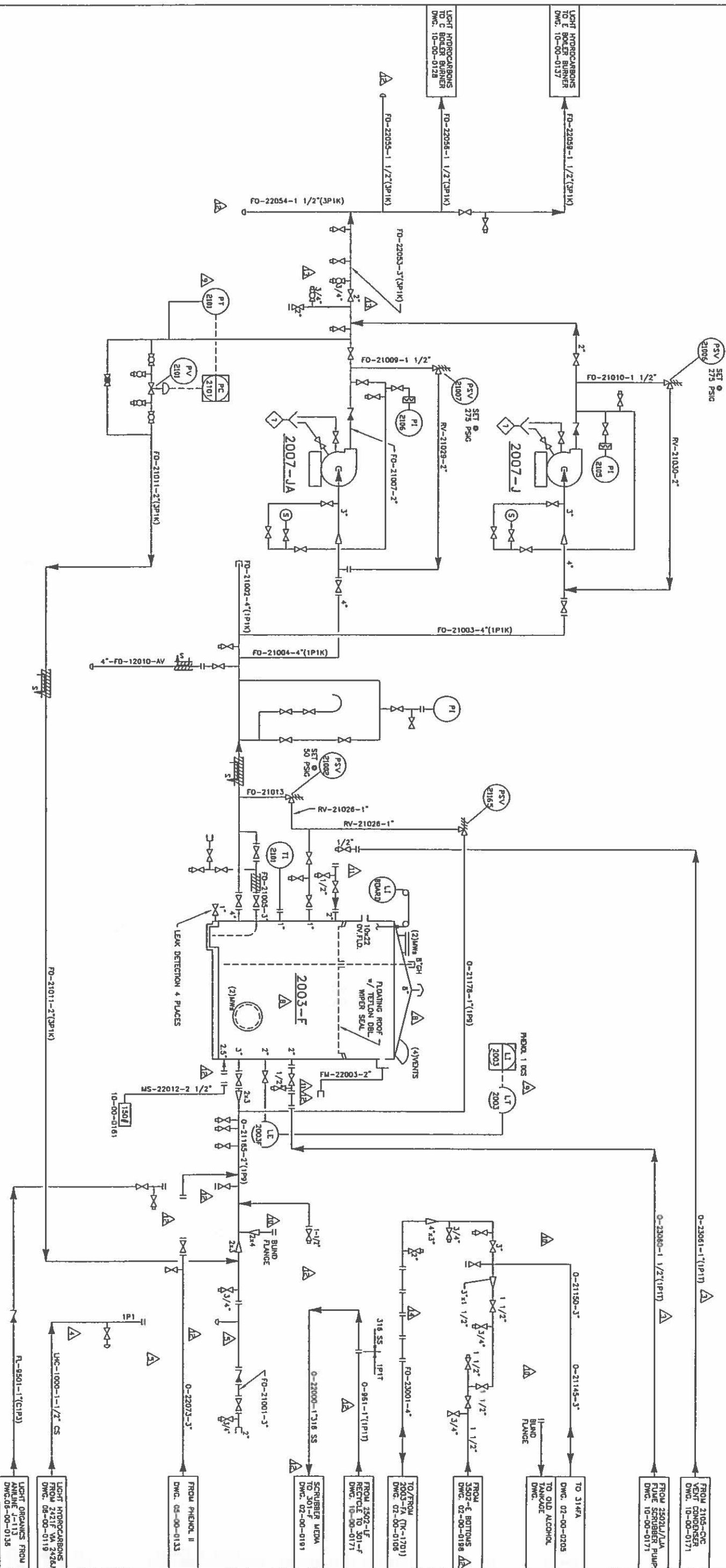
ALTVIA PETROCHEMICALS, LLC	
HAVERHILL, OHIO PLANT	
PLANT UTILITIES	
OSBL	
HEAVY HYDROCARBON AND ACP LOADING SYSTEMS	
HEAVY HYDROCARBON PUMPS 2007-JC/JD & ACP PUMP 2007-JB	
PIPING & INSTRUMENTATION DIAGRAM	
DN BY	DATE
CAC	8/24/11
DATE	10-00-0173
SCALE	12
REV.	



EXHIBIT D-5

PID – TANK 2003-F





2007-J/JA		2003-F	
FUEL OIL PUMPS		LIGHT HYDROCARBONS STORAGE TANK	
SUNDTME		WITH EQUIP	
WFG CAPACITY		200,000 GAL	
MATE		304L SS	
		A	

14	10/4/18	CAC	SHOW 5 SET OF FLANGES AS PER LOG/SP-2, 2018, 18
13	2/18/13	DNK	ADD BLOC & BLEED IN 200-JA BLOC, USE LUM 2, 2012, 13
12	9/25/11	WFG	REPLACE 2003-F W/ 2003-F, 11/25/11, 11/25/11
11	2/25/10	SAC	ADD BLEED & BLEED IN 200-JA BLOC, USE LUM 2, 2012, 13
10	10/13/08	WFG	REPLACE 2003-F W/ 2003-F, 10/13/08, 10/13/08
9	5/19/07	WFG	CONNECTED INSTRUMENTATION WERE WAGED AS PER LOG/SP-2, 2018, 18
8	2/18/07	DNK	REPLACED 2003-F W/ 2003-F, 2/18/07, 2/18/07
7	3/24/04	CAC	MODIFIED 2003-F INSTRUMENTS AS PER LOG/SP-2, 2018, 18
6	2/20/04	CAC	SHOW (2) 1/2" BLEEDS WHERE FOUND IN FIELD
5	5/20/03	CAC	CORRECTED EXISTING THE IN POINT & SHOWED SPEC BREAK
4	11/22/02	CAC	MODIFIED PIPING AT THE IN POINT OF LUC-1000 AS PER H1100
REV	DATE	BY	DESCRIPTION
ALTIMA PETROCHEMICALS, LLC HAVERHILL, OHIO PLANT			
UTILITIES			
LIGHT HYDROCARBON STORAGE			
2003-F TANK & 2007-JA PUMPS			
PIPING & INSTRUMENTATION DIAGRAM			
DN BY	CAC	DATE 2/18/02	CH BY
SCALE	DATE	10-00-0168	REV.
14			



## EXHIBIT D-6

### CONTAINMENT COATING SPECIFICATION



Temporary, Issued March, 1998

## HIGH PERFORMANCE CRACK BRIDGING CONTAINMENT LINING

**CHEMICAL RESISTANCE** <sup>1</sup> *Elasti-Liner® I* is recommended for effective 72 hour spill containment of many industrial chemicals, examples are listed below.

ACIDS	ALKALINES	SOLVENTS, CHEMICALS
1-50% Acrylic	All Plating & Anodizing solutions	All Alcohols
1-50 % Acetic	All Pulp Liquors	Animal & Mineral Oils
Anodizing solutions	1-10% Ammonium Fluoride	Ethylene Glycol
Chrome Plating solutions	1-20% Ammonium Hydroxide	Fuel Oils
1-30% Chromic	Cadmium Cyanide Plating solution	Jet Fuel, SP-10
1-37% Hydrochloric	1-15% Calc. Hypochlorite	Lubricating Oils
1-20% Hydrofluoric	1-45% Potassium Hydroxide	Sour Crude Oils
1-40% Nitric	1-50% Sodium Hydroxide	
1-85% Phosphoric	1-15% Sodium Hypochlorite	
1-75% Sulfuric		

**MAXIMUM SERVICE TEMPERATURE** <sup>1</sup> *Elasti-Liner® I* in 72 hour containment of aqueous chemicals or splash & spill: 130°F. Intermittent immersion: 200°F. In solvents and other non-aqueous chemicals immersion or splash & spill: ambient temperature.

### RESISTANCE TO WEATHERING

All *Elasti-Liner®* products are specially formulated to resist color fade and will not chalk when used outdoors in ultraviolet light. However, over time, the color may lose some of its luster. These events will not adversely affect

the overall performance of the coating system in chemical containment applications. Unlike other less capable polymers, *Elasti-Liner®* will not continue to cure and age over time thus retaining its excellent chemical resistance and crack bridging capability.

### TYPICAL PROPERTIES

#### *Elasti-Liner® I*

Solids Content:	50% ± 2.0% by weight
Volatile Organic Content:	3.0 ± 0.2 lbs. per gallon
Flash Point: (Pensky-Martens Closed Cup)	Resin Part A > 65°F Hardener Part B > 55°F
Viscosity: @ 75°F (mixed)	5000 - 6000 cps
Weight/Gallon:	8.8 ± 0.2 lbs/gal. (mixed)
Thinner:	Only as directed by KCC; 637 Thinner or xylene. Do not use MEK.
Coverage: (practical, includes 10% loss)	36 sq. ft. per gallon @ 40 wet mils → 20 DET
System Thickness:	Minimum recommendation is 40 mils DFT
Color:	Light Gray

### PHYSICAL PROPERTIES - FULLY CURED SYSTEM <sup>2</sup> *Elasti-Liner® I*

Tensile Strength at break (ASTM D-412)	900 lbs force/in <sup>2</sup>
Tensile Strength at 50% Elongation (ASTM D-412)	350 lbs force/in <sup>2</sup>
Elongation at break (ASTM D-412)	180% average
Bond Strength to Concrete (ASTM D-1002)	> tensile strength of concrete; breaks 5000 psi concrete
Shore "A" Hardness (ASTM D-2240)	70 to 80
Tear Strength (ASTM D-624)	104 lbs force/in <sup>2</sup>
Impact Strength	undamaged at highest test force possible

<sup>1</sup> FOR SPECIFIC RECOMMENDATIONS CONTACT KCC CORROSION CONTROL CO., LTD.  
<sup>2</sup> FULL CURE FOR PHYSICAL TESTING - 30 DAYS AT AMBIENT TEMPERATURE



Revised August, 1995

## 100% REACTIVE SOLIDS VINYL ESTER COATING/LINING SYSTEM

TECHNI-PLUS VE 40 is a 30 to 40 mil novolac vinyl ester resin based, flake-filled, peroxide cured polymer system. It is designed for use as a tank lining, exterior coating or chemical containment membrane on metal or concrete.

TECHNI-PLUS VE 40 exhibits excellent resistance to acid and alkaline environments as well as most organic solvents. In immersion service TECHNI-PLUS VE 40 is

used in combination with TECHNI-PLUS P 3 Primer and performs as a corrosion resistant lining up to 140°F in severe corrosive environments. TECHNI-PLUS VE 40 provides superior performance in primary and secondary containment where excellent solvent and acid resistance is required. TECHNI-PLUS VE 40 is also an excellent high build exterior coating for severe corrosive environments.

### CHEMICAL RESISTANCE <sup>1</sup>

In coating applications, TECHNI-PLUS VE 40 will generally withstand higher concentrations. Examples of chemical resistance for immersion services are listed. Contact KCC Corrosion Control Co. with complete operating service conditions for specific product recommendations.

ACIDS	ALKALINES	SOLVENTS, CHEMICALS
1-50% Acetic	1-29% Ammonium Hydroxide	1-10% Acetone
glacial Acetic	Black & White Pulp Liquor	Aniline
1-25% Adipic	1-100% Calcium Hydroxide <sup>2</sup>	Benzene
saturated Benzoic	Copper Plating Cyanide	Butyl Acrylate
saturated Boric	Diethanolamine	Carbon Tetrachloride
1-50% Chloroacetic	Dimethylamine	Chlorotoluene
1-10% Chromic	Gold Plating Cyanide	Cyclohexane
1-100% Citric	30% Hydrogen Peroxide	Cyclohexanone
1-50% Hydrobromic	Isopropylamine	Ethanol
1-30% Hydrochloric	Morpholine	Isopropanol
1-20% Hydrofluoric <sup>1,2</sup>	Sodium Bisulfite (saturated)	Jet Fuel
Maleic	0-100% Sodium Chlorate	Kerosene
Nickel Plating	0-50% Sodium Chlorite	Methylene Chloride
1-40% Nitric	1-100% Sodium Sulfite	Methyl Ethyl Ketone
Oleic	Sodium Peroxide	Naphtha, Aromatic
1-30% Perchloric	1-50% Potassium Hydroxide	ortho- & para-Xylene
100% Propionic	1-15% Sodium Cyanide	5-85% Phenol
1-100% Phosphoric	1-10% Sodium Hydroxide <sup>2</sup>	Salt Brine
Stearic	10-50% Sodium Hydroxide	Toluene
1-25% Sulfamic	1-18% Sodium Hypochlorite <sup>3</sup>	1,1,1 Trichloroethane
1-75% Sulfuric		Trichloroethylene

**MAXIMUM SERVICE TEMPERATURE <sup>1</sup>** 350°F Dry, 180°F for Splash/Spillage, 140°F for Immersion

LHC Dikefield

2003-F

<sup>1</sup> FOR SPECIFIC RECOMMENDATIONS CONTACT KCC CORROSION CONTROL CO.

<sup>2</sup> FOR LOW CONCENTRATIONS SPECIAL CLEAR COAT REQUIRED.

<sup>3</sup> CLEAR COAT REQUIRED GREATER THAN 15%.



To: J.E. Fain

ARISTECH 

Interorganization Correspondence

Date: April 15, 1998

From: J.B. Mahler

Subject: N-1497 RCRA Tank Dikefield Crack Repair and Coating

Testing was conducted on immersion coupons obtained from manufacturers of coatings for the concrete secondary containment of the light hydrocarbon tank 2003-F and the heavy hydrocarbon tanks 2104-F, 2105-F and 2108-F. The products that I tested are VE-40 and Elastiliner from KCC Corrosion and Semstone 145 and Semstone 245 from Carboline. Elastiliner is a proprietary polymeric coating that is rubber-like and very elastic. The VE-40 and the Semstone products are rigid coatings.

#### Elastiliner

Elastiliner is a chemical resistant, crack bridging polymer that is available in a standard version and a high performance version (higher chemical resistance). The high performance version was tested in the lights, while both types were tested in the heavies. Each coupon was weighed prior to immersion and reweighed when the test was complete. According to the manufacturers representative, a noticeable change in physical appearance or a gain in weight would show that the coating was being affected by the test solution.

The coupon that was tested in the lights sample was removed after only 6 hours and a visual inspection showed that the coupon had definitely increased in size. The weight of the coupon had in fact more than doubled from 4 grams to 9 grams. Consequently, Elastiliner will not be suitable in lights service.

The coupons in the heavies were immersed in the sample for 48 hours. The coupons were removed, wiped off and reweighed. From a visual inspection, no change in size in either coupon was evident. The standard version increased in weight from 4.04 g to 4.15 g and the more chemical resistant version from 4.15 g to 4.26 g, an increase of 2.7% for both. However, as the heavies sample was a very viscous, tarry material, it was difficult to remove all of the sample from the coupon. After reviewing these results with the manufacturers representative, either Elastiliner product should do well in the heavies application. These coupons will be returned to the manufacturer to verify this conclusion.

#### VE-40

This compound is a vinyl ester coating and was tested for 48 hours in the lights sample. A visual inspection showed no visible chemical attack or alteration in appearance. The weight increased 3.2% from 8.067 g to 8.324 g. After review of these results with the



manufacturer, this coating will be suitable in the lights tank application. This coupon will also be sent back to the manufacturer for verification.

#### Semstone 145 and 245

Carboline initially proposed Semstone 145, which is a novolac epoxy. From their chemical resistance chart, I noticed that the Semstone 245 had better chemical resistance than the 145, so I had them send me coupons of both. Both the Semstone 145 and 245 were immersed in the lights sample for 48 hours. Upon removal from the sample, the Semstone 145 showed definite signs of chemical attack. The coupon initially had a smooth surface and when removed from the lights sample, the surface was rough with particles flaking off. The Semstone 245 showed a noticable increase in the thickness of the coupon, indicating it had absorbed a fair amount of the solution. Consequently, neither of these coatings will be suitable in the lights tank secondary containment application.

#### Testing Rationale

I tested only the Elastiliner in the heavies because with the heavies application there are essentially two problems to deal with: 1) chemical compatibility and 2) thermal shock. For a rigid coating, to deal with thermal shock, a fiberglass mat must be embedded into the coating to help dissipate the heat to prevent the coating from cracking. As the area we are looking at is approximately 32,500 sq. ft. and installing the mat has to be done by hand, this would increase the labor costs tremendously. A coating that does not need matting would be more cost effective. The Elastiliner is able to withstand the thermal shock associated with the heavies without the need for fiberglass matting. Had the Elastiliner not proven to be chemically compatible in the immersion test, I would have then tested the rigid coatings in the heavies.

Also, cracks and joints with Elastiliner need no special treatment. As long as the grout in the existing cracks is level with the concrete surface, the Elastiliner can be applied over the crack. With a rigid coating system, cracks have to be "bridged over": 1) existing grout is removed, 2) the edges of the crack are ground smooth, 3) crack is regouted, 4) duct tape is applied over the crack to provide bond breaker, 5) primer is applied over the crack, 6) coating is applied over the crack 7) fiberglass matting is installed over crack and 8) the final coat is applied. With the number of cracks involved over the entire surface, this would also increase the labor costs.

#### Recommendation:

Based on the immersion tests that were conducted, I recommend VE-40 from KCC Corrosion Control be used as the lights tank 2003-F secondary containment coating. As outlined above, Elastiliner and Semstone 145 and 245 proved unsuitable for this application.



I recommend Elastiliner from KCC Corrosion Control be used for the secondary containment of 2104-F, 2105-F and 2108-F. This system will be more cost effective than a rigid coating system. Additional benefits of Elastiliner is its crack bridging ability and a 3 year chemical resistance and crack bridging warranty. A non-skid additive can be included to provide slip resistance.

The standard version is less costly material-wise, but can only be applied with a roller. The more chemical resistant version, however, can be applied with a sprayer, which may reduce the labor cost. We will have the contractors estimate the project both ways to determine the most cost effective option.

Please direct your comments and questions to me. A scope package will be submitted in May.

  
Joel B. Mahler

cc: J.M. Collier  
J.M. Delabar  
B.V. Elswick  
T.S. Lanier  
P.M. O'Neill  
J.A. Stitt  
B.M. Moore  
R.J. Wolf



Attachment D-1

Tank Technical Data Sheets



## TECHNICAL DATA SHEET

FACILITY: Aristech Chemical, Haverhill EPA I.D. NO. OHD005108477

TANK DESIGNATION: 2104-F

TYPE OF TANK: Vertical Cylindrical, Flat Bottom, Conical Roof

TSD FUNCTION: Storage Tank

CAPACITY: 200,000 gallons DIMENSIONS: 32'8" I.D. x 32'0" High

SHELL MATERIAL: Carbon Steel

SHELL THICKNESS: Design 7/16 in. Actual \* in.

BOTTOM PLATE THICKNESS: Design 1/2 in. Actual \* in.

FABRICATION SPECS: API 650

SEE ATTACHED DRAWINGS: S-28357-0, S-4-89

SECONDARY CONTAINMENT: Existing earthen dike covered with a concrete surface. The  
concrete surface is coated with V-40, a material compatible  
with the wastes stored. A bottom plate is installed to provide  
double wall containment of the tank bottom, and collection  
of leaks to provide visual detection of leaks.

\* See tank assessment

OHIO EPA DHMM

~~OCT 29 2001~~

00124

~~00165~~



## TECHNICAL DATA SHEET

FACILITY: Aristech Chemical, Haverhill EPA I.D. NO. OHD005108477

TANK DESIGNATION: 2105-F

TYPE OF TANK: Vertical Cylindrical, Flat Bottom, Conical Roof

TSD FUNCTION: Storage Tank

CAPACITY: 250,000 gallons DIMENSIONS: 36'4" I.D. x 32'3" High

SHELL MATERIAL: Carbon Steel

SHELL THICKNESS: Design 3/16 in. Actual \* in.

BOTTOM PLATE THICKNESS: Design 1/2 in. Actual \* in.

FABRICATION SPECS: API 650

SEE ATTACHED DRAWINGS: S-28357-0, S-4-89

SECONDARY CONTAINMENT: Existing earthen dike covered with a concrete surface. The  
concrete surface is coated with V-40, a material compatible  
with the wastes stored. A bottom plate is installed to provide  
double wall containment of the tank bottom, and collection  
of leaks to provide visual detection of leaks.

\* See tank assessment

OHIO EPA DHHM

~~OCT 29 2001~~

00125

~~00166~~



## TECHNICAL DATA SHEET

FACILITY: Aristech Chemical, Haverhill EPA I.D. NO. OHD005108477

TANK DESIGNATION: 2003-F

TYPE OF TANK: Vertical Cylindrical, Flat Bottom, Floating Roof

TSD FUNCTION: Storage Tank

CAPACITY: 200,000 gallons DIMENSIONS: 32'8" I.D. x 32'0" High

SHELL MATERIAL: Carbon Steel

SHELL THICKNESS: Design 1/4 in. Actual \* in.

BOTTOM PLATE THICKNESS: Design 3/8 in. Actual \* in.

FABRICATION SPECS: API 650

SEE ATTACHED DRAWINGS: S-28357-0, S-4-89

SECONDARY CONTAINMENT: Existing earthen dike covered with a concrete surface. The  
concrete surface is coated with V-40 a material compatible  
with the wastes stored. A bottom plate is installed to provide  
double wall containment of the tank bottom, and collection  
of leaks to provide visual detection of leaks.

\* See tank assessment

00126

OHIO EPA. DHMM

00167

OCT 29 2001

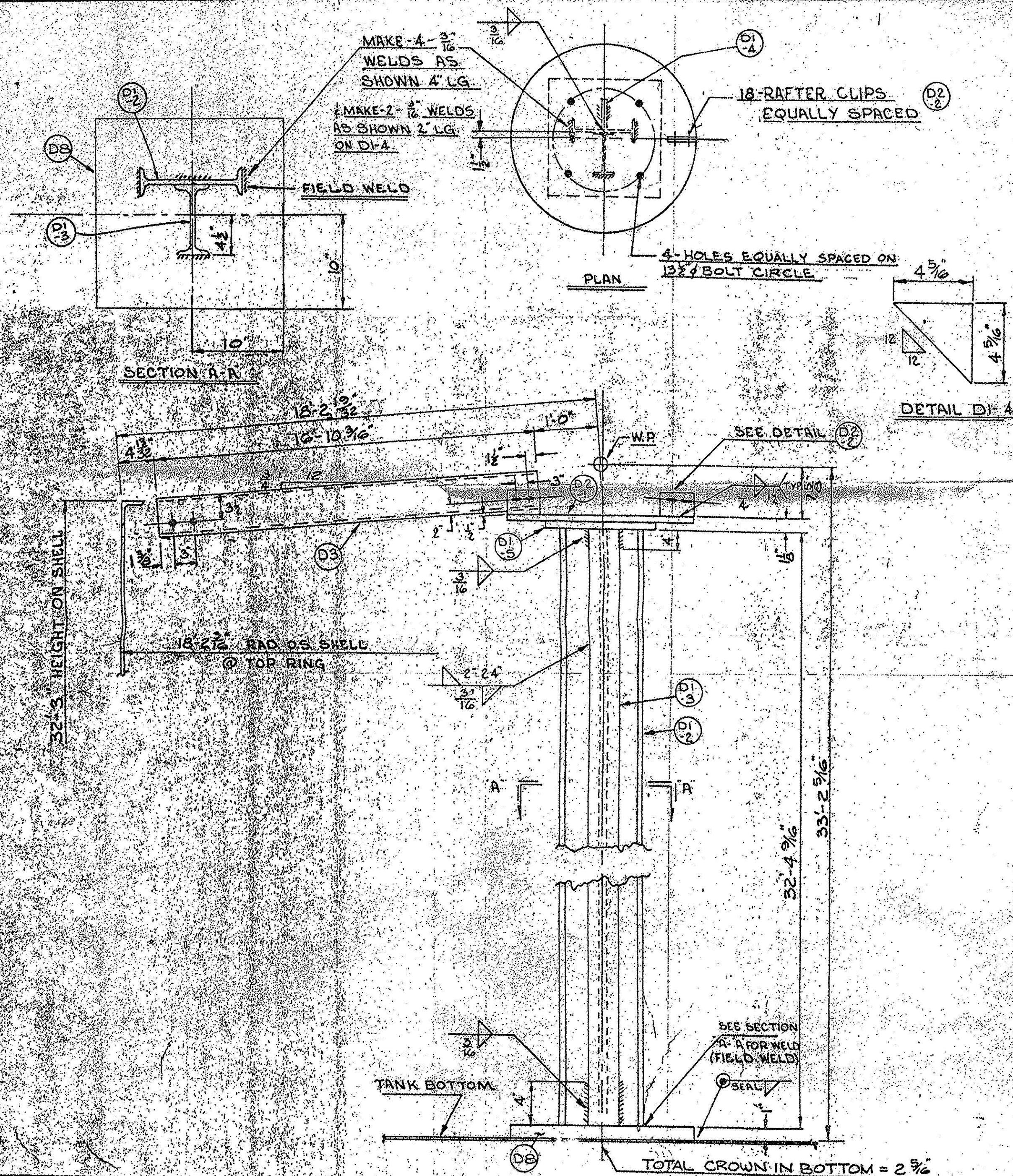
Ohio EPA 00126



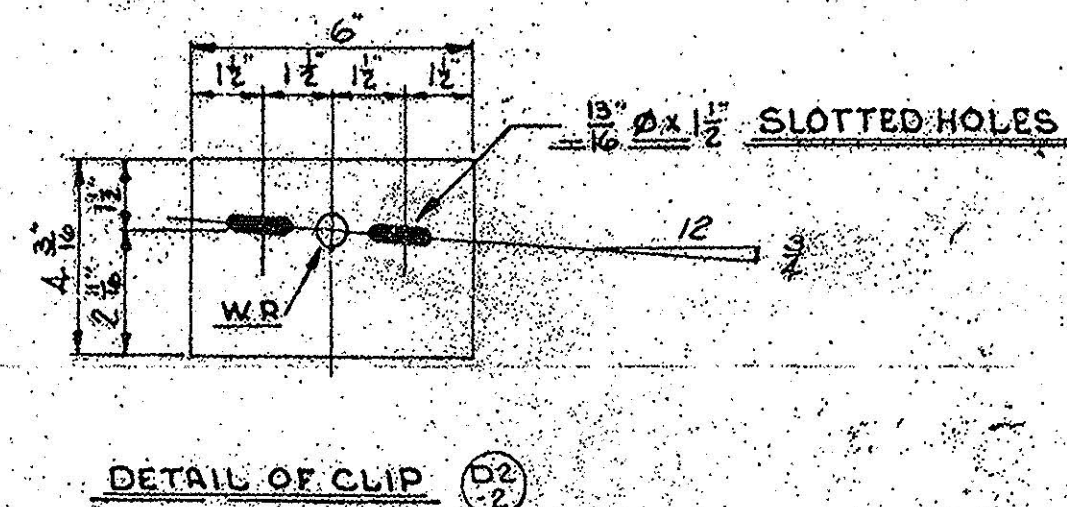
Attachment D-2

Tanks 2104-F and 2105-F Design Drawings





ITEM	QUAN.	DESCRIPTION & SIZE	F/M
D1	1	CENTER COLUMN ASSEM.	
D1-1		NOT USED	
D1-2	1	C.B.J. BEAM 6" @ 85" x 32'-4 9/16"	M
D1-3	1	C.B.J. BEAM 6" @ 85" x 32'-4 9/16"	M
D1-4	1	SK. 1/8" I.P. (8") x 4 7/8" x 4 7/8"	M
D1-5	1	R. 3/8" x 1'-3" x 1'-3"	M
D1-6	5#	COVERED ELECTRODE E7018	F
D2	1	COLUMN CAP ASSEM.	
D2-1	1	CIRCLE (1/2") x 3'-0"	
D2-2	18	R'S (3/8") x 4 7/8" x 6"	M
D2-3	2#	COVERED ELECTRODE E7018	F
D3	18	CHANNELS 6" @ 82" x 16'-10 3/16"	M
D4	4	BOLTS H.H.N. 3/4" x 2 1/2" LG.	F
D5	79	BOLTS H.H.N. 3/4" x 1 3/4" LG. (10% ADDED)	F
D6	18	SHELL CLIPS PER DRWG # B15394	F
D7	10	FALSE RAFTERS (FOR ERECTION ONLY)	F
		PART # 1276	
D8	1	R. 1" x 1'-8" x 1'-8"	M



#### GENERAL NOTES:

ALL HOLES 1 3/16"  $\phi$  UNLESS OTHERWISE NOTED  
FOR SHELL CLIPS SEE DRWG # B15394

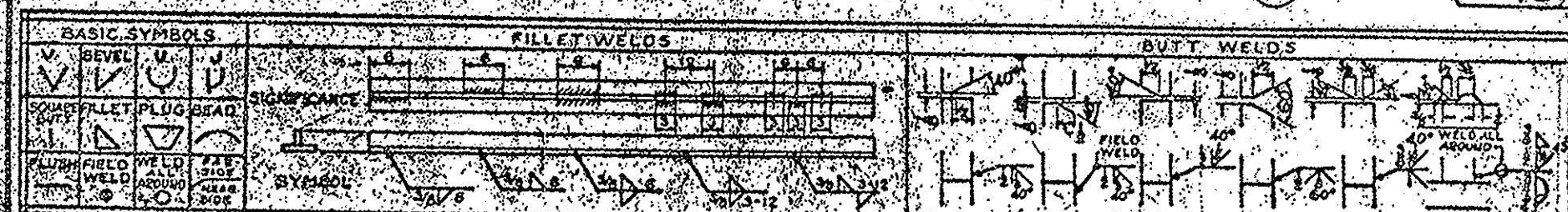
ONCEPA DHWM

OCT 29 2001

00255

TANK No. -2105-F

TESTING	ORDER No. 56481
PAINING	<b>Graver Tank &amp; Mfg. Co.</b>
	DIVISION-UNION TANK CAR COMPANY
	ROOF SUPPORT FOR R
	36'-4" I.D. x 32'-3" HIGH
	C.R. TANK
	DRAWN BY <u>A.S.</u> CHECKED BY <u>K.S.</u> APPROVED
	SCALE NONE DATE <u>8-15-68</u>
	DRG. No. <b>S-28364-0</b>



THIS DRAWING IS THE PROPERTY OF Graver Tank & Mfg. Co. AND IS NOT TO BE REPRODUCED, COPIED, LENT OR DISPOSED OF WITHOUT THEIR PERMISSION.

ORIGINAL AT





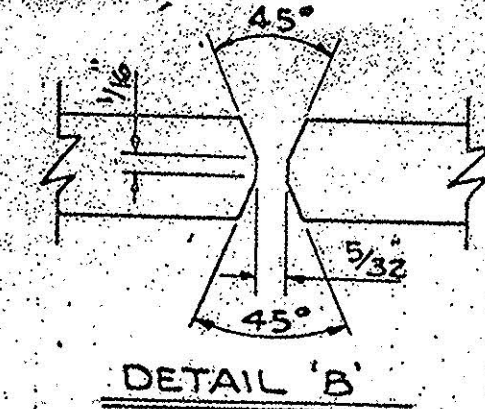


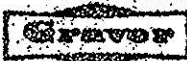
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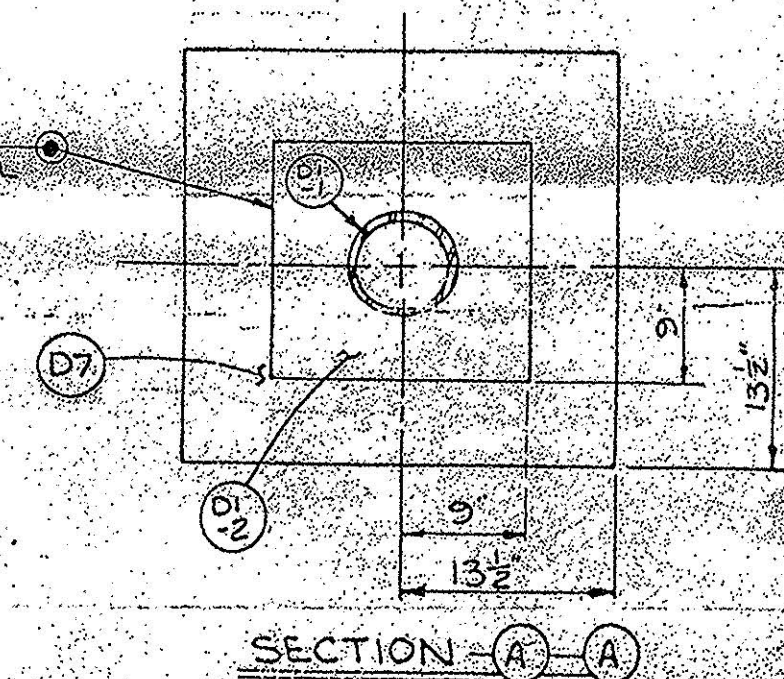
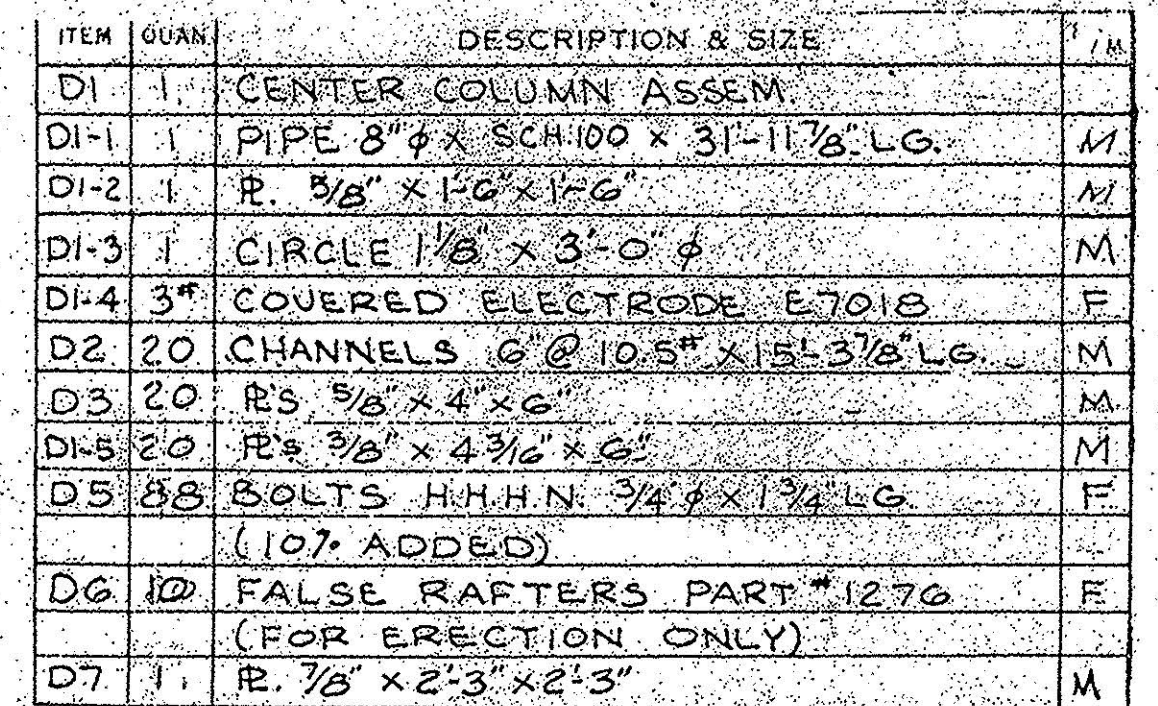






PURCHASE ORDER NO.				CUSTOMER IDENTIFICATION	
GRAVER ORDER NO. 56480					
Graver Tank & Mfg. Co.					
DIVISION UNION TANK CAR COMPANY					
SHELL DETAILS FOR					
32'-8" I.D. x 32'-0" HIGH					
TANK					
DETAILER	CHECKER	APPROVED	SCALE	DATE	
RS	K.S.		NONE	8-7-68	
			DRAWING NUMBER	REV.	
			S-28354	-0	





## GENERAL NOTES:

ALL HOLES  $\frac{13}{16}$  Ø UNLESS OTHERWISE NOTED

RAFTER SPACING OUTSIDE TOP RING  
SHELL R. = 5'-1 $\frac{23}{32}$ "

OHIO EPA DHWM

OCT 29 2001

00249

2104-F

ORDER NO. 56480  
GRAVER TANK & MFG. CO., INC.

ROOF SUPPORT FOR TANK  
32'-8" I.D. x 32'-0" HIGH

DRAWN BY R.S. CHECKED BY KS APPROVED \_\_\_\_\_  
SCALE NONE DATE 8-8-68

DRG. NO. S-28357-O

BASIC SYMBOLS			FILLET WELDS			BUTT WELDS		
✓	U	J						
S. C. R. F. A. F. L. E. T.	P. L. O. G. S. E. A. L.		SIGNIFICANCE			SIGNIFICANCE		
FIELD WELD.	WELD.		SYMBOL			SYMBOL		

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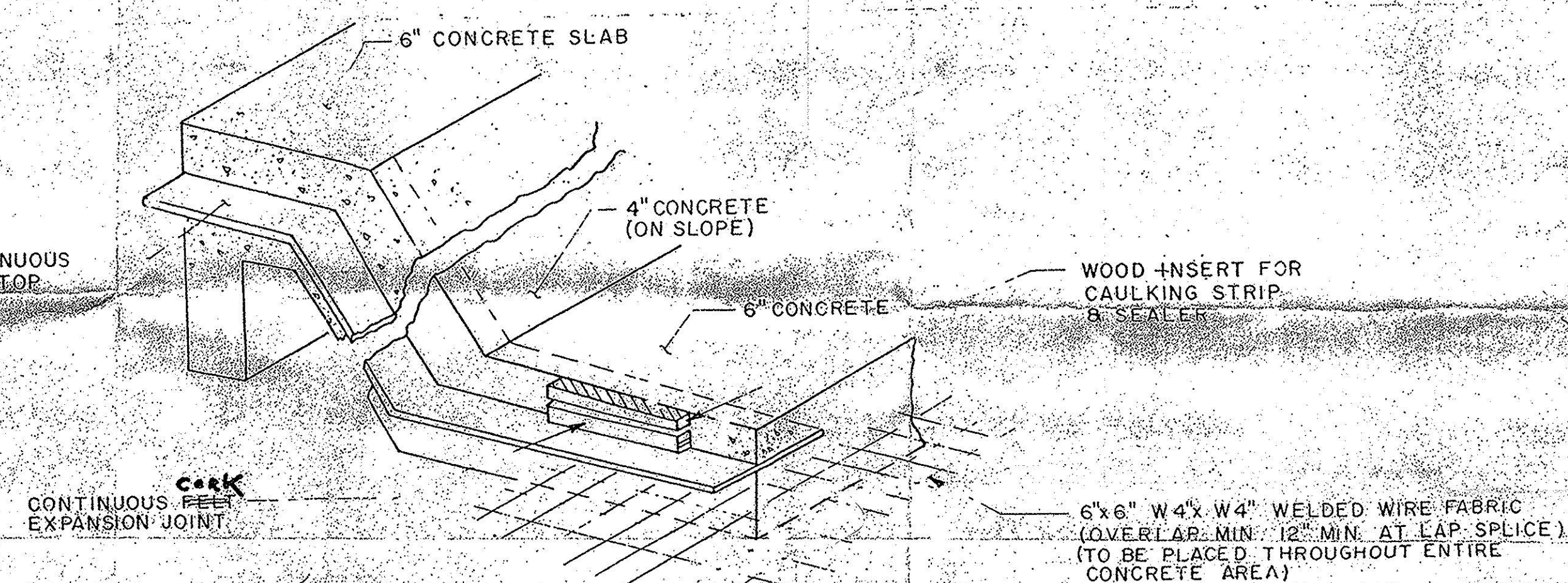
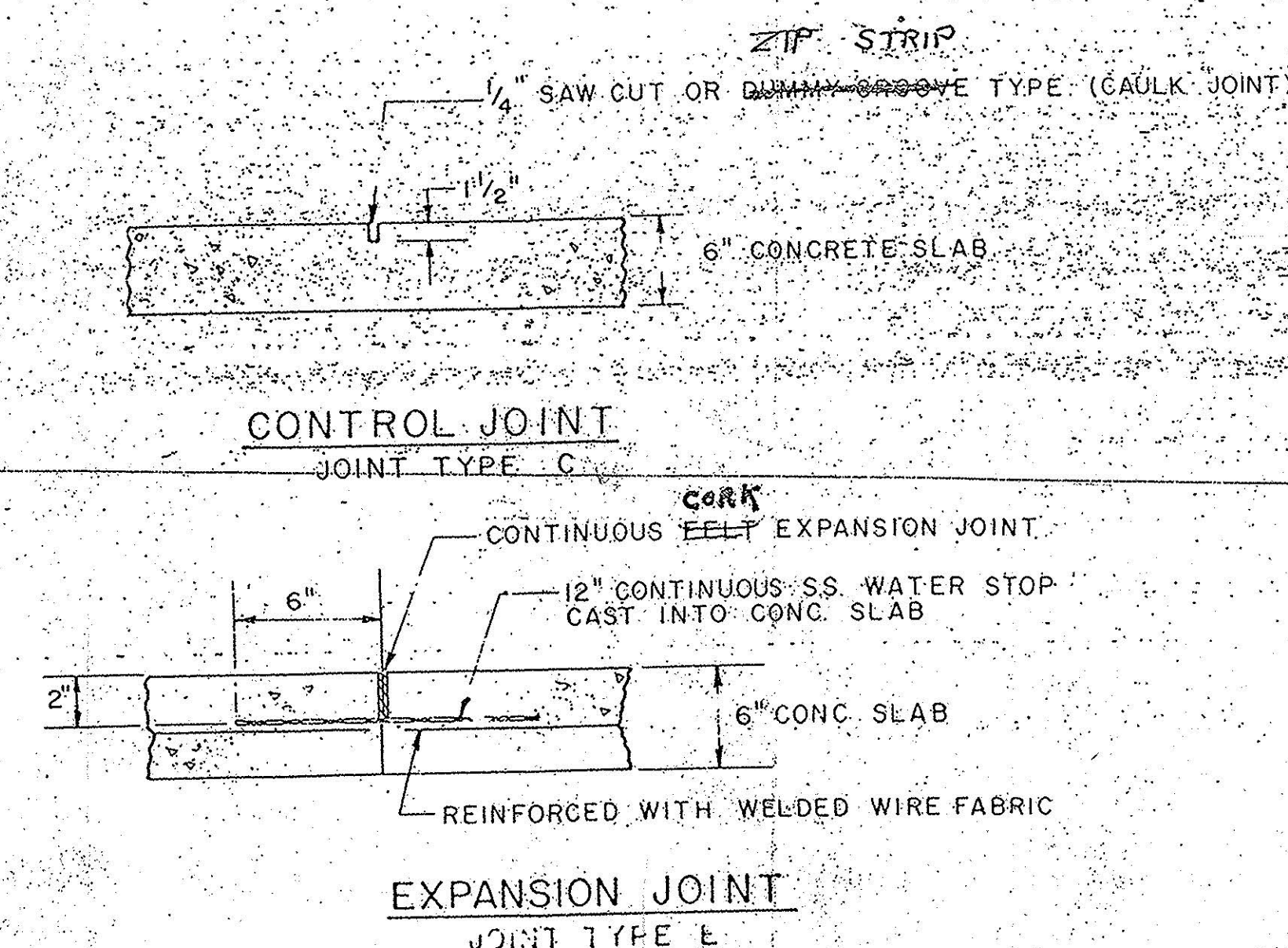
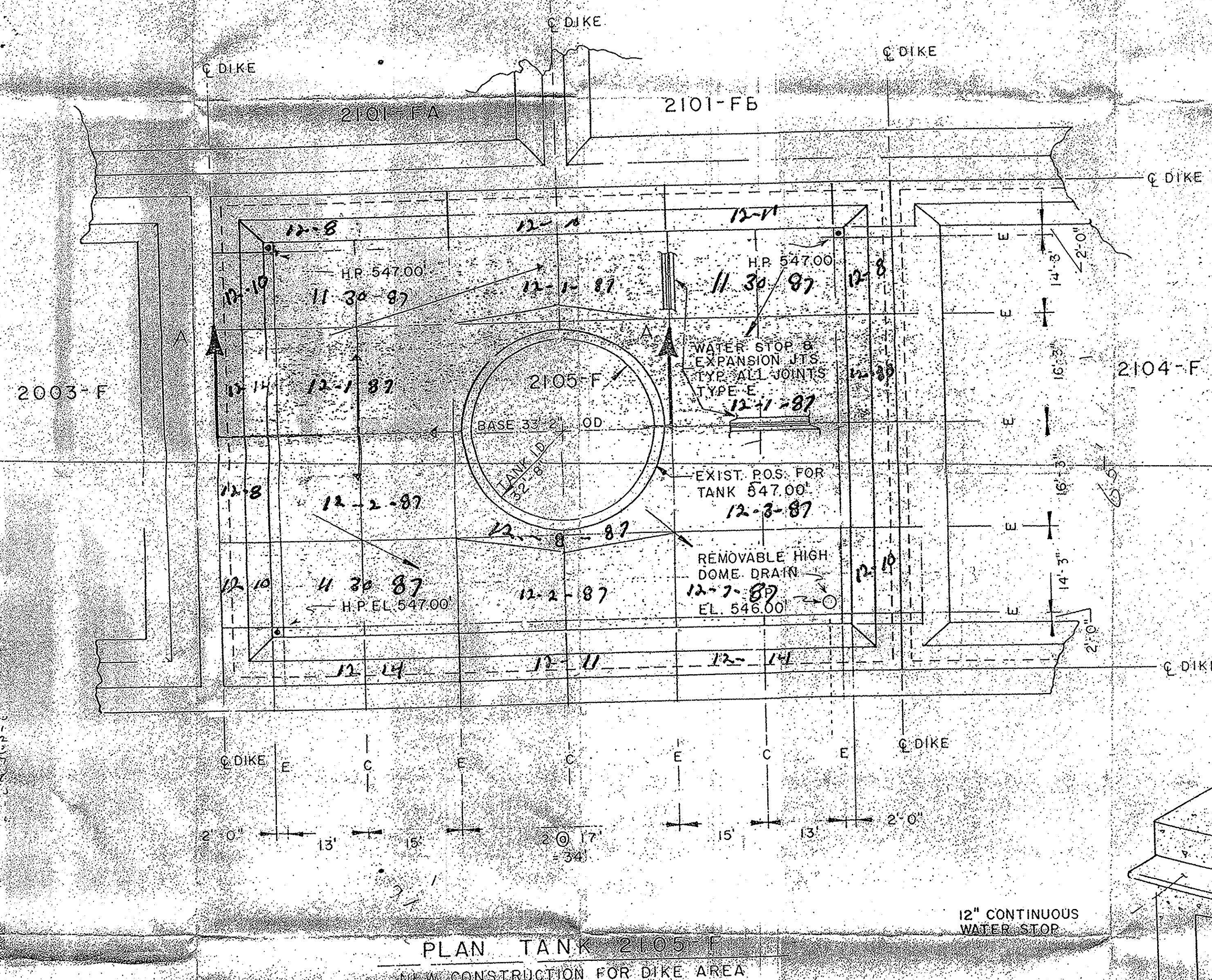
ERECTING	ORDER NO. 56480
TESTING	GRAVIER TANK & MFG. CO. INC.
PA 12	1225 JACKSON HWY. FORT WORTH, TEX. 76104
	TEL. 748-1111 FAX 748-1111
	TELEPHONE 748-1111
	ROOF SUPPORT FOR TANK
	32'-8" ID x 32'-0" HIGH
	DRAWN BY R.S. CHECKED BY K.S. APPROVED
	SCALE NONE DATE 8-8-68
STRESS RELIEVE	
X-RAY	DRG. NO. S-28357-O



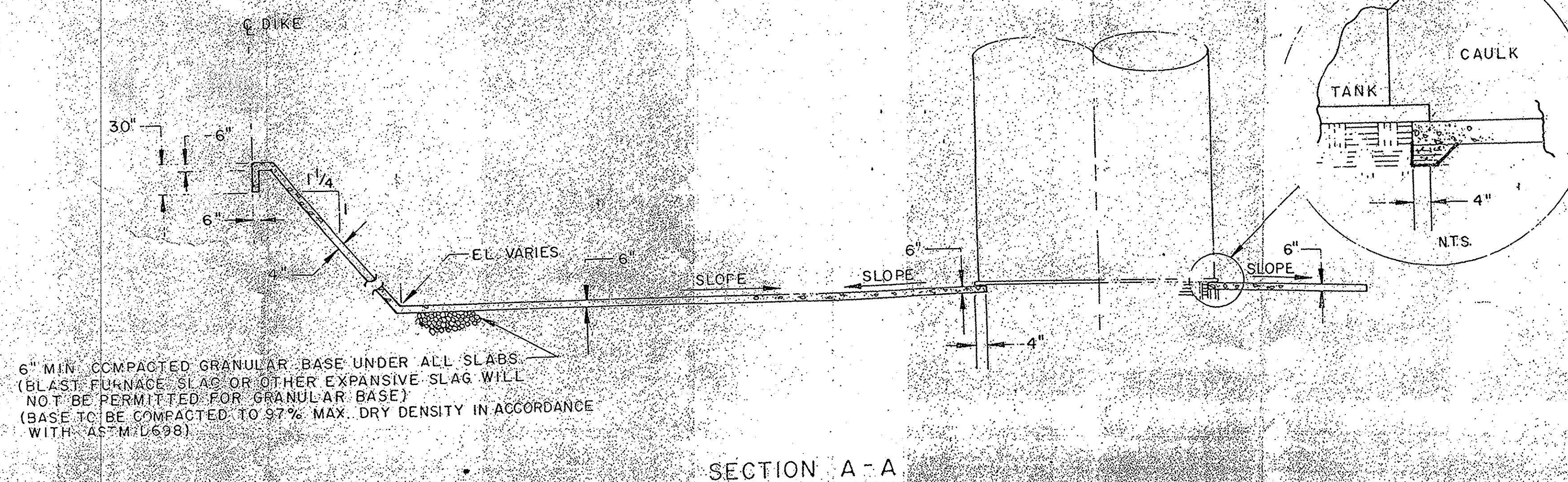
OCT 29 2001



- NOTES:
- 1) CONTRACTOR TO REMOVE EXISTING STAIRS FOR CONCRETING & REINSTALL.
  - 2) CONCRETE SEALER: FUTURA SEAL 671 (URETHANE) OR EQUAL.
  - 3) JOINT CAULK: FUTURA CAULK 515 (URETHANE) OR EQUAL.



TYPICAL ISO DETAIL  
TYPE E



SECTION A-A

RECEIVED

NOV 24 1987

FIELD CONSTRUCTION

DATE 4-2-57

02-10-0057

~~100-0052 J47 Dog # 07-10-0005~~

ARISTECH 

CHEMICAL CORPORATION  
HAVERHILL PLANT, P.O. BOX 127, IRONTON, OHIO 45638

TITLE	UTILITIES AREA
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SECONDARY CONTAINMENT

DIKE CONCRETE

DNIC EPA DHWM

OHIO EPA: DHWM  
OCT 29 2001 00256

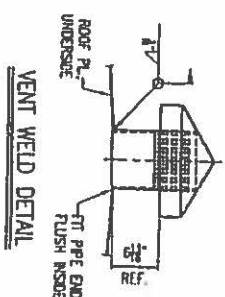
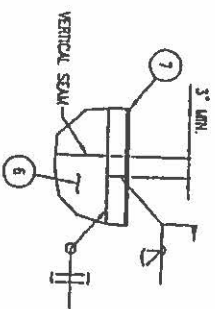
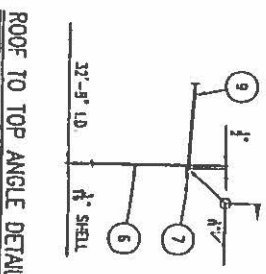
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Was - 07-10-005  
N.C.S. - 1-24-89  
Rev. B 11/22/87



Attachment D-3

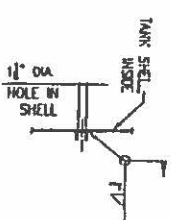
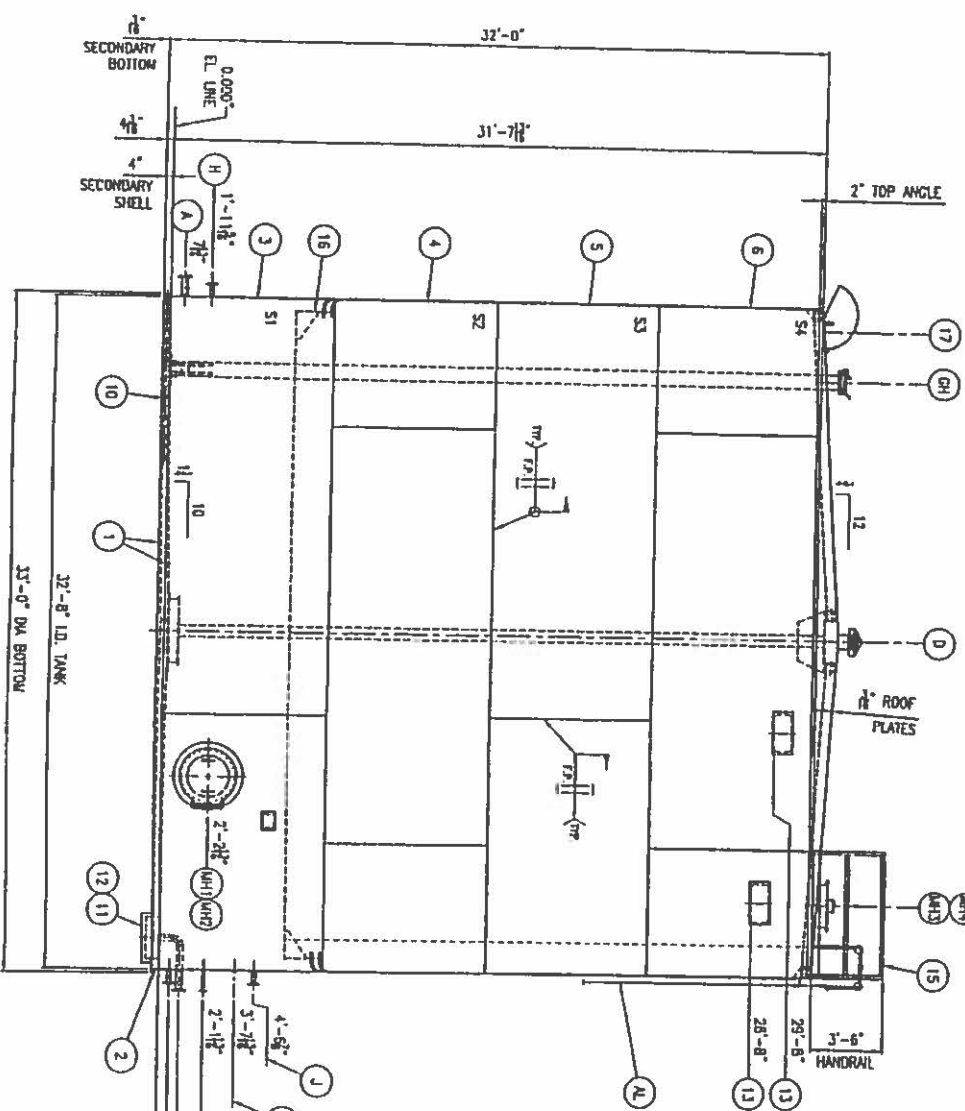
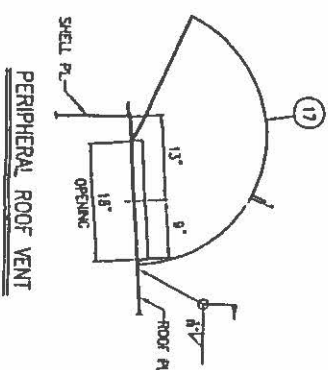
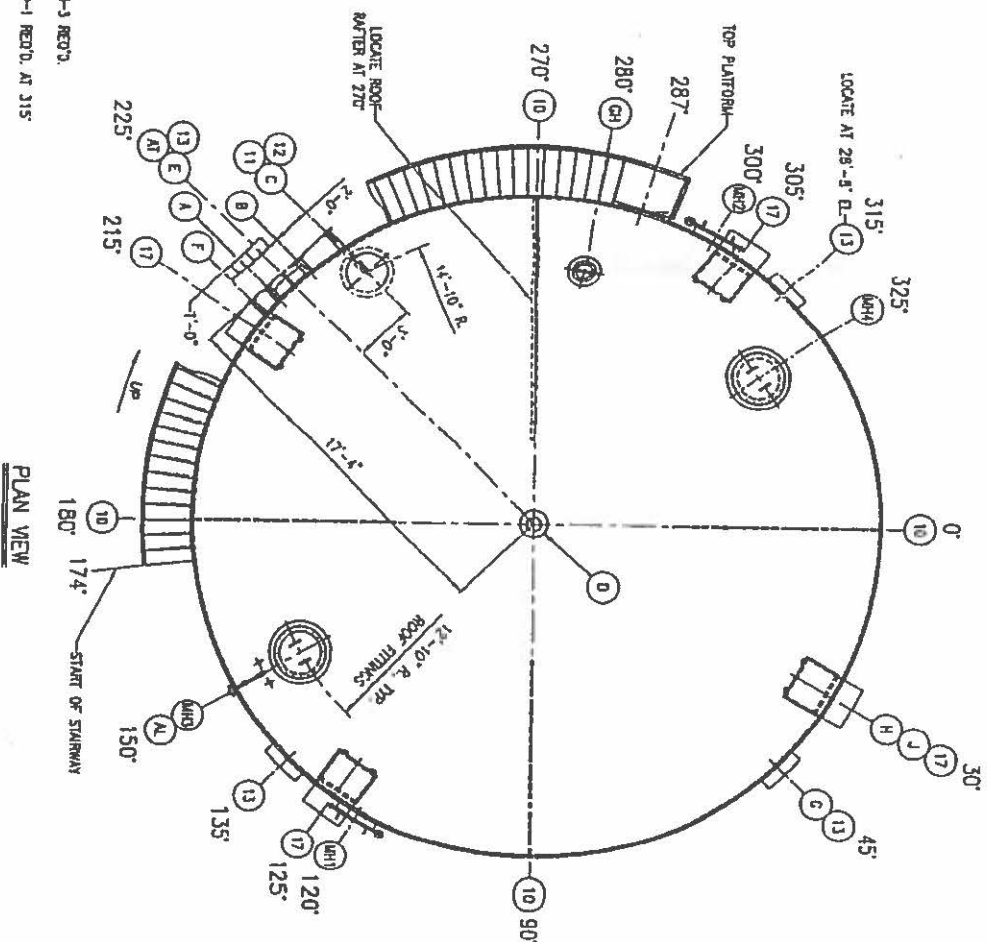
Tank 2003-F Design Drawings





ANGLE	SHILL ANGLE
ANGLE	STRAYING CHART
ANGLE	QUANTUM LAYER
30°	6°-64'
45°	12°-101'
60°	25°-64'
120°	6°-64'
125°	8°-114'
135°	17°-104'
150°	17°-14'
174°	23°-118'
180°	25°-64'
215°	9°-118'
225°	12°-104'
270°	25°-64'
280°	2°-104'
287°	4°-101'
300°	6°-114'
305°	9°-114'
315°	12°-104'
325°	15°-64'
360°	25°-64'

• ON O.D. OF BOTTOM RING  
CIRCUMFERENCE ON  
BOTTOM RING = 102'-8 1/4"



ELEVATION VIEW  
SEE PLAN VIEW FOR TRUE NOZZLE ORIENTATION

1" NPT RELIEF VALVE COUPLING

SHIPMENT FABRICATION AND ERECTION, INC.	
KENNESAW, WA 98144	
(206) 424-4001	
AT STANDARD 550	
OFFICES	1
CHINA	2
INDIA	3
INDONESIA	4
ITALY	5
NETHERLANDS	6
NETHERLANDS ANTILLES	7
NETHERLANDS NEW GUINEA	8
NETHERLANDS SURINAM	9
NETHERLANDS TRINIDAD AND TOBAGO	10
NETHERLANDS VENEZUELA	11
NETHERLANDS ZAMBIA	12
NETHERLANDS ZIMBABWE	13
NETHERLANDS ANGOLA	14
NETHERLANDS BOTSWANA	15
NETHERLANDS CAMBODIA	16
NETHERLANDS CHINA	17
NETHERLANDS COLOMBIA	18
NETHERLANDS CUBA	19
NETHERLANDS DOMINICAN REPUBLIC	20
NETHERLANDS ECUADOR	21
NETHERLANDS EGYPT	22
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NETHERLANDS LITHUANIA	36
NETHERLANDS LUXEMBOURG	37
NETHERLANDS MACAU	38
NETHERLANDS MALAYSIA	39
NETHERLANDS MALTA	40
NETHERLANDS MEXICO	41
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NETHERLANDS NETHERLANDS	43
NETHERLANDS NETHERLANDS ANTILLES	44
NETHERLANDS NETHERLANDS NEW GUINEA	45
NETHERLANDS NETHERLANDS SURINAM	46
NETHERLANDS NETHERLANDS TRINIDAD AND TOBAGO	47
NETHERLANDS NETHERLANDS VENEZUELA	48
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NETHERLANDS TAIWAN	98
NETHERLANDS TAIWAN	99
NETHERLANDS TAIWAN	100

BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	UNIT	
1	2	10101 BOTTOM-1" UP WELDED - 304L STAINLESS STEEL	12.27	
2	2	10102 SECONDARY SHELL-48" 4" x 8" x 1/4" LC (ROLL TO 37'-8" LO)	346	
3	5	10103 SHELL (S)-FLANGE N x 94 1/2 x 2 1/4" LC (ROLL TO 37'-8" LO)	6,183	
4	5	10104 SHELL (S)-FLANGE N x 94 1/2 x 2 1/4" LC (ROLL TO 37'-8" LO)	6,180	
5	5	10105 SHELL (S)-FLANGE N x 94 1/2 x 2 1/4" LC (ROLL TO 37'-8" LO)	6,180	
6	5	10106 SHELL (S)-FLANGE N x 94 1/2 x 2 1/4" LC (ROLL TO 37'-8" LO)	6,180	
7	1	10107 ROOF SHELL (S)-FLANGE N x 94 1/2 x 2 1/4" LC (ROLL TO 37'-8" LO)	261	
8	1	10108 ROOF SHELL (S)-FLANGE N x 94 1/2 x 2 1/4" LC (ROLL TO 37'-8" LO)	13,922	
9	1	10109 ROOF SHELL (S)-FLANGE N x 94 1/2 x 2 1/4" LC (ROLL TO 37'-8" LO)	6,783	
10	4	1" L&E DETENTION PIPE	60	
11	1	10110 24" DIA. x 8" DP. W/ROOF SLIP	74	
12	1	10112 24" DIA. x 8" DP. W/ROOF SLIP	70	
13	4	10113 SHELL VENT. L/DENITROGEN - 10" x 22" OPENING	184	
14	1	10114 SPECIAL STAINLESS ASSEMBLY	2,155	
15	1	10115 ROOF HANGING - 300"	1,656	
16	1	10113 BR. FLUORINE ROOF ASSEMBLY - STAINLESS STEEL	1,454	
17	4	10117 PERIPHERAL ROOF VENT	9,432	
18	1	10118 48" DIA. HANGING V. W/ROOFING BRACKET	300	
19	1	10119 24" DIA. HANGING V. W/ROOFING BRACKET	7	
20	1	10120 24" DIA. HANGING V. W/ROOFING BRACKET	425	
21	1	10120 24" DIA. HANGING V. W/ROOFING BRACKET	405	
22	1	10121 24" DIA. HANGING V. W/ROOFING BRACKET	151	
23	1	10121 24" DIA. HANGING V. W/ROOFING BRACKET	151	
24	1	10122 24" DIA. HANGING V. W/ROOFING BRACKET	151	
25	1	10122 24" DIA. HANGING V. W/ROOFING BRACKET	151	
26	1	10123 24" DIA. HANGING V. W/ROOFING BRACKET	151	
27	1	10123 24" DIA. HANGING V. W/ROOFING BRACKET	151	
28	1	10124 24" DIA. HANGING V. W/ROOFING BRACKET	151	
29	1	10124 24" DIA. HANGING V. W/ROOFING BRACKET	151	
30	1	10125 24" DIA. HANGING V. W/ROOFING BRACKET	151	
31	1	10125 24" DIA. HANGING V. W/ROOFING BRACKET	151	
32	1	10126 24" DIA. HANGING V. W/ROOFING BRACKET	151	
33	1	10126 24" DIA. HANGING V. W/ROOFING BRACKET	151	
34	1	10127 24" DIA. HANGING V. W/ROOFING BRACKET	151	
35	1	10127 24" DIA. HANGING V. W/ROOFING BRACKET	151	
36	1	10128 24" DIA. HANGING V. W/ROOFING BRACKET	151	
37	1	10128 24" DIA. HANGING V. W/ROOFING BRACKET	151	
38	1	10129 24" DIA. HANGING V. W/ROOFING BRACKET	151	
39	1	10129 24" DIA. HANGING V. W/ROOFING BRACKET	151	
40	1	10130 24" DIA. HANGING V. W/ROOFING BRACKET	151	
41	1	10130 24" DIA. HANGING V. W/ROOFING BRACKET	151	
42	1	10131 24" DIA. HANGING V. W/ROOFING BRACKET	151	
43	1	10131 24" DIA. HANGING V. W/ROOFING BRACKET	151	
44	1	10132 24" DIA. HANGING V. W/ROOFING BRACKET	151	
45	1	10132 24" DIA. HANGING V. W/ROOFING BRACKET	151	
46	1	10133 24" DIA. HANGING V. W/ROOFING BRACKET	151	
47	1	10133 24" DIA. HANGING V. W/ROOFING BRACKET	151	
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49	1	10134 24" DIA. HANGING V. W/ROOFING BRACKET	151	
50	1	10135 24" DIA. HANGING V. W/ROOFING BRACKET	151	
51	1	10135 24" DIA. HANGING V. W/ROOFING BRACKET	151	
52	1	10136 24" DIA. HANGING V. W/ROOFING BRACKET	151	
53	1	10136 24" DIA. HANGING V. W/ROOFING BRACKET	151	
54	1	10137 24" DIA. HANGING V. W/ROOFING BRACKET	151	
55	1	10137 24" DIA. HANGING V. W/ROOFING BRACKET	151	
56	1	10138 24" DIA. HANGING V. W/ROOFING BRACKET	151	
57	1	10138 24" DIA. HANGING V. W/ROOFING BRACKET	151	
58	1	10139 24" DIA. HANGING V. W/ROOFING BRACKET	151	
59	1	10139 24" DIA. HANGING V. W/ROOFING BRACKET	151	
60	1	10140 24" DIA. HANGING V. W/ROOFING BRACKET	151	
61	1	10140 24" DIA. HANGING V. W/ROOFING BRACKET	151	
62	1	10141 24" DIA. HANGING V. W/ROOFING BRACKET	151	
63	1	10141 24" DIA. HANGING V. W/ROOFING BRACKET	151	
64	1	10142 24" DIA. HANGING V. W/ROOFING BRACKET	151	
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66	1	10143 24" DIA. HANGING V. W/ROOFING BRACKET	151	
67	1	10143 24" DIA. HANGING V. W/ROOFING BRACKET	151	
68	1	10144 24" DIA. HANGING V. W/ROOFING BRACKET	151	
69	1	10144 24" DIA. HANGING V. W/ROOFING BRACKET	151	
70	1	10145 24" DIA. HANGING V. W/ROOFING BRACKET	151	
71	1	10145 24" DIA. HANGING V. W/ROOFING BRACKET	151	
72	1	10146 24" DIA. HANGING V. W/ROOFING BRACKET	151	
73	1	10146 24" DIA. HANGING V. W/ROOFING BRACKET	151	
74	1	10147 24" DIA. HANGING V. W/ROOFING BRACKET	151	
75	1	10147 24" DIA. HANGING V. W/ROOFING BRACKET	151	
76	1	10148 24" DIA. HANGING V. W/ROOFING BRACKET	151	
77	1	10148 24" DIA. HANGING V. W/ROOFING BRACKET	151	
78	1	10149 24" DIA. HANGING V. W/ROOFING BRACKET	151	
79	1	10149 24" DIA. HANGING V. W/ROOFING BRACKET	151	
80	1	10150 24" DIA. HANGING V. W/ROOFING BRACKET	151	
81	1	10150 24" DIA. HANGING V. W/ROOFING BRACKET	151	
82	1	10151 24" DIA. HANGING V. W/ROOFING BRACKET	151	
83	1	10151 24" DIA. HANGING V. W/ROOFING BRACKET	151	
84	1	10152 24" DIA. HANGING V. W/ROOFING BRACKET	151	
85	1	10152 24" DIA. HANGING V. W/ROOFING BRACKET	151	
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124	1	10172 24" DIA. HANGING V. W/ROOFING BRACKET	151	
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132	1	10176 24" DIA. HANGING V. W/ROOFING BRACKET	151	
133	1	10176 24" DIA. HANGING V. W/ROOFING BRACKET	151	
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149	1	10184 24" DIA. HANGING V. W/ROOFING BRACKET	151	
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153	1	10186 24" DIA. HANGING V. W/ROOFING BRACKET	151	
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155	1	10187 24" DIA. HANGING V. W/ROOFING BRACKET	151	
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159	1	10189 24" DIA. HANGING V. W/ROOFING BRACKET	151	
160	1	10190 24" DIA. HANGING V. W/ROOFING BRACKET	151	
161	1	10190 24" DIA. HANGING V. W/ROOFING BRACKET	151	
162	1	10191 24" DIA. HANGING V. W/ROOFING BRACKET	151	
163	1	10191 24" DIA. HANGING V. W/ROOFING BRACKET	151	
164	1	10192 24" DIA. HANGING V. W/ROOFING BRACKET	151	
165	1	10192 24" DIA. HANGING V. W/ROOFING BRACKET	151	
166	1	10193 24" DIA. HANGING V. W/ROOFING BRACKET	151	
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168	1	10194 24" DIA. HANGING V. W/ROOFING BRACKET	151	
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184	1	10202 24" DIA. HANGING V. W/ROOFING BRACKET	151	
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187	1	10203 24" DIA. HANGING V. W/ROOFING BRACKET	151	
188	1	10204 24" DIA. HANGING V. W/ROOFING BRACKET	151	
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195	1	10207 24" DIA. HANGING V. W/ROOFING BRACKET	151	
196	1	10208 24" DIA. HANGING V. W/ROOFING BRACKET	151	
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199	1	10209 24" DIA. HANGING V. W/ROOFING BRACKET	151	
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202	1	10211 24" DIA. HANGING V. W/ROOFING BRACKET	151	
203	1	10211 24" DIA. HANGING V. W/ROOFING BRACKET	151	
204	1	10212 24" DIA. HANGING V. W/ROOFING BRACKET	151	
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220	1	10220 24" DIA. HANGING V. W/ROOFING BRACKET	151	
221	1	10220 24" DIA. HANGING V. W/ROOFING BRACKET	151	
222	1	10221 24" DIA. HANGING V. W/ROOFING BRACKET	151	
223	1	10221 24" DIA. HANGING V. W/ROOFING BRACKET	151	
224	1	10222 24" DIA. HANGING V. W/ROOFING BRACKET	151	
225	1	10222 24" DIA. HANGING V. W/ROOFING BRACKET	151	
226	1	10223 24" DIA. HANGING V. W/ROOFING BRACKET	151	
227	1	10223 24" DIA. HANGING V. W/ROOFING BRACKET	151	
228	1	10224 24" DIA. HANGING V. W/ROOFING BRACKET	151	
229	1			

TOTAL WT. 65.006#

[illegible]

CC-0

1. ALL ELEVATIONS SHOWN FROM TOPSIDE/TANK BOTTOM PLATES AT SHELL (±.000" E. LINE).
2. ALL PLACES BOIT HOLES TO STRADDLE TANK VERTICAL C, UNLESS NOTED OTHERWISE.

**WITHERUP  
FABRICATION AND ERECTION, INC.**

STORAGE TANK ASSEMBLY - TANK NO. 2003-F  
32'-0" I.D. x 32'-0" HIGH STAINLESS STEEL TANK

SCALE 1/4" = 1'-0"	1.0.00.	1.2000
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[illegible]



#### Attachment D-4

#### Secondary Containment Capacity Calculations



CLIENT Aristech Chemical

LOCATION Haverhill Ohio

SUBJECT Part B Permit - 2104-F & 2105-F

EQ

PN 7111

Sheet No. 1

Checked BY STW

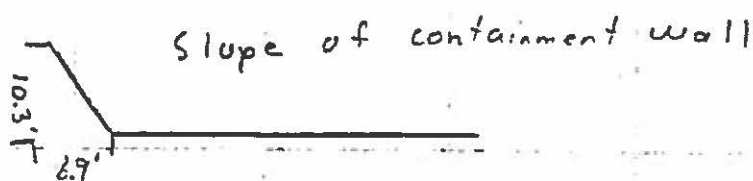
Date 11/3/97

Computed By JN

Date 11/3/97

Tanks 2104-F and 2105-F Secondary Containment Cap.

Base Area 209 ft X 63.5 ft



Containment Volume

$$(209 \text{ ft} \times 63.5 \text{ ft} \times 10.3 \text{ ft}) + \left[ \frac{1}{2} (8.9 \text{ ft} \times 10.3 \text{ ft}) (209 \text{ ft} + 209 \text{ ft} + 63.5 \text{ ft} + 63.5 \text{ ft}) \right]$$

$$= 136,696 \text{ ft}^3 + 24,980 \text{ ft}^3$$

$$= 161,676 \text{ ft}^3$$

Tank Displacement

2104-F

$$\text{Diameter} = \text{ID} + 2 (\text{shell thickness})$$

$$= 32.667 \text{ ft} + 2 \left( \frac{7}{16} \right) \frac{1}{12} \text{ ft}$$

$$= 32.74 \text{ ft}$$

$$V = H \times \pi \times \left( \frac{D}{2} \right)^2$$

$$= 10 \text{ ft} \times 3.14 \times \left( \frac{32.74}{2} \right)^2$$

$$= 8419 \text{ ft}^3$$

CC110

~~00281~~

OHIO EPA DWM

~~OCT 29 2001~~



CLIENT Aristech Chemical  
LOCATION Haverhill OH  
SUBJECT Part B - 2104-F & 2105-F

EQ

PN 7111 Sheet No. 2  
Checked BY ASW Date 11/3/97  
Computed By me Date 11/3/97

2105-F

$$\begin{aligned}\text{Diameter} &= 32.33 \text{ ft} + 2 \left( \frac{7}{16} \right) \frac{1}{2} \text{ ft} \\ &= 32.40 \text{ ft}\end{aligned}$$

$$\begin{aligned}\text{Volume} &= 10 \text{ ft} \times 3.14 \times \left( \frac{32.40}{2} \right)^2 \\ &= 8246 \text{ ft}^3\end{aligned}$$

2108-F

$$\begin{aligned}\text{Diameter} &= 24.5 + 2 \left( \frac{1}{4} \right) \frac{1}{2} \text{ ft} \\ &= 24.54 \text{ ft}\end{aligned}$$

$$\begin{aligned}\text{Volume} &= 10 \text{ ft} \times 3.14 \times \left( \frac{24.54}{2} \right)^2 \\ &= 4730 \text{ ft}^3\end{aligned}$$

Total tank displacement

$$\begin{aligned}8419 \text{ ft}^3 + 8246 \text{ ft}^3 + 4730 \text{ ft}^3 \\ = 21,395 \text{ ft}^3\end{aligned}$$

Available Volume

$$\begin{aligned}161,676 \text{ ft}^3 - 21,395 \text{ ft}^3 \\ = 140,281 \text{ ft}^3\end{aligned}$$

00141

00282



CLIENT Acrofit Chemical  
LOCATION Lincoln OH  
SUBJECT Part B 2184-F 12185-F

EQ

PN 7111 Sheet No. 3  
Checked BY ADW Date 11/3/97  
Computed By gr Date 11/3/97

Conversion to Gallons

$$(140,281 \text{ ft}^3) (7.48 \text{ gal/ft}^3) = 1,049,302 \text{ gallons}$$

Required Containment Volume = Volume of largest tank + 25yr 24hr  
rainfall (4.6" or 0.383')

25yr 24hr Rainfall

$$(0.383 \text{ ft}) (226.8 \text{ ft}) (81.4 \text{ ft}) = 7071 \text{ ft}^3$$

$$(7071 \text{ ft}^3) (7.48 \text{ gal/ft}^3) = 52,891 \text{ gal}$$

Required Containment Volume

$$= 250,000 \text{ gal} + 52,891 \text{ gallons}$$

$$= 302,891 \text{ gal}$$

Available Containment is 1,049,302 gallons

∴ Secondary Containment is Adequate

00143

OHIO EPA DMWM

00283

NOT A FORM

Ohio EPA DMWM DEC 16 2011



CLIENT Aristech Chemical  
LOCATION Haverhill OH  
SUBJECT Part B Permit 2003-F

EQ

PN 7111 Sheet No. 1  
Checked BY ASW Date 11/3/77  
Computed By gm Date 11/3/07

## Tank 2003F Secondary Containment

Base Area 94 ft x 62 ft



### Containment Volume

$$(94 \text{ ft} \times 62 \text{ ft} \times 10.2 \text{ ft}) + \left[ \frac{1}{2} (8.5 \text{ ft} \times 10.2 \text{ ft}) (94 \text{ ft} + 94 \text{ ft} + 62 \text{ ft} + 62 \text{ ft}) \right]$$

$$= 59,446 \text{ ft}^3 + 13,525 \text{ ft}^3$$

$$= 72,971 \text{ ft}^3$$

### Tank Displacement

2003-F

$$\text{Diameter} = \text{ID} + 2 (\text{shell thickness})$$

$$= 32.667 \text{ ft} + 2 \left( \frac{7}{16} \right) \frac{1}{12} \text{ ft}$$

$$= 32.74 \text{ ft}$$

$$V = H \times \pi \times \left( \frac{D}{2} \right)^2$$

$$= 10 \text{ ft} \times 3.14 \times \left( \frac{32.74}{2} \right)^2$$

$$= 8,419 \text{ ft}^3$$

00113



CLIENT Aristech Chemical  
LOCATION Haverhill Oil  
SUBJECT Part B Permit 2003-P

EQ

PN 7111 Sheet No. 2  
Checked BY SDW Date 11/3/97  
Computed By ga Date 11/3/07

Available Volume

$$\begin{aligned} &= 72,971 \text{ ft}^3 - 8419 \text{ ft}^3 \\ &= 64,552 \text{ ft}^3 \end{aligned}$$

Conversion to Gallons

$$\begin{aligned} &= (64,552 \text{ ft}^3) (7.48 \text{ gal/ft}^3) \\ &= 482,849 \text{ gal} \end{aligned}$$

Required Containment Volume = Volume of tank + 25yr 24hr rainfall  
(rainfall = 4.6" or 0.383')

25yr 24hr Rainfall

$$\begin{aligned} &= (0.383 \text{ ft}) (111 \text{ ft}) (79 \text{ ft}^2) \\ &= 3,359 \text{ ft}^3 \end{aligned}$$

$$\begin{aligned} \text{Gallons} &= (3,359 \text{ ft}^3) 7.48 \text{ gal/ft}^3 \\ &= 25,125 \text{ gal} \end{aligned}$$

Required Cont. Volume

$$\begin{aligned} &= 200,000 \text{ gal} + 25,125 \text{ gal} \\ &= 225,125 \text{ gal} \end{aligned}$$

Available Cont is 482,849 gal

∴ Secondary Containment is Adequate

OHIO EPA DHHM

~~OCT-29-2001~~  
00144

~~00285~~



Attachment D-5

Tank Assessments (2104-F, 2105-F, and 2003-F)



April 28, 2016

Jason Patrick  
Altivia Petrochemicals Company  
1019 Haverhill – Ohio Furnace Road  
Haverhill, OH 45636

**Subject:       Assessment and Certification of Tank 2003-F  
                  Altivia Petrochemicals (formerly Sunoco Chemicals)  
                  Haverhill Facility**

Dear Mr. Patrick,

The assessment and certification of the subject tank has been completed. Attached you will find calculations, inspection reports and tank drawing.

I hereby certify that I have performed an assessment of the above referenced storage tank at your Haverhill facility as required by the Ohio Administrative Code Rule 3745-50-44. It has been concluded that the tank and ancillary equipment is adequately designed and has sufficient structural strength and compatibility for its intended service.

Ohio Administrative Code Rule 3745-50-42(D) requires a certification statement, therefore, "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Should you have any questions, please contact me.

Sincerely,



David Gibson, PE (Ohio E-55229)  
Vice President





Client	Altivia Petrochemicals		
Date	28-Apr-16		
Tank Number	2003-F		
Tank Diameter	D, feet	32.667	
Liquid Fill Height	H, feet	32	
Bottom Projection	inches	0.00	
Thickness of Bottom	Z <sub>b</sub> , inches	0.375	
Material	ASTM A283 GrC		
Material Density	lbs/f <sup>3</sup>	490	
Material Yield Stress	Y <sub>s</sub> , psi	30,000	
Specific Gravity		1.00	
API 650 Table 3-1	t	0.193	
API 650 Table 3-1	Allowable Stress, psi	27,000	
Soil Bearing Capacity	psf	1,500	assumed
Reference Drawings	2003F - 10115 Witherup		

#### Shell Data

Ring Number	height, feet	average thickness, inches	(feet)
1	7.97	0.1996	0.017
2	7.97	0.1930	0.016
3	7.97	0.1933	0.016
4	7.97	0.1954	0.016

Weight of Shell (W<sub>s</sub>) =

$$\{(R1H*avg\ thk)+(R2H*avg\ thk)+(R3H*avg\ thk)+(R4H*avg\ th)\}*\pi*D*Material\ density$$

Weight of Shell (W<sub>s</sub>) = 26,082.20 lbf

Radial Width API 650 page 3-5

Radial Width =  $\{(390*Z_b)/((H*G)^{.5})\}$

Radial Width = 25.85 inches

Hydrostatic Test Stresses = API 650 Table 3-1

Hydrostatic Test Stresses =  $2.6*D*(H-1)/t$

Hydrostatic Test Stresses = 13,642.28 psi

Compare to Allowable Stress If > 1, then okay  
1.97914



## Shell Design

See API 650 Section 3.6

$D = 36.25$  is  $< 50$ , therefore shell thickness  $> 3/16"$  (.1875")

### Load from roof

Number of rafters	n=	17
Weight, lb/ft	$W_r$ =	15
Dead Load, lb/f <sup>2</sup>	DL=	10.21
Live Load, lb/f <sup>2</sup>	LL=	25

Weight of Roof      lbs       $(\pi \cdot D^2/4) \cdot (DL+LL)$   
  
29,495.39   lbs

Total Load on Annual Ring=      Weight of Shell + Roof  
  
55,577.60   lbs

Unit Load on Annual Ring=      Total Load / circumference  
  
541.83      lb/f

Bearing on Annual Ring=      Unit Load / Radial Width  
  
251.49      lb/f<sup>2</sup>

Compare with Soil Bearing Capacity

If Bearing on Annual Ring is less than Soil Bearing Capacity,  
then okay

251.49   is less than   1,500





INSPECTION REPORT  
UTILITIES

PAGE 146 OF 200

COMPANY Aristech Chemicals LOCATION Ironton, Ohio

DATE July, 1996

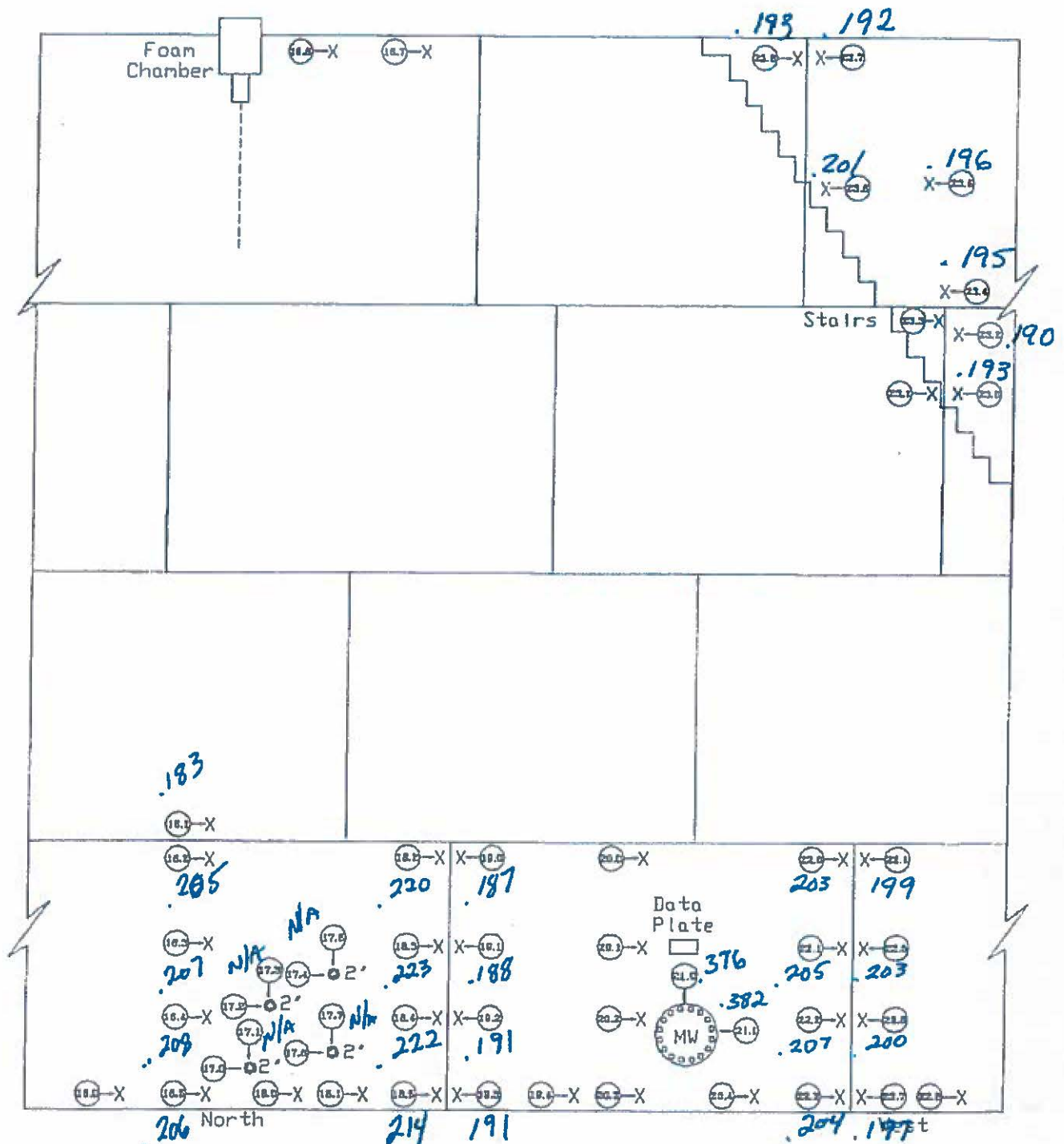
STORAGE TANK

NUMBER 2003-F

PRODUCT FUEL OIL

3-31-2016  
*Chad*

Datapoints are shown below at the approximate locations where corresponding ultrasonic thickness measurements were taken on the shell.



WALTER ROSSLER CO.











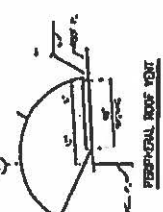
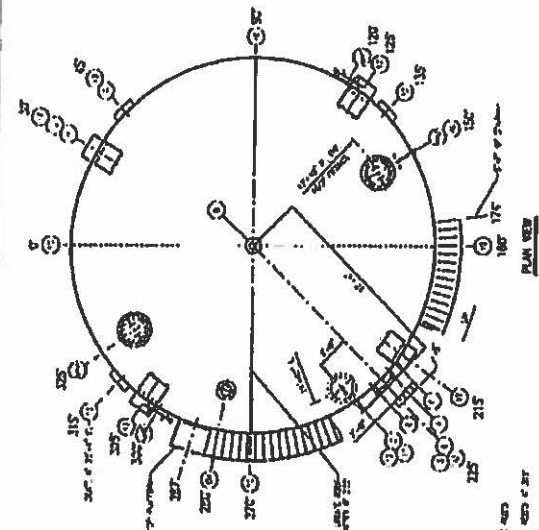
TABLE OF MATERIALS

ITEM NO.	DESCRIPTION	QTY	UNIT	PRICE	TOTAL
1	STEEL PLATE 1/2" THICK	100	SQ FT	1.50	150.00
2	STEEL PLATE 3/4" THICK	50	SQ FT	2.00	100.00
3	STEEL PLATE 1" THICK	20	SQ FT	3.00	60.00
4	STEEL PLATE 1 1/2" THICK	10	SQ FT	4.50	45.00
5	STEEL PLATE 2" THICK	5	SQ FT	6.00	30.00
6	STEEL PLATE 2 1/2" THICK	2	SQ FT	7.50	15.00
7	STEEL PLATE 3" THICK	1	SQ FT	9.00	9.00
8	STEEL PLATE 3 1/2" THICK	1	SQ FT	10.50	10.50
9	STEEL PLATE 4" THICK	1	SQ FT	12.00	12.00
10	STEEL PLATE 4 1/2" THICK	1	SQ FT	13.50	13.50
11	STEEL PLATE 5" THICK	1	SQ FT	15.00	15.00
12	STEEL PLATE 5 1/2" THICK	1	SQ FT	16.50	16.50
13	STEEL PLATE 6" THICK	1	SQ FT	18.00	18.00
14	STEEL PLATE 6 1/2" THICK	1	SQ FT	19.50	19.50
15	STEEL PLATE 7" THICK	1	SQ FT	21.00	21.00
16	STEEL PLATE 7 1/2" THICK	1	SQ FT	22.50	22.50
17	STEEL PLATE 8" THICK	1	SQ FT	24.00	24.00
18	STEEL PLATE 8 1/2" THICK	1	SQ FT	25.50	25.50
19	STEEL PLATE 9" THICK	1	SQ FT	27.00	27.00
20	STEEL PLATE 9 1/2" THICK	1	SQ FT	28.50	28.50
21	STEEL PLATE 10" THICK	1	SQ FT	30.00	30.00
22	STEEL PLATE 10 1/2" THICK	1	SQ FT	31.50	31.50
23	STEEL PLATE 11" THICK	1	SQ FT	33.00	33.00
24	STEEL PLATE 11 1/2" THICK	1	SQ FT	34.50	34.50
25	STEEL PLATE 12" THICK	1	SQ FT	36.00	36.00
26	STEEL PLATE 12 1/2" THICK	1	SQ FT	37.50	37.50
27	STEEL PLATE 13" THICK	1	SQ FT	39.00	39.00
28	STEEL PLATE 13 1/2" THICK	1	SQ FT	40.50	40.50
29	STEEL PLATE 14" THICK	1	SQ FT	42.00	42.00
30	STEEL PLATE 14 1/2" THICK	1	SQ FT	43.50	43.50
31	STEEL PLATE 15" THICK	1	SQ FT	45.00	45.00
32	STEEL PLATE 15 1/2" THICK	1	SQ FT	46.50	46.50
33	STEEL PLATE 16" THICK	1	SQ FT	48.00	48.00
34	STEEL PLATE 16 1/2" THICK	1	SQ FT	49.50	49.50
35	STEEL PLATE 17" THICK	1	SQ FT	51.00	51.00
36	STEEL PLATE 17 1/2" THICK	1	SQ FT	52.50	52.50
37	STEEL PLATE 18" THICK	1	SQ FT	54.00	54.00
38	STEEL PLATE 18 1/2" THICK	1	SQ FT	55.50	55.50
39	STEEL PLATE 19" THICK	1	SQ FT	57.00	57.00
40	STEEL PLATE 19 1/2" THICK	1	SQ FT	58.50	58.50
41	STEEL PLATE 20" THICK	1	SQ FT	60.00	60.00
42	STEEL PLATE 20 1/2" THICK	1	SQ FT	61.50	61.50
43	STEEL PLATE 21" THICK	1	SQ FT	63.00	63.00
44	STEEL PLATE 21 1/2" THICK	1	SQ FT	64.50	64.50
45	STEEL PLATE 22" THICK	1	SQ FT	66.00	66.00
46	STEEL PLATE 22 1/2" THICK	1	SQ FT	67.50	67.50
47	STEEL PLATE 23" THICK	1	SQ FT	69.00	69.00
48	STEEL PLATE 23 1/2" THICK	1	SQ FT	70.50	70.50
49	STEEL PLATE 24" THICK	1	SQ FT	72.00	72.00
50	STEEL PLATE 24 1/2" THICK	1	SQ FT	73.50	73.50
51	STEEL PLATE 25" THICK	1	SQ FT	75.00	75.00
52	STEEL PLATE 25 1/2" THICK	1	SQ FT	76.50	76.50
53	STEEL PLATE 26" THICK	1	SQ FT	78.00	78.00
54	STEEL PLATE 26 1/2" THICK	1	SQ FT	79.50	79.50
55	STEEL PLATE 27" THICK	1	SQ FT	81.00	81.00
56	STEEL PLATE 27 1/2" THICK	1	SQ FT	82.50	82.50
57	STEEL PLATE 28" THICK	1	SQ FT	84.00	84.00
58	STEEL PLATE 28 1/2" THICK	1	SQ FT	85.50	85.50
59	STEEL PLATE 29" THICK	1	SQ FT	87.00	87.00
60	STEEL PLATE 29 1/2" THICK	1	SQ FT	88.50	88.50
61	STEEL PLATE 30" THICK	1	SQ FT	90.00	90.00
62	STEEL PLATE 30 1/2" THICK	1	SQ FT	91.50	91.50
63	STEEL PLATE 31" THICK	1	SQ FT	93.00	93.00
64	STEEL PLATE 31 1/2" THICK	1	SQ FT	94.50	94.50
65	STEEL PLATE 32" THICK	1	SQ FT	96.00	96.00
66	STEEL PLATE 32 1/2" THICK	1	SQ FT	97.50	97.50
67	STEEL PLATE 33" THICK	1	SQ FT	99.00	99.00
68	STEEL PLATE 33 1/2" THICK	1	SQ FT	100.50	100.50
69	STEEL PLATE 34" THICK	1	SQ FT	102.00	102.00
70	STEEL PLATE 34 1/2" THICK	1	SQ FT	103.50	103.50
71	STEEL PLATE 35" THICK	1	SQ FT	105.00	105.00
72	STEEL PLATE 35 1/2" THICK	1	SQ FT	106.50	106.50
73	STEEL PLATE 36" THICK	1	SQ FT	108.00	108.00
74	STEEL PLATE 36 1/2" THICK	1	SQ FT	109.50	109.50
75	STEEL PLATE 37" THICK	1	SQ FT	111.00	111.00
76	STEEL PLATE 37 1/2" THICK	1	SQ FT	112.50	112.50
77	STEEL PLATE 38" THICK	1	SQ FT	114.00	114.00
78	STEEL PLATE 38 1/2" THICK	1	SQ FT	115.50	115.50
79	STEEL PLATE 39" THICK	1	SQ FT	117.00	117.00
80	STEEL PLATE 39 1/2" THICK	1	SQ FT	118.50	118.50
81	STEEL PLATE 40" THICK	1	SQ FT	120.00	120.00
82	STEEL PLATE 40 1/2" THICK	1	SQ FT	121.50	121.50
83	STEEL PLATE 41" THICK	1	SQ FT	123.00	123.00
84	STEEL PLATE 41 1/2" THICK	1	SQ FT	124.50	124.50
85	STEEL PLATE 42" THICK	1	SQ FT	126.00	126.00
86	STEEL PLATE 42 1/2" THICK	1	SQ FT	127.50	127.50
87	STEEL PLATE 43" THICK	1	SQ FT	129.00	129.00
88	STEEL PLATE 43 1/2" THICK	1	SQ FT	130.50	130.50
89	STEEL PLATE 44" THICK	1	SQ FT	132.00	132.00
90	STEEL PLATE 44 1/2" THICK	1	SQ FT	133.50	133.50
91	STEEL PLATE 45" THICK	1	SQ FT	135.00	135.00
92	STEEL PLATE 45 1/2" THICK	1	SQ FT	136.50	136.50
93	STEEL PLATE 46" THICK	1	SQ FT	138.00	138.00
94	STEEL PLATE 46 1/2" THICK	1	SQ FT	139.50	139.50
95	STEEL PLATE 47" THICK	1	SQ FT	141.00	141.00
96	STEEL PLATE 47 1/2" THICK	1	SQ FT	142.50	142.50
97	STEEL PLATE 48" THICK	1	SQ FT	144.00	144.00
98	STEEL PLATE 48 1/2" THICK	1	SQ FT	145.50	145.50
99	STEEL PLATE 49" THICK	1	SQ FT	147.00	147.00
100	STEEL PLATE 49 1/2" THICK	1	SQ FT	148.50	148.50

PORTION IN TOTAL

SECTION AND TESTING

SECTION	TESTING
1. STEEL PLATE 1/2" THICK	1. TENSILE
2. STEEL PLATE 3/4" THICK	2. TENSILE
3. STEEL PLATE 1" THICK	3. TENSILE
4. STEEL PLATE 1 1/2" THICK	4. TENSILE
5. STEEL PLATE 2" THICK	5. TENSILE
6. STEEL PLATE 2 1/2" THICK	6. TENSILE
7. STEEL PLATE 3" THICK	7. TENSILE
8. STEEL PLATE 3 1/2" THICK	8. TENSILE
9. STEEL PLATE 4" THICK	9. TENSILE
10. STEEL PLATE 4 1/2" THICK	10. TENSILE
11. STEEL PLATE 5" THICK	11. TENSILE
12. STEEL PLATE 5 1/2" THICK	12. TENSILE
13. STEEL PLATE 6" THICK	13. TENSILE
14. STEEL PLATE 6 1/2" THICK	14. TENSILE
15. STEEL PLATE 7" THICK	15. TENSILE
16. STEEL PLATE 7 1/2" THICK	16. TENSILE
17. STEEL PLATE 8" THICK	17. TENSILE
18. STEEL PLATE 8 1/2" THICK	18. TENSILE
19. STEEL PLATE 9" THICK	19. TENSILE
20. STEEL PLATE 9 1/2" THICK	20. TENSILE
21. STEEL PLATE 10" THICK	21. TENSILE
22. STEEL PLATE 10 1/2" THICK	22. TENSILE
23. STEEL PLATE 11" THICK	23. TENSILE
24. STEEL PLATE 11 1/2" THICK	24. TENSILE
25. STEEL PLATE 12" THICK	25. TENSILE
26. STEEL PLATE 12 1/2" THICK	26. TENSILE
27. STEEL PLATE 13" THICK	27. TENSILE
28. STEEL PLATE 13 1/2" THICK	28. TENSILE
29. STEEL PLATE 14" THICK	29. TENSILE
30. STEEL PLATE 14 1/2" THICK	30. TENSILE
31. STEEL PLATE 15" THICK	31. TENSILE
32. STEEL PLATE 15 1/2" THICK	32. TENSILE
33. STEEL PLATE 16" THICK	33. TENSILE
34. STEEL PLATE 16 1/2" THICK	34. TENSILE
35. STEEL PLATE 17" THICK	35. TENSILE
36. STEEL PLATE 17 1/2" THICK	36. TENSILE
37. STEEL PLATE 18" THICK	37. TENSILE
38. STEEL PLATE 18 1/2" THICK	38. TENSILE
39. STEEL PLATE 19" THICK	39. TENSILE
40. STEEL PLATE 19 1/2" THICK	40. TENSILE
41. STEEL PLATE 20" THICK	41. TENSILE
42. STEEL PLATE 20 1/2" THICK	42. TENSILE
43. STEEL PLATE 21" THICK	43. TENSILE
44. STEEL PLATE 21 1/2" THICK	44. TENSILE
45. STEEL PLATE 22" THICK	45. TENSILE
46. STEEL PLATE 22 1/2" THICK	46. TENSILE
47. STEEL PLATE 23" THICK	47. TENSILE
48. STEEL PLATE 23 1/2" THICK	48. TENSILE
49. STEEL PLATE 24" THICK	49. TENSILE
50. STEEL PLATE 24 1/2" THICK	50. TENSILE
51. STEEL PLATE 25" THICK	51. TENSILE
52. STEEL PLATE 25 1/2" THICK	52. TENSILE
53. STEEL PLATE 26" THICK	53. TENSILE
54. STEEL PLATE 26 1/2" THICK	54. TENSILE
55. STEEL PLATE 27" THICK	55. TENSILE
56. STEEL PLATE 27 1/2" THICK	56. TENSILE
57. STEEL PLATE 28" THICK	57. TENSILE
58. STEEL PLATE 28 1/2" THICK	58. TENSILE
59. STEEL PLATE 29" THICK	59. TENSILE
60. STEEL PLATE 29 1/2" THICK	60. TENSILE
61. STEEL PLATE 30" THICK	61. TENSILE
62. STEEL PLATE 30 1/2" THICK	62. TENSILE
63. STEEL PLATE 31" THICK	63. TENSILE
64. STEEL PLATE 31 1/2" THICK	64. TENSILE
65. STEEL PLATE 32" THICK	65. TENSILE
66. STEEL PLATE 32 1/2" THICK	66. TENSILE
67. STEEL PLATE 33" THICK	67. TENSILE
68. STEEL PLATE 33 1/2" THICK	68. TENSILE
69. STEEL PLATE 34" THICK	69. TENSILE
70. STEEL PLATE 34 1/2" THICK	70. TENSILE
71. STEEL PLATE 35" THICK	71. TENSILE
72. STEEL PLATE 35 1/2" THICK	72. TENSILE
73. STEEL PLATE 36" THICK	73. TENSILE
74. STEEL PLATE 36 1/2" THICK	74. TENSILE
75. STEEL PLATE 37" THICK	75. TENSILE
76. STEEL PLATE 37 1/2" THICK	76. TENSILE
77. STEEL PLATE 38" THICK	77. TENSILE
78. STEEL PLATE 38 1/2" THICK	78. TENSILE
79. STEEL PLATE 39" THICK	79. TENSILE
80. STEEL PLATE 39 1/2" THICK	80. TENSILE
81. STEEL PLATE 40" THICK	81. TENSILE
82. STEEL PLATE 40 1/2" THICK	82. TENSILE
83. STEEL PLATE 41" THICK	83. TENSILE
84. STEEL PLATE 41 1/2" THICK	84. TENSILE
85. STEEL PLATE 42" THICK	85. TENSILE
86. STEEL PLATE 42 1/2" THICK	86. TENSILE
87. STEEL PLATE 43" THICK	87. TENSILE
88. STEEL PLATE 43 1/2" THICK	88. TENSILE
89. STEEL PLATE 44" THICK	89. TENSILE
90. STEEL PLATE 44 1/2" THICK	90. TENSILE
91. STEEL PLATE 45" THICK	91. TENSILE
92. STEEL PLATE 45 1/2" THICK	92. TENSILE
93. STEEL PLATE 46" THICK	93. TENSILE
94. STEEL PLATE 46 1/2" THICK	94. TENSILE
95. STEEL PLATE 47" THICK	95. TENSILE
96. STEEL PLATE 47 1/2" THICK	96. TENSILE
97. STEEL PLATE 48" THICK	97. TENSILE
98. STEEL PLATE 48 1/2" THICK	98. TENSILE
99. STEEL PLATE 49" THICK	99. TENSILE
100. STEEL PLATE 49 1/2" THICK	100. TENSILE



APR 28 - 2008 RECEIVED  
BY INSURANCE

ITEM NO.		DESCRIPTION		QTY	UNIT	PRICE	TOTAL
1	STEEL PLATE 1/2" THICK	100	SQ FT	1.50		150.00	
2	STEEL PLATE 3/4" THICK	50	SQ FT	2.00		100.00	
3	STEEL PLATE 1" THICK	20	SQ FT	3.00		60.00	
4	STEEL PLATE 1 1/2" THICK	10	SQ FT	4.50		45.00	
5	STEEL PLATE 2" THICK	5	SQ FT	6.00		30.00	
6	STEEL PLATE 2 1/2" THICK	2	SQ FT	7.50		15.00	
7	STEEL PLATE 3" THICK	1	SQ FT	9.00		9.00	
8	STEEL PLATE 3 1/2" THICK	1	SQ FT	10.50		10.50	
9	STEEL PLATE 4" THICK	1	SQ FT	12.00		12.00	
10	STEEL PLATE 4 1/2" THICK	1	SQ FT	13.50		13.50	
11	STEEL PLATE 5" THICK	1	SQ FT	15.00		15.00	
12	STEEL PLATE 5 1/2" THICK	1	SQ FT	16.50		16.50	
13	STEEL PLATE 6" THICK	1	SQ FT	18.00		18.00	
14	STEEL PLATE 6 1/2" THICK	1	SQ FT	19.50		19.50	
15	STEEL PLATE 7" THICK	1	SQ FT	21.00		21.00	
16	STEEL PLATE 7 1/2" THICK	1	SQ FT	22.50		22.50	
17	STEEL PLATE 8" THICK	1	SQ FT	24.00		24.00	
18	STEEL PLATE 8 1/2" THICK	1	SQ FT	25.50		25.50	
19	STEEL PLATE 9" THICK	1	SQ FT	27.00		27.00	
20	STEEL PLATE 9 1/2" THICK	1	SQ FT	28.50		28.50	
21	STEEL PLATE 10" THICK	1	SQ FT	30.00		30.00	
22	STEEL PLATE 10 1/2" THICK	1	SQ FT	31.50		31.50	
23	STEEL PLATE 11" THICK	1	SQ FT	33.00		33.00	
24	STEEL PLATE 11 1/2" THICK	1	SQ FT	34.50		34.50	
25	STEEL PLATE 12" THICK	1	SQ FT	36.00		36.00	
26	STEEL PLATE 12 1/2" THICK	1	SQ FT	37.50		37.50	
27	STEEL PLATE 13" THICK	1	SQ FT	39.00		39.00	
28	STEEL PLATE 13 1/2" THICK	1	SQ FT	40.50		40.50	
29	STEEL PLATE 14" THICK	1	SQ FT	42.00		42.00	
30	STEEL PLATE 14 1/2" THICK	1	SQ FT	43.50		43.50	
31	STEEL PLATE 15" THICK	1	SQ FT	45.00		45.00	
32	STEEL PLATE 15 1/2" THICK	1	SQ FT	46.50		46.50	
33	STEEL PLATE 16" THICK	1	SQ FT	48.00		48.00	
34	STEEL PLATE 16 1/2" THICK	1	SQ FT	49.50		49.50	
35	STEEL PLATE 17" THICK	1	SQ FT	51.00		51.00	
36	STEEL PLATE 17 1/2" THICK	1	SQ FT	52.50		52.50	
37	STEEL PLATE 18" THICK	1	SQ FT	54.00		54.00	
38	STEEL PLATE 18 1/2" THICK	1	SQ FT	55.50		55.50	
39	STEEL PLATE 19" THICK	1	SQ FT	57.00		57.00	
40	STEEL PLATE 19 1/2" THICK	1	SQ FT	58.50		58.50	
41	STEEL PLATE 20" THICK	1	SQ FT	60.00		60.00	
42	STEEL PLATE 20 1/2" THICK	1	SQ FT	61.50		61.50	
43	STEEL PLATE 21" THICK	1	SQ FT	63.00		63.00	
44	STEEL PLATE 21 1/2" THICK	1	SQ FT	64.50		64.50	
45	STEEL PLATE 22" THICK	1	SQ FT	66.00		66.00	
46	STEEL PLATE 22 1/2" THICK	1	SQ FT	67.50		67.50	
47	STEEL PLATE 23" THICK	1	SQ FT	69.00		69.00	
48	STEEL PLATE 23 1/2" THICK	1	SQ FT	70.50		70.50	
49	STEEL PLATE 24" THICK	1	SQ FT	72.00		72.00	
50	STEEL PLATE 24 1/2" THICK	1	SQ FT	73.50		73.50	
51	STEEL PLATE 25" THICK	1	SQ FT	75.00		75.00	
52	STEEL PLATE 25 1/2" THICK	1	SQ FT	76.50		76.50	
53	STEEL PLATE 26" THICK	1	SQ FT	78.00		78.00	
54	STEEL PLATE 26 1/2" THICK	1	SQ FT	79.50		79.50	
55	STEEL PLATE 27" THICK	1	SQ FT	81.00		81.00	
56	STEEL PLATE 27 1/2" THICK	1	SQ FT	82.50		82.50	
57	STEEL PLATE 28" THICK	1	SQ FT	84.00		84.00	
58	STEEL PLATE 28 1/2" THICK	1	SQ FT	85.50		85.50	
59	STEEL PLATE 29" THICK	1	SQ FT	87.00		87.00	
60	STEEL PLATE 29 1/2" THICK	1	SQ FT	88.50		88.50	
61	STEEL PLATE 30" THICK	1	SQ FT	90.00		90.00	
62	STEEL PLATE 30 1/2" THICK	1	SQ FT	91.50		91.50	
63	STEEL PLATE 31" THICK	1	SQ FT	93.00		93.00	
64	STEEL PLATE 31 1/2" THICK	1	SQ FT	94.50		94.50	
65	STEEL PLATE 32" THICK	1	SQ FT	96.00		96.00	
66	STEEL PLATE 32 1/2" THICK	1	SQ FT	97.50		97.50	
67	STEEL PLATE 33" THICK	1	SQ FT	99.00		99.00	
68	STEEL PLATE 33 1/2" THICK	1	SQ FT	100.50		100.50	
69	STEEL PLATE 34" THICK	1	SQ FT	102.00		102.00	
70	STEEL PLATE 34 1/2" THICK	1	SQ FT	103.50		103.50	
71	STEEL PLATE 35" THICK	1	SQ FT	105.00		105.00	
72	STEEL PLATE 35 1/2" THICK	1	SQ FT	106.50		106.50	
73	STEEL PLATE 36" THICK	1	SQ FT	108.00		108.00	
74	STEEL PLATE 36 1/2" THICK	1	SQ FT	109.50		109.50	
75	STEEL PLATE 37" THICK	1	SQ FT	111.00		111.00	
76	STEEL PLATE 37 1/2" THICK	1	SQ FT	112.50		112.50	
77	STEEL PLATE 38" THICK	1	SQ FT	114.00		114.00	
78	STEEL PLATE 38 1/2" THICK	1	SQ FT	115.50		115.50	
79	STEEL PLATE 39" THICK	1	SQ FT	117.00		117.00	
80	STEEL PLATE 39 1/2" THICK	1	SQ FT	118.50		118.50	
81	STEEL PLATE 40" THICK	1	SQ FT	120.00		120.00	
82	STEEL PLATE 40 1/2" THICK	1	SQ FT	121.50		121.50	
83	STEEL PLATE 41" THICK	1	SQ FT	123.00		123.00	
84	STEEL PLATE 41 1/2" THICK	1	SQ FT	124.50		124.50	
85	STEEL PLATE 42" THICK	1	SQ FT	126.00		126.00	
86	STEEL PLATE 42 1/2" THICK	1	SQ FT	127.50		127.50	
87	STEEL PLATE 43" THICK	1	SQ FT	129.00		129.00	
88	STEEL PLATE 43 1/2" THICK	1	SQ FT	130.50		130.50	
89	STEEL PLATE 44" THICK	1	SQ FT	132.00		132.00	
90	STEEL PLATE 44 1/2" THICK	1	SQ FT	133.50		133.50	
91	STEEL PLATE 45" THICK	1	SQ FT	135.00		135.00	
92	STEEL PLATE 45 1/2" THICK	1	SQ FT	136.50		136.50	
93	STEEL PLATE 46" THICK	1	SQ FT	138.00		138.00	
94	STEEL PLATE 46 1/2" THICK	1	SQ FT	139.50		139.50	
95	STEEL PLATE 47" THICK	1	SQ FT	141.00		141.00	
96	STEEL PLATE 47 1/2" THICK	1	SQ FT	142.50		142.50	
97	STEEL PLATE 48" THICK	1	SQ FT	144.00		144.00	
98	STEEL PLATE 48 1/2" THICK	1	SQ FT	145.50		145.50	
99	STEEL PLATE 49" THICK	1	SQ FT	147.00		147.00	
100	STEEL PLATE 49 1/2" THICK	1	SQ FT	148.50		148.50	
101	STEEL PLATE 50" THICK	1	SQ FT	150.00		150.00	
102	STEEL PLATE 50 1/2" THICK	1	SQ FT	151.50		151.50	
103	STEEL PLATE 51" THICK	1	SQ FT	153.00		153.00	
104	STEEL PLATE 51 1/2" THICK	1	SQ FT	154.50		154.50	
105	STEEL PLATE 52" THICK	1	SQ FT	156.00		156.00	
106	STEEL PLATE 52 1/2" THICK	1	SQ FT	157.50		157.50	
107	STEEL PLATE 53" THICK	1	SQ FT	159.00		159.00	
108	STEEL PLATE 53 1/2" THICK	1	SQ FT	160.50		160.50	
109	STEEL PLATE 54" THICK	1	SQ FT	162.00		162.00	
110	STEEL PLATE 54 1/2" THICK	1	SQ FT	163.50		163.50	
111	STEEL PLATE 55" THICK	1	SQ FT	165.00		165.00	
112	STEEL PLATE 55 1/2" THICK	1	SQ FT	166.50		166.50	
113	STEEL PLATE 56" THICK	1	SQ FT	168.00		168.00	
114	STEEL PLATE 56 1/2" THICK	1	SQ FT	169.50		169.50	
115	STEEL PLATE 57" THICK	1	SQ FT	171.00		171.00	
116	STEEL PLATE 57 1/2" THICK	1	SQ FT	172.50		172.50	
117	STEEL PLATE 58" THICK	1	SQ FT	174.00		174.00	
118	STEEL PLATE 58 1/2" THICK	1	SQ FT	175.50		175.50	
119	STEEL PLATE 59" THICK	1	SQ FT	177.00		177.00	
120	STEEL PLATE 59 1/2" THICK	1	SQ FT	178.50		178.50	
121	STEEL PLATE 60" THICK	1	SQ FT	180.00		180.00	
122	STEEL PLATE 60 1/2" THICK	1	SQ FT	181.50		181.50	
123	STEEL PLATE 61" THICK	1	SQ FT	183.00		183.00	
124	STEEL PLATE 61 1/2" THICK	1	SQ FT	184.50		184.50	
125	STEEL PLATE 62" THICK	1	SQ FT	186.00		186.00	
126	STEEL PLATE 62 1/2" THICK	1	SQ FT	187.50		187.50	
127	STEEL PLATE 63" THICK	1	SQ FT	189.00		189.00	
128	STEEL PLATE 63 1/2" THICK	1	SQ FT	190.50		190.50	
129	STEEL PLATE 64" THICK	1	SQ FT	192.00		192.00	
130	STEEL PLATE 64 1/2" THICK	1	SQ FT	193.50		193.50	
131	STEEL PLATE 65" THICK	1	SQ FT	195.00		195.00	
132	STEEL PLATE 65 1/2" THICK	1	SQ FT	196.50		196.50	
133	STEEL PLATE 66" THICK	1	SQ FT	198.00		198.00	
134	STEEL PLATE 66 1/2" THICK	1	SQ FT	199.50		199.50	
135	STEEL PLATE 67" THICK	1	SQ FT	201.00		201.00	
136	STEEL PLATE 67 1/2" THICK	1	SQ FT	202.50		202.50	
137	STEEL PLATE 68" THICK	1	SQ FT	204.00		204.00	
138	STEEL PLATE 68 1/2" THICK	1	SQ FT	205.50		205.50	
139	STEEL PLATE 69" THICK	1	SQ FT	207.00		207.00	
140	STEEL PLATE 69 1/2" THICK	1	SQ FT	208.50		208.50	
141	STEEL PLATE 70" THICK	1	SQ FT	210.00		210.00	
142	STEEL PLATE 70 1/2" THICK	1	SQ FT	211.50		211.50	
143	STEEL PLATE 71" THICK	1	SQ FT	213.00		213.00	
144	STEEL PLATE 71 1/2" THICK	1	SQ FT	214.50		214.50	
145	STEEL PLATE 72" THICK	1	SQ FT	216.00		216.00	
146	STEEL PLATE 72 1/2" THICK	1	SQ FT	217.50		217.50	
147	STEEL PLATE 73" THICK	1	SQ FT	219.00		219.00	
148	STEEL PLATE 73 1/2" THICK	1	SQ FT	220.50		220.50	
149	STEEL PLATE 74" THICK	1	SQ FT	222.00		222.00	
150	STEEL PLATE 74 1/2" THICK	1	SQ FT	223.50		223.50	
151	STEEL PLATE 75" THICK	1	SQ FT	225.00		225.00	
152	STEEL PLATE 75 1/2" THICK	1	SQ FT	226.50		226.50	
153	STEEL PLATE 76" THICK	1	SQ FT	228.00		228.00	
154	STEEL PLATE 76 1/2" THICK	1	SQ FT	229.50		229.50	
155	STEEL PLATE 77" THICK	1	SQ FT	231.00		231.00	
156	STEEL PLATE 77 1/2" THICK	1	SQ FT	232.50		232.50	
157	STEEL PLATE 78" THICK	1	SQ FT	234.00		234.00	
158	STEEL PLATE 78 1/2" THICK	1	SQ FT	235.50		235.50	
159	STEEL PLATE 79" THICK	1	SQ FT	237.00		237.00	
160	STEEL PLATE 79 1/2" THICK	1	SQ FT	238.50		238.50	
161	STEEL PLATE 80" THICK	1	SQ FT	240.00		240.00	
162	STEEL PLATE 80 1/2" THICK	1	SQ FT	241.50		241.50	
163	STEEL PLATE 81" THICK	1	SQ FT	243.00		243.00	
164	STEEL PLATE 81 1/2" THICK	1	SQ FT	244.50		244.50	
165	STEEL PLATE 82" THICK	1	SQ FT	246.00		246.00	
166	STEEL PLATE 82 1/2" THICK	1	SQ FT	247.50		247.50	
167	STEEL PLATE 83" THICK	1	SQ FT	249.00		249.00	
168	STEEL PLATE 83 1/2" THICK	1	SQ FT	250.50		250.50	
169	STEEL PLATE 84" THICK	1	SQ FT	252.00		252.00	
170	STEEL PLATE 84 1/2" THICK	1	SQ FT	253.50		253.50	
171	STEEL PLATE 85" THICK	1	SQ FT	255.00		255.00	
172	STEEL PLATE 85 1/2" THICK	1	SQ FT	256.50		256.50	
173	STEEL PLATE 86" THICK	1	SQ FT	258.00		258.00	
174	STEEL PLATE 86 1/2" THICK	1	SQ FT	259.50		259.50	
175	STEEL PLATE 87" THICK	1	SQ FT	261.0			



**RCRA Design Assessment of  
New Tank 2003F**

**Sunoco Chemicals  
Haverhill, Ohio  
June 2006**



## **1.0 Introduction**

Sunoco Chemicals, Haverhill, Ohio, is proposing a modification to a tank in light hydrocarbon service by installing a new stainless steel tank to replace a carbon steel tank. The owner or operator installing a new tank system component must obtain a written design and installation assessment, meeting the requirements of OAC 3745-55-92, which identifies that the new tank system is acceptable for managing hazardous waste.

This assessment is intended to fulfill the design assessment requirements of OAC 3745-55-92 (A).

This design assessment is based on the following activities performed by Eta Engineering Consultants, P.S.C. (EEC) representatives:

- Review of tank quote submitted by Witherup Fabrication & Erection, Inc.
- Development of coating system for application to dike containment area
- A site visit of the area where the new tank is to be installed
- Verbal information provided by the facility personnel

## **2.0 Description of Tank System and Containment**

The new tank system is a replacement to the light hydrocarbon storage system. Piping systems delivering product to the tank and taking product from the tank will not be modified. The new stainless steel tank will have a 32'-8" diameter and be 32'-0" tall. The nominal capacity will be 200,000 gallons.

The dike containment will also have a new lining system installed according to RCRA requirements. The new lining system, a "Carboline 145 AFRC" system will replace the existing Vinyl Ester (VE-4) system.

The following documents are attached for information;

- |                               |   |
|-------------------------------|---|
| ▪ Drawing 10-00-0168          | 2003F P&ID                                |
| ▪ Drawing A8HH06-0068 TK2003F | Containment Plot Plan for RCRA Compliance |
| ▪ Drawing 10115               | Witherup Storage Tank Assembly            |

## **3.0 Design Standards**

The proposed tank replacement project and containment lining system will conform to API 650 Appendix S and 40 CFR Parts 264/265, Subpart J.

## **4.0 Hazardous Characteristics of the Wastes**

The material stored in Tank 2003F is considered hazardous and is a regulated RCRA waste. A report narrative of the analytical tests performed on this material is attached.



## **5.0 Soil and Water Corrosion**

The new tank is above ground and the lining system has been evaluated as to the resistant properties to soil and water.

## **6.0 Underground Tank System Components**

This section does not apply.

## **7.0 Foundation Consideration**

The existing foundation of 2003F has been found to be sound and sufficient for supporting the stainless steel tank.

## **8.0 Tank System Component Installation Inspection**

As part of the tank system inspection, a qualified independent professional engineer will visually inspect the tank system to verify the following:

- Tank system components are above ground allowing visual inspection
- The exterior tank system components (that are not stainless steel) are free from visible corrosion and painted for exterior corrosion protection
- Installed components represent the information in this design assessment
- Installed containment lining system meets the designed criteria



### **Certification Statement for Written Assessment for the Design for the Tank System**

The purpose of this assessment is to fulfill requirements of OAC 3745-55-92 (A) for tank systems used to store hazardous wastes.

I attest that I am an independent, qualified, registered professional engineer.

The assessment shows that the new system components are adequately designed or specified, has compatibility with the identified wastes to be managed.

The assessment includes, at a minimum, the following information:

- 1) Design standards according to which the ancillary equipment are constructed
- 2) Hazardous characteristics of the waste to be handled
- 3) For new tank systems or components in which the external shell of a metal tank will be in contact the soil or with water, a determination by a corrosion expert of:
  - a) Factors affecting the potential for corrosion
  - b) The type and degree of external corrosion protection that are needed to ensure the integrity of the tank system during the use of the tank system components

I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person who manages the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true and accurate. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Signature of Registered Professional Engineer

David Gibson

Date:

June 14, 2006



April 28, 2016

Jason Patrick  
Altivia Petrochemicals Company  
1019 Haverhill – Ohio Furnace Road  
Haverhill, OH 45636

**Subject:       Assessment and Certification of Tank 2104-F  
                  Altivia Petrochemicals (formerly Sunoco Chemicals)  
                  Haverhill Facility**

Dear Mr. Patrick,

The assessment and certification of the subject tank has been completed. Attached you will find calculations and inspection reports.

I hereby certify that I have performed an assessment of the above referenced storage tank at your Haverhill facility as required by the Ohio Administrative Code Rule 3745-50-44. It has been concluded that the tank and ancillary equipment is adequately designed and has sufficient structural strength and compatibility for its intended service.

Ohio Administrative Code Rule 3745-50-42(D) requires a certification statement, therefore, "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Should you have any questions, please contact me.

Sincerely,



David Gibson, PE (Ohio E-55229)  
Vice President





Client	Altivia Petrochemicals		
Date	28-Apr-16		
Tank Number	2104-F		
Tank Diameter	D, feet	32.7	
Liquid Fill Height	H, feet	29	
Bottom Projection	inches	0.00	
Thickness of Bottom	Z <sub>b</sub> , inches	0.47	
Material	ASTM A283 GrC		
Material Density	lbs/f <sup>3</sup>	490	
Material Yield Stress	Y <sub>s</sub> , psi	30,000	
Specific Gravity		1.00	
API 650 Table 3-1	t	0.75	
API 650 Table 3-1	Allowable Stress, psi	27,000	
Soil Bearing Capacity	psf	1,500	assumed
Reference Drawings	Matrix ER1873-18		

#### Shell Data

Ring Number	height, feet	average thickness, inches	(feet)
1	8.00	0.4275	0.036
2	8.00	0.4234	0.035
3	8.00	0.4150	0.035
4	8.00	0.4205	0.035

Weight of Shell (W<sub>s</sub>) =

$$\{(R1H*avg\ thk)+(R2H*avg\ thk)+(R3H*avg\ thk)+(R4H*avg\ th)\}*\pi*D*Material\ density$$

Weight of Shell (W<sub>s</sub>) = 56,564.35 lbf

Radial Width API 650 page 3-5

$$Radial\ Width = \{(390*Z_b)/((H*G)^{.5})\}$$

Radial Width = 34.04 inches

Hydrostatic Test Stresses = API 650 Table 3-1

$$Hydrostatic\ Test\ Stresses = 2.6*D*(H-1)/t$$

Hydrostatic Test Stresses = 3,174.08 psi

Compare to Allowable Stress If > 1, then okay  
8.506



Shell Design

See API 650 Section 3.6

$D = 32.7$  is  $< 50$ , therefore shell thickness  $> 3/16"$

Load from roof

Number of rafters	$n =$	17
Weight, lb/ft	$W_{re} =$	15
Dead Load, lb/f <sup>2</sup>	$DL =$	10.21
Live Load, lb/f <sup>2</sup>	$LL =$	25

Weight of Roof                      lbs               $(\pi \cdot D^2/4) \cdot (DL + LL)$   
  
29,555.02    lbs

Total Load on Annual Ring=              Weight of Shell + Roof  
  
86,119.37    lbs

Unit Load on Annual Ring=              Total Load / circumference  
  
838.73              lb/f

Bearing on Annual Ring=              Unit Load / Radial Width  
  
295.69              lb/f<sup>2</sup>

Compare with Soil Bearing Capacity

If Bearing on Annual Ring is less than Soil Bearing Capacity,  
then okay

295.69    is less than    1,500





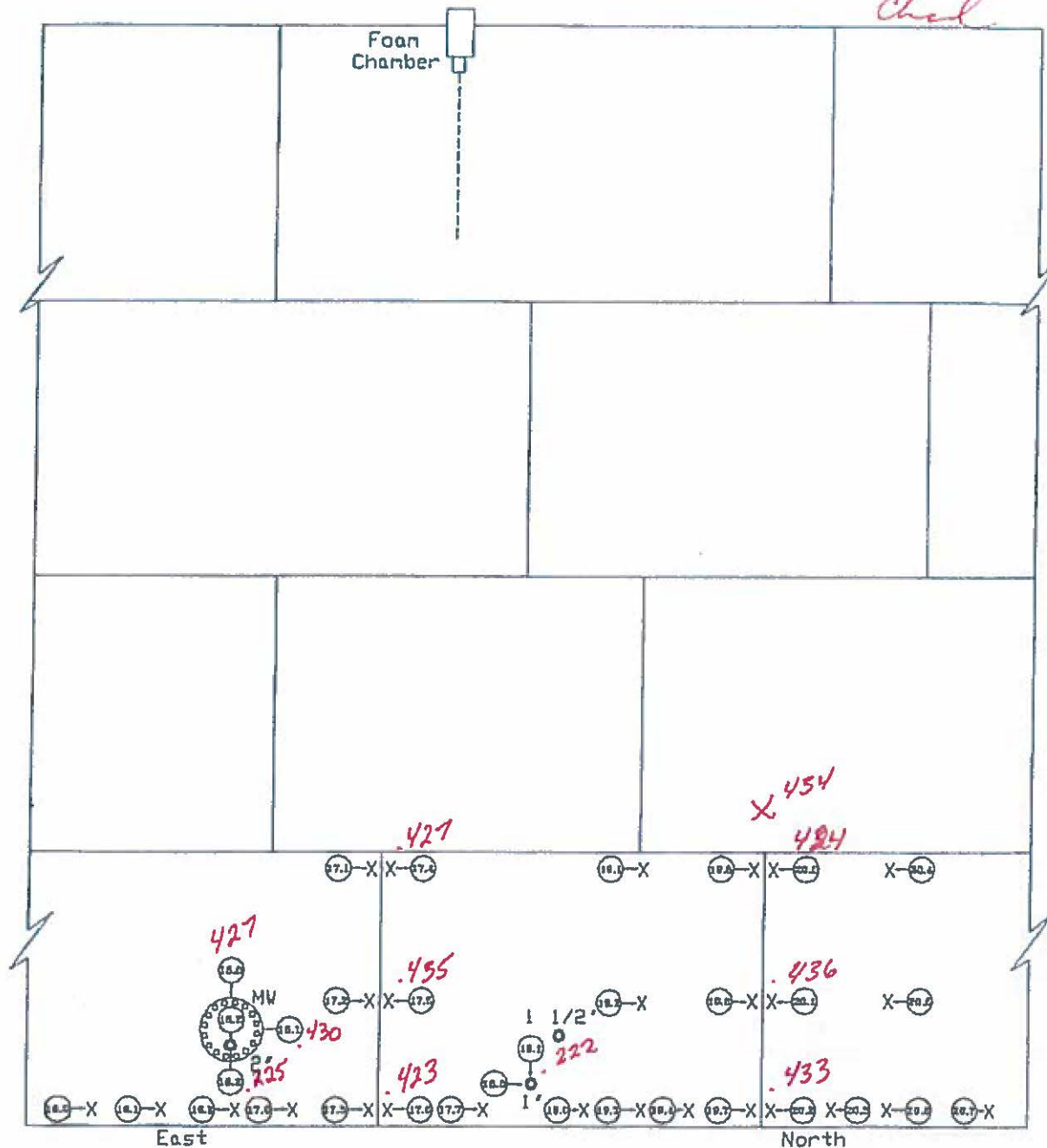
COMPANY Aristech Chemicals LOCATION Ironton, Ohio DATE July, 1996

STORAGE TANK NUMBER 2104-F PRODUCT HEAVY HYDROCARBONS

Datapoints are shown below at the approximate locations where corresponding ultrasonic thickness measurements were taken on the shell.

3-30-2016

Chad





COMPANY Aristech Chemicals LOCATION Ironton, Ohio

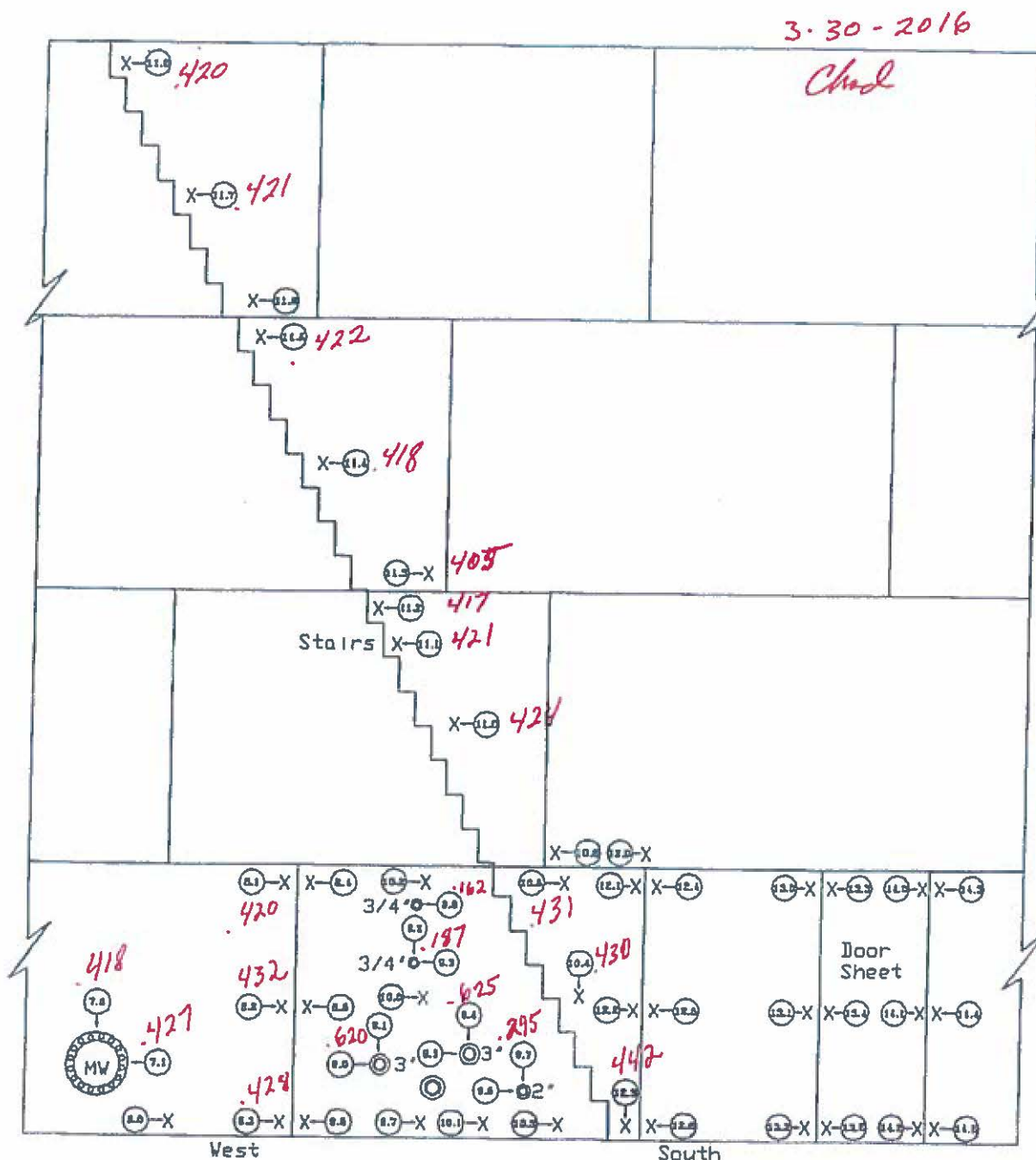
DATE July, 199

STORAGE TANK

NUMBER 2104-F

PRODUCT HEAVY HYDROCARBONS

Datapoints are shown below at the approximate locations where corresponding ultrasonic thickness measurements were taken on the shell.



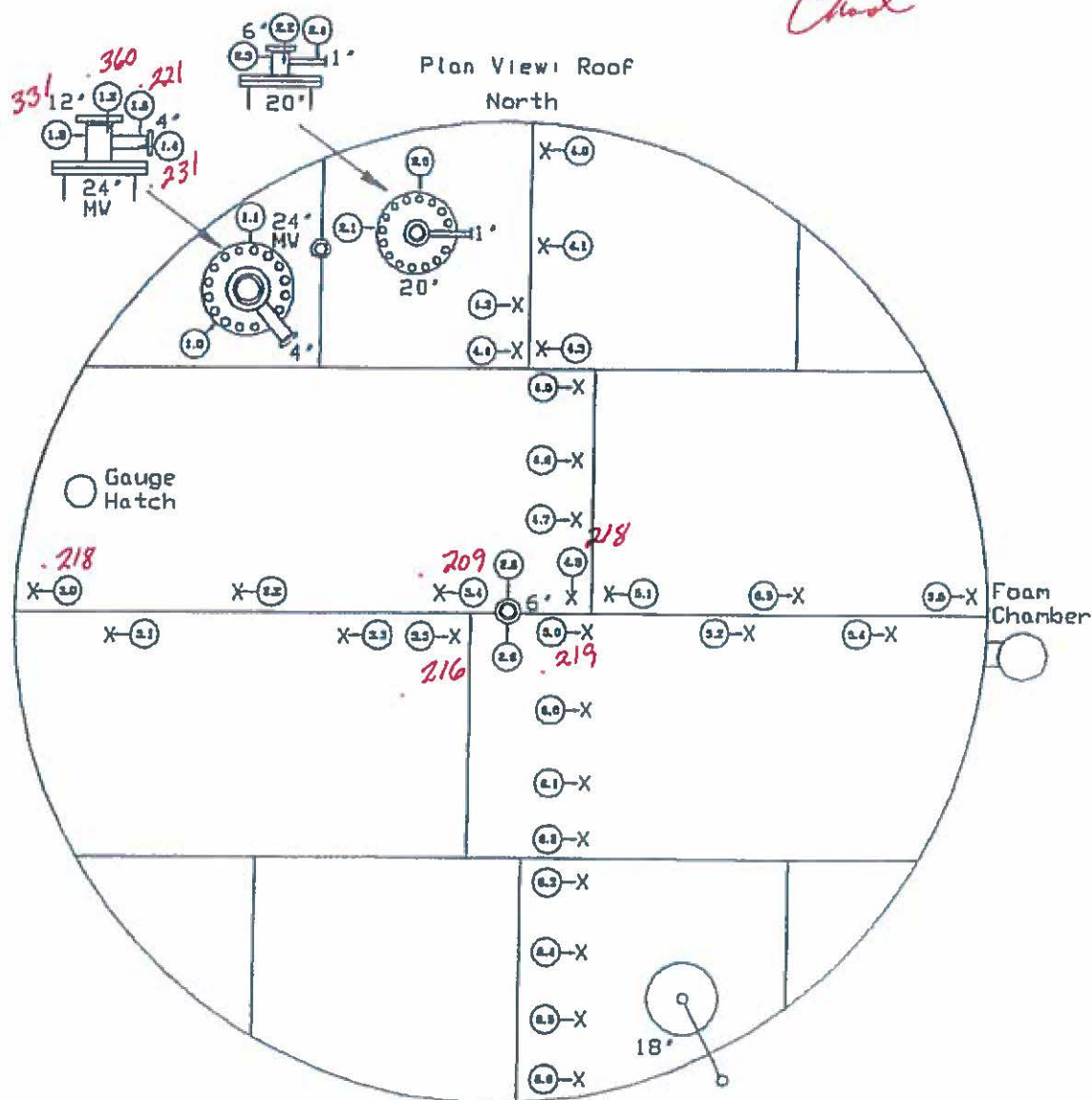


COMPANY Aristech Chemicals LOCATION Ironton, Ohio DATE July, 1996

STORAGE TANK NUMBER 2104-F PRODUCT HEAVY HYDROCARBONS

Datapoints are shown below at the approximate locations where corresponding ultrasonic thickness measurements were taken on the tank roof.

*3/30/2016*  
*Chad*







April 28, 2016

Jason Patrick  
Altivia Petrochemicals Company  
1019 Haverhill – Ohio Furnace Road  
Haverhill, OH 45636

**Subject: Assessment and Certification of Tank 2105-F  
Altivia Petrochemicals (formerly Sunoco Chemicals)  
Haverhill Facility**

Dear Mr. Patrick,

The assessment and certification of the subject tank has been completed. Attached you will find calculations, inspection reports and tank drawing.

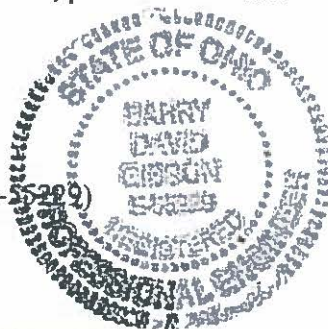
I hereby certify that I have performed an assessment of the above referenced storage tank at your Haverhill facility as required by the Ohio Administrative Code Rule 3745-50-44. It has been concluded that the tank and ancillary equipment is adequately designed and has sufficient structural strength and compatibility for its intended service.

Ohio Administrative Code Rule 3745-50-42(D) requires a certification statement, therefore, "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Should you have any questions, please contact me.

Sincerely,

David Gibson, PE (Ohio E-35229)  
Vice President





Client	Altivia Petrochemicals		
Date	25-Apr-16		
Tank Number	2105-F		
Tank Diameter	D, feet	36.33	
Liquid Fill Height	H, feet	32.25	
Bottom Projection	inches	0.00	
Thickness of Bottom	Z <sub>b</sub> , inches	0.375	
Material	ASTM A283 GrC		
Material Density	lbs/f <sup>3</sup>	490	
Material Yield Stress	Y <sub>s</sub> , psi	30,000	
Specific Gravity		1.00	
API 650 Table 3-1	t	0.193	
API 650 Table 3-1	Allowable Stress, psi	27,000	
Soil Bearing Capacity	psf	1,500	assumed
Reference Drawings	2105-F-5.00-9.10		

#### Shell Data

Ring Number	height, feet	average thickness, inches	(feet)
1	7.30	0.1834	0.015
2	7.97	0.1715	0.014
3	7.97	0.1725	0.014
4	7.97	0.1877	0.016

Weight of Shell (W<sub>s</sub>) =

$$\{(R1H*avg\ thk)+(R2H*avg\ thk)+(R3H*avg\ thk)+(R4H*avg\ th)\}*\pi*D*Material\ density$$

Weight of Shell (W<sub>s</sub>) = 25,975.55 lbf

Radial Width API 650 page 3-5

Radial Width =  $\{(390*Z_b)/((H*G)^{.5})\}$

Radial Width = 25.75 inches

Hydrostatic Test Stresses = API 650 Table 3-1

Hydrostatic Test Stresses =  $2.6*D*(H-1)/t$

Hydrostatic Test Stresses = 15,294.37 psi

Compare to Allowable Stress If > 1, then okay  
1.76536



## Shell Design

See API 650 Section 3.6

$D = 36.25$  is  $< 50$ , therefore shell thickness  $> 3/16"$  (.1875")

### Load from roof

Number of rafters	$n =$	17
Weight, lb/ft	$W_r =$	15
Dead Load, lb/f <sup>2</sup>	$DL =$	10.21
Live Load, lb/f <sup>2</sup>	$LL =$	25

Weight of Roof      lbs       $(\pi \cdot D^2/4) \cdot (DL + LL)$   
  
36,480.98   lbs

Total Load on Annual Ring=      Weight of Shell + Roof  
  
62,456.53   lbs

Unit Load on Annual Ring=      Total Load / circumference  
  
547.50      lb/f

Bearing on Annual Ring=      Unit Load / Radial Width  
  
255.11      lb/f<sup>2</sup>

Compare with Soil Bearing Capacity

If Bearing on Annual Ring is less than Soil Bearing Capacity,  
then okay

255.11   is less than   1,500

Tank 2105-F can continue in service. This is the seventh (sixth in consecutive years) inspection and certification of this tank (years 2007, 2011, 2012, 2013, 2014, 2015 & 2016).



PAGE \_\_\_\_\_ OF \_\_\_\_\_

PRODUCT	HEAVY HYDROCARBONS
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[illegible]



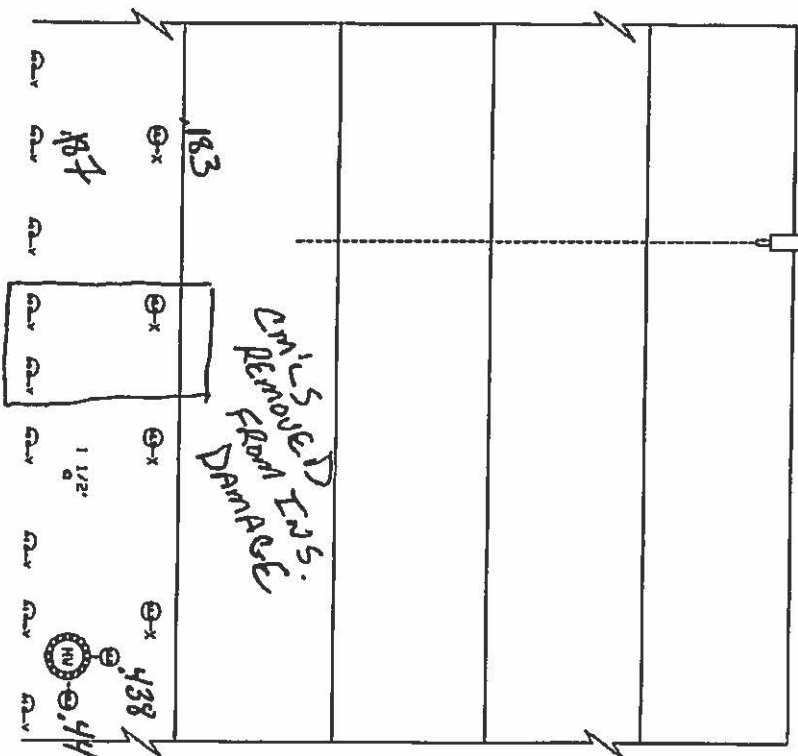
# DISRUPTION REPORT UTILITIES

PAGE 1 OF 1

COMPANY: Summa Chemicals LOCATION: Haverhill, MA DATE: March 2002

EQUIP. NAME: NUMBER 2105-F PRODUCT: HEAVY HYDROCARBONS

Furn  
Chamber



DWG#: 2105-F-10.00-12.10  
DESC: HEAVY HYDROCARBON STORAGE TANK

EQUIP RETIREMENT DATE: 7/19/2010  
NEXT INSPECTION IS DUE: 7/21/2008



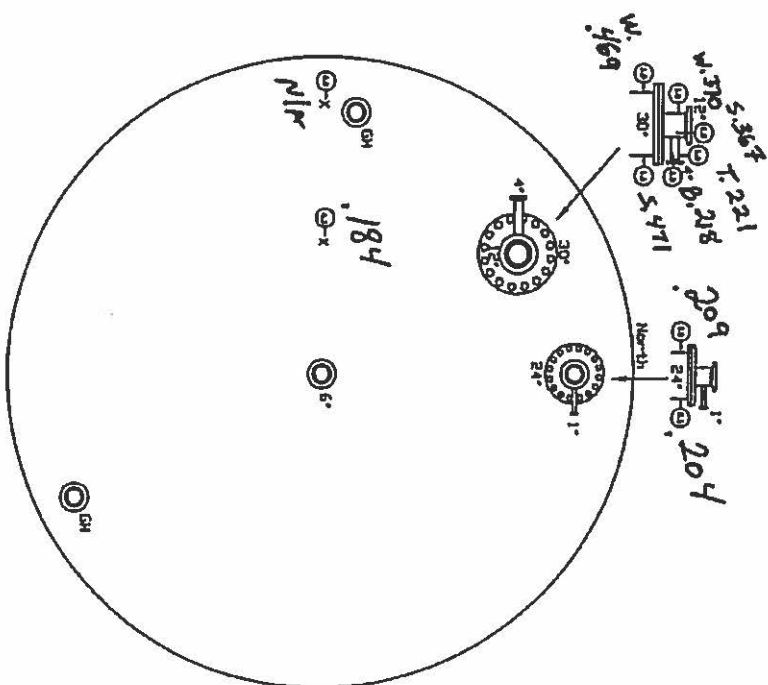
INSPECTION REPORT

PAGE 5

UTILITIES

COMPANY: SINOPEC CHEMICALS LOCATION: Haverhill, MA DATE: March 2002

STORAGE TANK NUMBER: 2105-F PRODUCT: HEAVY HYDROCARBONS



DRG#: 2105-F-1.00-4.10  
DESC: HEAVY HYDROCARBON STORAGE TANK

200P RETIREMENT DATE: 7/19/2010  
NEXT INSPECTION IS DUE: 7/21/2008



Attachment D-6

Tank Assessments (2108-F)



April 28, 2016

Jason Patrick  
Altivia Petrochemicals Company  
1019 Haverhill – Ohio Furnace Road  
Haverhill, OH 45636

**Subject:       Assessment and Certification of Tank 2108-F  
                  Altivia Petrochemical (formerly Sunoco Chemicals)  
                  Haverhill Facility**

Dear Mr. Patrick,

The assessment and certification of the subject tank has been completed. Attached you will find calculations, inspection reports and tank drawing.

I hereby certify that I have performed an assessment of the above referenced storage tank at your Haverhill facility as required by the Ohio Administrative Code Rule 3745-50-44. It has been concluded that the tank and ancillary equipment is adequately designed and has sufficient structural strength and compatibility for its intended service.

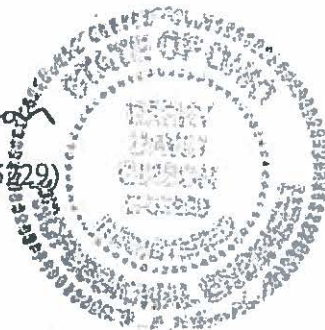
Ohio Administrative Code Rule 3745-50-42(D) requires a certification statement, therefore, "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Should you have any questions, please contact me.

Sincerely,



David Gibson, PE (Ohio E-55229)  
Vice President





Client	Altivia Petrochemicals		
Date	28-Apr-16		
Tank Number	2108-F		
Tank Diameter	D, feet	24.5	
Liquid Fill Height	H, feet	32	
Bottom Projection	inches	0.00	
Thickness of Bottom	Z <sub>b</sub> , inches	0.375	
Material	ASTM A36		
Material Density	lbs/f <sup>3</sup>	490	
Material Yield Stress	Y <sub>s</sub> , psi	36,000	
Specific Gravity		1.06	
API 650 Table 3-1	t	0.193	
API 650 Table 3-1	Allowable Stress, psi	21,000	
Soil Bearing Capacity	psf	1,500	assumed
Reference Drawings	Matrix ER1873-18		

#### Shell Data

Ring Number	height, feet	average thickness, inches	(feet)
1	8.00	0.2335	0.019
2	8.00	0.2310	0.019
3	8.00	0.2160	0.018
4	8.00	0.2295	0.019

Weight of Shell (W<sub>s</sub>) =

$$\{(R1H*avg\ thk)+(R2H*avg\ thk)+(R3H*avg\ thk)+(R4H*avg\ th)\}*\pi*D*Material\ density$$

Weight of Shell (W<sub>s</sub>) = 22,868.72 lbf

Radial Width API 650 page 3-5

Radial Width =  $\{(390*Z_b)/((H*G)^{.5})\}$

Radial Width = 25.11 inches

Hydrostatic Test Stresses = API 650 Table 3-1

Hydrostatic Test Stresses =  $2.6*D*(H-1)/t$

Hydrostatic Test Stresses = 10,231.61 psi

Compare to Allowable Stress If > 1, then okay  
2.052



## Shell Design

See API 650 Section 3.6

$D = 24.5$  is  $< 50$ , therefore shell thickness  $> 3/16"$

### Load from roof

Number of rafters	$n =$	17
Weight, lb/ft	$W_r =$	15
Dead Load, lb/f <sup>2</sup>	$DL =$	10.21
Live Load, lb/f <sup>2</sup>	$LL =$	25

Weight of Roof                      lbs               $(\pi \cdot D^2/4) \cdot (DL + LL)$   
  
16,590.82    lbs

Total Load on Annual Ring=              Weight of Shell + Roof  
  
39,459.54    lbs

Unit Load on Annual Ring=              Total Load / circumference  
  
512.93              lb/f

Bearing on Annual Ring=              Unit Load / Radial Width  
  
245.11              lb/f<sup>2</sup>

Compare with Soil Bearing Capacity

If Bearing on Annual Ring is less than Soil Bearing Capacity,  
then okay

245.11    is less than    1,500









3-28-2016

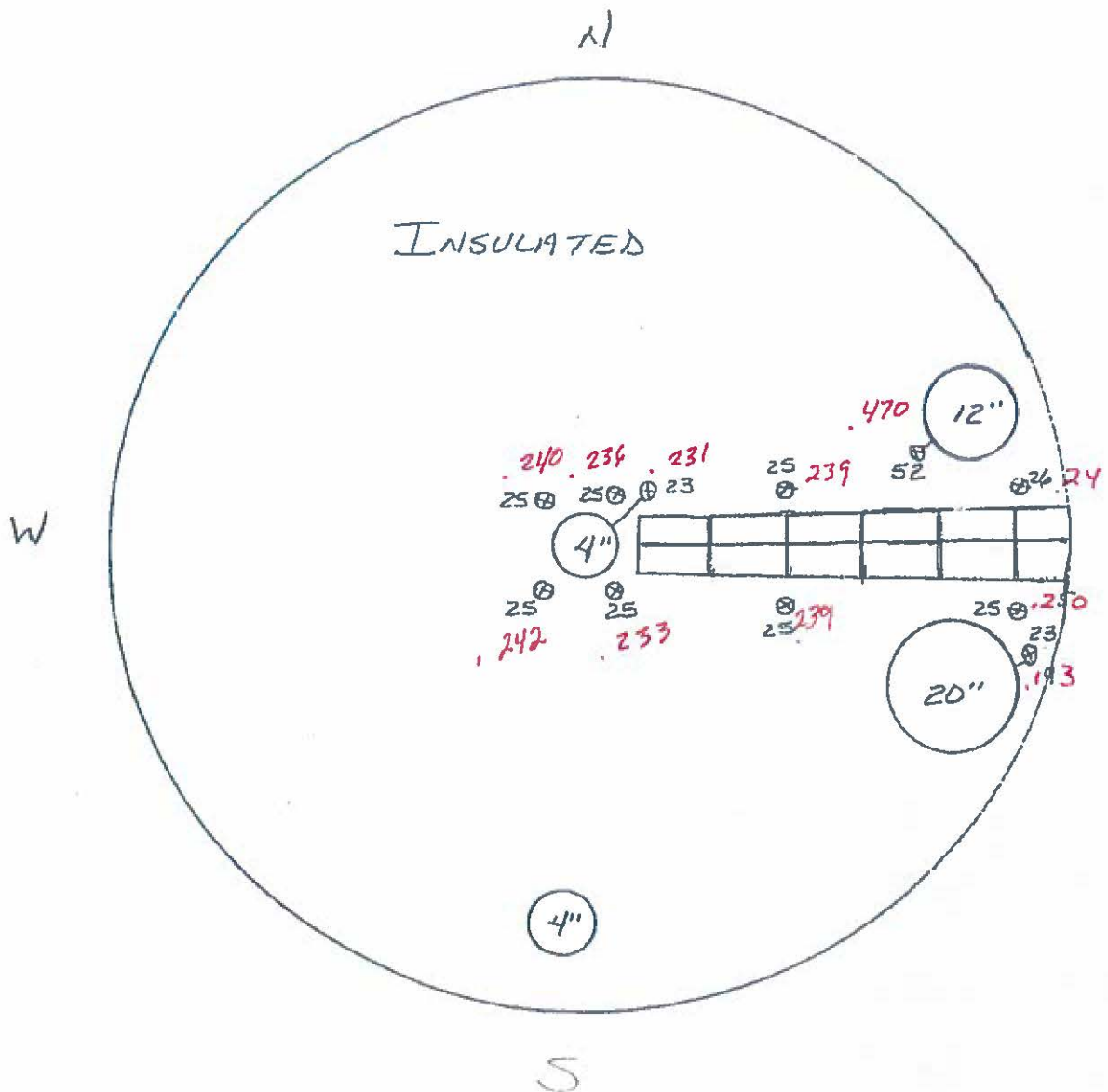


3-28-2016

ENGINEERING DEPARTMENT		SHEET
SUBJECT 2108-F HAZARDOUS WASTE TANK		APL
ROOF READINGS		EJN
BY	CHECKED BY	DRAWING
		DATE 11-19-2003

0427-2

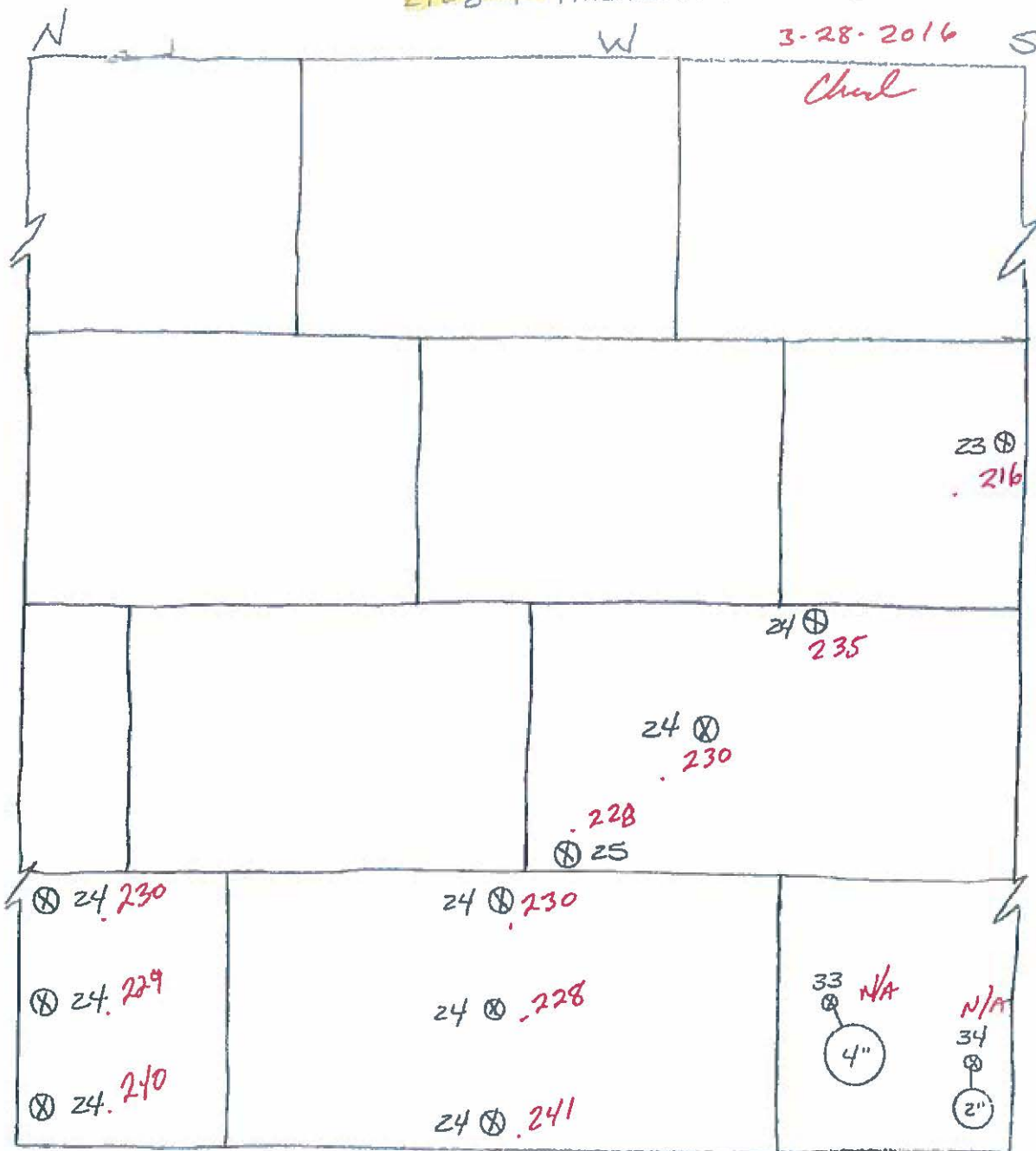
## UNIT - UTILITIES





# 2108-F HAZARDOUS WASTE TANK

3-28-2016





441

**RCRA Tank Assessment  
Tank 2108-F**

**Aristech Chemical Corporation  
Haverhill, Ohio Plant**

**Prepared by:**

**ICF Kaiser Engineers, Inc.**

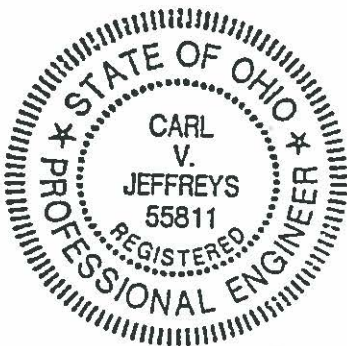
**April 28, 1997**



## CERTIFICATION

ICF Kaiser Engineers, Inc. has performed a RCRA tank assessment for a new tank system located at Aristech Chemical Corporation, Haverhill, Ohio Plant. The purpose of this assessment is to fulfill requirements of OAC 3745-55-92 and 40 CFR 264.192 for new tank systems. Limited to the information contained in this assessment report, ICF Kaiser provides the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."



Carl V. Jeffreys  
Carl V. Jeffreys, P.E.  
Registered Professional Engineer

Date 4-28-97

(SEAL)



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8.0 Tank Installation Inspection .....	3

### Attachments

Select Design Drawings  
Piping and Instrumentation Diagrams  
Testing Documentation



## 1.0 Introduction

Aristech Chemical Corporation, Haverhill Plant (Aristech), is installing a new hazardous waste accumulation tank. The tank and associated equipment are defined as a "New Tank System" in OAC 3745-50-10(A)(72) since it was installed after July 14, 1986. The owner or operator of new tank systems must obtain a written design and installation assessment identifying that the system is acceptable for accumulating, storing or treating hazardous waste.

This assessment is based on the following activities performed by ICF Kaiser representatives:

- Review of attached information
- A site inspection of the installed tank system
- Verbal information provided by the plant engineer and construction manager

## 2.0 Description of Tank System

The tank system consisted of the following components:

- One 100,000 gallon, double bottom, steel tank
- New aboveground inlet, outlet, and recirculation piping
- Two pumps
- Steam heating piping system

Select P&ID, tank design drawings, API 650 plate information, and secondary containment system design drawings are attached.

The new tank system, designated as 2108-F, is located within an existing permitted hazardous waste tank farm adjacent to tanks 2104-F and 2105-F. All three tanks share a common secondary containment system consisting of earthen dikes and base covered with concrete paving. The paving is constructed with water stops at the concrete joints.

The tank consists of a vertical steel vessel, 32 feet high and 24.5 feet in diameter. A double bottom plate is separated with steel grating with the interstitial space drained by small side wall nozzles emptying into the secondary containment area.



The 2108-F tank system is designed for the accumulation of heavy organic distillation bottoms resulting from the production of phenol, aniline and BPA. This new tank system is intended to accumulate material normally stored in the adjacent two tanks during testing periods to characterize the waste material prior to burning. Associated piping and pumps for the new tank system include the following:

- Inlet piping from the piping rack associated with the permitted storage tanks
- Outlet piping to each of the two adjacent storage tanks
- Recirculating piping
- Two pumps located within the secondary containment area

Piping is constructed of schedule 40 welded steel not requiring secondary containment. Flanges, valves, and pumps are limited to the areas within secondary containment.

Since the waste material is very viscous, forming a solid at ambient temperatures, the tank system is heated with steam coils and insulated along the piping runs.

### 3.0 Design Standards

Based on the design drawings and field plate, the tank was designed to API 650 standards, which are acceptable standards for steel vessels. The tank was field constructed of carbon steel. An API code plate was located on the tank side wall identifying operating and design information. A copy of this plate is attached.

Ancillary piping was constructed of Schedule 40 carbon steel with welded fittings.

### 4.0 Hazardous Characteristics of the Wastes

The waste to be accumulated in the tanks consist of organic distillation bottoms that are not corrosive. There are no know constituents that would attack the steel tank. Detailed waste characterization and testing results are contained in the facilities RCRA waste analysis plan.



## 5.0 Soil and water Corrosion

This section does not apply. The tank and ancillary equipment are aboveground, not in contact with soil or water.

## 6.0 Underground Tank System Components

This section does not apply. The tank and ancillary equipment are aboveground.

## 7.0 Foundation Consideration

The tank is founded on a two-foot, steel reinforced, concrete pad supported by medium to stiff clayey silts. The concrete pad extends beyond the tank perimeter where it is connected to 6-inch concrete paving that provides secondary containment. A section drawing of the foundation is attached.

The static loads from the tank and material are less than 3000 psf, which is a light foundation load. Standard foundation references allow bearing pressures in excess of 3000 psf for the site soil types. The plant is not located on one of the political jurisdictions listed in 40 CFR 264 Appendix VI for high risk seismic areas relative to managing hazardous wastes.

The perimeter of the tank is anchored to the concrete pad to minimize the potential for floating or dislodgment.

While silts are susceptible to frost heave, the clayey silt nature of site soils results in a hydraulic conductivity of  $1 \times 10^{-7}$ , which typically is not subject to significant frost heave. The site inspection did not reveal damage to the existing concrete paving indicative of frost heave. Due to the heated nature of the stored materials, site soils, and existing foundations, frost heave was not considered a factor for the operating tank system.

## 8.0 Tank Installation Inspection

As part of the tank system inspection, a qualified representative of ICF Kaiser inspected the tank system resulting in the following observations:

- The tank system components were aboveground allowing visual inspection



- No structural damage to the installed tank system was observed
- The exterior was painted and piping was insulated for corrosion protection
- An API 650 design plate was mounted on the tank

Based on a review of testing documentation and discussions with the plant engineer and construction manager, the tank was tested as follows:

- Hydrostatic testing was performed by filling the tank to slightly above the top roof weld. At the time of inspection, the test waters were draining from the tank.
- Oil penetrant testing was utilized along the bottom plate/side wall weld.
- Vacuum box testing was performed on both bottom plate welds
- Piping was hydraulically tested

Documentation of this testing is attached.



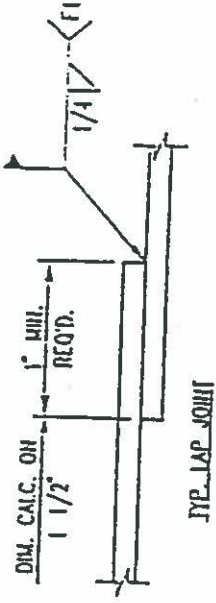




CUT OFF CORNER OF TOP  
PLATE 1/2" x 1/2". ALL PLATES  
5/16" & THICKER, OPTIONAL FOR  
1/4" & THINNER PLATES.



THREE PLATE LAP CORNER DETAIL



ADM

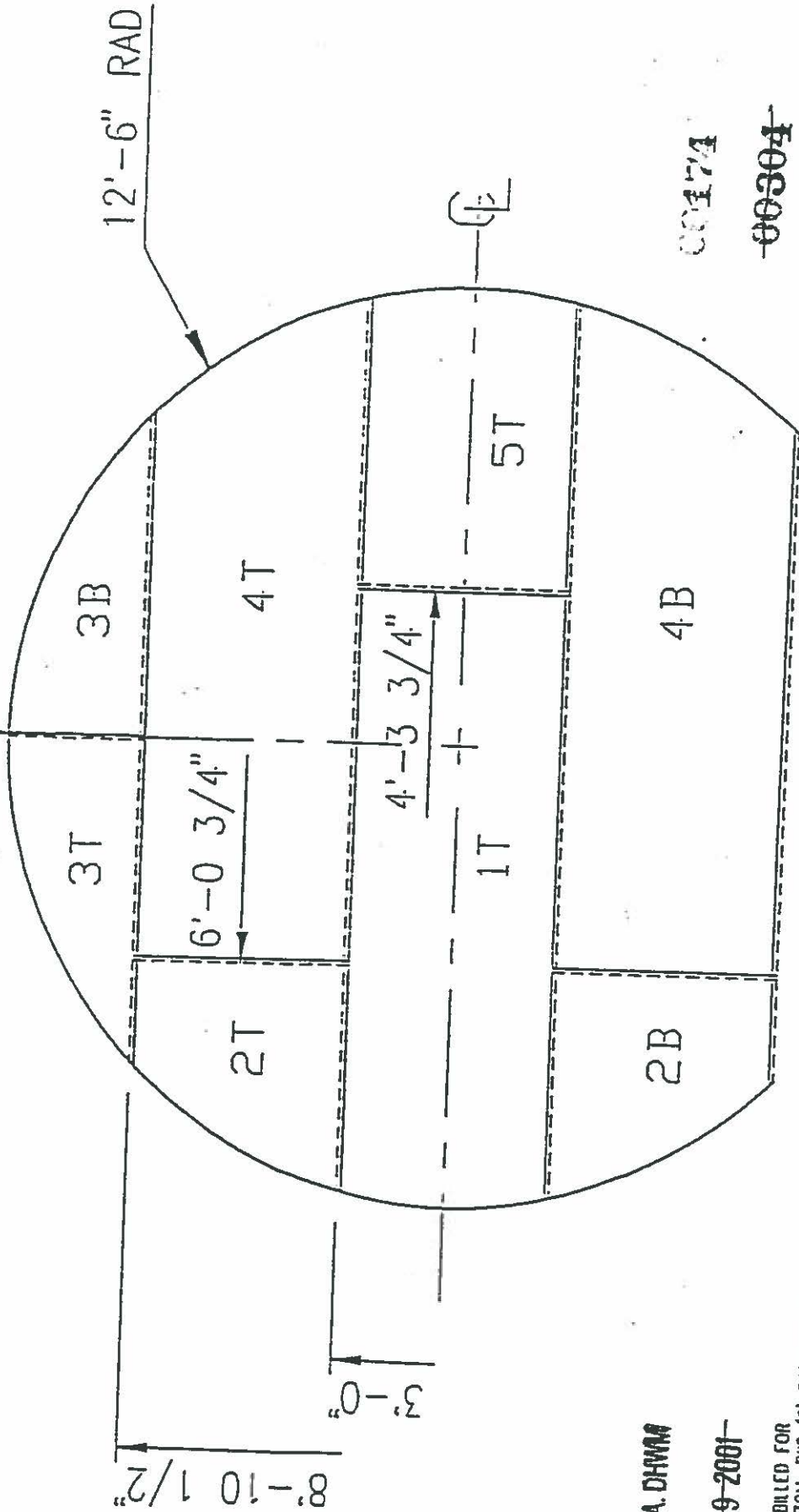
WEIGHT OF PLATES  
SKETCH PLATES = 5.0371

MATERIAL = A-36 M00

SKETCH PLATES

5 - PLATES 1/4" x 72" x 20'-0"

ADL



OHIO EPA DRAWING

OCT 29 2001

DETAILED & BILLED FOR  
ONE (1) BOTTOM, TWO (2) BOTTOMS REQ'D.

00174

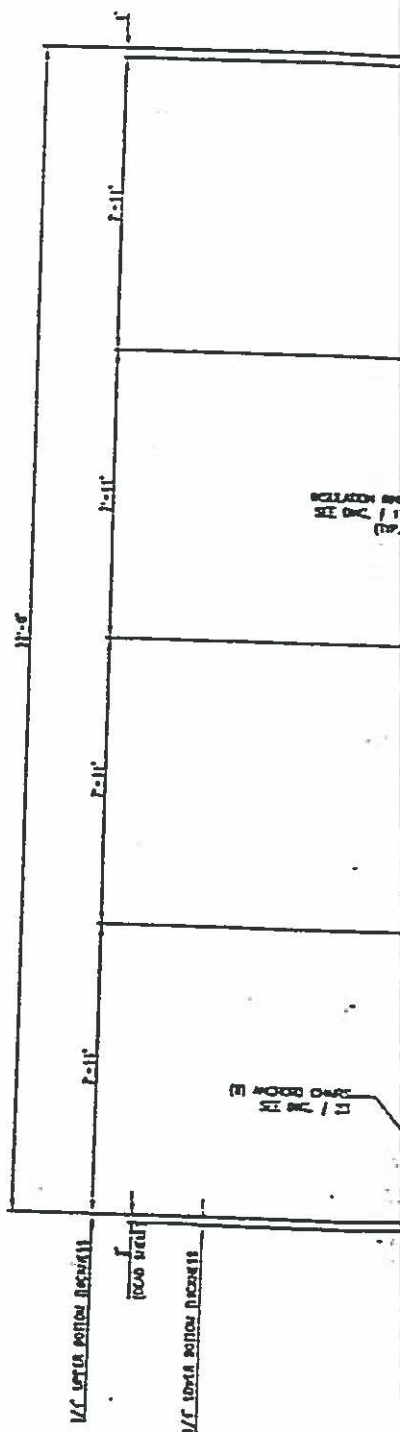
00304

	TITLE: BOTTOM LAYOUT		TANK NO.: 2108-F	DIA.: 24'-6"	IT.: 32'-0"
	CUSTOMER: ARISTECH CHEMICAL CORP.		SCALE: NONE	STD. NO.:	JOB NO.: ER1873
			DRN. RY. PT.		

Ohio EPA DMWM DEC 16 2011



GROUP	STRESS DESI	DES. DESI	ALLOWED STRESS DESI	DESIGNED DES. DESI	PL	PL
1	ASME	21000	0.1200	21000	0.0000	0.0000
2	ASME	21000	0.0800	21000	0.0000	0.0000
3	ASME	21000	0.0600	21000	0.0000	0.0000
4	ASME	21000	0.0400	21000	0.0000	0.0000
5	ASME	21000	0.0200	21000	0.0000	0.0000



QTY	DESCRIPTION	INV NO	MATL	W	F/P/1
TANK DESIGN DATA					
CODE: API 650 - INTERNAL					
DIAMETER: 24'-0"					
HEIGHT: 32'-0"					
NOMINAL CAP: 2381 BBLs					
NET WORK CAP:					
PRODUCT: HEAVY HYDROCARBON					
PROD. SPEC. GRAV: 1.06					
DES. SPEC. GRAV: 1.06					
DES. LIQUID LEV: 32'-0"					
INT. PRESSURE: 12" OF W.C.					
EXT. PRESSURE: 2" OF W.C.					
MAX. DES. TEMP: 400°					
MAX. OP. TEMP: 400°					
DES. METAL TEMP: 5°					
WIND CODE: AP-650					
WIND SPEED: 100 MPH					
WIND CHECK: CHECKED					
ED. CODE: API 650					
ED. ZONE: 1					
SITE COEF: 1.5					
BMP. FACTOR: 1					

OHIO EPA DMVMM DEC 16 2011

00303  
00175

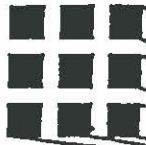
**MATRIX SERVICE, INC.**

TITLE: TANK ELEVATION		
TANK NO: 2106-F	DIA: 24'-0"	HT: 32'-0"
CUSTOMER: KINTECH CORP.		
LOCATION: HAVENHILL, OH		

OHIO EPA DMVMM

OCT 29 2001





# MATRIX SERVICE

MID CONTINENT, INC.

(313) 847-4605 \* 6945 Crabb Rd. \* Temperance, MI 48182 \* FAX (313) 847-1768

## HYDROTEST CERTIFICATION

COMPANY: ARISTECH

JOB #: ER-1873

LOCATION: HAVERHILL OH

TANK #: 2108-F

TANK SIZE: 24'6" X 32

DATE: 3-21-97

This certifies the satisfactory completion of the hydrotesting on the above referenced tank.

The following personnel conducted and/or witnessed this test:

MATRIX FOREMAN: Hinkley T. Querry

OWNER REPRESENTATIVE: A. J. [Signature]

TEST OPERATOR: \_\_\_\_\_

COMMENTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

OHIO EPA DMWM

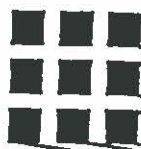
00176

~~OCT 29 2001~~

Ohio EPA DMWM DEC 16 2011

~~00305~~





# MATRIX SERVICE

MID CONTINENT, INC.

(313) 847-4605 \* 6945 Crabb Rd. \* Temperance, MI 48182 \* FAX (313) 847-1768

## CORNER WELD OIL PENETRANT TEST CERTIFICATION

COMPANY: ARISTECH

JOB #: ER-1873

LOCATION: HAVERHILL OH

TANK #: 2108-F

HAVERHILL  
RECEIVED

TANK SIZE: 24'6" X 32'

DATE: 2-24-97

FEB 25 1997

FIELD  
CONSTRUCTION

This certifies the satisfactory completion of the corner weld oil penetrant test.

Light diesel oil was applied to the entire length of the corner weld. No "wicking" occurred.

The following personnel conducted and/or witnessed this test:

MATRIX FOREMAN: HINKLEY TOWERY

OWNER REPRESENTATIVE: [Signature]

TEST OPERATOR: ROBERT MINTON

COMMENTS: TEST WAS OK

OHIO EPA DMWM

00177

~~OCT 29 2001~~

~~00306~~

Ohio EPA DMWM DEC 16 2011





# MATRIX SERVICE

MID CONTINENT, INC.

(313) 847-4605 \* 6945 Crosby Rd. \* Temperance, MI 48182 \* FAX (313) 847-1768

## VACUUM BOX TEST CERTIFICATION FOR BOTTOM

COMPANY: FRISTECH

JOB #: ER-1873

LOCATION: HAVERHILL OH

TANK #: 2108-F

TANK SIZE: 24'6" X 32

DATE: 2-20-97

is certifies the satisfactory completion of the vacuum box test on the above referenced tank bottom.  
The vacuum box test was completed on all fillet welds joining bottom plates.

The following personnel conducted and/or witnessed this test:

MATRIX FOREMAN: HINKLE TOWERY

OWNER REPRESENTATIVE: Ed [Signature]

TEST OPERATOR: W. PAYNE L. Roudébush

COMMENTS: TEST OK

Ohio EPA DMM DEC 16 2011

OHIO EPA. DHWM

HAVERHILL  
RECEIVED

FEB 20 1997

00173

19/94

~~OCT 29 2001~~

FIELD  
CONSTRUCTION

~~00307~~



# Piping Construction Check Sheet

Pipeline Information			Check Materials of Construction		Hydrostatic Testing			Non-Destructive Testing			Are Pipe Supports Adequate?		Are Open-end Valves Plugged?		Oval Handles on Valves?		Is line Painted?	
Line Number	Line Size	Pipe Spec	(1)			(2)			(3)			Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
			Init	Date	Test Press	Medium	Init	Date	Type	Init	Date							
21141	4"	IP3	AS	3/16	170 #	AS	5-21-97					Y	Y	Y	Y	Y	Y	Y
21142	3"	IP3	AS	"	"	"	"											
21143	4"	IP3	AS	"	"	"	"											
21144	3"	IP3	AS	"	"	"	"											
<p>SHOP PRE FAB (SPOOLS AND PIPING PAINTED)</p> <p>SPOOLS TAPED OVER WELDS, ALL WELDS NOT PAINTED</p>																		

- At some point in time during construction of each pipeline check to verify that the materials of construction are per the specifications. For alloy pipe checking of the stamped ASTM designation is sufficient. For carbon steel pipe verify the schedule by measuring the wall thickness.
- Medium refers to the test medium. I.e. air, water, in service.
- Type refers to the kind of non-destructive test required. I.e. 10% X-ray, 100% X-ray, visual, etc.
- Check to see that all permanent supports have been installed and adequately support the pipe.
- All valves that are open to atmosphere must be plugged, capped, or blinded.
- All quarter turn valves that are 2" and under in size and that are open to the atmosphere must have oval handles.

NR indicates "not required" - NA indicates "not applicable"



EARLY CONSTRUCTION COMPANY  
QUALITY CONTROL

Test Record Sheet

Job # 10

Job Description 2108 TANK HEATON COIL

Line No. MS-22096-2"-(151) SCH. 160

Type of System Steam

Operating Pressure 150 lb.

Test Pressure 170 lb.

Test Medium: Nitrogen Water Air Water

Type of Joints: Welded Scrd Other Welded

Start time of test 2:45 PM

Complete test 3:30 PM

Date 3-18-97

Early Representative Jerry Porter

Owner Representative A. S.

Other Representative \_\_\_\_\_

NOTE: SOON AFTER FINISHING WELDMENT OF THE STM. COIL, IT BEGAN TO RAIN. EARLY'S HYDRO PUMP DID NOT WORK. WE WORKED ON IT FOR APX. 1 hr. STILL NO LOCK, BY THEN IT WAS APX. 4:45 PM. MATRIX WAS DUE IN THE FOLLOWING DAY TO BUTTON UP THE TANK. I TOLD EARLY THAT I WOULD ACCEPT THE HYDRANT PRESS. ON THE PIPE AS A QUALIFIED HYDRO. AS IT WAS HELD AT THE ABOVE PRESS. FOR A LONGER PERIOD THAN STATED.

Ohio EPA DMWM DEC 16 2011

OHIO EPA DMWM

OCT 29 2001

3-19-97

00180

00309



Number	CWP/WP/Traveler No.	Code or Specification	Visual Examination Procedure #
Weld Number <b>210BF Roof</b>	Drawing Number	Joint Design <b>Fillet</b>	Fit-up <input type="checkbox"/> End prep <input type="checkbox"/> Fit-up <input type="checkbox"/> Root <input type="checkbox"/> In-process <input type="checkbox"/> Final <input checked="" type="checkbox"/>
Material <b>Carbon Steel Plate</b>	Size and Schedule	Special Equipment (if used)	

EXAMINATION RESULTS				SKETCH
	Accept	Reject	No Indication	
Surface Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<p>see Attached Roof Plate sketch</p>
Reinforcement	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Crack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Incomplete Fusion	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Undercut	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Porosity	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Incomplete Penetration	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Slag Inclusion	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**MARKS:**

This is a core roof API storage tank, during the hydro test the water level was raised to 12" Above the roof to shell seam. All of the roof weld seams were visually inspected. During the construction of this tank Jim Stitt and Jim Cliner reviewed the progress. 3/20/97, Stitt and Cliner reviewed progress prior to Radiographic inspection as required per API-650. Radiographic and Vacuum box records on file in Const. Management department.

VISUAL EXAMINATION PERFORMED BY

James H. Cliner III 4/17/97  
 SIGNATURE LEVEL DATE

VISUAL EXAMINATION EVALUATION

Accept ☒ Reject ☐

James H. Cliner III 4/17/97  
 EVALUATED BY SIGNATURE LEVEL DATE



EARLY CONSTRUCTION COMPANY  
QUALITY CONTROL

Test Record Sheet

Job # 10

Job Description TEST Spill BACK Line

Line No. Spill BACK Line

Type of System HEAVY ENDS

Operating Pressure \_\_\_\_\_

Test Pressure 170 lb.

Test Medium: Nitrogen Water Air Water

Type of Joints: Welded Scrd Other Welded

Start time of test 11:15 AM

Complete test 12:00 Noon

Date 3-21-97

Early Representative Jim Porter

Owner Representative [Signature]

Other Representative \_\_\_\_\_

OHIO EPA. DMWM

~~OCT 29 2001~~

Ohio EPA DMWM 10 15 2011

00182

00311



## **SECTION F**

### **PROCEDURES TO PREVENT HAZARDS**



## SECTION F. PROCEDURES TO PREVENT HAZARDS

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## **SECTION F. PROCEDURES TO PREVENT HAZARDS**

### **LIST OF EXHIBITS**

Exhibit F-1	Security Devices Inspection Schedule
Exhibit F-2	Safety and Emergency Equipment Inspection Schedule
Exhibit F-3	Spill Cleanup Supplies Inspection Schedule
Exhibit F-4	Tank System and Ancillary Equipment Inspection Schedule



## **SECTION F. PROCEDURES TO PREVENT HAZARDS**

This section describes the security and emergency procedures and equipment used at the Haverhill Plant. It also presents the site inspection plan that will be followed to minimize potential hazards. This section includes information on the procedures, structures, and equipment to be used by the facility to minimize spills during waste transfer, to prevent run-on or run-off from impacting the environment or interfering with facility operations, and to mitigate the effects of equipment failure. Finally, the techniques used to manage ignitable waste at the facility are discussed.

### **F-1 SECURITY: §264.14, OAC 3745-54-14; 270.14(b)(4), OAC 3745-50-44**

#### **F-1a Waiver: §264.14(a), OAC 3745-54-14 (A)**

A waiver of the security procedures and equipment requirements is not being sought.

#### **F-1a(1) Injury to Intruder: OAC 3745-54-14 (A)(1)**

The facility maintains warning signs, physical and administrative controls to prevent access.

#### **F-1a(2) Violation Caused By Intruder: OAC 3745-54-14 (A)(2) (A)(2)**

The facility maintains warning signs, physical and administrative controls to prevent access.

#### **F-1b Security Procedures and Equipment: §270.14(b)(4), OAC 3745-50-44 (A)(4); 264.14, OAC 3745-54-14 (B)**

The Owner/operator has a 24-hour surveillance system that provides continuous security for all of its operations. Access to the facility is controlled by a chain link fence which completely surrounds the plant. Security personnel at the main gate entrance gate monitor persons and vehicles entering the facility. Visitors are required to register at the guard house, obtain a visitor's pass, and view a safety video.

#### **F-1b(1) 24-Hour Surveillance System: §264.14(b)(1), OAC 3745-54-14 (B)(1)**

Security personnel are provided at the main gate 24 hours a day. Traffic (vehicular and pedestrian) entering and leaving the facility is monitored. During the night shift, security personnel inspect the interior and perimeter of the facility.



**F-1b(2) Barrier: §264.14(b)(2) & OAC 3745-54-14 (B)(2)(a)**

The active portion of the facility is enclosed by a chain link fence.

**F-1b(3) Means to Control Entry: §264.14(b)(2)(b), OAC 3745-54-14**

Entrance to the facility is gained through various restricted-access gates. Entry through the gates requires the use of an electronic device, which is issued to plant employees and other long-term on-site personnel after having their identity established and being approved by Owner/operator supervisory personnel. Security personnel are provided at the main gate and monitor the other gates via electronic equipment.

**F-1c Warning Signs: §264.14(c), OAC 3745-54-14**

Signs with the legend “Danger - Keep Out - Authorized Personnel Only” are posted at each entrance gate. The same sign is posted on the fence surrounding the facility at approximately 100-foot intervals. The signs may be seen from any approach and are legible from a distance of 25 feet. These signs also prevent unauthorized entry into the boiler area.

**F-2 INSPECTION SCHEDULE**

**F-2a GENERAL INSPECTION REQUIREMENTS: [OAC 3745-50-44, 3745-54-15 and 3745-54-33]**

The Ohio Administrative Code (OAC) includes inspection requirements for hazardous waste treatment, storage, and disposal facilities. These inspections are intended to prevent and detect system malfunctions, equipment deterioration, operator error, and other discharges which, if allowed to continue without remedial action, might ultimately lead to a release of hazardous waste constituents to the environment and/or threaten human health. The Owner/operator complies with these requirements, as described below.

The facility has developed and follows inspection schedules for various types of equipment. The types of equipment and the location of the individual inspection schedules in this permit application are provided in the following table. The facility performs the tank inspections at the required frequency when those pieces of equipment are operating with or storing hazardous waste.



### INSPECTION SCHEDULES

#	Type of Equipment	Location of Inspection Schedule
1	Security Devices	Exhibit F-1
2	Safety and Emergency Equipment	Exhibit F-2
3	Spill Cleanup Supplies	Exhibit F-3
5	Tank Systems and Ancillary Equipment	Exhibit F-4

The tank inspection schedules include the associated monitoring, operating, and structural equipment. The inspection schedules are maintained at the facility.

**F-2a(1) Types of Problems:** OAC 3745-54-15 (B)(3)

The inspection schedules identify the types of problems that need to be assessed during the inspections.

**F-2a(2) Frequency of Inspections:**

The schedules listed below also identify the frequency for the inspections. Weekly Inspections will be conducted at least once between a Sunday and Saturday period.

**F-2a(3) Remedial Action:** OAC 3745-54-15 (C)

The facility will remedy any malfunction or deterioration that the inspections reveal to prevent an environmental or human health hazard. If an inspection reveals that an environmental or human health hazard has already occurred, the facility will take remedial action.

**F-2a(4) Inspection Logs:** OAC 3745-54-15 (D)

The results of the inspections are recorded on paper-copy forms or in computerized records. The records include at least the following information:

- Date and time of the inspection;
- Name of the inspector;
- A notation of the observations made; and
- The date and nature of any repairs or remedial actions.

**F-2b Specific Process Unit Inspections**

**F-2b(1) Container Inspection:** [OAC 3745-66-74]



The Owner/operator has no containers or container storage areas for which a permit is required. Therefore, the facility is exempt from the container requirements of OAC 3745-55-70 because of the exceptions provided by OAC 3745-54-01(G)3 and OAC 3745-52-34 for generators of hazardous waste storing the material in containers for few than 90 days. Therefore, the Owner/operator conducts inspections of all less-than-90-day hazardous waste container storage areas in compliance with OAC 3745-66-74. An inspection of any container storage area is conducted at least weekly, when the container area is storing hazardous waste. Specific items looked for during the inspection are proper labeling of containers, lids in place, container condition, and the presence of any leaks or deterioration of the containers or their containment.

**F-2b(2)      Tank System Inspections [OAC 3745-50-44 (A)(5) & OAC 3745-55-95]**

The OAC includes specific inspection requirements for hazardous waste storage tanks. The Owner/operator complies with these requirements, as described below.

**F-2b(2)(a)    Tank System Overfilling Control Equipment: [OAC 3745-55-95 (A)]**

Permitted, hazardous waste storage tanks 2003-F, 2104-F, and 2105-F are each equipped with level gauges. These gauges also serve as high level alarms. Operators routinely monitor the gauges and alarms to prevent overfilling of the tanks.

**F-2b(2)(b)    Tank System External Corrosion & Releases: [OAC 3745-55-95(B)(1)]**

When the tanks contain hazardous waste, facility personnel inspect above-ground portions of the tank systems daily for external corrosion and releases of waste, waste released from the tanks would be contained in the secondary containment. A description of the secondary containment is provided in Section D.

**F-2b(2)(c)    Tank System Monitoring & Leak Detection Equipment: [OAC 3745-55-95 (B)(2)]**

The storage tanks are each equipped with double bottoms and a bleed pipe. Should a leak occur and drain into the space between the double bottoms, the waste would flow through the bleed pipe into the tanks' secondary containment system. Leaks would be detected during the inspection of the secondary containment.



**F-2b(2)(d) Tank System Construction & Materials & Surrounding Area: OAC 3745-55-95 (B)(3)**

When the tanks contain hazardous waste, the tank construction materials is steel (carbon or stainless), secondary containment area is concrete with a liner and coating (approved by compatibility testing), secondary containment construction. All areas immediately surrounding any of the tank systems are inspected daily for corrosion, erosion, leaks, or deterioration.

When the tanks do not contain hazardous waste, the OAC inspection requirements do not apply. Therefore, the tanks will not be inspected when they do not contain hazardous waste.

**F-2b(2)(e) Tank System Monitoring & Leak Detection Equipment: OAC 3745-55-95 (C)**

None of the permitted storage tanks have cathodic protection.

**F-2b(2)(h) Operating Record: OAC 3745-55-95 (D)**

The records are maintained for at least three years from the date of inspection.

**F-2d Other Inspection Requirements**

The OAC includes specific inspection requirements for surface impoundments; waste piles; land treatment units; landfills; incinerators; and miscellaneous units. However, the Haverhill plant does not include any of these types of regulated units. Therefore, the specific inspection requirements for those units are not applicable to the Haverhill Plant.

**F-3 DOCUMENTATION OF PREPAREDNESS AND PREVENTION REQUIREMENTS**

The Haverhill Plant is designed, constructed, maintained, and operated in a manner that minimizes the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, surface water, or groundwater which could threaten human health or the environment. The Owner/operator follows industry guidelines, codes of practice, manufacturer specifications, and sound engineering principles. Owner/operator personnel or a contractor will respond should a spill reach the Ohio River. The preparedness and prevention procedures for the Owner/operator are discussed in detail in this section.

**F-3 Exemption from or Documentation of Preparedness & Prevention Requirements: [OAC 3745-50-44, (A)(6), 3745-54-30 to 3745-54-37]**

**F-3 Justification for Exemption Request: OAC 3745-50-44, (A)(6)**

No exemption requested.



**F-3 Design and Operation of Facility: OAC 3745-54-31**

The facility is designed, constructed, maintained and operated to minimize the possibility of fire, explosion or unplanned or non-sudden release of hazardous waste or constituents to air, soil or surface water which could threaten human health or the environment. The equipment conforms to Industrial Standards when applicable, the Haverhill Plant is equipped with fire protection systems. The Haverhill Plant uses procedures to prevent occurrence of equipment failures, fires, explosions and releases. The Haverhill Plant procedures, structures, and equipment are utilized to prevent a release that may threaten human health or the environment are in the following sections.

**F-3a Equipment Requirements: [OAC 3745-50-44, 3745-54-32]**

The Owner/operator meets all the equipment requirements detailed in OAC 3745-54-32 and as described in this section. Included is a discussion of the internal communications system, external communications system, emergency equipment, water for fire control, and aisle spacing.

**F-3a(1) Internal Communications: [OAC 3745-54-32]**

The Owner/operator has available several types of internal communication systems capable of providing immediate emergency instruction to facility personnel including radios, internal public address system with audible, plant-wide alarms, and a telephone system.

**F-3a(2) External Communications: [OAC 3745-54-32]**

Telephones are immediately available throughout the facility for summoning emergency assistance from the local police department, fire department, and state and local emergency response teams. Phones are located at every operating unit control room, in the guard houses, and in the offices at the facility.

**F-3a(3) Emergency Equipment: §264.32(c), OAC 3745-54-32**

Emergency equipment including portable fire extinguishers, fire control equipment, spill control equipment, and decontamination equipment is available at the facility. This equipment is described in the plant emergency procedures.

**F-3a(4) Water for Fire Control: §264.32(d), OAC 3745-54-32**

The facility is equipped with water at adequate volume and pressure to supply water hose streams, foam producing equipment, and automatic sprinklers. Firewater storage tanks are located at the plant-site.

An underground fire water header is located throughout the plant site with fire hydrants distributed in critical areas. The header is supplied with fire water from the fire water storage



tanks using pumps that are located near the tanks. Additional water for fire control is provided at the river dock. In addition, a fixed foam system is provided for protection of the west tank field.

This system consists of foam, a foam pump, and fixed foam lines to the cumene tanks, phenol tanks, and AMS tanks.

**F-3b Aisle Space Requirement: [OAC 3745-54-35]**

Sufficient aisle space exists and is maintained to allow the unobstructed movement of personnel, fire protection equipment, or spill control equipment to any area of the plant's facilities and operations in an emergency. The aisle space is provided by a road system which is shown on the site plan in Exhibit B-2 and consists of 20-foot-wide roads with 2-1/2 foot shoulders. In addition, the facility complies with the buffer zone requirements of the National Fire Protection Association Flammable and Combustible Code.

**F-3f Arrangements/Agreements with Local Authorities OAC3745-54-37**

The Owner/operator attempts to make arrangement and agreements with the Local Emergency Planning Committee/County Emergency Management Agency.

**F-4 PREVENTIVE PROCEDURES, STRUCTURES, AND EQUIPMENT**

Preventive procedures, structures, and equipment utilized to prevent a release that may threaten human health or the environment are in the following sections.

**F-4a Unloading Operations: [OAC 3745-50-44]**

Wastes stored are piped directly from the process areas to the storage tanks. The wastes are then either piped directly to the utility boilers or loaded into trucks or transportation containers which are filled in an impermeable surface.

**F-4b Run-Off: [OAC 3745-50-44]**

Run-off from hazardous waste areas at the facility is retained by the secondary containment systems. This run-off will not come in contact with any hazardous waste under normal operations; however, it will be collected and visually inspected before any discharge to the bio-wastewater system is allowed. If visual observations indicate that the precipitation has been impacted by a release from the tank, then the water will be disposed of off-site as a hazardous waste.

**F-4c Water Supply: [OAC 3745-50-44]**

The facility ensures that potential water supplies are protected from contamination by providing all waste handling areas at the facility with adequate spill containment. Potable water is supplied via Municipal Water Treatment Facilities. Water used for utility and fire water is drawn from the Ohio River and treated.



**F-4d Equipment and Power Failure: [OAC 3745-50-44]**

The procedures and equipment to be used during equipment failure and power outages are outlined in Plant Emergency procedures. All unit shift coordinators have a copy of the manual and are familiar with the procedures.

In the event of electrical power failure, emergency equipment will be employed to maintain facility operations. Emergency generators are located throughout the plant. Portable pumps are available at the facility to prevent overtopping of the sumps. Pipe connections are provided on existing pipelines to allow the portable pumps to be easily connected during emergencies.

**F-4e Personal Protective Equipment: [OAC 3745-50-44]**

The Owner/operator ensures that personnel are protected from undue exposure to hazardous waste by requiring use of adequate protective clothing and equipment. The facility requires that all personnel inside the plant wear hard hats, safety eyeglasses, and safety shoes. Other protective equipment is used as specified by facility procedures.

Located throughout the production areas are emergency safety cabinets, safety showers and eye wash fountains. Equipment available at the facility to prevent undue exposure of personnel to hazardous waste is described in the Contingency Plan (Section G).

**F-5 PREVENTION OF REACTION OF IGNITABLE, REACTIVE, AND INCOMPATIBLE WASTES: [OAC 3745-50-44]**

**F-5a Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Wastes: [OAC 3745-50-44 and 3745-54-17]**

The hazardous waste management units requiring a RCRA Part B permit do not handle any reactive wastes. However, they do manage several ignitable waste streams. The facility has taken precautions to prevent ignition during handling of ignitable waste. The facility ensures that ignitable wastes are separated from sources of ignition such as open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks, spontaneous ignition, and radiant heat.

Due to the fact that the Haverhill Plant is a chemical production facility which routinely handles ignitable or flammable substances in its process areas, the facility has “NO SMOKING” signs are conspicuously placed on all gates to the plant entrance. Smoking is not permitted in the plant.

Additionally, the plant strictly controls the work within the facility which could lead to accidental ignition of substances. The plant's safety regulations require the issuance of an internal Hot Work Permit prior to the performance of all cutting, burning, welding, use of non-explosion proof tools or electrical equipment or an ignition source. Finally, the facility has a safety regulation for lockout of



all electrical motor driven equipment and electrical circuits that require operations or maintenance to repair or inspect.

**F-5b General Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste: [OAC 3745-50-44 and 3745-54-17]**

The facility does not manage any reactive or incompatible wastes in the tanks requiring a permit.

The precautions outlined above in Section F-5a are followed to prevent reactions of ignitable waste which:

- Generate extreme heat or pressure, fire or explosions, or violent reactions;
- Produce uncontrolled flammable fumes, dusts, or gases in sufficient quantities to threaten human health or the environment;
- Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions;
- Damage the structural integrity of the device or the facility; or
- By similar means threaten human health or the environment.

**F-5c Documenting Compliance with General Requirements for Ignitable, Reactive or Incompatible Waste OAC 3745-50-44 (A)(9), & 3745-54-17(C)**

**F-5d Management of Ignitable or Reactive Wastes in Containers: [OAC 3745-50-44(c)(1) and 3745-55-76]**

There are no container storage areas being permitted at the facility. Therefore, this section is not applicable.

**F-5e Management of Incompatible Wastes in Containers: [OAC-3745-50-44(c)(1) and 3745-55-77]**

There are no container storage areas being permitted at the facility. Therefore, this section is not applicable.

**F-5f Management of Ignitable or Reactive Wastes in Tank Systems: [OAC-3745-50-44(c)(2) and 3745-55-98]**

The Haverhill Plant follows several operational procedures to minimize the possible ignition of ignitable waste. The plant strictly controls the work within the facility which could lead to accidental ignition of substances. The plant's safety regulations require the issuance of an internal Hot Work Permit prior to the performance of all cutting, burning, welding, use of non-explosion proof tools or electrical equipment or an ignition source. Hot work routinely requires a fire watch in areas such as the hazardous waste tanks to prevent the possibility of stray sparks or hot material coming into contact with ignitable material. Finally, the facility has a safety



regulation for lockout of all electrical motor driven equipment and electrical circuits that require operations or maintenance to repair or inspect.

The only unit managing ignitable waste requiring a permit is Tank 2003-F. All plant safety regulations are followed carefully when working on this tank and its appurtenances.

The 2003-F tank is located in accordance with the required spacing in compliance with NFPA 30-1984, Chapter 2, Tank Storage, 2-2.13, Location with Respect to Property Lines, Public Ways and important Buildings on the Same Property and 2-2.2.1 Spacing (Shell to Shell) Between Any Two Adjacent Aboveground Tanks.

The tank is grounded by direct connection to a plant-wide system that serves to provide a common electrical ground for tanks and other equipment to prevent the possible build-up of static electricity that could cause a spark.

**F-5g Management of Incompatible Wastes in Tank Systems: [OAC 3745-50-44, 3745-54-17, and 3745-55-99]**

Incompatible wastes are not stored within the same tank system. Each of the three permitted tanks is dedicated to storing a single waste stream. The tanks will only be used to store other materials after they are cleaned sufficiently to remove the hazardous waste such that there are no incompatibility issues.

**F-5h Management of Ignitable Reactive Wastes Placed in Waste Piles: [OAC 3745-50-44(c)(4) and OAC 3745-56-56]**

There are no waste piles being permitted at the facility. Therefore, this section is not applicable.

**F-5i Management of Incompatible Wastes Placed in Waste Piles: [OAC 3745-50-44 and 3745-56-57]**

There are no waste piles being permitted at the facility. Therefore, this section is not applicable.

**F-5j Management of Ignitable or Reactive Wastes Placed in Surface Impoundments: [OAC 3745-50-44(c)(3 and 3745-56-29]**

There are no surface impoundments being permitted at the facility. Therefore, this section is not applicable.



**F-5k Management of Incompatible Wastes Placed in Surface Impoundments: [OAC 3745-50-44(c)(3) and 3745-56-30]**

There are no surface impoundments being permitted at the facility. Therefore, this section is not applicable.

**F-5l Management of Ignitable or Reactive Wastes Placed in Landfills: [OAC 3745-50-44(c)(7) and 3745-57-12]**

There are no landfills being permitted at the site. Therefore, this section is not applicable.

**F-5m Management of Incompatible Wastes Placed in Landfills: [OAC 3745-50-44(c)(7) and 3745-57-13]**

There are no landfills being permitted at the site. Therefore, this section is not applicable.

**F-5n Management of Ignitable or Reactive Wastes Placed in Land Treatment Units:[OAC 3745-50-44(c)(5) and 3745-56-81]**

There are no land treatment units being permitted at the site. Therefore, this section is not applicable.

**F-5o Management of Incompatible Wastes Placed in Land Treatment Units: [OAC 3745-50-44(c)(5) 3745-56-82]**

There are no land treatment units being permitted at the site. Therefore, this section is not applicable.



EXHIBIT F-1

SECURITY DEVICES INSPECTION SCHEDULE



**Exhibit F-1**

**SECURITY DEVICES INSPECTION SCHEDULE**

<b>Specific Item</b>	<b>Type of Problem</b>	<b>Frequency of Inspection</b>
Facility fence	Damage to chain link fence or barbed wire	Monthly
All gates and locks	Sticking or corroding lock; locked/unlocked gates	Monthly
Warning signs	Damaged or missing	Monthly



## EXHIBIT F-2

### SAFETY AND EMERGENCY EQUIPMENT INSPECTION SCHEDULE



## Exhibit F-2

### SAFETY AND EMERGENCY EQUIPMENT INSPECTION SCHEDULE

Specific Item	Type of Problem	Frequency of Inspection
Industrial absorbents (pads, boom)	Insufficient stock	Weekly
Emergency shower & eyewash	Inadequate water pressure, leaking, nonfunctional	Weekly
Chemical cartridge respirators <ul style="list-style-type: none"> <li>· organic vapor <ul style="list-style-type: none"> <li>- mask (half/full)</li> </ul> </li> <li>· acid gas <ul style="list-style-type: none"> <li>- mask (half/mask)</li> </ul> </li> <li>· cartridges/canisters</li> </ul>	Broken, dirty, insufficient supply. - Insufficient supply, illegible, expiration date exceeded, etc.	Weekly; before and after each use  Weekly or after each use
Self-contained breathing apparatus (SCBA)	Air: reserve quantity, delivery system, strap seals, regulator & warning device.	Weekly and after each use
Five-Minute Air Capsules	Air quality strap seals	Weekly
Portable pumps	Non-operable	Weekly
Fire extinguishers: <ul style="list-style-type: none"> <li>· CO<sub>2</sub>, Dry Chemical &amp; Halon</li> </ul>	Needs recharging	Weekly
Alarm system	Power failure & inoperable.	Weekly
PA System	Power failure & inoperable.	Weekly
Telephone system	Inoperable	Weekly
Two-Way Radio	Batteries & inoperable	Weekly
Generators	Spark plugs & oil	Weekly
Emergency lighting system <ul style="list-style-type: none"> <li>· Medical Grab Bag</li> <li>· First Aid Cabinet</li> </ul>	Battery failure, lights Insufficient supply Insufficient supply	Weekly
Protective clothing (impermeable fullbody coveralls, gloves, & foot coverings)	Holes, normal wear and tear, or insufficient stock	Weekly
Safety harnesses and ropes	Rope stress, broken straps	Weekly
PSL Foam fire suppression system	Inoperable	Weekly
Oxygen and combustible gas meter	Battery low	Weekly
Sprinkler system & Fire Hydrants	Loss of pressure & inoperable.	Weekly
Halon Protection System	Inoperable	Semi-Annually
Fire Trucks	Inoperable/missing equipment	Weekly
Emergency Fire Water Pumps	Fuel supply, inoperable	Weekly
Portable Sump Pumps <ul style="list-style-type: none"> <li>· air operated</li> </ul>	Inoperable/missing equipment	Weekly



### EXHIBIT F-3

#### SPILL CLEANUP SUPPLIES INSPECTION SCHEDULE



### Exhibit F-3

#### SPILL RESPONSE CENTER CLEANUP SUPPLIES INSPECTION SCHEDULE

Specific Item	Type of Problem	Frequency of Inspection
Tools	Insufficient stock, damage	Weekly
Pumps	Insufficient stock, damage	Weekly
Hoses	Insufficient stock, damage	Weekly
Cords	Insufficient stock, damage	Weekly
Oil absorbent	Insufficient stock	Weekly
Absorbent materials	Insufficient stock	Weekly
Sorbents	Insufficient stock	Weekly
Soda ash	Insufficient stock	Weekly
Over-pack drums	Insufficient stock, damage	Weekly
Sealant	Insufficient stock	Weekly
Cleaners	Insufficient stock	Weekly
Portable generator	Ready to operate	Weekly



## EXHIBIT F-4

### TANK SYSTEM AND ANCILLARY EQUIPMENT INSPECTION SCHEDULE



**Exhibit F-4**

**TANK SYSTEM AND ANCILLARY  
EQUIPMENT INSPECTION SCHEDULE**

<b>Specific Item</b>	<b>Type of Problem</b>	<b>Frequency of Inspection</b>
Tank shell	Corrosion, discoloration, cracks, buckles, bulges	Daily
Tank roof	Malfunction of seals, blockage of roof drains, corrosion	Daily
Tank bottom	Corrosion, discoloration, cracks, buckles, bulges	Daily
Foundation/structural support	Cracks, spalling, uneven settlement, erosion, wet spots	Daily
Anchor bolts	Distortion, corrosion	Daily
Pipe connections	External corrosion, cracks, distortion	Daily
Nozzles	Cracks, corrosion	Daily
Base	Cracks, spalling, uneven settlement, erosion, wet spots	Daily
Pump	Power, clogging	Daily
Secondary containment	Cracks, spalling, uneven settlement, erosion, wet spots, leaks	Daily
Pipes (includes all piping between storage tanks and boilers)	Leaks, corrosion or deterioration	Daily
Valves (includes all valves between storage tanks and boilers)	Leaks, corrosion or deterioration	Daily
Fittings (includes all fittings between storage tanks and boilers)	Leaks, corrosion or deterioration	Daily
High level alarms	Malfunction, deterioration, or improper operation	Daily
Pressure, level, and temperature gauges	Improper operation	Daily
Tank gauge level reading (for tanks without level gauges)	Overfilling	Daily



## **SECTION G**

### **CONTINGENCY PLAN**



## SECTION G. CONTINGENCY PLAN

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**SECTION G. CONTINGENCY PLAN**

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## **SECTION G. CONTINGENCY PLAN**

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## **SECTION G. CONTINGENCY PLAN**

### **G-1 INTRODUCTION**

This Contingency Plan has been prepared in accordance with Ohio requirements contained in OAC 3745-54-50 to 56 and with the requirements of the Ohio EPA-issued RCRA permit for the Owner/operator. OAC 3745-54-51 requires that the owner or operator shall have a contingency plan for the “facility.” OAC 3745-50-10 (39a) defines the facility as

“all contiguous land, and structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units (e.g.; one or more landfills, surface impoundments, or combinations of them).”

For the purposes of the Contingency Plan, the owner/operator defines the “facility” as the permitted and non-permitted hazardous waste handling areas of the plant-site, including only the following specific areas, when they are storing or processing hazardous waste:

- The permitted hazardous waste storage tanks: 2003-F, 2104-F, and 2105-F;
- The non-permitted, less than 90-day storage tank 2108-F;
- The hazardous waste burning boilers: 2001-UC, and 2001-UE; and
- The non-permitted, less than 90-day container storage area BD-908.

This Contingency Plan addresses minimizing hazards to human health and the environment from fires, explosions, or sudden releases of hazardous wastes or hazardous waste constituents to air, soil, or surface water from the hazardous waste handling areas of the Haverhill facility.

Owner/operator will immediately implement the Contingency Plan in the event of a fire, explosion, or release of hazardous wastes or hazardous waste constituents from the areas identified above that could threaten human health or the environment. Further details regarding these actions are provided later in this plan.

The Owner/operator operates 24 hours per day, seven days per week, year-round. At least one person is on-site at all times who will coordinate emergency responses, if it becomes necessary. The responsible person has the title Incident Commander, which is the plant term that is analogous to the



term “Emergency Coordinator” used in the regulation. Throughout this plan, the title Incident Commander will be used rather than “Emergency Coordinator.” The Incident Commander is responsible for the decision to implement the Contingency Plan and is authorized by Owner/operator and corporate management to commit resources to implement the plan.

The Owner/operator maintains a comprehensive set of operating procedures that govern activities associated with health, safety, the environment, emergency response, hazard communication, and training. Owner/operator has developed these procedures to address many regulatory programs, including contingency planning requirements under RCRA (OAC 3745-54-50 through 56). Owner/operator maintains these procedures on the plant-wide intranet so that they are immediately available to all those who need them whenever necessary. The owner/operator periodically reviews and updates these procedures as necessary to ensure they remain current and reflect best practices. Owner/operator will distribute the procedures to outside police, fire, and response agencies, as applicable, to provide those groups with the information needed to understand how the plant will deal with emergencies. Where appropriate, this Contingency Plan will refer to plant procedures for a detailed description of the actions to be taken. However, while these procedures are referenced in this plan, they are not specifically a part of the plan.

As required by the regulations, Owner/operator will

- Maintain a copy of the Contingency Plan at the plant;
- Submit the plan to local emergency response teams;
- Review and amend the plan, if necessary, when
  - The RCRA permit is revised
  - The contingency plan fails in an emergency
  - The facility changes such that the potential for fires, explosions, or releases increases, or that changes the necessary responses.
  - The list of emergency coordinators changes,
  - The list of emergency equipment changes, or
  - As required by the director.

## **G-2 GENERAL PLANT INFORMATION**

The Haverhill Plant is a chemical production facility located in southern Ohio along the Ohio River bordering Kentucky (see Attachment G-1, Location Map). The property comprises approximately 600 acres, and the active portion of the site occupies approximately 60 acres. The plant employ's



approximately 150 people, including both company employees and contracted personnel. Additional pertinent information is as follows:

Facility Address: ALTIVIA Petrochemical Chemicals, LLC  
1019 Haverhill-Ohio Furnace Road  
Haverhill, Ohio 45636

Facility Owner: ALTIVIA Petrochemical Chemicals, LLC  
1100 Louisiana St Suite 4800,  
Houston, TX 77002

Facility Operator: ALTIVIA Petrochemical Chemicals, LLC  
1100 Louisiana St Suite 4800,  
Houston, TX 77002

Facility Contact: Jason Patrick Environmental, Safety, Health & Security Manager

Telephone Number: (740) 532-3420

The Haverhill Plant has multiple process areas that convert organic chemical feedstocks into bulk industrial chemicals. The primary process is the production of phenol, acetone, alpha-methylstyrene from cumene. ACP Solution and AMS intermediates may be produced as a product.

The Owner/operator accumulates, stores, and treats the hazardous wastes generated from these process facilities in tanks and container accumulation areas. The facility burns some of the hazardous waste generated on site in boilers for energy recovery. All hazardous wastes handled within the site are generated on site and can be characterized as being one of several general types. These include: heavy hydrocarbons, light hydrocarbons, contaminated trash and soils, acidic and basic wastewaters, paint related wastes, spent solvents, used oils, utility firebox ash and rinseate, and used process filters.

Accumulation, treatment, and storage units associated with these wastes are listed in Attachment G-2. The location of each permitted unit listed is shown on the site plan provided in Attachment G-3.

### **G-3 INCIDENT COMMANDERS: [OAC 3745-54-52 AND 3745-54-55]**

When necessary, one of the owner/operator employees that has the proper authority and training will assume the role of Incident Commander. The Incident Commander fulfills the responsibilities assigned to the Emergency Coordinator in the regulations. The Incident Commander is responsible for the decision to implement the Contingency Plan and is authorized by Owner/operator and corporate management to commit resources to implement the plan.



The Incident Commander will normally be the shift supervisor who is on-site at all time. The supervisor is responsible for the plant. The decision about who assumes the role of Incident Commander in any situation is governed by the plant Emergency Response Procedures (ERP). The supervisor assumes the role of Incident Commander. A Security Emergency Response Team Leader assumes the role of Fire Chief, the Shift Supervisor will appoint a Fire Brigade Member to be the Fire Chief, if necessary. The Incident Commander has overall responsibility for coordinating and managing the response. The Fire Chief directly responds to the situation.

Other shift supervisors, when they are not specifically on-site, are on-call and available if needed in an emergency. Attachment G-4 lists the shift supervisors. Because the role of Incident Commander may be fulfilled by any of several individuals, depending on which shift is present on-site at the time a situation occurs and which area of the plant is involved in an emergency, all of the shift supervisors are considered as both primary and alternate Incident Commanders.

Each shift supervisor has extensive experience at the plant and is familiar with the Contingency Plan; all operations and activities at the facility; the location and characteristics of the hazardous waste at the plant; the location of records at the plant; and the facility layout. Specific duties, roles, and assignments for the Incident Commander, Fire Chief, and other plant emergency responders are provided in the plant ERP.

#### **G-4    EMERGENCY EQUIPMENT: [OAC 3745-54-52]**

The Owner/operator maintains various types of emergency equipment in each area of the facility to be used to respond to fires, explosions or releases of hazardous waste or hazardous waste constituents. Table G-1 lists the emergency equipment that is available for use.



**TABLE G-1. EMERGENCY EQUIPMENT LIST**

<b>Emergency Equipment</b>	<b>Boiler Area</b>	<b>Storage Tank Area</b>	<b>Capabilities</b>
Mobile Firefighting and Emergency Response (serves entire plant-site)	1 Fire Engine		Water and foam pumping capability
	1 Rescue/Hazardous Materials Truck		
	1 Quick Attack Truck		
	1 Foam Trailer		
Fixed Firefighting Equipment (serves entire plant-site)	Fire Water Supply Header System		Provides fire water to plant-site
	Foam Supply System		Provide firefighting foam to plant-site
	1 Electric Fire Water Pump		Provide adequate pressure for fire water supply header
	2 Diesel Powered Fire Water Pumps		
Fire Hydrants/Monitors	1 south side of boilers 1 southeast of boilers	1 north side of tanks 1 east side of tanks 1 south side of tanks	Provide fire water and spray nozzle from fire water supply header
Foam Delivery System	None	2003-F 2104-F 2105-F	Provides firefighting foam directly to storage tank perimeter for fire suppression
Fire Extinguishers	1 at Boiler UC (30# Ansul) 1 at Boiler UD (30# Ansul) 1 at Boiler UE (30# Ansul)	1 at Tank Farm at 2104-F (30# Ansul)	Provide fire suppression for small, localized fires
Spill Response Kit	1 at Boiler Area	1 near Tank Farm	Provides emergency clean-up and containment for spills
Safety Shower/Eyewash	1 at boiler area	1 at Tank Farm	Provide emergency shower/eyewash for personnel safety. Operation triggers plant-wide emergency alarm system
Plant Alarm Pull Stations	1 at boiler area	2 at tank farm (zone 1 and zone 2)	Operation triggers local or plant-wide emergency alarm system
Additional Equipment			

**G-5 COORDINATION AGREEMENTS: [OAC 3745-54-52 AND 3745-54-37]**

The Haverhill Plant has provided its Contingency Plan to the various local and regional agencies and has entered into mutual aid agreements with them. A list of these agencies is provided in Attachment G-5. The Owner/operator maintains on-site records that the contingency plans were sent to the agencies and the agreements that the agencies return.



If an incident threatens the Ohio River, the Haverhill plant will use an independent contractor for response.

**G-6 IMPLEMENTATION: [OAC 3745-54-51 AND 3745-54-56]**

OAC 3754-54-51 and the RCRA permit require that “the provisions of the Contingency Plan shall be implemented immediately whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment.” In practice, Owner/operator personnel will take the following actions whenever a fire, explosion, or release occurs.

1. The person that witnesses or first discovers the situation is responsible to activate the plant alarm system.
2. Upon activation of the plant alarm system, the shift supervisor will assume the role of Incident Commander and will communicate with the assigned Fire Chief.
3. The Incident Commander gathers preliminary information regarding the situation to identify the source, amount, area impacted, and character of the fire, explosion or released material.
4. The Incident Commander also assesses the possible hazards to human health and the environment that may arise from the situation and makes a decision of whether or not the situation could threaten human health or the environment.
5. The Incident Commander also determines the personal protective equipment required to maintain personnel safety for those working with the situation.
6. If the Incident Commander decides that the situation could threaten human health or the environment, then the Incident Commander will implement the Contingency Plan.
7. If the Incident Commander decides that the situation could not threaten human health or the environment, then the Incident Commander will not implement the Contingency Plan.

Examples of situations related to hazardous waste or hazardous waste constituents, which because of their type and nature, will require implementation of the Contingency Plan, include:

1. Any spill or release of hazardous waste or hazardous waste constituents that are deemed to adversely affect human health and/or the environment;
2. Any spill or release of hazardous waste or hazardous waste constituents that are deemed to be a fire or explosion hazard;
3. Any spill or release of hazardous waste or hazardous waste constituents that exhibits the characteristics of reactivity as defined by OAC Rule 3745-51-23 and which results in the release of gases that may threaten human health or the environment;



4. Any spill on site of hazardous waste or hazardous waste constituents that may potentially cause on-site or off-site soil contamination and/or groundwater or surface water contamination;
5. Any spill or release of hazardous waste or hazardous waste constituents that is reported to the National Response Center or local (city or county) emergency response center (for example, because the spill exceeded the Reportable Quantity ("RQ") limits as defined in 40 CFR 302.4).

Examples of situations related to hazardous waste or hazardous waste constituents, which may require implementation of the Contingency Plan, depending on the extent and severity of the specific situation, include:

1. Leakage of hazardous waste or hazardous waste constituents from a tank truck/tank car during loading/unloading;
2. Erroneous lineup of valving or a leak from a valve to the ground that releases hazardous waste or hazardous waste constituents;
3. Rupture of a pipe that contains hazardous waste or hazardous waste constituents that can be shut off;
4. All fires related to hazardous waste or hazardous waste constituents that can be controlled and extinguished by the plant fire brigade;
5. Overflow of a tank that contains hazardous waste or hazardous waste constituents into secondary containment;
6. Major releases of hazardous waste or hazardous waste constituents to the air that could impact areas outside the immediate facility;
7. Explosion and fire in a storage tank that contains hazardous waste or hazardous waste constituents;
8. Fire related to hazardous waste or hazardous waste constituents that cannot be contained by shutting off the source;
9. Rupture of a tower, tank, or drum that releases hazardous waste or hazardous waste constituents more than can be contained by the proximate process and other secondary containment curbs or dikes.
10. Sudden release of the contents of a waste treatment tank;
11. A fire occurs that could cause the release of toxic materials;
12. A fire spreads and could possibly ignite materials at other locations on site or could cause heat-induced explosions;
13. A fire that could possibly spread to off-site areas;
14. Use of water or water and chemical fire suppressant could result in contaminated runoff;
15. An imminent danger exists that an explosion could occur;
16. An imminent danger exists that an explosion could ignite other hazardous waste at the facility;



17. An imminent danger exists that an explosion could result in release of toxic materials;
18. An explosion has occurred;
19. A spill could result in release of flammable liquids or vapors, thus causing a fire or vapor cloud explosion hazard; or
20. The spill could cause the release of toxic liquid or fumes.

#### **G-7 EMERGENCY RESPONSE PROCEDURES**

The Haverhill plant maintains a comprehensive set of operating procedures that govern activities associated with health, safety, the environment, emergency response, hazard communication, and training. Owner/operator has developed these procedures to address many regulatory programs, including contingency planning requirements under RCRA (OAC 3745-54-50 through 56).

Owner/operator maintains these procedures at the plant-site so that they are immediately available to all those who need them whenever necessary. Owner/operator periodically reviews and updates these procedures as necessary to ensure they remain current and reflect best practices.

Owner/operator will distribute the procedures to outside police, fire, and response agencies, as applicable to provide those groups with the information needed to understand how the plant will deal with emergencies. While these procedures are referenced in this contingency plan, they are not specifically a part of the plan. (The procedures are available for agency review while on site or per request).

##### **G-7a Identification of Hazardous Materials: [OAC 3745-54-56]**

Hazardous wastes and waste constituents as well as other hazardous materials generated at the Owner/operator are described in the plant emergency procedures. The support personnel at the incident command post will assist to identify the character (composition), exact source, hazards associated with, and personal protective equipment required for a release involving these materials. The volume and extent of the release will be determined by visual observation and the operating log (record of information). In the event that the nature of a release cannot be identified by its location and visual inspection, identification will be determined by other alternative means. This information is compiled from process knowledge, material safety data sheets for the products, and waste characterization analyses.



#### **G-7b Assessment: [OAC 3745-54-56]**

The incident commander, with assistance of the support personnel, will assess possible hazards to human health and the environment that may result from a release, fire, or explosion. The assessment will consider both direct and indirect effects of the release, fire, or explosion. The assessment will include the following actions:

1. Identify the types of materials involved in the incident and any potential hazards;
2. Assess the magnitude and extent of incident;
3. Evaluate the effects on human health and the environment from exposure to materials; and
4. Consider the effects of mixtures of affected materials.

Potential hazards to be considered will include surface water contamination due to runoff of hazardous wastes, hazardous constituents or any chemicals or water used to control a fire, spill, or explosion; potential for explosion; generation of gases or vapors that may be toxic, irritating, explosive, or ignitable; and groundwater contamination. The assessment and control procedures are described in greater detail in the plant emergency procedures.

#### **G-7c Control Procedures: [OAC 3745-54-52]**

Handling instructions for releases of hazardous waste/materials are provided in the plant emergency procedures. The characteristics and hazards, along with fire and spill control procedures, are listed for each waste stream. Product transportation emergency handling procedures are also described there. The possible hazards to human health and the environment are assessed based on process knowledge, information provided in the material safety data sheets, and RCRA waste characterization analyses.

Guidelines for the use of personal protective equipment are included in the emergency procedures. The determination of protection level is a combination of many factors, including: amount of material, temperature of material, weather conditions, and ventilation. At a minimum, however, in all cases spill response personnel will wear impervious chemical protective clothing suits, impervious boots, impervious gloves, eye protection, and hard hats.

Confirmation of a fire, explosion, or release and a call for assistance, if required, will be transmitted via the emergency phones or radios located in each operating unit's control room. Operating units not involved in a fire, explosion, or release will act immediately to protect their unit against any imminent danger or possible utility outages and are to remain on standby alert to provide assistance if called upon.



#### **G-7d Procedures for Container Spills and Leakage: [OAC 3745-54-52, 3745-55-71]**

Emergency response procedures outlined in Sections G-7a-c will be followed in response to spills and leaks from containers containing hazardous materials/wastes. In addition, the following actions will be taken in the event of container spills or leakage:

1. Determine content of container.
2. Don appropriate protective clothing and respiratory protective equipment.
3. Position leaking container, if possible, to prevent further leakage. (Normally this involves positioning the leak above the liquid level in the container.)
4. Contain the spill in the smallest area possible using absorbent and/or dike.
5. Spread absorbing or neutralizing material into the spill area.
6. Overpack any damaged drum, ensuring that the overpack drum is properly marked and sealed.
7. Remove contaminated soil and/or absorbents with appropriate equipment and place it into DOT-approved containers.
8. Properly dispose of materials.

#### **G-7e Procedures for Hazardous Waste Tank System and BIF Units: Spills and Leakage**

Emergency response procedures outlined in Section G-7A-C will be followed in response to spills and leaks from storage tanks or boilers containers containing hazardous materials/wastes. In addition, the following actions will be taken in the event of a tank spill or leakage.

##### **G-7e(1) Stopping Waste Addition: [OAC 3745-55-96]**

The procedures used by the facility to stop waste addition in the event of hazardous waste tank(s) spills or leaks include the following:

1. Immediately notify Operations.
2. Cease operations in the area. (This includes stopping the flow or addition of wastes to the affected hazardous waste tank system.)
3. Assess the source and extent of the emergency.
4. Assess hazards related to the emergency.

##### **G-7e(2) Removing Waste: [OAC 3745-55-96]**

The procedures used by the facility in the removal of waste are as follows.

1. Remove additional material from the tank (within 24 hours or as soon as practicable) which caused the leak or spill to prevent any additional release.  
If the leak ceases via a repair and the integrity of the tank is deemed sound per API Standards, the tank will not require further evacuation.



2. Remove all released material from the secondary containment system within 24 hours of the discovery of the release if possible or in as timely a manner as possible.
3. Collect removed material and place in proper storage container.

**G-7e(3) Containment of Visible Releases: [OAC 3745-55-96]**

The procedures used by the facility to contain visible releases are as follows.

1. Immediately conduct a visual inspection of the release.
2. Prevent further migration of the leak by using appropriate barriers to contain the release.
3. Remove any visibly contaminated soil and place it in storage containers prior to treatment and/or disposal.
4. Collect any contaminated surface water in tanks or containers for treatment and disposal.
5. Perform confirmatory sampling to determine if all contaminated media have been removed.

**G-7e(4) Decontamination of Secondary Containment after Releases:**

The procedures used by the facility to decontaminate secondary containment structures after a release from a tank or boiler has occurred are as follows.

1. Remove recoverable liquid spills from the containment system (e.g. by the use of a portable pump, vacuum truck, or other similar means).
2. Remove non-pumpable sludges (e.g. by the use of a vacuum truck, shovels and other hand tools, or other similar means).
3. Clean the spill area until all visual evidence of waste has been removed (e.g. by the use of hot water or steam pressure washing, solvent washing and rinsing, blasting, scarification, mechanical scraping, or other similar means).
4. Inspect areas of secondary containment that were impacted by the spill or leak and determine if any failures in the secondary containment were present at the time of the spill or leak. Document the presence and location of any failures if found; document the absence of failures as appropriate.

**G-7e(5) Decontamination of Environmental Media after Releases:**

In the event a spill contaminates environmental media (soil or surface water) outside the secondary containment, the following actions will occur:

1. Remove and properly dispose of any visible contamination of the soil or surface water.
2. Excavate visibly contaminated slag, gravel, and soils (e.g.: by the use of a backhoe, shovels and other hand tools, or other similar means).
3. Sample environmental media to determine the extent of contamination beyond visible indications, using sampling and analytical procedures appropriate for a remedial activity.
4. Analyze the collected samples for the organic and inorganic constituents listed in Table G-2.



5. Based on the sampling results, continue removing soil and/or water until additional sampling indicates contamination is not present at detectable levels. (If initial sampling indicates no contamination present, no additional removal or sampling is required.)

**TABLE G-2. CONSTITUENTS TO BE QUANTITATED IN ENVIRONMENTAL MEDIA ASSOCIATED WITH RELEASES**

Parameters	Constituent	Preparation Method (SW 846)	Analytical Method (SW-846)
Metals and Chlorine	Antimony	1311	6010B
	Arsenic		
	Barium		
	Beryllium		
	Cadmium		
	Chromium		
	Lead		
	Mercury		
	Total Chlorine/Chloride	SW-846 9075 or ASTM D4208	Method 9075 (XRF) or 9056 (IC)
Volatile Organics	Acetone	5030B/5035	8260b
	n-Butylbenzene		
	sec-Butylbenzene		
	tert-Butylbenzene		
	Isopropyl benzene		
	p-Isopropyl toluene		
	n-Propyl benzene		
Semivolatile Organics	Acetophenone	3540/3541	8270d
	2,4-Dimethylphenol		
	$\alpha$ -Methyl Styrene		
	Phenol		
	Phenolic Polymers		
	Cumyl Phenol		



**TABLE G-2. CONSTITUENTS TO BE QUANTITATED IN  
ENVIRONMENTAL MEDIA ASSOCIATED WITH RELEASES (CONTINUED)**

**G-7f Procedures for Fires and Explosions**

Emergency response procedures outlined in Section G-7a-c will be followed in response to a fire or explosion. The response to a fire or explosion may include the responses to a release that are described above. In addition, the following actions will be taken.

1. Immediately notify control room and sound plant alarm for all fires.
2. Emergency Response Team members will drive the fire truck to the emergency location when it is requested.
3. The Incident Commander will establish a staging area for manpower reporting to the emergency.
4. Personnel responding to a fire must take their bunker clothing, helmets, self-contained breathing apparatus and boots with them to the scene.
5. At the scene of a fire, unroll fire hose, make necessary connections, operate applicable turret nozzles, and fight the fire.
6. After the fire has been extinguished and there is no possibility of a new outbreak, all fire-fighting gear will be returned to its proper location.
7. All expended dry chemical extinguishers will be taken to the designated area for recharging prior to being replaced at their proper stations.
8. Foam tanks on truck and/or stationary units will be refilled.

**G-8 NOTIFICATIONS AND EVACUATIONS: [OAC 3745-54-56(A), 3745-54-52]**

The Owner/operator will implement the following internal and external notifications and evacuations, as deemed necessary by the incident commander and/or Owner/operator management personnel.

The following situations are examples of general criteria that may require an evacuation:

1. Unconfined fire, explosion, or toxic gas release;
2. A fire which causes the release of toxic gas or vapors;
3. A fire which spreads and could possibly ignite materials at other locations on site or could cause heat-induced explosions;
4. An imminent danger exists that an explosion could occur, causing a safety hazard;



5. An imminent danger exists that an explosion could ignite other hazardous waste at the facility;
6. A spill which could result in a release of flammable liquids or vapors, thus causing a fire or gas explosion hazard;
7. A spill which could cause the release of toxic liquid or vapors.

### **INTERNAL NOTIFICATION**

In the event of an emergency, personnel witnessing or discovering the incident will:

1. Notify personnel in the control rooms and surrounding area via local alarm pull station, public address system, or two-way radio;
2. Sound audible, plant-wide emergency alarm; AND
3. Notify the Shift Supervisor.

The Incident Commander will decide on whether or not to implement the Contingency Plan.

### **INTERNAL EVACUATION**

The Incident Commander will assess the situation for imminent hazards to human health or the environment and the need for evacuation of the facility. The following are general criteria that may require an evacuation:

1. Unconfined fire, explosion, or toxic gas release;
2. A fire which causes the release of toxic gas or vapors;
3. A fire which spreads and could possibly ignite materials at other locations on site or could cause heat-induced explosions;
4. An imminent danger exists that an explosion could occur, causing a safety hazard;
5. An imminent danger exists that an explosion could ignite other hazardous waste at the facility;
6. A spill which could result in a release of flammable liquids or vapors, thus causing a fire or gas explosion hazard; or
7. A spill which could cause the release of toxic liquid or vapors.

In the event that an incident poses an actual or potential serious threat to human health or safety, the Incident Commander will recommend an evacuation of the affected area at a minimum or possibly of the entire facility.

The Incident Commander will initiate the evacuation procedure described in the ERP. The Evacuation Procedures include information regarding plant alarm, primary and alternate evacuation routes, and assembly locations.



In the event plant evacuation is deemed necessary by the incident commander, the following actions will be taken:

1. The plant-wide, audible signal for plant evacuation will be given.
2. Operations will follow emergency shutdown procedures for their areas and will ensure that all personnel in their areas have evacuated.
3. All employees, visitors, and contractors will leave the facility in an orderly manner, following the evacuation routes shown in Attachment G-3, Evacuation Routes. If the designated primary evacuation routes are blocked, the incident commander will announce this and will direct the affected personnel to use the designated alternate route.

### **EXTERNAL NOTIFICATION**

In an imminent or actual emergency situation where a fire, explosion, or release could threaten human health and the environment, the Incident Commander will notify, or instruct other plant responders to notify, the local response agencies and Ohio EPA listed in Attachment G-5. The notification will include the following:

1. Name and telephone number of reporter;
2. Name and address of facility (both mailing address and actual location);
3. Time and type of incident (fire, explosion, or release);
4. Name and quantity of material(s) involved, to the extent known;
5. The extent of any injuries, if any; and
6. The possible hazards to human health or the environment outside the facility.

### **EXTERNAL EVACUATION**

If an evacuation of an area outside the plant is deemed necessary, the Incident Commander will notify, or instruct other responders to notify, the agencies listed in Attachment G-5 and will provide the same information as listed above for external notifications. The Incident Commander will be available to those agencies to help decide the location, extent, and duration of the evacuation of an area outside the plant.

### **G-9 PREVENTION OR RECURRENCE OF SPREAD OF FIRES, EXPLOSIONS, OR RELEASES: [OAC 3745-54-56]**

During an emergency, the Incident Commander will coordinate the appropriate measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste areas. These measures include, where applicable, stopping processes and operations, collecting and containing released waste, and removing or isolating containers.



Specific actions to prevent the recurrence or spread of fires, explosions, or releases include determining the source of the incident; ceasing operations and turning off the power supply to the affected areas; cleaning up debris from the incident and maintaining good housekeeping; containing and collecting all released waste; recovering and isolating any affected containers; ensuring that a fire is completely extinguished; and decontaminating the affected area/equipment.

Examples of further measures to prevent the recurrence or spread of fires, explosions, or releases include using spark-proof tools, isolating the waste by removing all ignition or reaction sources, and protecting the area from open flames, cutting and welding activities, hot surfaces, and frictional heat. If fire or explosion is an ongoing hazard, standby fire-fighting equipment will be maintained in a ready state until the emergency is over.

The equipment operation which caused the incident will not be restarted until adequate corrective and preventative measures have been developed and implemented.

If the Incident Commander determines that stopping process operations is a necessary response to a situation, the Incident Commander, or another responder, will monitor the stopped process ;operations for leaks, increases in pressure, the generation of gas, or ruptures in piping and equipment.

#### **G-10 STORAGE AND TREATMENT OF RELEASED MATERIAL: [OAC 3745-54-56]**

The Incident Commander will coordinate treatment, storage, and disposal of recovered waste, contaminated soil, surface water, debris, or any other material that results from a release, fire, or explosion at the facility.

Any releases from a RCRA permitted unit or area that handles hazardous materials/wastes will be assumed to be hazardous and appropriately managed. The release material will be collected, containerized, labeled, and stored. Subsequently, the contents or: the containers will be sampled and analyzed todetermine the proper disposition of the materials/wastes. Liquid material that is released outside of secondary containment areas will be contained with absorbent. Spilled materials, contaminatedsoil, and absorbents will be placed into empty containers. These containerized materials will be properly labeled and placed in storage prior to treatment and/or disposal off site.



**G-11 INCOMPATIBLE WASTE: [OAC 3745-54-56]**

The Incident Commander will ensure that no substance that may be incompatible with the released material is brought into the spill area until cleanup procedures are completed. Extreme care will be taken during emergency situations to keep incompatible waste separated. Spill cleanup contractors and other agencies which respond to the emergency will be made aware of potential incompatible waste stored at the Facility.

Areas affected by a spill, release, fire, or explosion will be designated as limited access by the Shift Supervisors of the affected areas and response personnel. Personnel will not be allowed to enter affected areas unless they are participating in emergency response or cleanup activities. The barriers will be removed only after the Incident Commander receives word from the production manager or their designee that (1) the incident has passed; (2) cleanup operations have concluded; (3) waste material has been properly stored; and (4) it is safe to resume operations.

**G-12 POST-EMERGENCY EQUIPMENT MAINTENANCE: OAC 3745-54-56**

After an incident is resolved, the Incident Commander and/or support personnel will ensure that all emergency equipment used in responding to an emergency incident is inspected, cleaned, and fit for its intended use or is replaced.

**G-13 REPORTING: [OAC 3745-54-56]**

Any event that requires implementing the Contingency Plan will be documented in the plant operating record. The documentation will include the date and time of the incident and the details regarding the incident.

Within 15 days after the incident, the Owner/operator will submit a written report regarding the incident to the Ohio EPA. The report will include:

1. Name, address, and telephone number of the owner or operator;
2. Name, address, and telephone number of the facility;
3. Date, time, and type of incident (e.g., fire, explosion, and cause);
4. Name and quantity of material(s) involved;
5. The extent of injuries, if any;
6. An assessment of actual or potential hazards to human health or the environment outside of the facility, where this is applicable; and
7. Estimated quantity and disposition of material recovered from the incident.



All releases (of hazardous waste) from the tank systems to the environment that are greater than the reportable quantity of one pound and are not immediately contained and cleaned up will be orally reported to Ohio EPA within 24 hours of detection. Additionally, within 30 days of detection of a release, a report containing the following information will be submitted to Ohio EPA:

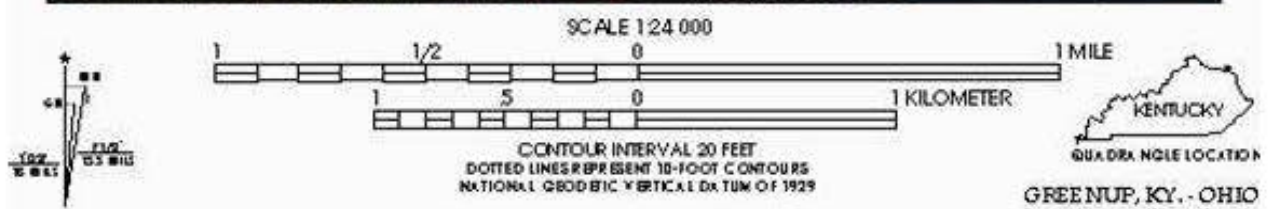
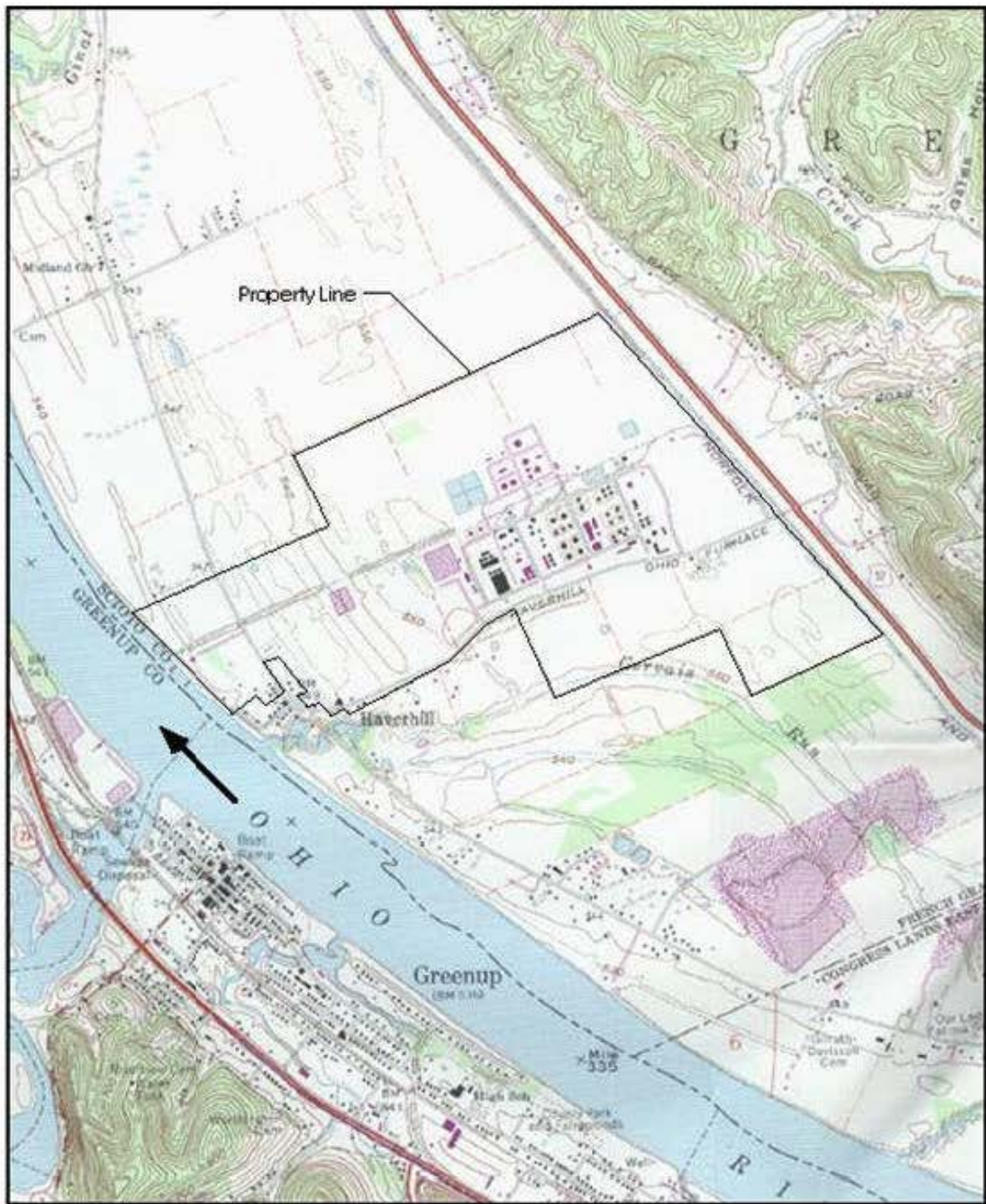
1. Likely route of migration of the release.
2. Characteristics of the surrounding soil (composition, geology, hydrogeology, climate).
3. Results of any monitoring or sampling conducted in connection with the release (if available). If sampling or monitoring data relating to the release are not available within 30 days, these data will be submitted to the Agency as soon as they become available.
4. Proximity to down-gradient drinking water, surface water, and populated areas.
5. Description of response actions taken or planned.



## Attachment G-1

Location Map





**General Location of Facility**  
 Exhibit G-3: Location Map



## Attachment G-2

Hazardous Waste Tank System - Accumulation, Treatment, and Storage Facilities



## HAZARDOUS WASTE TANK SYSTEM ACCUMULATION, TREATMENT, AND STORAGE FACILITIES

### Utility Boiler Waste Fuel Storage Tanks (Permitted)

Tank	Description	Capacity (gallons)	Notes
2104-F	Storage Tank	200,000	Heavy Hydrocarbon Waste, D018, K022
2105-F	Storage Tank	250,000	Heavy Hydrocarbon Waste Fuel, K022, D018
2003-F	Storage Tank	200,000	Light Hydrocarbon Purge Waste Fuel, D001/D018/D035

### Utility Boilers

2001-UA	Boiler used for energy recovery (no longer operating)
2001-UB	Boiler used for energy recovery (no longer operating)
2001-UC	Boiler used for energy recovery
2001-UE	Boiler used for energy recovery

### Less Than 90 Day Accumulation Tanks and Containers

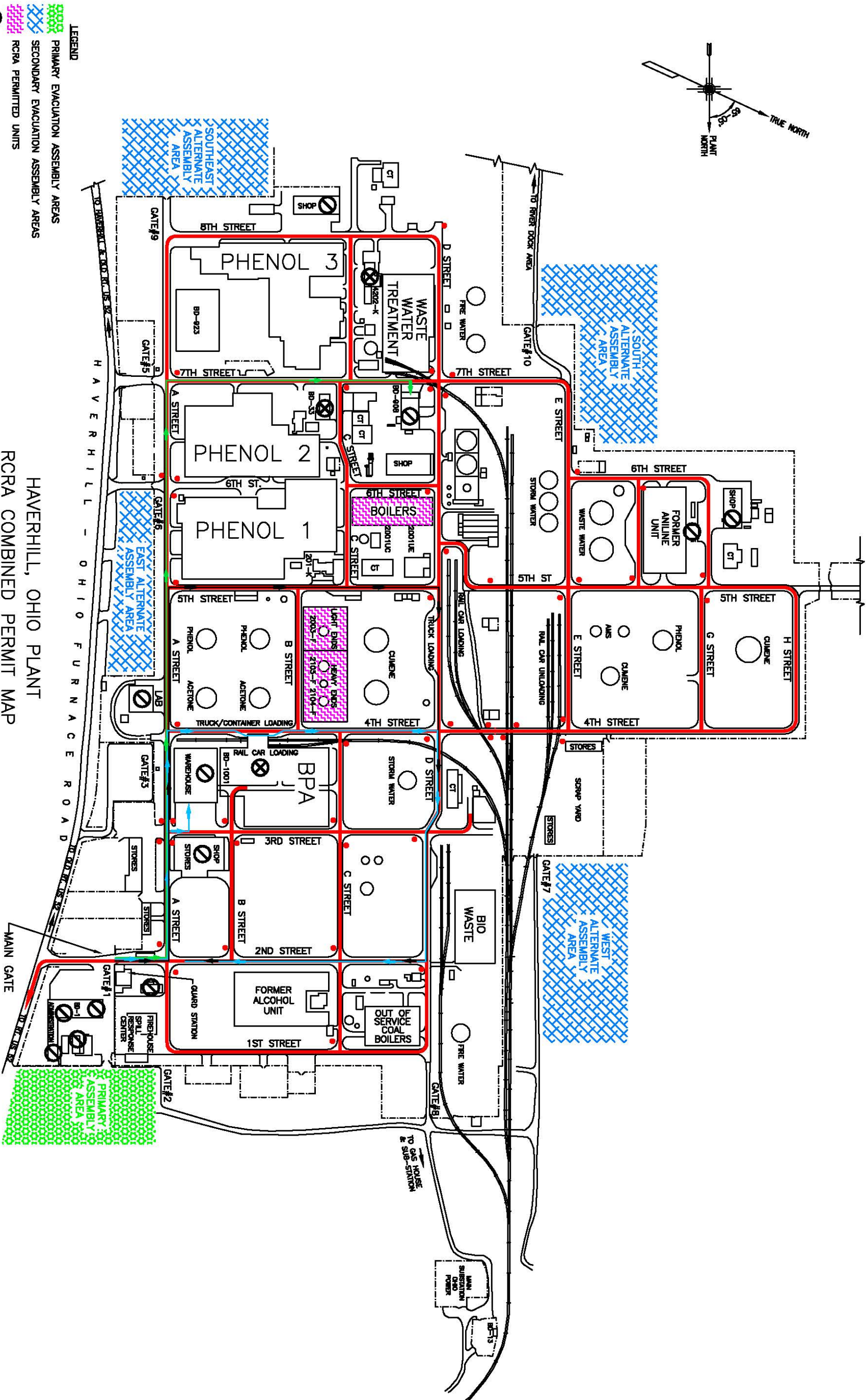
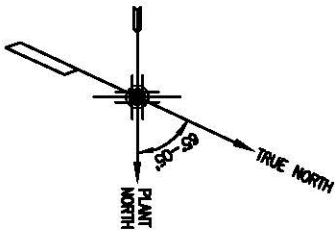
BD-908	Drum accumulation (200, 55-gal.)
2108-F	Waste Hydrocarbon Tank (100,000 gal.)
2491-A	BD-908 Drum Accumulation Building



## Attachment G-3

Site Plan for Hazardous Waste Management Units







## Attachment G-4

Incident Commanders and Alternates





**Please Note:** Pages of this application which contain facility staff personal/home phone numbers have been removed from this web-available version of the document

To review redacted copies of these removed pages, please contact DERR's record management staff at (614) 644-2924.

Thank you.



## Attachment G-5

Outside Agencies with Coordination Agreements



## **Attachment G-5**

### **List of Agencies with which a Coordination Agreement has been established**

The Haverhill Plant has provided its Contingency Plan to the following local and regional agencies and entered into mutual aid agreements with them.

<b>Agency</b>	<b>Phone Number(s)</b>
Green Township Fire Department and Emergency Squad	911
Scioto County Ohio Sheriff	911, (740) 354-7566, (740) 355-8350
Ohio State Highway Patrol	(740) 354-2888
Ohio EPA Emergency Response Division (24-Hour Number)	(800) 282-9378
Scioto County Ohio Emergency Management Agency (EMA)/ Local Emergency Planning Commission (LEPC)	(740) 355-8300
Greenup County Kentucky Emergency Response Committee/LEPC	(606) 921-6791
Kentucky Disaster and Emergency Services Division	(800) 255-2587
U.S. Coast Guard	(304) 353-5524
Norfolk Southern Railroad Yardmaster	(740) 354-8204
Southern Ohio Medical Center, Portsmouth, OH	(740) 354-5000
King's Daughters Medical Center, Ashland, KY	(606) 327-4000



## **SECTION H**

### **PERSONNEL TRAINING**



## SECTION H. PERSONNEL TRAINING

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## **SECTION H. PERSONNEL TRAINING**

### **LIST OF EXHIBITS**

Exhibit H-1	Introductory and Continuing Training Program
Exhibit H-2	Organizational Chart of Individuals that Manage Hazardous Waste
Exhibit H-3	Respiratory Protection Program Training Outline
Exhibit H-4	Available Computer-Based Training Topics
Exhibit H-5	Example Fire Fighting Training Outline
Exhibit H-6	Safety Training Attendance Record



## **SECTION H. PERSONNEL TRAINING**

### **LIST OF ATTACHMENTS**

Attachment H-1	Job Descriptions
Attachment H-2	Contract Service Providers and Third-Party Worker Oversight



## **SECTION H. PERSONNEL TRAINING**

This section of the permit application describes the Haverhill Plant's RCRA training program. Training plan outlines, job descriptions, training content, frequency, and techniques are described as well as the implementation of the training program. The training program has been developed in accordance with OAC 3745-50-44 and 3745-54-16.

The purpose of the training program is to provide facility employees with information and instruction needed to safely and effectively perform their duties. The objectives of the training program are to thoroughly train employees in the proper performance of their job duties relevant to hazardous waste management as well as to ensure that all appropriate employees are capable of effectively implementing emergency procedures in the event an incident should arise.

### **H-1 OUTLINE OF THE TRAINING PROGRAM: OAC 3745-54-16**

The plant has developed a training program for personnel as an integral part of the existing safety training program. This training program is supplemented by specific training related to hazardous waste management. Facility personnel who handle hazardous wastes must successfully complete a program of classroom instruction and/or on-the-job training in order to prepare them to operate and maintain the facility in a safe manner and ensure the facility's compliance.

Further discussion of the content, frequency, and techniques used in the training program is provided in Section H-1b. An outline of the training program is provided in Exhibit H-1.

#### **H-1a Job Title/Job Description: OAC 3745-54-16**

Written job descriptions are maintained for positions at the facility that handle or manage hazardous waste. These descriptions are kept current by facility managers and supervisors. The job descriptions (Attachment H-1) are maintained by the Manager of Human Resources and include the following information:

- Job title/position
- Duties/responsibilities
- Job prerequisites and qualifications



Exhibit H-2 provides a list of job positions with responsibilities for managing, supervising, operating, or maintaining hazardous waste and for responding effectively to emergency situations at the Facility. The areas of responsibility are as follows:

Phenol I & II  
Phenol III  
Boiler/Utilities  
Administration/Engineering Laboratory  
Material Handling  
Contracted Onsite Maintenance

#### **H-1b Training Content, Frequency and Techniques: OAC 3745-54-16**

The basic content of the training program is displayed in the outline in Exhibit H-1.

##### **Introductory Training**

All new employees must successfully complete their formal classroom training within six months of their employment or assignment to their unit prior to working in an unsupervised position. Upon transfer or promotion of existing employees to a new position with training requirements that differ from those of the previously held position, these employees must be closely supervised by the area supervisor until they complete the required additional training.

The introductory training program is divided into the following:

- Environmental Awareness: basic RCRA requirements applicable to waste generation, storage, transporting, and disposal.
- General Plant-Wide Safety Procedures: review of the Haverhill Plant Emergency Response Manual and hazard communication system with an explanation by supervisor.
- Procedures for Personnel Handling Hazardous Waste, including instructions on facility operating roles, types and hazards of wastes being handled, safe handling of containers, and emergency response procedures.
- Contingency Plan: review of the facility contingency plan including evacuation procedures and assembly areas and discussion of responsibilities under the plan.
- Specific Job Procedures: review of the Haverhill Plant Fire and Safety Regulation Manual and Safe Job Procedures Manual, on-the-job training, and demonstrations.
- Incident Management Procedures: review of the Haverhill Plant incident command structure and interface with the crisis communication manual.



As reflected in the listing above, training techniques utilized for introductory training may include use of written materials, audio visual presentations, computer-based training, and on-the-job training. Materials such as the facility Contingency Plan, Hazard Communication Plan, the Haverhill Plant Emergency Procedures Manual, Fire and Safety Regulations and the Safe Job Procedures documents are used to ensure uniformity of training and depth of coverage. These materials are used during all phases of new employee orientation training.

On-the-job training is provided for all facility employees involved in managing hazardous wastes. On-the-job training provides individualized training pertinent to daily operations of the facility. A major advantage of this type of training is “hands-on” experience, with supervision, for specific equipment and processes used at the facility. On-the-job training at the Haverhill Plant is used primarily for orientation purposes for operational new hires and transfers. On-the-job training is based on job descriptions and includes instruction and supervision in facility operating rules and procedures, inspection of hazardous waste management units, and emergency response procedures. The amount of on-the-job training received by an individual employee is determined by the employee’s supervisor and is dependent upon prior experience, job difficulty, and hazards.

Introductory training also includes demonstrations of various facility equipment and procedures. Demonstrations are provided in the use of fire and emergency equipment and personal protection equipment during the Contingency Plan, Specific Job Procedures, and Incident Management Procedures phases of orientation training. An example of this type of training is the respiratory protection program training provided for each employee who will potentially be required to use respiratory protection equipment at the plant. This training is repeated annually. An example outline and description of training provided under the facility's respiratory protection program is provided in Exhibit H-3.

### **Continuing Training**

Continuing training is provided on a regular basis for all facility employees involved in hazardous waste management. Continuing training may consists of the use of written materials, safety meetings, drills, and computer-based training. A sample list of available computer-based training topics is provided in Exhibit H-4.

The facility Contingency Plan and Emergency Response Manual are reviewed and subsequently discussed by all employees involved in hazardous waste management. Any portions of these



documents that have been updated are emphasized. Routine safety meetings are held to allow employees to discuss critical safety issues and incidents and to receive instruction in the use of newly acquired safety equipment or recently instituted safety procedures. These safety meetings address safety issues such as awareness, goals, and protective equipment.

In addition to routine safety meetings, facility personnel participate in fire training sessions and fire drills as part of the continuing training. Fire drills are hands-on sessions involving use of fire fighting equipment. An example outlines of the firefighting training program is provided in Exhibit H-5.

#### **H-1c Training Director: OAC 3745-54-16**

The RCRA training program is directed by the plant's Environmental and Safety Department. The hazardous waste management training director will have, at a minimum, the following qualifications:

- Bachelor's degree in an environmental or engineering related discipline
- Broad background and experience in production and plant procedures
- Continued updating of training experience as environmental regulations and internal standards change.

#### **H-1d Relevance of Training to Job Position: OAC 3745-54-16**

Each employee handling or managing hazardous waste is trained to operate and maintain the facility safely, and to understand hazards unique to the job assignment. The plant's training program is designed to give employees appropriate instruction regarding the hazardous waste management procedures they will encounter in performing their respective duties. Since the handling of hazardous materials is an important part of the operations of the facility, all employees handling or managing hazardous waste are given training in environmental regulations, transportation regulations, and the applicable sections of the Part B Permit (Procedures to Prevent Hazards and the Contingency Plan).

The emergency coordinators are specifically trained in their responsibilities in an emergency including reporting requirements, implementation of the plan, assessment procedures and recordkeeping requirements as discussed in Section G, the Contingency Plan, and Section H-1b.

#### **H-1e Training for Emergency Response: OAC 3745-54-16**

All facility personnel are trained to respond effectively to emergency situations, as applicable to their specific job positions as summarized in Exhibit H-2. This training is provided in all phases



of the new employee orientation training program. Personnel training includes security, fire and rescue services, emergency incidents and examples, emergency response actions, use of the Contingency Plan, emergency equipment, and incident management. Unit operators receive additional emergency response training in shutdown procedures and use of emergency equipment.

### **Procedures for Using, Inspecting, Repairing, and Replacing Facility Emergency and Monitoring Equipment**

Personnel receive instruction in the use of all emergency and monitoring equipment applicable to their duties. Employees are trained to inspect all facility emergency and monitoring equipment to mitigate the effects of equipment failure. They receive instruction in this area in both classroom and on-the-job training. All facility personnel receive instruction in the use of alarms and fire fighting techniques.

### **Key Parameters For Automatic Waste Feed Cut-Off Systems**

Tanks 2104-F, 2105-F, 2003-F, and 2108-F have backup outflow pumps. The operators receive training in the operation of these pumps as part of the Specific Job Procedures portion of new employee orientation training. In addition, these employees are trained in the use and inspection of tank level control devices.

### **Communications and Alarm Systems**

All facility employees are instructed as to the location and use of all telephones, plant address system, alarm actuator boxes, and radios as part of the specific Job Procedures and Incident Management Procedures portions of training. Personnel receive additional instruction in the use of communication systems and alarms particular to their respective areas.

The emergency communications and alarm systems are discussed in Section G, Contingency Plan.

### **Response to Fires or Explosions**

All personnel involved in hazardous waste management at the facility receive basic instruction in fire prevention and notification in the Site Safety and Contingency Plan portions of the training program. In addition, all operating personnel receive additional training in responding to fires and explosions. Training for response to fires or explosions includes fire brigade training, fire drills, and use of fire extinguishers. An example outline of fire-fighting training is provided in Exhibit H-5.



### **Response to Groundwater Contamination Incidents**

The possibility of groundwater contamination by operations at the Haverhill Plant is highly unlikely since all hazardous waste management activities take place within secondary containment areas. Inspection of containers, tanks, process units, and secondary containment structures also reduces the probability of groundwater contamination. Containers, tanks, and process units are inspected for corrosion, leaks, spills, and equipment wear. The concrete secondary containment structures are inspected daily for cracks and structural damage.

### **Response to Release of Hazardous Waste to the Environment**

All operating personnel involved in hazardous waste management at the facility receive instruction in spill and release prevention and response in all phases of the introductory training program. In addition, response procedures are reviewed as part of the continuing training program.

### **Shutdown of Operation**

The primary responsibility for shutdown lies with operations. However, all personnel with operational responsibilities are instructed in the proper procedures for planned and unplanned shutdown of operations. This training is provided as part of the Specific Job Procedures portion of new employee orientation training. Shutdown procedures are discussed in Section G-4d of the Contingency Plan.

## **H-2 IMPLEMENTATION OF TRAINING PROGRAM: OAC 3745-54-16**

No employee works in an unsupervised position until he has completed the training requirements. Training is completed by appropriate facility personnel within six months after the date of employment or assignment. "Facility Personnel" include any company or contract employee that will be involved in the management of hazardous wastes. Contract personnel assigned for only periodic work at the facility will be informed by his supervisor of the procedures to follow during their short-term assignment. These procedures are covered in the contract service providers and third-party worker oversight document example, provided in Attachment H-2.

Records documenting that initial training and annual reviews of such training have been administered to and successfully completed by facility personnel are maintained in the plant log as written or electronic records. An example of a form used to record completed training is provided in Exhibit H-6.



Training history and records for all current employees will be retained on site until closure of the facility. Training records for former employees will be kept for three years from the date of the individual employee's termination.



## EXHIBIT H-1

### INTRODUCTORY AND CONTINUING TRAINING PROGRAM



## **Exhibit H-1**

### **INTRODUCTORY AND CONTINUING TRAINING PROGRAM**

- A. Environmental Awareness
  - Environmental laws
  - Waste classification
  - Generator requirements
  - EPA permitting system
- B. Classification, Identification, and Verification of Hazardous Wastes
  - Waste handling (drums and tanks)
  - Chemical and physical hazards
  - Hazardous substance identification
- C. Preparedness and Prevention Plan
  - Facility inspections
  - Maintenance of facilities and equipment
  - Emergency equipment
- D. Contingency Plan and Emergency Procedures
  - Chemical hazards
  - Handling a material spill or release
  - Fire explosion response
- E. Training
  - Frequency and purpose of training
- F. Inspections
  - Performance of an inspection
  - Proper recordkeeping
- G. Manifesting
  - RCRA requirements
  - Completing and distributing a manifest
- H. Spill Simulation and Spill Reports
  - Spill simulation
  - RCRA reporting requirements
  - Recordkeeping requirements



- A. DAILY INSPECTION
  - B. SJPS FOR BURNING OF HHC WITH EACH PUMP AND FROM EACH TANK
  - C. CHECKLISTS FOR:
    - RUNDOWN OF HEAVY ENDS
    - HEAVY ENDS RECIRCULATION
    - TRANSFER OF HHC FROM 2108-F TO 2104-F OR 2105-F
    -
2. LOG SHEETS AND CHECKLISTS
- A. DAILY INSPECTION LOG FOR HAZARDOUS WASTE STORAGE TANKS  
AND AUXILIARY EQUIPMENT, UTILITIES AREA



## EXHIBIT H-2

### ORGANIZATIONAL CHART OF INDIVIDUALS THAT MANAGE HAZARDOUS WASTE



## Exhibit H-2

### ORGANIZATIONAL CHART OF INDIVIDUALS THAT MANAGE HAZARDOUS WASTE

Job Title
Plant Manager
Manager - Production PROCESS SPECIALISTS SHIFT SUPERVISORS/DAY FOREMEN OPERATORS/WORK CREW
Manager - Technical Services - LAB SUPERINTENDENT - LAB SUPERVISOR - LAB TECHNICIAN - ENGINEERS
Manager – HEALTH, ENVIRONMENTAL, SAFETY & SECURITY - SAFETY COORDINATOR - Environmental Engineer - Environmental Technician - ENVIRONMENTAL ASSISTANT - ON-SITE SECURITY
SUPERVISOR OF LOADING OPERATIONS LOADERS SHIPPING COORDINATOR
Manager - Maintenance –Maintenance Engineer
Contracted On-Site Maintenance



### EXHIBIT H-3

#### RESPIRATORY PROTECTION PROGRAM TRAINING OUTLINE



**Exhibit H-3****RESPIRATORY PROTECTION PROGRAM TRAINING OUTLINE****TRAINING**

Every employee that uses respiratory protection equipment must be physically able to perform the work while using the equipment. Employees required to use respiratory devices will be instructed and trained by a member of Management who is knowledgeable of inhalation hazards and respiratory protective equipment. Schooling shall be conducted as follows:

- A. An explanation of each item of breathing gear. All component parts shall be discussed as necessary to provide the employee with a thorough understanding of how a breathing device functions.
- B. Fitting instruction will include a demonstration of how to fit the respirator to the face, adjust bands, and test the seal to show that adjustment is correct. See respirator fit test, Section VI.
- C. The employee shall practice use of the respirator to determine the feel that will be experienced in actual application.
- D. The employee will be advised of required cleaning, maintenance and storage. Cleaning shall consist of removing the filtering media from the respirator and then washing the balance of the component parts in warm soapy water-rinse and allowing them to air dry or cleaning them with a sanitizing solution and drying. A respirator that is assigned to one person shall be cleaned at least at the end of each shift and more often if necessary. A respirator that is used by more than one person shall be cleaned and sanitized and have the filtering media changed after each use. Storage shall be in a sanitary container such as a closed plastic bag.
- E. The employee must demonstrate to the trainer an acceptable degree of proficiency in the understanding of the breathing unit's protective capability, the actual use of the unit, and its inspection and care including proper cleaning and storage.

Advise employee that if he smells a contaminant while wearing a respirator, he either:

- 1. Has the wrong type respirator;
  - 2. Has improper filter;
  - 3. Has used up the filter;
  - 4. Has improper fit;
  - 5. Has mask malfunctioning; or
  - 6. Has contaminant too rich for filter type mask.
- F. A name list of all persons trained shall be forwarded to and maintained in the safety office. Reports will be generated periodically to advise department superintendents of the employees' respirator training status.

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**Exhibit H-3 - Continued****RESPIRATORY PROTECTION PROGRAM TRAINING OUTLINE**

When a work assignment requires that the employee utilize a dust respirator, chemical cartridge respirator, air supplied unit, or self-contained breathing gear, the superintendent must consult the employee's record to determine that he has physical certification and has received training in using the type of respirator that is being utilized. If the employee has been previously fitted and trained and can demonstrate a workable knowledge of the unit, the superintendent will issue the appropriate respirator, complete the form, and submit a copy of the form to the safety office. In the event the employee has not had previous training, the superintendent will direct the employee to a properly trained foreman, who will administer to the employee a fitness test and training program. The employee must satisfactorily demonstrate proficiency for use before attempting to use the unit. The superintendent will then complete a form and forward it to the safety office.

All superintendents, employees involved in the fire brigade, rescue squad, and all other employees whose jobs may require the use of supplied air or self-contained breathing gear shall be re-trained annually in the use of this equipment. Training shall, as a minimum, include a lecture covering all types of breathing devices in use at the plant and a refitness test. It shall additionally include a complete discussion of the capabilities and operating characteristics and care of both supplied air and the self-contained apparatus. The re-training shall include a demonstration on the use of each piece of equipment with sufficient question and answer time to resolve all questions. The re-training will be completed by requiring each student to satisfactorily demonstrate proper use of the breathing gear. Re-training will be conducted by or under supervision. Records shall be maintained in the safety office showing participants of each re-training session, the trainer, and date.



## EXHIBIT H-4

### AVAILABLE COMPUTER-BASED TRAINING TOPICS



## **Exhibit H-4**

### **EXAMPLE SAFETY TRAINING TOPICS**

<u>Topic</u>	<u>Instructor</u>
Safety Awareness Safety Goals	Superintendents
Hot Work Permits and Review of Confined Space Permits	CBT or Safety Department
Hearing Conservation	CBT
Respiratory Fit Test	CBT
RCRA & Fire Training	CBT
Hazwoper Training	CBT
Personal Protective Equipment (PPE)	CBT
Hazcom Training	CBT
RCRA and Fire Training	CBT
SCBA Training	CBT
Cold Weather Awareness	CBT
Proper Lifting Techniques	CBT



## EXHIBIT H-5

### EXAMPLE FIRE FIGHTING TRAINING OUTLINE



## **Exhibit H-5**

### **EXAMPLE FIRE FIGHTING TRAINING OUTLINE**

#### **A. Fire Brigade**

Fire Brigade training will consist of the following hands-on practice.

1. Fire Truck
  - a. Making foam solution
  - b. Boosting water pressure
  - c. Refilling foam tanks
  - d. Knowledge of equipment carried on the fire truck
  - e. Flushing and draining pumps and piping systems
2. Hose layout and handling
3. Use of nozzles
4. Hydrant operation
5. Fire fighting with full Bunker gear and SCBA
6. Applying foam to flammable liquid storage tanks
7. Applying foam to spill fires
8. Use of fire extinguishers
  - a. 30 pound dry chemical
  - b. 150 pound dry chemical wheel units
  - c. Carbon dioxide
  - d. Halon
9. Use of portable foam proportioners and pick-up tubes

#### **B. Brigade Training Schedule**

1. "Hands-on" fire drill session of 3 to 4 hours each.
2. Drill sessions monthly or quarterly . Topics for these drills will be training films, lectures, and process area fire fighting equipment such as fixed foam systems, sprinkler systems, etc.



## **Exhibit H-5 - Continued**

### **FIRE FIGHTING TRAINING OUTLINE**

#### **C. Fire Drill Training**

1. Leaking overhead pipe rack fire
2. Leaking pump seal and flange fire
3. Tank car or tank truck dome fire
4. Tank fire
5. Pan for simulated spill fire
6. Pan and trench fires for extinguishers

#### **D. Office and Maintenance Personnel**

1. Supervisory and engineering personnel will receive extinguisher use training.
2. Laboratory and administration personnel will receive extinguisher use training.



EXHIBIT H-6

SAFETY TRAINING ATTENDANCE RECORD







## Attachment H-1

### Job Descriptions



## **PLANT MANAGER**

The Plant Manager is responsible for all plant operations including production, maintenance, engineering, personnel, shipping, and hazardous waste management. The Plant Manager is also responsible for ensuring that personnel are trained in hazardous waste management procedures to minimize threats to human health or to the environment. The Plant Manager is also an Alternate Emergency Coordinator.

The Plant Manager:

- Interprets and administers approved policies and procedures.
- Is the contact between the corporation and the plant operations.
- Assigns, coordinates and follows progress on projects across the facility.
- Ascertains that plant standards, goals and practices are adhered to.
- Assists coordinator for the hazardous waste contingency plan.

Minimum Requirements:     B.S. Degree  
   Broad background and experience in production, engineering  
   and administrative matters.



## **PRODUCTION MANAGER**

The Production Manager is under the general supervision of the Plant Manager and is responsible for planning, directing and supervising activity in the Production Facilities, and as the Supervisor of Personnel.

The Production Manager is responsible for:

- Operations oversight and planning. Coordinates safety in the units.
- Cost projection and control.
- Overall management of the site, including training programs. Develops and administers policies concerning promotions, merit ratings, disciplinary action, vacations, hiring requisitions and other personnel actions.
  - Ensure adherence to plant and governmental safety and to environmental standards. Direct and guide personnel to ensure understanding of standards and to ensure safety and environmental guidelines and regulations are followed. Initiate actions to correct unsafe conditions.
  - Personnel Matters.

Minimum Requirements:    B.S. Degree  
Broad background and experience in production and administrative matters.



## **PROCESS SPECIALIST**

The Process Specialist oversees the manufacturing process for the units.

The Process Specialist's responsibilities include:

- Set process parameters for safe, efficient, daily operation
- Analyzes and troubleshoots process data
- Provides direction for Supervisors

Minimum Requirement:      High School Diploma.  
   10 years of operational experience.



## SHIFT SUPERVISOR

The Shift Supervisor is responsible for supervising the day to day activity in the production units.

The Shift Supervisor reports to the Production Manager.

The Shift Supervisor responsibilities include:

- Emergency Response/Incident Command/Security
- Respond to plant emergencies.
- Coordinate and direct response efforts.
- Notify plant personnel and outside agencies per procedures.
  - Safety
- Discuss safety aspects of work that is going on or is to be done.
- Conduct Monthly Safety Meeting with crews & Behavior-Based Safety.
- Ensure the reporting of incidents; assist in incident.
  - Environmental
- **Be aware of key environmental compliance points and issues.**
  - Training
- **Monitor progress of new personnel.**
  - Process
- Stay abreast of operating conditions and product quality.
- Assist in troubleshooting as needed, resolve issues, problems.
  - Maintenance
    - Review next day's maintenance schedule with crew and Work with operators PMC to ensure schedule compliance.
  - Personnel
- Stay abreast of personnel issues (Time off, staffing, OT).

Minimum Requirements:    High School Diploma  
   10 years of chemical plant operating experience.



## **OPERATORS/WORK CREW**

*(Page 1 of 2)*

The Operator function is responsible for the day to day operation of the units. These responsibilities include:

- Preparing for First Round Inspection.
  - Communicate with Operator being relieved.
  - Read Operator Logbook.
  - Read Daily information book.
  - Review personal safety equipment.
- Making First Round Inspection.
  - Visually inspect production area.
- Collect Routine Samples.
- Responsible for the day to day outside operation of the process.
  - Operating pumps.
  - Opening/closing valves.
  - Clearing lines.
  - Switching filters.
  - Washing pre-heater.
  - Maintaining housekeeping.
  - Pull samples.
  - Line up tanks.
  - Climbing ladders and stairs.



## **OPERATORS/WORK CREW**

*(Page 2 of 2)*

- Responding to Emergency Situations.
  - Spills.
  - Storms.
  - Electrical Outage.
  - Steam Outage.
  - Loss of Cooling Water.
  - Shutdown of Cleavage.
  - Each emergency situation involves a rapid response, in the form of shutting valves, clearing lines, and /or restarting pumps and equipment.

Minimum Requirements: High School Diploma



## **MANAGER - TECHNICAL SERVICES**

The Technical Services Manager is under the general supervision of the Plant Manager and is responsible for planning, directing, and supervising the Technical Services and Laboratory Services Department.

The Technical Services Manager:

- Applies company administrative and personnel policies.
- Supervises the Technical Services and Laboratory Department and directs their efforts in planning and scheduling.
- Coordinates plant projects with other departments, and reviews projects for technical accuracy.

Minimum Requirements:      B.S. Degree in Engineering  
Broad background and experience in production and plant procedures.



## **LABORATORY SUPERINTENDENT**

The Laboratory Superintendent is responsible for overseeing the daily operation of the Quality Control Laboratory. This position provides oversight of lab technicians. Incumbent also holds responsibility for tracking and auditing the ISO 9000 process at Haverhill.

- Assists the Manager of Technical Services.
- Oversees day to day Lab operations.
- Assures training of Lab personnel and development of Lab training programs.
- Oversees scheduling of Lab personnel.
- Responsible for Lab personnel evaluations.
- Manages Lab Data Acquisition & Recordkeeping Software.
- Responsible for primary Research and Technology personnel interfacing with the Lab.
- Assists in method development for the Lab.
- Assures instrumentation maintenance, upgrades, selection, and installation.
- Coordinates sample schedules and special sample requests with Operations.
- Acts as Lab technical contact for customer quality issues.
- Assist in resolution of analytical and operational problems as needed.
- Assists in Lab bench work if needed.
- Oversees preparation of samples for off-site shipment.
- Responsible for Lab budgeting finances.
- Responsible for Lab staffing.

Minimum Requirements:    B.S. in chemistry/biology.  
   Previous experience in an industrial lab environment.



## **LAB SUPERVISOR**

The Lab Supervisor works under the general supervision of the Lab Superintendent and oversee the daily activity of 8 Lab Technicians.

The Lab Supervisor's responsibilities include:

- Oversee the flow of samples and direct testing.
- Supervise and training of laboratory personnel and ensure that the proper analytical procedures are being followed.
- Responsible for calibration and maintenance of laboratory equipment.
- Responsible for verification of previous results when test equipment is found to be "out of calibration".
- Prepare and update analytical procedures.
- Assist in investigating causes of non-conforming product.
- Maintain laboratory data records.
- Assures incoming raw materials meet specifications (where applicable).
- Assist in development and implementation of analytical test procedures.
- Responsible for the ordering of Laboratory Supplies
- Responsible for preparing Laboratory analytical reagents

Minimum Requirements: Bachelor's degree in science related field.  
3 to 5 years experience in industrial laboratory setting.



## **LABORATORY TECHNICIAN**

Laboratory technicians perform numerous qualitative and quantitative analysis of various in-process, final product, and waste streams found on the plant site. Chromatography, titration, colorimetric, and other wet chemistry and instrumentation techniques are performed in carrying out these required analyses. These analyses are used to monitor the processes, to identify nonconforming streams or product, and to identify components within waste streams for economic and regulatory compliance. In addition to performing the actual tests, the technicians also maintain recordkeeping and reporting requirements to appropriate on-site personnel. Technicians also work with other technical personnel (chemists, engineers, and environmental staff) in performing non-routine analysis of various in-process or waste streams. Technicians must also be able to identify malfunctioning laboratory instruments and either repair or initiate repair. These technicians have sufficient experience and expertise to work without supervision.

Technicians work with hazardous wastes during sample handling, analysis, and disposal. Therefore, they must be familiar with the chemical and hazardous waste handling procedures specified for the laboratory. Technicians attend fire and safety training, hygiene and emergency response training, and RCRA training as scheduled throughout the year. This is in addition to their formal and on-the-job technician training they receive.

- Handling – four ounce sample bottles, one pint sample bottles, and/or sampling tins are typically used for waste stream samples. Per procedure or analytical methods, the required aliquots of these samples are taken from these containers for the actual analysis.
- Analysis – the technicians analyze hazardous wastes by performing a variety of tests.
- Disposal – They dispose of samples in a properly labeled container.
- Inspection of the laboratory hazardous waste management areas.

Minimum Requirements:     B.S in science related field or laboratory experience.



## **ENGINEERS**

The Process Engineer assists production in troubleshooting of process problems, monitors key parameters (material yield, energy, quality, capacity utilization, etc.) of all processes to maintain past gains, and establishes process optimization opportunities.

The Process Engineer responsibilities include:

- Identify process optimization/improvement opportunities and provide necessary engineering to implement.
- MOC champion.
- Project engineer responsibility.
- Technical support for major process outages and start ups.
- Interface with Corporate Research and Technology personnel on process improvement/optimization activities.
- Assist in development, design, and coordination of feasibility studies, preliminary engineering, and major process capital projects.
- Day-to-day process engineering support of plant operations, monitor key process parameters, and identify process optimization/improvement opportunities.

Minimum Requirements:      BS degree in Chemical Engineering.  
Must be analytical in interpreting data and making recommendations based upon that data. Must be excellent communicator, able to work well in teams and work independently and strategically for the plant site.



## **SUPERINTENDENT – LOGISTICS AND SHIPPING**

The Superintendent is under the general supervision of the Plant Manager and directs subordinate supervisors in managing the BPA Warehouse as well as Liquid Loading.

The Superintendent is:

- Responsible for the coordination of all shipments from the Haverhill plant site.
- Site contact with customers, corporate supply chain management.
- Administers company and personnel policies.
- Sets long and short-term goals for proper and efficient operation of shipping and logistics function.
- Determines and provides for personnel training within each unit including personnel hazardous work management procedures and contingency plan implementation.
  - Ensures that work processes and shipments conform to all applicable Department of Transportation requirements.

Minimum Requirements:    B.S. Degree  
   Broad background and experience in shipping and logistics.



## **SUPERVISOR OF LOADING OPERATIONS**

This position directly supervises hourly personnel in the day to day duties of the Liquid Loading group and the BPA Warehouse.

The Supervisor of Loading Operations duties include:

- Evaluation of job performance for new personnel.
- Supervise, train, and direct the day-to-day activities in Liquid Loading.
- Coordinates activities between the production units and maintenance, and the needs of those in shipping and logistics.
- Interfaces with regulatory agencies.
- Ensures proper shipments are made at appropriate times.

Minimum Requirements:     High School Diploma. Technical degree preferred.  
   Extensive knowledge of plant production procedures as  
   well as all aspects of process safety management systems.



## **LOADER**

The Loader Position is responsible for the loading and unloading of tank cars and tank trucks in the facility.

The Loader duties include:

- Loading of trucks and tank cars.
  - Phenol.
  - Acetone.
  - AMS.
  - Cumene.
- Maintains Housekeeping.
- Emergency Response Team member.
  - Attend fire school annually.
  - Hole watch responsibilities.
- Promotes safety and follows all plant safety procedures.
- Is the feeder group for operations, therefore:
  - Industrial process knowledge a plus.
- Perform minor maintenance activities.

Minimum Requirements: High School Diploma



## **SHIPPING COORDINATOR**

The primary duty of the Shipping Clerk is to schedule loading and shipping of products for customers from orders received from sales offices and to prepare records of shipments, loading schedules, packaging instructions, customer order status. This position also coordinates with corporate personnel on Production Planning, Supply Chain Management and Order Entry.

- Record orders that are received from customer service.
- Provide loading instructions (liquid shipments) and/or packaging instructions for railcars and trucks.
- Communicate bills of lading and certificates of analysis to customers as requested in order's special instructions.
- Coordinate off-loading of barges.
- Label sample container appropriately according to Haz-Mat requirements.
- Responsible for addressing customer complaints.
- ISO Documents.
- Responsible for updating/revising Order Entry procedures as necessary.

Minimum Requirements: High School.

Required to read, comprehend, and write legibly.



## **MANAGER – HEALTH, ENVIRONMENTAL, SAFETY & SECURITY**

The Health, Environmental and Safety Manager is under the general supervision of the Plant Manager and is responsible for planning, directing, and supervising the Health, Environmental, Safety Department and Security.

The Health, Environmental, Safety Manager and Security:

- Supervises the security, health, environmental and safety review of plant projects with other departments, and assures projects are completed on schedule.
- Develops ESH&S policies at the plant.
- Directs the Security, Health, Environmental and Safety Department in planning and scheduling.
- Applies company administrative and personnel policies.
- Is the prime contact between government regulatory agencies and the plant.
- Coordinates compliance with regulations and deadlines.
- Provides an interface between Plant and Corporate initiatives.

Minimum Requirements:    B.S. Degree in Engineering  
Broad background and experience in environmental and safety administrative matters required.



## **SAFETY COORDINATOR**

The Safety Coordinator serves as a technical resource for the facility in health/safety and loss control programs.

The Safety Coordinator responsibilities include:

- Assists with regulatory compliance and management systems.
- Safety training.
- Conducts safety audits.
- Updates, revises and tracks changes to health and safety procedures and the organization's safety standards in accordance with government regulations.
- Assists with governmental reporting.
- Conducts industrial hygiene surveys.
- Assists management in identifying potential hazards.
- Assists field management with loss control efforts including hazard assessment and control, compliance assessments and establishment of behavior safety systems.
- Develops and implements safety training programs for site locations.
- Provides input for the development and implementation of programs to track and evaluate personal injury experience.
- Evaluates training needs, identifying best method to deliver training, scheduling training, and serving as trainer.

Minimum Requirements:      High School Diploma.  
Broad based and significant exposure to health and safety protocols.  
Experience in legal aspects of HES legislation.



## **ENVIRONMENTAL SUPERINTENDENT**

The Environmental Superintendent is responsible for supervising the environmental engineers, maintaining the project backlog, assigning project work, and completing all possible projects in a timely basis.

The Environmental Superintendent:

- Maintains the environmental deadline backlog and meets deadlines.
- Must know regulations pertaining to air, hazardous wastes, water, toxic substances, and injection wells.
- Manages plant environmental inspections and initiates corrective and preventive actions.
- Notifies agencies of environmental releases and maintains environmental files.
- Must be familiar with the Hazardous Waste Contingency Plan.

Minimum Requirements: B.S. Degree

Broad background and experience in production and plant procedures.



## **ENVIRONMENTAL ENGINEER**

The Environmental Engineer is under the general supervision of the Environmental Superintendent and is assigned important and major engineering projects requiring expert environmental engineering techniques, skills, and experience.

The Environmental Engineer:

- Is given wide latitude for independent decisions.
- Prepares or directs preparation of environmental engineering contracts and government permits and documents.
- Regularly directs the work of other environmental engineers, draftsmen or technicians assigned to projects.
- Monitors daily sampling and processes to ensure compliance with government regulations.
- Performs comprehensive investigations; writes or directs progress and technical reports, recommendations, and studies.
- Corresponds frequently with government regulatory agencies.

Minimum Requirements:     B.S. Degree in Engineering

Broad background and experience in environmental affairs.



## **ENVIRONMENTAL TECHNICIAN**

The Environmental Technician works under the general supervision of the Environmental Superintendent and is responsible for the day to day duties of complying with LDAR and NPDES Sampling.

The Environmental Technician responsibilities include:

- Tracking maintenance activities related to leaking components
- Tagging new components
- Periodic visual inspections
- Periodic VOC leak detection
- Initiating maintenance work orders for leak repair
- Regulatory required repair monitoring
- Regulatory required follow-up monitoring
- Component data entry
- Leak data entry

Minimum requirements:      High School Diploma  
3 to 5 years of experience in an industrial setting.



## **ENVIRONMENTAL ASSISTANT**

The Environmental Assistant gives daily direction to the work group assigned to the hazardous waste storage area, to day supervisors, to shift supervisors, and to operators on how to stay compliant with EPA permits. This position has responsibility for overseeing contractors and operation personnel during activities that effect EPA compliance (i.e. stack testing, BIF boilers burn rates, spill clean-ups).

The Environmental Assistant responsibilities include:

- Responsible for negotiation of contracts with Hazardous Waste disposers and Analytical Laboratories to insure the EPA RCRA regulations intent are met.
- Generate proper shipping names and manifest for hazardous waste utilizing 40 CFR parts 172 and 40 CFR 261.
- Submittal of One-Time LDR Notice for Each New Waste or New Receiving Facility Verification.
- Boiler ash concentration verification.
- Land Disposed Waste Compliance with the Treatment Standard Requirements Verification.
- Boiler Cleaning Procedures.
- Boiler 2001-UC CO/O2 Analyzers Calibration Verification.
- Hazardous waste shipping verification.
- Investigation of spills and unusual occurrences.

Minimum Requirements:      B.S. in science related area.  
   4 to 6 years of industrial experience.



## **MANAGER - MAINTENANCE**

The Maintenance Manager is under the general supervision of the Plant Manager and is responsible for planning, directing, and supervising the Engineering and Services Department, and providing the maintenance services necessary to the operation and maintenance of the plant. He is the alternate news media coordinator on the EOC.

The Maintenance Manager:

- Assigns engineering projects and then approves the design criteria, engineering drawings and specifications, and cost estimates.
- Provides direction to the contract labor force.

Minimum Requirements:    B.S. Degree in Engineering  
Broad background and experience in maintenance and administrative matters required.



## **MAINTENANCE ENGINEER**

The Maintenance Engineer is under the general supervision of the Manager of Maintenance.

The Maintenance Engineer:

- Performs engineering assignments requiring application of engineering techniques and skills.
- Is individually responsible for the planning, coordinating and carrying out of projects.
- Periodically directs the work of other engineers, draftsmen, or technicians as assigned.
- Is responsible for cost estimations.
- Writes progress and technical reports on assigned projects.

Minimum Requirements:    B.S. Degree in Engineering  
Four years of specialized engineering experience.



## **PROJECT MANAGER – CAPITAL VENTURES**

The Project Manager – Capital Ventures is under the general supervision of the Manager of Capital Projects Chemicals, and is responsible for directing capital project activity in the Ohio Valley.

The Project Manager – Capital Ventures responsibilities include:

- Insuring the Capital Workflow Process is followed
- Assigning appropriate resources to project activity (Engineering)
- Monitoring capital project activity
- Overall control of the capital budget

Minimum Requirements:     B.S. in Engineering.  
   Significant industrial experience.



## **PROJECT ENGINEER – CAPITAL VENTURES**

The Project Engineer – Capital Ventures is under the direct supervision of the Project Manager – Capital Ventures, and is responsible for individual capital project activity on site.

The Project Engineer – Capital Ventures responsibility includes:

- Developing the scope of capital projects.
- Purchasing for capital projects.
- Monitoring the construction phase.
- Insuring CWP (Capital Workflow Process) is followed.
- Closing capital projects.

Minimum Requirements:     B.S. in Engineering.  
   3 to 5 years of industrial experience.



## **CONTRACTED ON-SITE MAINTENANCE**

Contracted on-site maintenance personnel are periodically required to come into contact with hazardous waste through maintenance, repair and/or handling procedures.

Maintenance and repair may include disassembly or replacement of mechanical and electrical equipment, such as:

Centrifugal Pumps, Centrifugal Pump Seal Gate, Globe and Ball Valve Piping, Fittings and Flange Instrumentation Sensors (gauges, thermometers), Miscellaneous Electrical Components.

Handling includes use of equipment and labor for cleanup of coarse, solid and/or liquid material and subsequent packaging in DOT-approved containers for shipment and off-site disposal by others.

All contracted on-site personnel have received appropriate training and instructions for safe handling of hazardous waste materials in accordance with Section 40 CFR 264.16, OAC 3745 54-16 personnel training.



## **ON-SITE SECURITY**

On-site security personnel are periodically required to come into contact with hazardous waste. Their duties include checking all traffic in and out, including weighing trucks which may contain hazardous waste.

When an emergency occurs, security personnel will assist the emergency coordinators by directing traffic, transporting people to the fire, keeping unauthorized persons out of the affected area, etc.

The on-site security also answers all phone calls during off hours. Therefore, they must know who to contact should an emergency occur.

All contracted on-site personnel have received appropriate training and instructions for safe handling of hazardous waste materials in accordance with Section 40 CFR 264.16, OAC 3745 54 16 personnel training.



## Attachment H-2

### Contract Service Providers and Third-Party Worker Oversight



# HAVERHILL PLANT

**Contract Service Providers** - Document Number: HAV-PSM-PRO-006

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EHS&S Manager

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EHS&S Manager

## 1. Purpose/Scope

The purpose of this document is to define the process for qualifying, evaluating, selecting, approving, providing information, auditing, communicating and monitor/maintain *contract service providers* relative to legal requirements, oversight, company policies and procedures. The requirements of this document apply to all *contract service providers* performing work for the ALTIVIA Plant.

Pursuant to 29 C.F.R. 1910.119(h)(1), PSM requirements will be applied to all contractors performing maintenance or repair, turnaround, major renovation, or specialty work on, or adjacent to, a PSM-covered process. The PSM requirements do not apply to *contractors* providing incidental services which do not influence process safety, such as janitorial work, food and drink services, laundry, delivery or other supply services, or transportation of products will be governed by this procedure with respect to the sites general financial and safety requirements.

## 2. Definitions

**Company / Haverhill Plant** – ALTIVIA Petrochemicals, LLC. and/or ALTIVIA Corporation.

**Contract Administrator** – An ALTIVIA or contract employee who is responsible for contract administration and oversight of one or several contract service providers. The Contract Administrator must provide day-to-day oversight and be the primary contact with the Contract Service Provider Management to ensure that work is performed according to contract and compliance, ensure the provider understands the standards, ensures that assessments and self-inspections are conducted and reviewed.

**Contract Incidental Services Employer** - Any contracted party whose employees provide incidental services which do not influence process safety, such as janitorial work, food and drink services, laundry, delivery or other supply services, or transportation of products (i.e. visitors, Telephone Company, janitorial service, delivery companies, etc.).

**Contract Manager** – An ALTIVIA employee who is responsible for pre-qualifying a contract service provider and developing terms of the contract.

**Contract Process Employer** - Any contracted party whose employees perform maintenance or repair, turnaround, major renovation, or specialty work on, or adjacent to, a PSM-covered process.

**Contract Service Provider** – Any contracted party who performs a service for or provides goods to ALTIVIA under a contract.

**Contract Service Provider ESH Representative** – A *contract service provider* employee at the worksite who is directly responsible for ESH oversight.

**ESH** – Environment, Safety & Health

**ALTIVIA Plant Representative** – The Plant employee, in many cases the *Contract Administrator*, responsible for oversight of a contractor or the Plant contact point for a contractor.

**IDLH** – Immediate Danger to Life and Health

**Incident/Near Miss** – An undesired event that causes, or which under slightly different circumstances, could have caused harm to people, damage to property, loss of process, an effect on the community or environment; or, government agency inspections.

**Legal requirements** – All applicable federal, state, local laws, regulations, enforceable agreements and permits.



### 3. General Requirements

Systems must be in place to:

- Evaluate, qualify, select and approve *contract service providers*, by assessing capabilities competencies, and monitoring to ensure performance is consistent with the Plant Environmental, Safety & Health (ESH) expectations.
- Specifying accountability and responsibilities of on-site *contract service providers* for ESH practices, assuring compliance, required reporting to regulatory agencies, and corrective actions implemented.
- Identifying, interpreting, and effectively communicating ESH requirements to affected on-site *contract service providers* and ensuring that activities conform to those requirements.
- Establishing and maintaining procedures related to the identified specifications of goods, equipment, services purchased and/or used by the organization and communicating relevant procedures and requirements to suppliers and contractors.
- Periodic evaluation of the contract service provider safety processes, including incorporating the results of the assessment into program improvements, revisions to the document, and communicating findings and action plans to affected employees, and *contract service providers*.
- Providing oversight of *Contract Process Employers*.

### 4. Key Responsibilities

*Contract Manager* – Responsible for administering the pre-qualification process, maintaining records and documents required by this procedure, and developing terms and conditions of the contract

*Contract Administrator* (Haverhill Plant Representative) – Provides day-to-day oversight of the *contract service provider's* activities. The contract administrator is the primary contact with *contract service provider* management.

*Contract Service Provider Management* – Responsible to assure *contract service provider* employees, subcontractor employees are trained and qualified to perform the work contracted and that they do so in a safe and environmentally responsible manner, meet minimum requirements specified by ALTIVIA t. Contract Service Provider management shall ensure that all employees, sub-contractors, agents, suppliers, etc. comply with all rules and regulations including general and local facility safety rules.

*Plant Management* – Responsible for application and performance of the requirements of this document.

*ESH&S Department* – The Plant ESH&S Department or designee is responsible for approving *contract service providers*, auditing the requirements of this document, assessing PSM training programs, keeping the facilities fully informed regarding the names and dates of *contract service providers* which have been removed from jobs for cause, and maintaining contractor ESH data.

### 5. Procedure

#### 5.1 Contract Service Provider Evaluation and Selection

All *providers* are qualified prior to performing work. The performance evaluation criteria and forms are contained in HAV-PSM-FRM-007 Contractor Pre-Qualification Form. Pre-qualification information must be fully updated every three years to remain a “qualified contractor.” *Providers* are approved with input from the appropriate facility Operations, Maintenance, ESH and Engineering Managers.

The Plant develops an initial evaluation of the health and safety risks of a job and the environmental aspects. The evaluation is provided to prospective bidders in a bid package.

Contract service providers must submit all forms and ESH performance evaluation information to be considered for the job. Training qualifications based on the health and safety risks along with environmental aspects for those who will be performing the job must also be provided. Contract service providers may be disqualified, if they fail to meet these standards. The nature of the work to be performed and the associated ESH aspects are also considered in the evaluation.

The Plant shall not consider any provider for employment that has been removed from a facility for ESH violations or exceptions within the previous twelve months. The contract service provider must demonstrate improvement in safety performance before being considered for employment.

**Contract Process Employers** are required to meet a target **Experience Modification Rate (EMR) of 1.0 or less** in at least two of the three previous years to warrant selection. Contract Process Employers with an EMR exceeding 1.0 for any of the three years submitted, shall provide an explanatory report accounting for the high EMR. The report must describe the steps taken to correct the issues. **Contract Incidental Services Employers will not be held to the EMR requirement.**



Providers will have their OSHA Recordable Incident Rate evaluated for any trends in injury and illnesses for the past three years. Should a provider's rate show a negative trend during the three years submitted, the contractor must provide an explanatory report accounting for the higher rate and explain the steps taken to improve performance. The Facility Manager may qualify contractors with a higher OSHA recordable incident rate provided there are measures in place to carefully monitor performance and a plan to help assure improvement.

Providers not required to maintain OSHA Incidence Rates (10 employees or less), or are unable to submit an EMR, must submit information that describes their safety experience and occupational injury/illness performance for the prior three years.

Providers shall list any current or past work performed at ALTIVIA facilities and submit occupational injury/illness data and information from all jobs performed.

Selection of the *contract service provider* is based on past and potential ESH performance, as well as technical expertise, experience and commercial standing.

The ALTIVIA Contract Manager maintains a list of approved Contract Process Employers and related documentation.

## **5.2 Contract Service Provider Expectations and Controls**

### **5.2.1 Compliance**

All providers must be in compliance with:

- All applicable legal requirements that relate to the work they are performing.
- Plant standards for performing work in a safe and environmentally responsible manner.
- Applicable Plant Safety Procedures.
- Must also comply with 29 CFR 1910.119, Process Safety Management.

### **5.2.2 Reporting Incidents**

*Contract service providers* must immediately report all ESH incidents (i.e., fires, spills, vehicle accidents, injuries, property damage, near misses, etc.) to the Shift Supervisor for the necessary emergency action and subsequently to the assigned *Contract Administrator* for investigation follow-up as required by the facility incident investigation requirements.

Incident investigations must begin immediately and must be documented via the Action Management System that shall generate and maintain a log of all service provider injuries.

### **5.2.3 Contract Service Provider Supervisory and Management Staff**

All service providers must demonstrate they have a supervisory and management staff that is trained and understand the applicable legal requirements.

### **5.2.4 Contract Service Provider ESH Representative**

All service providers must have a designated, on-site ESH representative who is responsible for provider ESH management and performance.

### **5.2.5 Full Time ESH Representative**

A full time qualified safety representative shall be required when:

- The Contract Process Employer is the primary contractor during turnarounds; or,
- Performing work in an existing or potential IDLH atmosphere; or,
- Plant management determines representation is necessary for the tasks being performed

Appointment of the ESH Representative shall be subject to Haverhill Plant ESH Department approval.

### **5.2.6 Site Safety Program**

The Contract Administrator and ESH Department must review and approve all Contractors' Site Safety Programs prior to commencing work, refer to [Appendix C](#) – Suggested Contractor Site Safety Program Criteria.

The Contractors' Site Safety Program must comply with the procedures contained in the Haverhill Plant Emergency Response Plan.

All provider employees must be familiar with the Contractors' Site Safety Program. Supporting documentation may be requested by the ESH Department.



### 5.2.7 Daily ESH Briefing (also known as Pre-Shift Safety Instructions)

The provider must hold daily ESH briefings prior to the start of each shift. The agenda of the briefing should include such items as the work permit requirements, pre-task ESH review, special conditions, general notices and procedures, Job Safety Hazard Analysis, site requirements and conditions, emergency procedures, alarms, environmental issues, incident learnings, etc.

### 5.2.8 ESH Training

#### 5.2.8.1 Training for PSM Covered Contract Process Employers

**Contract Process Employer** (PSM covered providers) must provide certification indicating their employees, including management, have received appropriate Process Safety Management (PSM) Training. Minimum topics to be included in this training are contained in [Appendix B](#), Contractor Process Safety Training Criteria.

The certification must document that each *PSM covered Contract Process Employers* employee has received and understood the training. The provider must prepare a training record that shall contain:

- The identity of the Contract Process Employers employee
- The subject of the training
- The date of the training
- The trainer's name
- The trainer's company or organization
- The means used to verify that the employee understood the training

The Contract Process Employer must keep these records on file for a period of one year. The Plant ESH Department shall periodically audit these records.

The Plant has recognized organizations and programs that have been deemed acceptable to provide PSM Training, see [Appendix B](#), Contractor Process Safety Training Criteria. Equivalent training is acceptable but is subject to approval by the ALTIVIA ESH Department and/or PSM subject matter expert.

For Contract Process Employer field service engineers and technical representatives, the PSM training certification may be waived. This PSM training exception is for short duration jobs or visits only (<2 days). If the certification is waived, a Plant employee must accompany the Contract Process Employer employee at all times. The Plant employee must be knowledgeable of the process, able to recognize hazards, and familiar with the Plant's ESH requirements and procedures. The Plant ESH Department must approve all exceptions. The Contract Process Employer field service engineer or technical representative may not enter a respirator-required area, a confined space or perform other jobs that require special training unless appropriate training documentation is provided to the Plant's ESH Department.

#### 5.2.8.2 General Orientation

The Contract Administrator or designee will orient the providers supervision of applicable safe work rules and the emergency response plan provisions using the Contractor Supervisors Safety Orientation.

All Providers supervision must orient their employees in the general *ESH* requirements prior to performing work within the facility. This orientation shall include the applicable safe work rules and the emergency response plan provisions given in the Contractor Supervisors Safety Orientation.

Each provider employee must receive a refresher orientation on a rolling 12-month basis. Access cards shall not be renewed unless the orientation is current.

A comprehensive orientation test, covering the key points of the orientation, must be given at the completion of the orientation. Each provider employee must successfully complete all questions of the evaluation prior to gaining admittance to the work site.

The orientation must be recorded through the use of signed roster sheets and the orientation test shall be submitted to the Plant ESH Department.



### 5.2.8.3 Job Specific Orientation (job site requirements)

Prior to beginning work, each *contract service provider* employee must be provided training regarding the following topics:

Contract Service Provider Site ESH Plan

- Known potential fires, explosions, toxic release hazards and Site SDSs
- Emergency Action Plans, and unit specific information related to the job.

The orientation date, leader, agenda, and attendees must be recorded and sent to the Contract Administrator who will forward the documents to the Plant ESH Department.

### 5.2.9 Daily “ToolBox” Meetings

Contract service providers must meet with their employees on a daily basis to:

- Review current ESH issues
- Review the facts/learning from incidents or other postings, flashes or flyers
- Perform necessary training refreshers or updates
- Review emergency action plans (alarms, evacuation routes, etc)
- Communicate any requirements received from the Plant

The meeting date, topics and attendees should be maintained in a log that can be inspected by Plant personnel.

### 5.2.10 Chemical Inventory Safety Data Sheets

Prior to bringing chemicals into the Plant, providers shall obtain approval from the Contract Administrator. The provider must provide to the Contract Administrator Safety Data Sheets containing information for chemicals that they will be using. The Contract Administrator shall follow the procedure for new chemicals stated in HAV-HAZ-PRO-002 to obtain the approval of the Haverhill ESH Department and PSM subject matter expert before the chemical can be brought onto the plant site.

Providers shall maintain, on-site, a chemical inventory for all hazardous substances that they use or possess while onsite. The provider must have a Safety Data Sheet for every substance listed on the chemical inventory and must properly label all chemical containers. The provider must provide information regarding the possible effects of hazardous substances to the provider's own employees. The Contract Administrator must provide information regarding the possible effects of hazardous substances that the provider will be using to the supervision of any Plant employees that could possibly be affected.

Providers shall be informed that information regarding the Haverhill Plant Hazard Communication information and Safety Data Sheets can be obtained via the Contract Administrator.

### 5.2.11 Personal Protective Equipment

All *Providers* must wear the following minimum personal protective equipment (PPE) when performing tasks within operating and maintenance areas of the Haverhill Plant:

- Safety Glasses with side shields (no dark tinted lenses)
- Flame Retardant Clothing (preferably not same color worn by Plant employees)
- Hardhat
- Safety-toe work boots (over-the-ankle)
- Leather cut resistant gloves
- Job-specific PPE as prescribed on the work permit, procedure(s) or PPE Matrix.

All PPE utilized must meet the requirements of 29 CFR 1910, 29 CFR 1926 and any other applicable codes and regulations; and, Plant and approval.

Providers, whose work requires the use of respiratory protection, must be adequately trained, medically cleared and fit tested for respirator use. Before the start of work, the provider shall substantiate these requirements by providing a letter (or a copy of the records) to the Contract Administrator who will forward the information to the Plant ESH Department.

### 5.2.12 Inspections and Audits

The Providers will be issued a work order for each job that is performed. The Provider shall review the work order scope and conduct a pre-job site safety inspection with the Haverhill Plant Operator assigned to the area prior to work beginning. The Operator will issue a permit for each job that coincides with the type of work and activities to be performed.



Periodically, contractors shall conduct a safety inspection & work practice audit of the worksite and the work being performed.

A record shall be made of all safety inspections and audits, including the findings and corrective actions taken. The contractor shall provide the documentation of inspections, audits and corrective actions to the Contract Administrator who will forward the documentation to the Haverhill Plant ESH Department.

The provider must promptly take corrective action to address all deficiencies found.

The provider must continually audit the worksite to ensure compliance with all rules and regulations. The Contract Administrator shall be informed of any unique hazards presented by the provider employer's work, or any hazards found in the work environment.

The Contract Administrator and/or Plant ESH Representative(s), shall conduct periodic inspections of plant work practices. The Safety Inspection & Work Practice Checklist shall be used when conducting inspections.

A Plant ESH Department representative and a representative from the provider will conduct periodic inspections of the contractor employees and activities. The Safety Inspection and Work Practice Checklist shall be used when conducting the inspection.

#### **5.2.13 Substance Abuse**

The use and/or possession of alcohol, illegal drugs, or the improper use of legal drugs are prohibited on ALTIVIA property. *Providers'* employees, agents, or suppliers shall not enter the Plant while under the influence of illegal drugs, alcohol, or the improper use of legal drugs.

Prior to initial entry, *providers* shall provide proof of substance abuse testing with negative results or verification of each employee's status in an accepted substance abuse testing program (i.e. L.E.A.D., CUDAP, MOST, etc). The record of proof must contain:

- Company letterhead
- Worker name(s)
- Worker SSN
- Date of testing, current within one year

Records shall be maintained by the *providers*. Records containing unacceptable testing results shall be communicated to the *ESH Department*.

- A chain of custody letter for a recent test may be used on an interim basis as proof of testing until the results are received (within 5 days).
- Entry onto the property of the Plant constitutes consent on the part of all *provider* employees to submit to a substance test at such time as reasonable cause warrants such testing. Such testing is conducted at the direction of the Plant and at the sole expense of the *provider*. Any *provider* employee testing positive for alcohol, illegal drugs or the improper use of legal drugs shall be removed from the site immediately, and not allowed to re-enter the Haverhill Plant, for a period of not less than one year or until rehabilitated according to local building trades agreements and/or Haverhill Plant specifications.
- The testing laboratory will follow DOT protocols for testing levels, testing procedures and split sample requirements.

Any *provider* employees using prescription medicine must notify their supervisor. Where the medication could affect the safe performance of the work, job reassignment shall be made.

#### **5.2.14 Medical Screening and Treatment**

The provider shall ensure that all personnel are physically and psychologically capable of performing the job tasks assigned.

Providers shall provide for emergency first aid and medical treatment of any personnel who may suffer an injury or illness while at the job site. Provider personnel who may perform first aid treatment must be adequately trained and records of this training provided upon request.

The provider (or ALTIVIA– through mutual agreement) shall provide for medical surveillance and guidance (industrial hygiene monitoring, etc.) to ensure employees are not exposed to hazards while working; including verifying that the personal protective equipment being used is the proper type.

### **5.3 Communication of Contract Service Provider Requirements**

The Contract Administrator shall communicate or ensure a delegate communicates the Haverhill Plant's ESH policies, standards and relevant procedures to the provider management and designated ESH representative prior to work being performed. A discussion shall also be held on the ESH legal requirements related to the job and how the contract service provider will assure compliance to the legal requirements.



Provider representatives must be competent in their knowledge of the work and the proper procedures to be followed.

The Contract Administrator shall explain to provider representatives the applicable provisions of the Plant's emergency action plan.

Prior to the commencement of the contract work, the Contract Administrator and provider shall tour the Plant with particular attention to the job site(s) and associated operating areas in which field work will be performed.

The Contract Administrator shall advise the Provider of any known chemical hazards in the unit or facility to which the contractor's employees may be exposed as well as any special precautions to be followed during the course of their contract.

The Contract Administrator or designee shall review safe work practices in place for the control of hazards with provider representatives including, but not limited to:

- Permits
- Lockout/Tagout
- Confined space entry
- Opening process equipment or piping
- Control over the entry, presence and exit of contract service provider employees in covered areas

The Contract Administrator or designee shall document the agenda, attendees, and outcomes of these discussions. This documentation will be sent to the ESH Department. The topics and timing of communications are contained in [Appendix A](#), Communication Worksheet and Timeline. Sections of Appendix A should be used if applicable.

#### **5.4 Identify and Train Contract Administrators**

The Contract Administrator's qualifications include:

- Employee of Haverhill Plant or provider assigned Contract Administrator responsibilities.
- Responsibility for overseeing contract work.
- Understand the commercial contract management process.
- Have undergone Contract Administrator training or orientation.

#### **5.5 Contract Administrator Oversight Responsibilities**

The Contract Administrator shall provide oversight to give assurance that:

- Provider work is performed in accordance with contract terms.
- Provider work is performed in compliance with legal requirements.
- Provider employees understand the Haverhill Plants' health, safety and environmental standards and, as a minimum, follow those standards when performing on-site work.
- Contract Process Employer audits and self-inspections are conducted, the results are reviewed between the Provider and contract administrator.

The Contract Administrator shall participate in Pprovider ESH inspections and audits as defined by this and other facility procedures.

The Contract Administrator shall conduct a post job assessment with the provider to assure any ESH deficiencies have been mitigated or removed. The post job assessment shall include a final review of the quality of work and performance against expectations. The Contract Administrator shall document assessment.

#### **5.6 Evaluation of Contract Service Provider Performance**

##### **5.6.1 Meeting for Long-Term Contract Process Employers**

ALTIVIA Management shall meet at least quarterly with long-term Provider management to review the following performance:

- Changes in job scope that may impact safety and health
- ESH performance of all sub-contract service providers
- Action to be taken prior to next meeting

Long-term Contract Process Employers shall attend the Monthly ESH&S Central Safety Meeting to discuss the above performance and report metrics consistent with 5.3, 5.4, 5.5 and 5.6 of this document.



The ESH&S Meeting and performance review shall document the metrics which will be maintained in the ESH Department files. The metrics recorded should include:

- HES issues that have occurred since the previous meeting
- HES records including hours worked, injuries, accidents and spills
- Status report of inspections and audits
- Training activities, plans and job cycle checks.
- Action to be taken prior to next meeting

Variances with agreed upon performance, as well as corrective actions to be taken shall be discussed. In the event a Provider fails to meet expectations, appropriate consequences shall be imposed as allowed by contract or law, up to and including termination of the contract.

### **5.6.2 Violations of ESH Requirements**

Contract Administrators and/or the ESH Department shall use the Contractor Safety Violation Notification Procedure in Appendix D to formally notify Provider of rules violations.

Imminent danger safety violations are grounds for the immediate removal of the Provider employee and the contractor employee's supervisor from the Plant. Examples of imminent danger violations are listed in [Appendix D](#).

Providers who have been previously removed from the Plant will be considered for termination of work at the Haverhill Plant.

Any Provider removed from the Haverhill Plant or other business unit for cause shall not be able to bid for work for a period of 12 months or until performance improvement is demonstrated whichever is greater. The Plant ESH Department shall be responsible for communicating to the Procurement & Purchasing Department when a Provider has been removed for failure to meet expectations.

## **5.7 Contract Process Employer Oversight**

Contract Process Employers shall be given an orientation of ESH aspects they may encounter while working at the Plant. This orientation shall be provided prior to the start of any work, and a record of the orientation shall be submitted to the ESH Department for review and filed with the Plant Training Department.

The orientation consists of:

- Emergency action plans
- Entry, presence and exit rules
- Driving and access rules
- Hazard communication overview

Contract Process Employer shall follow the Plant rules and standards while on-site. A Plant contact shall be assigned to assure that the orientation has been given, to provide coordination of their work, to answer questions as they may arise, and to align providers with Plant rules, standards and practices.



**6. Key Documents/Tools/References**

- Emergency Response Procedure Manual
- Contractor Supervisors Safety Orientation
- Contractor Supervisors Safety Orientation Checklist
- HAV-HAZ-PRO-002 New Chemical Approval Procedure
- Haverhill Contractor Pre-Qualification Form, HAV-PSM-FRM-007
- Safety Inspection and Work Practice Checklist
- [APPENDIX A](#) Communication Requirements and Timeline
- [APPENDIX B](#) Contractor Process Safety Training Criteria
- [APPENDIX C](#) Suggested Contractor Site Safety Program Criteria
- [APPENDIX D](#) Contractor Safety Violation Notification Procedure

**Revision Log**

<i>Revision Date</i>	<i>Document Authorizer</i>	<i>Document Reviewer</i>	<i>Document Author</i>	<i>Revision Details</i>
11/18/2015	Plant Mgr	Dept Mgrs	Tech Syst Spec	Reissue of Procedure
4/14/16	Plant Mgr		C. Newton	Changed Haverhill Chemicals to ALTVIA Petrochemicals in Section 5.4
3/22/19	Plant Mgr	PSM Team	ESH Mgr	Numerous continual improvements resulting from discussions during PSM audit of Contractor element to clarify.
9/9/2020	Plant Mgr	PSM Team	ESH Mgr	Streamlined format.



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**Appendix A****Communication Requirements and Timeline****JOB MEETING STAGES AND DOCUMENTS PRESENTED TO CONTRACT SERVICE PROVIDERS****1. Prequalification**

- ☐ Access Control Requirements
- ☐ ESH and Quality Policy And Expectations
- ☐ Terms And Conditions
- ☐ Insurance Requirements
- ☐ Local Safety And Security Requirements
- ☐ Contract Service Providers And Third Party Workers Document
- ☐ Quality Assurance/Quality Control Requirements
- ☐ PQF And Instructions

**2. Prebid**

- ☐ Access Control Requirements
- ☐ ESH Policy And Expectations
- ☐ Site Or Job ESH Plan Requirements
- ☐ Turnaround Best Practices (If Applicable)
- ☐ Emergency Action Plan
- ☐ Job Site Tour
- ☐ Contract Service Providers And Third Party Workers Requirements
- ☐ Facility Safety And Security Requirements (See Appropriate Appendix)
- ☐ Preliminary ESH Risk Evaluation And Legal Requirements
- ☐ PPE (Flame Retardant)
- ☐ Drug Testing Requirements
- ☐ Background Security Checks
- ☐ Requirements To Perform Work
- ☐ Medical Screening And Treatment

**3. Pre-Award Review with Contractor**

- ☐ Preliminary ESH Plan, incl. Job Hazard Analysis
- ☐ Permits, LOTO, CS Entry, Opening Equipment
- ☐ Work Execution Plan
- ☐ Quality Assurance/Quality Control Requirements
- ☐ Clarification And Exception Review

**4. Pre-Job And Safety Review**

- ☐ ESH Plan, including Job Hazard Analysis
- ☐ Job Site Tour
- ☐ Site Specific Training plan
- ☐ Local Procedures Review
- ☐ Security Requirements Review
- ☐ Haverhill organization and personnel
- ☐ Permits, LOTO, CS Entry, Opening Equipment

**5. Service Contract Issued**

- ☐ Terms And Conditions (Includes Insurance),
- ☐ Facility Safety And Security Requirements
- ☐ Drug Testing Requirements
- ☐ Government Compliance
- ☐ Inquiry Package
- ☐ Standards
- ☐ Contractor Proposal
- ☐ Amendments And Clarifications

**6. Follow-Up Requirements**

- ☐ Provide previous year's OSHA reporting data by April 1
- ☐ Provide updated insurance information annually



## APPENDIX B

### Contractor Process Employer Safety Training Criteria

To fulfill the requirements of PSM training, contract service providers must be trained in the following topics. Any deviation from this list must be discussed with the Haverhill Plant ESH Department.

Per 1910.119(h)(3)(iii) the Contractor Process Employer shall document that each contract employee has received and understood the training required by this paragraph. The contact employer shall prepare a record which contains the identity of the contract employee, the date of training, means used to verify that the employee understood the training.

Subject	OSHA Standard
Overview of the OSHA PSM Standard	1910.119
Hazard Communication Standard	1910.1200
Personal Protective Equipment (Hearing, Respiratory, Eye)	1910.132, 133, 135, 136, 138
Confined Space Entry	1910.146
Lockout/Tagout Control of Hazardous Energy Sources	1910.147
Drug and Alcohol Policy	
Fire Prevention Plans	1926.352
Excavation/Trenching	1926.650-651
Fall Protection/Walking Working Surfaces	1910 Subpart M and Subpart D
Scaffolding	1926.461
Work Permits	1910.119
Hoisting and use of Personnel Baskets	1926.251
Electrical Safety	1910.331-335
Specialized Work*	
Work practices necessary to safely perform his/her job.	1910.119 (h)(3)(i)
Known Potential (fire, explosion or toxic release hazards related to his/her job and the process, and applicable provisions of the emergency action plan at Haverhill Plant)	1910.119 (h)(3)(ii)
Emergency action plans for Haverhill Plant	Haverhill Plant - 1910.119 (h)(2)(ii)
Entry, presence and exit rules	Haverhill Plant - 1910.119 (h)(2)(iii)
	Haverhill Plant - 1910.119 (h)(2)(iv)

\*Contractors who are performing specialized work activities in the Plant, must have documentation confirming that an individual has been trained to perform that type of work.

For short duration/emergency jobs, a Haverhill Plant employee must be with the contractor at all times.

Approved Programs	Unapproved
OSHA 40-hour HAZWOPER	
OSHA 30-hour Construction Course	
OSHA 500 – 10 hour Courses	
Trade Union Certification Programs	

**NOTE:** There are other programs throughout the country that may be acceptable. These other programs must be reviewed by the Plant ESH Department in order to determine their acceptability.



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**APPENDIX C****Suggested Contractor Site Safety Program Criteria**

Areas to be covered by the Contractor's written Site Safety Program, Examples should be provided – i.e., forms, reports, checklists, schedules, etc.

- A. Management Commitment and Leadership
  - 1. Policy Statement
  - 2. Safety rules and procedures for the site
  - 3. Organization and Responsibilities (org chart)
  - 4. Communications and Incentives
- B. Assignment of ESH Responsibilities
  - 1. Knowledgeable safety representative onsite
  - 2. Supervisors understand ESH responsibilities
  - 3. Employees follow all rules
  - 4. Sub-contractors informed of ESH responsibilities
- C. Identification and Control of Hazards
  - 1. Planned inspections and audits
  - 2. Personal Protective Equipment
  - 3. Preventative controls
  - 4. Pre Job and Task Hazard Analysis, including industrial hygiene monitoring
  - 5. Material and equipment delivery procedures – routing, escort requirements, etc
  - 6. Emergency Procedures
  - 7. Confined Spaces and Preplans
  - 8. Lockout Tagout
  - 9. Work Permits and Unit access
  - 10. Fall Protection
  - 11. Scaffolding
  - 12. Cranes and Lifting
  - 13. Hearing Protection
  - 14. Asbestos or Lead handling
  - 15. Excavations and Trenching
  - 16. MOC/Variations to procedures
- D. Training and Education
  - 1. Orientations – General and Site
  - 2. Safety meetings
  - 3. Specialized training (Hazard Communication, "Toolbox", etc.)
  - 4. Schedule and agenda of safety meetings
  - 5. Access Requirements
- E. Accident/Incident Reporting
  - 1. Accidents/Incidents reported
  - 2. OSHA 300 Log maintained onsite
  - 3. Prepare monthly reports
- F. Employee Health Care Provisions
  - 1. Arrangements for First Aid and medical services
  - 2. Emergency procedures and training provided
  - 3. Medical Screening and Surveillance
- G. Hazard Communication Program
  - 1. Written program
  - 2. Chemical approval procedure followed
  - 3. Inventory and MSDSs maintained and provided
- H. Respiratory Protection Program
  - 1. Written program
  - 2. Fit testing/medical certification



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**APPENDIX D****Contractor Safety Violation Notification Procedure**

Upon identification of a contractor violating a Plant rule, either by notification or actual observation, the following procedure shall be used:

- A. Immediately correct the unsafe condition identified and shut down the work if needed.
- B. The Plant personnel (Originator) identifying the violation shall notify the following individuals
  - 1. Contractor Safety Representative
  - 2. Contract Administrator
  - 3. Operating supervisor of the area  
(Note: operators need only notify their supervisor. The supervisor must notify the Contractor Safety Representative and the Contract Administrator):
- C. If deemed necessary, the Contract Administrator may:
  - 1. Provide immediate verbal warning to the violating Contractor
  - 2. Prepare a record of the violation and actions taken.
  - 3. Notify their supervisor of the problem
- D. A violation review meeting may be held to discuss the violation occurrence to determine the appropriate corrective action (i.e., verbal warning, written warning, discharge, etc.). The following should be in attendance:
  - 1. Originator
  - 2. Safety Representative
  - 3. Contract Administrator
  - 4. Contractor Supervision/Management
  - 5. Others as necessary
- E. When a written warning is deemed necessary, the following warning procedure shall be used as a guideline:
  - 1. The ESH Department (or designee) will issue a letter to the contractor. The letter will include the corrective actions determined in the review board meeting.
  - 2. A record of all letters written along with the pertinent background information will also be kept by the Safety Department Manager
- F. A second written violation notice shall be stronger and contain stricter recommendations. After a second warning letter is sent, a meeting will be held with the contractor's executives/owners to ensure that the seriousness of the situation is understood.
- G. A third written violation notice shall be grounds for dismissing the contractor from the Haverhill facility. Dismissal will be for a minimum of one year.
  - a. Dismissal on the third written violation notice may be modified as deemed appropriate during the violation review meeting. For example: A serious violation could result in dismissal on the first occurrence. Also, dismissal may not be deemed appropriate for a third minor violation over an extended period of time.
  - b. If a contractor, dismissed for safety violations, is working in more than one company facility (including headquarters), senior management shall determine if the dismissal should apply to all the company facilities in which the contractor is working. The ESH Department or Contract Manager will notify all other company facilities.
- H. The ESH Department or Contract Manager shall send a draft copy of the termination letter to the Contract Administrator prior to issuance.
- I. Copies of all letters shall be sent to:
  - 1. Originator
  - 2. Originator's supervisor/manager
  - 3. Contractor Administrator
  - 4. Safety Representative
  - 5. Facility Safety Supervisor
  - 6. Maintenance Manager
  - 7. Manager of Materials Management
  - 8. All other company Facilities



## IMMINENT DANGER SAFETY VIOLATIONS

**Committing an Imminent Danger safety violation will be grounds for immediate removal of any contractor and the employee's supervisor from the Plant and preclude them from working at the Haverhill Plant facility for a minimum of one year.**

Listed are examples of Imminent Danger safety violations:

- Working at heights without fall protection
- Working on improper platforms or scaffolds (i.e. placing a board on handrails to be used as a work platform)
- Entering confined space without a permit, or without a qualified standby, or without proper PPE
- Working without permits
- Failure to follow permit requirements
- Working without carbon monoxide monitors on air compressors supplying breathing air
- Jamming a dead man switch
- Smoking in unauthorized area
- Circumventing Lockout/Tagout procedure
- Improper shoring/sloping in trench/excavation
- Knowingly using defective equipment
- Any situation/condition deemed likely to cause serious physical harm or death



## **SECTION I**

### **CLOSURE PLANS, POST-CLOSURE PLANS, AND FINANCIAL REQUIREMENTS**



## SECTION I. CLOSURE PLANS, POST-CLOSURE PLANS, AND FINANCIAL REQUIREMENTS

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## **SECTION I. CLOSURE PLAN, POST-CLOSURE PLANS, AND FINANCIAL REQUIREMENTS**

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## **SECTION I. CLOSURE PLANS, POST-CLOSURE PLANS, AND FINANCIAL REQUIREMENTS**

### **LIST OF ATTACHMENTS**

Attachment I-1	Location Map
Attachment I-2	Site Plan
Attachment I-3	Maximum Waste Capacity Calculations
Attachment I-4	Soil Sampling Plan
Attachment I-5	Closure Cost Estimate Calculation
Attachment I-6	Financial Assurance Liability



## **SECTION I. CLOSURE PLANS, POST-CLOSURE PLANS, AND FINANCIAL REQUIREMENTS**

### **I-1 INTRODUCTION**

The Haverhill Plant is a chemical production facility located in Scioto County, Ohio. The plant consists of several production units that produce the following primary products: phenol, , acetone, alpha-methyl styrene, and co-product ACP Solution. Another material: AMS intermediates, may be produced as a product or burned as a non-hazardous waste. The main feedstock used is cumene. Hazardous wastes are generated, stored, and treated at the plant.

This section of the permit application describes how the plant will perform RCRA closure of the hazardous waste management units at the plant. This section has been prepared in accordance with the requirements of OAC Title 3745: 50-44-(A)(13) through (17), 55-10 through 19, 55-42, 55-43, 55-12(A)(1),(2),(4), and (20), 55-14, 55-13(A), 55-97, 57-51, 55-44, and 55-47. This Closure Plan provides an overview of the units to be closed, the proposed closure procedures, and related information. The plant will maintain a copy of the approved Closure Plan and all revisions to the plan on site.

Three aboveground storage tanks (2003-F, 2104-F, AND 2105-F) and two hazardous waste burning boilers (2001-UC/UE) manage hazardous waste at the plant and are considered in this Closure Plan: A location map and site plan showing the location of these hazardous waste management units are provided in Attachments I-1 and I-2.

### **I-2 PARTIAL AND FINAL CLOSURE [OAC 3745-55-12]**

As provided in 3745-50-10, the following definitions apply:

**Partial closure** means the closure of a hazardous waste management unit in accordance with the applicable closure requirements of Chapters 3745-54 to 3745-57 and 3745-205 or 3745-65 to 3745-69 and 3745-256 of the Administrative Code at a facility that contains other active hazardous waste management units. For example, partial closure may include the closure of a single tank (including its associated piping and underlying containment systems), boiler, or other hazardous waste management unit, while other units at the facility continue to operate.



**Final closure** means the closure of all hazardous waste management units at the facility in accordance with all applicable closure requirements so that hazardous waste management activities under Chapters 3745-54 to 3745-57 and 3745-205 or 3745-65 to 3745-69 and 3745-256 of the Administrative Code are no longer conducted at the facility unless subject to the provisions in rule 3745-52-34 of the Administrative Code.

Therefore, partial closure refers to the closure of any one or more of the hazardous waste units at the plant without closing all of the units at the plant. Final closure refers to the closure of all or the last hazardous waste units at the plant. Actual closure activities will be the same, independent of partial or final closure.

### **I-3     MAXIMUM WASTE INVENTORY: [OAC 3745-55-12]**

The maximum inventory of RCRA-regulated wastes stored in each of the permitted storage tank units is summarized in Table I-1. Capacity calculations for each unit are presented in Attachment I-3.

**TABLE I-1. MAXIMUM WASTE INVENTORY**

Unit	Maximum Waste Capacity (gallons)	Type of Waste Handled	Hazardous Waste Code <sup>1</sup>
Tank 2104-F	200,548	HHC	K022
Tank 2105-F	249,962	HHC	K022
Tank 2003-F	200,548	LHC	D001

The maximum waste inventory of Boilers 2001- UC/UE consists of the volumetric capacity of the waste fuel piping between the storage tanks and the boilers. The boilers cannot be filled with liquid waste; therefore, the volume of the combustion chamber (2,051 ft<sup>3</sup>/boiler) is not considered as potential inventory volume. The total amount of piping that may contain hazardous waste is approximately 1,000 lineal feet of 2" diameter pipe. The volume of hazardous waste in this piping is less than 200 gallons, which is less than 0.1% of each of the tank's inventory and is therefore not considered separately.

<sup>1</sup> Waste codes D018 and D035 were generated prior to 2011. They are no longer being generated.



The hazardous waste contained in the permitted units consists of either heavy hydrocarbons (HHC) which is a listed hazardous waste (K022) and exhibits a hazardous waste characteristic , or light hydrocarbons (LHC) which exhibits several hazardous waste characteristics (D001.) More information regarding the wastes is provided in Section C of this permit application.

#### **I-4 SCHEDULE FOR CLOSURE: [OAC 3745-55-12; 3745-55-13]**

OAC 3745-55-13 defines the time periods allowable for closure. Table I-2 summarizes the requirements and provides a general schedule for the closure of the facility or any of the active units. The schedule includes the total time required to close any or all of the units. The plant intends to operate the facility indefinitely and closure of the entire operation is not anticipated. For regulatory purposes, however, Owner/operator has estimated a tentative final closure date for the tanks of 30 years from the present (approximately 2050).

**TABLE I-2. CLOSURE SCHEDULE**

Item	Description	Scheduled Completion (Days)
1	Plant notifies Ohio EPA that closure will begin	No later than 45 days prior to beginning closure activities
2	Beginning of Closure (receipt of final volume of hazardous waste	Day 0
3	Plant prepares sub-contracts, /material, and equipment to begin closure	Day 30
4	Last waste disposal in boilers or removal off-site	Day 90
5	Engineering assessment of secondary containment structures for leakage/spills	Day 90
5	Cleaning and decontamination of hazardous waste units	Day 150
6	Soil sampling and analysis beneath secondary containment, if necessary	Day 150
7	Removal of all hazardous waste and debris off-site	Day 180
8	Submittal of certification of closure	Day 240

##### **I-4.1 Time Allowed for Closure**

As indicated above, the plant anticipates that all hazardous wastes will be removed from the site in accordance with the approved closure plan within 90 days from receipt of the final volume of waste at the unit or facility. The plant also anticipates that all closure activities will be completed within 180 days from receipt of the final volume of waste at the unit or facility.



The process operations at the Haverhill Plant are continually being improved. These changes may result in extended periods of time where hazardous wastes are not generated and therefore do not need to be stored. These periods may last for a period of months to more than one year. Owner/operator anticipates that future changes may result in conditions where hazardous wastes are again generated and need to be stored at the plant. OAC Section 3745-55-12(d)(2) provides for an extension of the time allowed for closure, if a management unit may receive additional waste in the future.

Given the circumstance that hazardous waste may not be generated for a period of more than one year, but may be generated later, Owner/operator requires an extension of the period between the time a volume of hazardous waste is received and the time closure should begin.

Owner/operator will maintain the storage tanks and boilers in a condition suitable to receive and destroy additional hazardous wastes when they are generated. Therefore, Owner/operator will have the capacity to receive additional hazardous waste. In addition, Owner/operator will continue to operate in compliance with the existing permit and will restart operation, maintenance, and inspection requirements for the tanks and boilers described in the permit prior to their receipt of additional hazardous waste. Therefore, Owner/operator will meet the requirements described above to allow an extension of the time period between receiving wastes and closure.

#### **I-4.2 Extension for Closure Time**

Owner/operator may require additional time for both the 90-day waste removal limit and the 180-day limit for completing all closure activities. If an unanticipated need does develop, Owner/operator will submit a petition to Ohio EPA for a revised schedule for closure which justifies the additional time required. If a petition is submitted, the request will be justified by demonstrating one of the following:

- Waste removal or closure activities require longer than 90 or 180 days, respectively.
- The unit or facility has capacity to receive additional wastes.
- Closure would be incompatible with continued operation. If this does occur, Owner/operator will demonstrate that all steps have and will be taken to prevent threats to human health and the environment from the unclosed but inactive facility.



**I-5     CLOSURE PERFORMANCE STANDARD: [OAC 3745-55-11]**

This closure plan is designed to ensure that the waste management units at the site will be “clean-closed” so that

- The need for further maintenance or controls after closure is eliminated, and
- ☐ The need for post-closure activity is eliminated.

The plan is also designed to minimize the release of hazardous waste, leachate, or impacted rainfall to the air, groundwater, surface water, and surrounding land during the closure activities.

Owner/operator intends to remove all of the hazardous waste from the RCRA-permitted tanks and boilers during closure of those units. All hazardous waste on-site at the time of closure for any unit will be properly disposed. Owner/operator also believes that its use of best management practices to minimize spills and releases throughout the life of the facility will minimize the possibility of contamination that could require post-closure care. Good housekeeping is continuously emphasized to reduce decontamination and clean-up requirements for closure to the extent possible.

**I-5.1    Disposition of Waste and Residue**

Any hazardous waste remaining at the start of closure will either be burned in the boilers or disposed of off-site, at a hazardous waste treatment facility.

Any residue in the piping is either LHC or HHC or material that has been mixed with those materials; therefore any residue in the piping will need to be disposed of as hazardous waste subject to the land disposal restrictions (LDR).

Ash removed from the boiler will still be considered as K022. However, in accordance with 3745-270-40, the ash may not be subject to the LDR and may be disposed of at a permitted hazardous waste landfill.

The table in 3745-270-40 (A)(1) defines the following values for wastes that carry the D001, , and K022 waste codes:



EPA hazardous waste number	Waste description and treatment/regulatory subcategory	Regulated hazardous constituent		Wastewaters	Nonwastewaters
		Common name	CAS <sup>2</sup> number	Concentration <sup>3</sup> in mg/l <sup>5</sup> ; or technology code <sup>4</sup>	Concentration <sup>5</sup> in mg/kg <sup>5</sup> unless noted as "mg/l TCLP"; or technology code <sup>4</sup>
D001 <sup>9</sup>	Ignitable characteristic wastes, except for the paragraph (A)(1) of rule 3745-51-21 of the Administrative Code high TOC subcategory.	NA	NA	DEACT and meet standards in rule 3745-270-48 of the Administrative Code <sup>8</sup> ; or RORGS; or CMBST	DEACT and meet standards in rule 3745-270-48 of the Administrative Code <sup>8</sup> ; or RORGS; or CMBST
	High TOC ignitable characteristic liquids subcategory based on paragraph (A)(1) of rule 3745-51-21 of the Administrative Code-greater than or equal to ten per cent total organic carbon. (Note: This subcategory consists of nonwastewaters only.)	NA	NA	NA	RORGS; CMBST; or POLYM
K022	Distillation bottom tars from the production of phenol/acetone from cumene	Toluene	108-88-3	0.08	10.0
		Acetophenone	96-86-2	0.01	9.7
		Diphenylamine (difficult to distinguish from diphenylnitrosamine)	122-39-4	0.92	13.0
		Diphenylnitrosamine (difficult to distinguish from diphenylamine)	86-30-6	0.92	13.0
		Phenol	108-95-2	0.039	6.2
		Chromium (total)	7440-47-3	2.77	0.6 mg/l TCLP
		Nickel	7440-02-0	3.98	11.0 mg/l TCLP

Samples will be collected of the ash that is removed from the boilers. The samples will be analyzed for the constituents listed in the above table. If the sample results indicate that the ash meets the limits, then the ash can be disposed of in a permitted hazardous waste landfill.

The facility will evaluate the waste generated at the time of closure and will use a legal means of disposal that is compatible with the waste.

### I-5.2 Disposition of Equipment

The following discussion provides the regulatory framework for the disposition of the equipment after closure.

#### I-5.2.1 Tanks, Piping, and Other Fuel Handling Components

This closure plan assumes that Owner/operator intends to continue using the tanks for non-hazardous material storage and to reuse, recycle or dispose of the metal piping and components of the fuel delivery system to the boilers. Owner/operator will apply the standards provided in 3745-51-07(A) and (B). Piping and components that contained hazardous waste will be deemed empty and free of waste by pumping or removing all material from the system with the existing conveyance components and practices.



Section 33745-51-04(A) #13 specifically addresses scrap metal as an exclusion, with Section 374551-01(C), providing further definition of the types of scrap metal.

The piping may be cut and sorted to assist in its recycling, it fits the definition of “excluded scrap metal” and is therefore excluded from being considered a hazardous waste. If the piping will be disposed of, it will be considered as hazardous debris, as described below.

#### **I-5.2.2 Boiler Internals**

The internal boiler components that have been in contact with the fuels consist of the inner surface of the refractory and the boiler tubes in the combustion zone. The inner surface of the refractory likely has both ash and fused material adhering to the surface. The boiler tubes in the combustion zone will also likely have ash adhering to the surface. Any residue (ash or fused material) in Boilers UC is considered K022 as described above. Residue and ash in Boiler UE will only be considered hazardous waste if it exhibits a characteristic. If HHC is combusted in UE, the ash will be considered K022 as described above.

Any refractory that has ash or fused material that cannot be removed would be considered hazardous debris, based on Section 3745-270-02. Boiler tubes that contain any remaining hazardous waste and that will be disposed of would also meet this definition.

This closure plan assumes that the boiler tubes will either be recycled or disposed of as waste. If the boiler tubes will be recycled, they will be excluded from the hazardous waste requirements, similar to the fuel piping described above, after residues are removed from them. If the boiler tubes are disposed, they will be considered hazardous debris, similar to the piping to be disposed of described above.

#### **I-5.2.3 Other Components**

Other boiler components, including the boiler shell, stack, and other miscellaneous pieces, that have not been in contact with the hazardous waste fuels or residues, and have not been contaminated by spills or leakage, can be recycled or disposed of as normal construction debris.

### **I-6 CLOSURE PROCEDURES: [OAC 3745-55-12(B)]**

This section of the closure plan describes the specific step-by-step procedures to be followed in closing the hazardous waste units at the facility. Specifically, it addresses inventory removal; disposal or decontamination of all related equipment, structures, and residuals; and the closure



procedures for each major type of the permitted units: tanks and boilers. Minor equipment (i.e.: piping and pumps) are discussed within each major type of equipment.

## **I-6.1 Storage Tank Closure**

### **I-6.1.1 Inventory Removal**

To the extent possible, at closure, the plant will stop filling the storage tanks and will process the waste stored in the tanks through the boilers in accordance with the closure schedule described in Section I-4. The last quantity of hazardous waste will be consumed in the on-site boilers or disposed.

### **I-6.1.2 Decontamination**

In order to safely clean and decommission the tanks and ancillary systems, the following tasks will be performed during the closure activities:

- Clean the concrete secondary containment dikes by dry sweeping.
- Seal any cracks in the containment dike.
- Remove any excess material from the tank.
- Decontaminate the tank interior, using one of the following decontamination methods (steam cleaning, detergent washing, grit-blasting, scarification, or vacuuming).
- Decontaminate all appurtenant piping and pumping equipment.
- Transport/properly dispose of all waste material (rinsate, PPE, etc.) generated during the decontamination process.

The pumps and piping associated with the tanks will be emptied so they can be reused, recycled, or disposed.

The plant may select one or more of many cleaning and decontamination methods to remove any remaining hazardous wastes and to clean the tanks, equipment, and containment, as necessary.

The methods may include steam cleaning; pressure washing; detergent washing or solvent washing; grit-blasting; scarification; vacuuming; mechanical scraping; or other similar means.

Owner/operator anticipates that, after decontamination, the tanks and associated equipment will be used for the storage and handling of other non-RCRA-regulated industrial chemicals.

Alternatively, the equipment may be dismantled and sold as scrap or recycled. In accordance



with section 3.10 of Ohio EPA closure guidance, if the equipment will be used for industrial uses or recycled, it may not require cleaning to the level of established decontamination standards.

If Owner/operator decides to use the equipment for other purposes after RCRA closure, and these purposes would require additional cleaning, then Owner/operator will submit a revised closure plan as a permit modification that will further describe additional decontamination methods and any applicable cleanup standards.

Rinsates generated during closure will be recycled into other plant processes if possible. If it is not possible to recycle the rinsates, they will be characterized as to whether they exhibit a hazardous characteristic or if they must be considered a “listed” hazardous waste. Based on the characterization, the rinsates will either be manifested and shipped off site for treatment/disposal as a hazardous waste, or disposed of as a non-hazardous material. If detergent washing is used, the area surrounding the equipment or containment to be decontaminated will be prepared to capture the washing and rinse liquids and prevent them from reaching the ground surface. If equipment or secondary containment structures cannot be decontaminated, they will be disposed as hazardous waste.

Owner/operator records the types of waste stored in each unit; therefore, the specific analytical parameters for each unit will depend on the waste(s) stored in the unit. Table I-3 summarizes the analytical parameters and analytical methods used in analyzing the final rinsate and soil samples (if necessary) for the known constituents from each unit.



**TABLE I-3. ANALYTICAL PARAMETERS AND METHODS**

<b>Parameters</b>	<b>Constituent</b>	<b>Preparation Method (SW 846)</b>	<b>Analytical Method (SW-846)</b>
Ignitibility	NA	ASTM D 93 80 or 3278 78	
Metals and Chlorine	Antimony	1311	6010B
	Arsenic		
	Barium		
	Beryllium		
	Cadmium		
	Chromium		
	Lead		
	Mercury	1311	7470A
	Total Chlorine/Chloride	SW-846 9075 or ASTM D4208	Method 9075 (XRF) or 9056 (IC)
Volatile Organics	n-Butylbenzene	5030B/5035	8260B
	sec-Butylbenzene		
	tert-Butylbenzene		
	Isopropylbenzene		
	n-Propylbenzene		
Semivolatile Organics	Acetophenone	3540/3541	8270D
	$\alpha$ -Methyl Styrene		
	Phenol		
	Phenolic Polymers		
	Cumyl Phenol		

**I-6.1.3 Soil Sampling**

If a spill or leak occurred and a failure of the secondary containment was evident concurrent with the spill or leak, or if there is any visible indication that a release may have occurred which could have impacted soil or water, Owner/operator will perform soil sampling in accordance with Attachment I-4 to evaluate the possible impact to soils. Samples will be analyzed for the constituents listed in Table I-3.

**I-6.1.4 Disposal**

As described above, after being cleaned, the tanks, piping and other metal components may be reused, or they may be recycled without being considered as a hazardous waste. Alternatively, the piping and boiler tubes can be disposed of as hazardous debris similar to the refractory as described below.



**I-6.1.5 Remedial Activities**

If contamination is found and possible remediation of environmental media needs to be considered, Owner/operator will submit a more detailed sampling plan as a revision to this Closure Plan and as a permit modification, in accordance with OAC 3745-55-12(c). The sampling plan will describe the sampling protocols, constituents to be analyzed, analytical methods, quality assurance/quality control procedures, and clean-up standards that will be compared against the sampling results. Following plan approval, sample(s) will be collected from each area that may require remediation.

If remediation is required, Owner/operator will submit an amendment to the closure plan that will cover remediation under OAC 3745-55-12(C) and (D) for approval by Ohio EPA at that time.

If Owner/operator can provide documentation that no releases have been made to the secondary containment, or documentation that if releases have occurred they have been removed and the affected areas decontaminated, and that no failures to the secondary containment existed when the release occurred, then further decontamination of the secondary containment may not be required. The registered engineer described above will make the assessment of whether or not additional decontamination is required.

**I-6.2 Boiler Closure****I-6.2.1 Inventory Removal**

As described above, to the extent possible, Owner/operator will destroy all hazardous waste on-site in the boilers. The last quantity of hazardous waste will be removed by burning in the boilers or by disposal.

All ash deemed to be hazardous waste will be removed from the firebox by dry vacuuming or other mechanical means.

**I-6.2.2 Decontamination**

After the hazardous waste is removed from the piping and boilers, and if they are to be disposed of, they will be decontaminated using one of the decontamination methods (steam cleaning, detergent washing, grit-blasting, scarification, vacuuming, or other equivalent means) mentioned in I-6.1.2.



### **I-6.2.3 Disposal**

#### **Piping and Boiler Tubes**

As described above, after being cleaned, the piping, boiler tubes, and other metal components may be used for other service or may be recycled without being considered as a hazardous waste. Alternatively, the piping and boiler tubes can be disposed of as hazardous debris similar to the refractory as described below.

#### **Refractory**

As described above, any refractory that has ash or fused material on it that cannot be removed should be considered as hazardous debris as defined in 3745-51-03. Table 1 of 3745-270-45 provides information related to the treatment standards for hazardous debris. Since the refractory surfaces that are contaminated with the hazardous waste have been subjected to the thermal destruction listed in Table 1 of 3745-270-45, the refractory surfaces meet the exclusion listed in 3745-51-03(F)(1). Therefore, the refractory can be landfilled as a hazardous waste that meets the land disposal restriction without further cleaning.

#### **Other Components**

Any system components that have not been in direct contact with the hazardous waste may be recycled or disposed of as normal construction debris.

### **I-7 CLOSURE OF CONTAINERS: [OAC 3745-55-78; OAC 3745-55-12]**

Not applicable; Owner/operator's container storage areas are generator status and not permitted.

#### **I-7.1 Other Closure Requirements**

The Haverhill site does not include the following management units: Waste Piles: OAC 3745-56-58; Surface Impoundments via Waste Removal: OAC 3745-56-28; Incinerators: OAC 3745-57-51; Landfills: OAC 3745-56-80; Land Treatment Facilities: OAC 3745-56-80; and Miscellaneous Units: §270.23(a)(2), OAC 3745-57-91 through 93. Therefore, closure requirements associated with those units do not apply.

### **I-8 PERSONNEL SAFETY AND FIRE PREVENTION**

All closure activities must comply with plant policies and procedures that govern worker safety, contractor safety, and obtaining and using safe operating permits. These procedures may be found in the plant's operating procedures (refer to section g: contingency plan for more details



regarding the plant's operating procedures. Owner/operator anticipates that a specific Health and Safety Plan will be prepared prior to the initiation of actual closure activities and that the work will be managed according to that plan.

**I-9 CERTIFICATION OF CLOSURE: [OAC 3745-55-16; 3745-54-28]**

The independent professional engineer and/or his/her representative will be on site during all critical closure activities shown in Table I-2. The Owner/Operator will notify the Ohio EPA in writing prior to each critical closure activity.

Within 60 days of completion of the closure of any hazardous waste management unit on the facility, Owner/operator will submit to the Director of OEPA a certification signed by both a corporate official and an independent professional engineer stating that the closure has been conducted in accordance with the approved closure plan. Documentation supporting the engineer's certification will be maintained at the Haverhill Plant, and furnished to the Director until the Director releases Owner/operator from the financial assurance requirements for closure.

**I-10 CLOSURE COST ESTIMATE: [OAC 3745-50-44; 3745-55-42]**

The cost estimate to implement this Closure Plan includes the activities described in the Closure Procedures discussed above:

- Removal of waste inventory;
- Decontamination;
- Disposal of wastes, residues and materials; and
- The oversight and certification of closure.

To provide a conservatively high, worst-case estimate of the closure costs, the plant will assume that the tanks are full and the boilers are not able to destroy the remaining inventory, so it must be shipped off-site for disposal at a commercial Hazardous Waste Combustor. Basic assumptions include:

- Third-party operators will implement the closure plan.
- Major on-site equipment and structures will be functional.
- Necessary off-site reclamation facilities are within 200 miles of the facility.
- Catastrophic release causing widespread degradation has not occurred.



- Operating records delineating the contents of the waste management units are available.

Closure cost estimate calculations are provided in Attachment I-5 for each hazardous waste management unit. A summary of the original estimated closure cost for each unit is presented in Table I-4.

**TABLE I-4. CLOSURE COST ESTIMATE SUMMARY<sup>(1)</sup>**

Unit	Original Closure Cost Estimate (\$)	Original Cost Basis (Year)
Tank 2003-F	124,660	1997
Tank 2104-F	664,730	1997
Tank 2105-F	788,990	1997
Boiler 2001-UC	40,790	1999

<sup>(1)</sup> Closure cost estimate calculations are included for the active units only.

The estimates for the three storage tanks were originally prepared in 1997 dollars; the estimates for the boiler was originally prepared in 1999 dollars. Annual updates to the closure cost estimates have been provided as required by OAC 3745-55-42(B). The closure cost estimate will be kept on file at the Haverhill plant, and will be revised whenever changes in the closure activities or the closure plan increase the cost of closure. If, during a calendar year, the closure cost estimate is not affected by changes in closure activities, the closure cost estimate will be adjusted to reflect changes brought about by economic inflation. Adjustments due to inflation will be calculated and submitted as a Class 1 permit modification at the end of the first quarter of each year.

**I-11 FINANCIAL ASSURANCE MECHANISM FOR CLOSURE: OAC 3745-50-44; 3745-55-43; 3745-55-51**

Owner/operator has selected the Surety Bond to demonstrate financial responsibility for closure of its hazardous waste management units and liability coverage. An updated copy of the required documentation is included in Attachment I-6.



**I-12 POST-CLOSURE PLAN/CONTINGENT POST-CLOSURE: OAC 3745-50-44; 3745-50-44(c)(3); 3745-50-44(c)(4); 3745-50-44(c)(5); 3745-50-44(c)(7); 3745-5044(c)(9); 3745-55-18; 3745-55-97; 3745-55-97; 3745-56-28; 3745-56-28; 3745-56-58; 3745-56-58; 3745-56-80; 3745-57-10; 3745-57-93**

A post closure plan will not be needed for the tanks or the boilers because they will be clean closed and no post-closure care will be required.

**I-13 POST-CLOSURE COST ESTIMATE: OAC 3745-50-44; 3745-55-44**

A post closure cost estimate will not be needed for the tanks or the boilers because they will be clean closed and no post-closure care will be required.

**I-14 FINANCIAL ASSURANCE MECHANISM FOR POST-CLOSURE CARE: OAC 3745-50-44; 3745-55-45; 3745-55-51**

A post closure cost estimate will not be needed for the tanks or the boilers because they will be clean closed and no post-closure care will be required.

**I-15 LIABILITY REQUIREMENTS: OAC 3745-50-44; 3745-55-47**

The Owner/operator Plant has selected the Surety Bond to demonstrate financial responsibility for closure of its hazardous waste management units and liability coverage. An updated copy of the required documentation is included in Attachment I-6.

**I-16 PHENOLIC WASTEWATER TREATMENT SYSTEM**

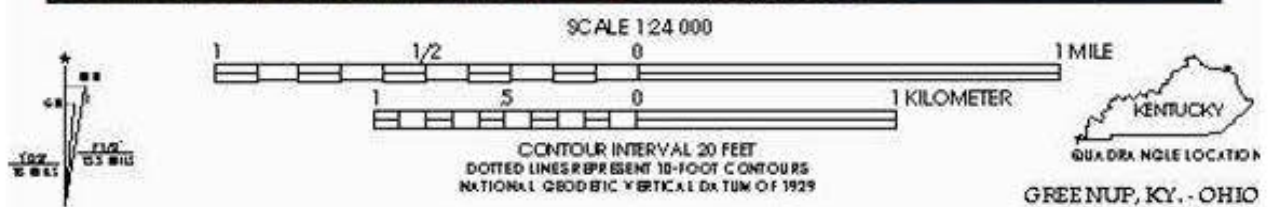
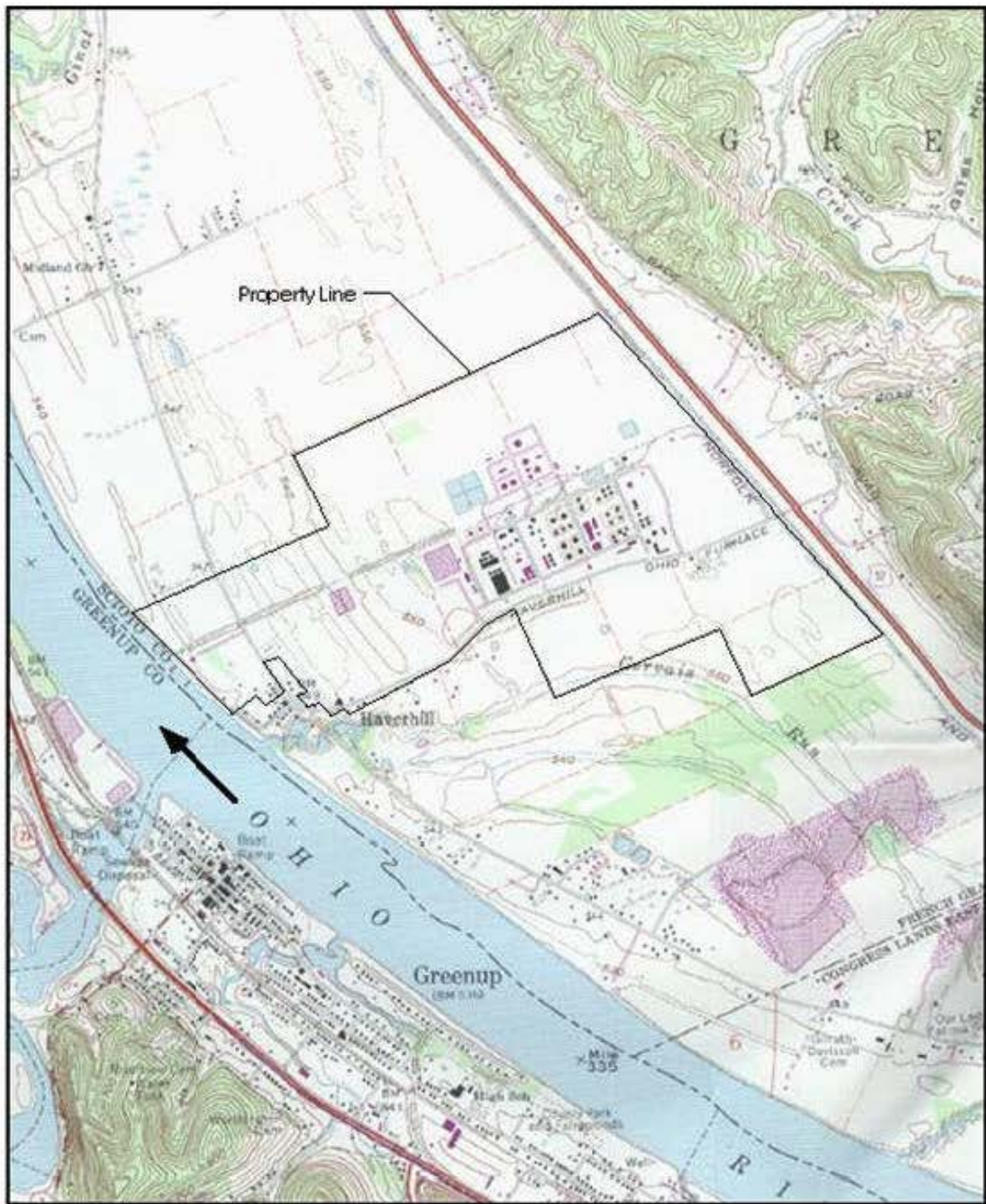
This unit has been RCRA closed and is no longer in this permit application.



## Attachment I-1

### Location Map





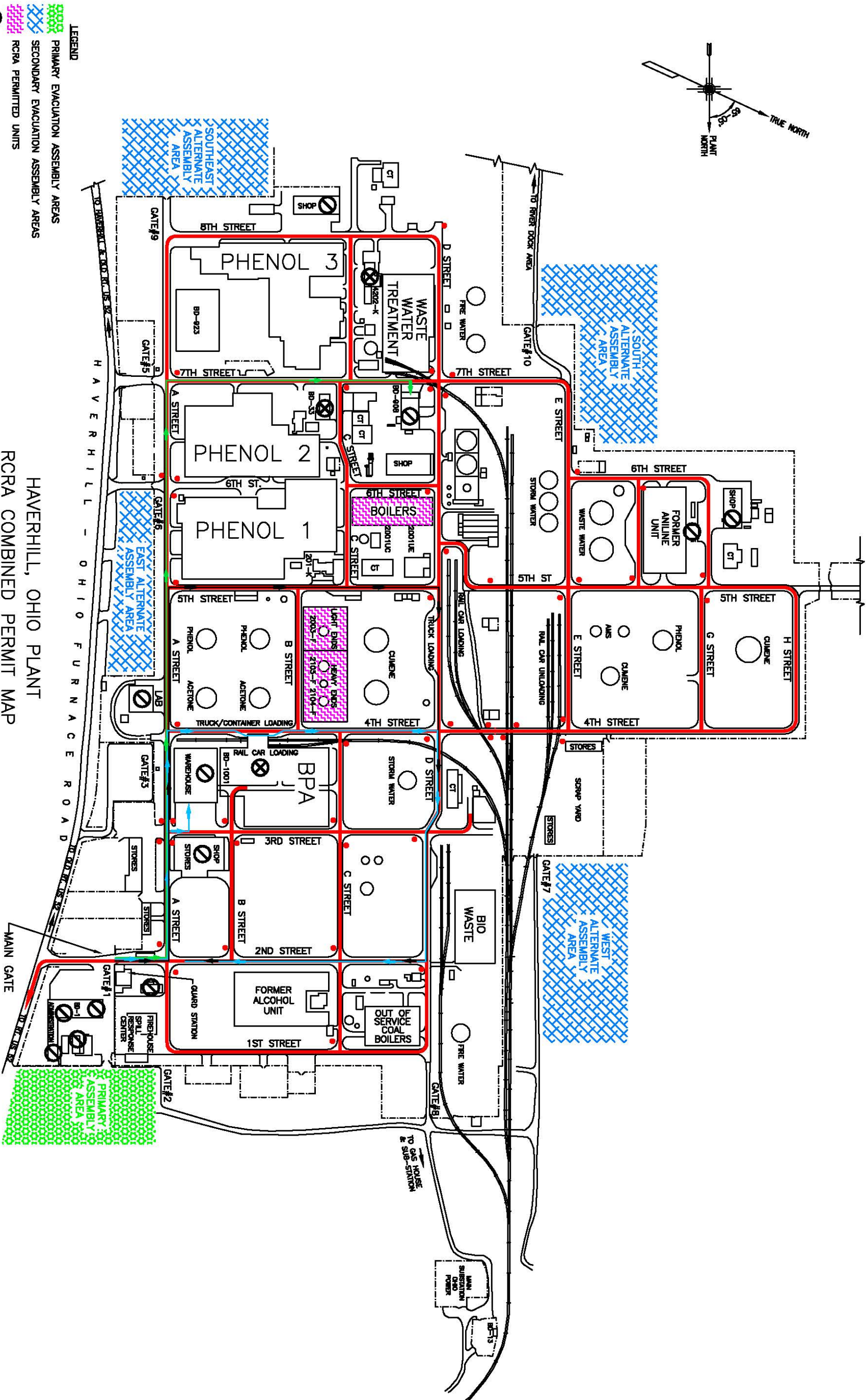
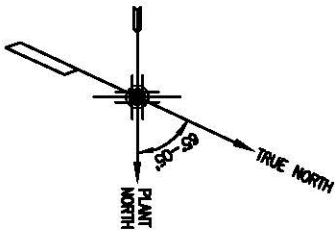
**General Location of Facility**  
 Exhibit I-1: Location Map



**Attachment I-2**

**Site Plan**





- LEGEND
- PRIMARY EVACUATION ASSEMBLY AREAS
  - SECONDARY EVACUATION ASSEMBLY AREAS
  - RCRA PERMITTED UNITS
  - CONTROL ROOMS & SHELTER-IN-PLACE W/ MUSTER READERS
  - SHELTER-IN-PLACE W/ MUSTER READERS
  - EVACUATION ROUTES
  - PHENOL/ACETONE/AMS TRUCK ROUTE
  - BPA TRUCK ROUTES (RETRACES BACK)
  - CONTAINER REMOVAL TRUCK (RETRACES ROUTES TO EXIT)
  - STOP SIGNS

0 100' 200' 400'  
GRAPHIC SCALE

# HAVERHILL, OHIO PLANT RCRA COMBINED PERMIT MAP

NOTES:  
ONLY GATE #1 (MAIN GATE) IS MANNED 24 HOURS/DAY  
GATES #1, #5, #8 & #9 HAVE CARD READER TURNSTILES  
ALL OTHER PERIMETER GATES ARE LOCKED



### Attachment I-3

#### Maximum Waste Capacity Calculations



## CALCULATIONS OF MAXIMUM WASTE INVENTORY

### Tank 2003-F

Dimensions: 32.67 feet inside diameter  
32.00 feet high

Calculation:

$$\begin{array}{lcl} \text{Total} & = & \frac{3.14}{4} (32.67 \text{ feet})^2 \times 32 \text{ feet} \times 7.48 \frac{\text{gallons}}{\text{feet}^3} \\ \text{Volume} & & \end{array}$$

$$= \frac{3.14}{4} (1067.33 \text{ feet}^2) \times 32 \text{ feet} \times 7.48 \frac{\text{gallons}}{\text{feet}^3}$$

Total Volume = 200,548 gallons Tank 2003-F
---

OHIO EPA. DHMM

OCT 29 2001

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## CALCULATIONS OF MAXIMUM WASTE INVENTORY

### Tank 2104-F

Dimensions: 32.67 feet inside diameter  
32.00 feet high

Calculation:

$$\begin{aligned}\text{Total Volume} &= \frac{3.14}{4} (32.67 \text{ feet})^2 \times 32 \text{ feet} \times 7.48 \frac{\text{gallons}}{\text{feet}^3} \\ &= \frac{3.14}{4} (1067.33 \text{ feet}^2) \times 32 \text{ feet} \times 7.48 \frac{\text{gallons}}{\text{feet}^3}\end{aligned}$$

Total Volume = 200,548 gallons Tank 2104-F
---

### Tank 2105-F

Dimensions: 36.33 feet inside diameter  
32.25 feet high

Calculation:

$$\begin{aligned}\text{Total Volume} &= \frac{3.14}{4} (36.33 \text{ feet})^2 \times 32.25 \text{ feet} \times 7.48 \frac{\text{gallons}}{\text{feet}^3} \\ &= \frac{3.14}{4} (1320 \text{ feet}^2) \times 32.25 \text{ feet} \times 7.48 \frac{\text{gallons}}{\text{feet}^3}\end{aligned}$$

Total Volume = 249,962 gallons Tank 2105-F
---

OHIO EPA. D4MM

OCT 29 2001

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Attachment I-4

Soil Sampling Plan



## Attachment I-4 Soil Sampling Plan

### I. Objectives: Soil Sampling

#### 1. Project /Task Description/Overview

Haverhill is required to sample, analyze, and evaluate the soil at the plant in accordance with release investigation and remediation.

#### 2. What Information or Analysis are Needed?

**Sample Matrix** – Aqueous, Soil, Sludge, etc.

**Parameter** – What chemical or property analyzing for

**Detection Level** – What is the needed detection level (1/mg/kg, 1mg/l, 1 ug/kg, 1ug/l, etc)

**Analytical Method** – What EPA method is required

Sample Matrix	Parameter	Detection Level	Analytical Method
Soil	Various	Various	Method 6010, 7471, 8260, 8270

### II. Sampling Strategy and Specifications:

- Sampling Strategy:** Soil sampling is performed when the contamination level of the soil is unknown. The decision to sample the soil is based on personnel knowledge and release history.
- Type of Sample:** The sample collected is a grab or composite sample, depending on the analysis being performed.
- Volume of Sample required:** The volume of the jar depends upon the analyses to be performed and shall be coordinated with the laboratory performing the analysis.
- Type of Sample Container:** Samples are placed in precleaned glass jars with Teflon lined lids.
- Sample Collection Method:** Samples are collected from trowel, core sampler or similar apparatus.
- Field Sample Preparation Requirements:** Field sample preparation includes obtaining sample jars, coolers, packing materials, and sampling equipment.

### III. Quality Assurance and Quality Control:

#### 1. Blanks and Additional Samples

- Field Blank (bias due to field or sampling conditions):** N/A
- Equipment Blanks or Sampling Blanks (Bias due to equipment used):** N/A
- Trip Blanks (bias due to sample transportation and handling):** Trips blanks are grabbed if applicable to the sampling methodology.
- Duplicate Samples (Variability of non-homogeneous samples or laboratory precision on homogeneous samples):** N/A



- 1.5. **Spiked Samples (Laboratory Accuracy):** N/A
- 1.6. **Field Split Samples (Laboratory precision or reproducibility):** N/A
- 2. **Specific Sampling or Field Equipment Decontamination Procedures:** New bottles are used for each sample. Reusable sampling equipment will be thoroughly washed, rinsed and rinsed with deionized water.

## IV. Pre-Sampling Event Planning

- 1. **Document specific sampling and collection procedures:**
  - 1.1. Haverhill's Environmental Department will determine if soil analysis will be necessary.
  - 1.2. Sampling of soil is performed according to protocol similar to that outlined in EPA's Test Methods for Evaluating Solid Waste (SW-846) and Methods for Chemical Analysis of Water and Wastes (EPA600/4-79-020).
  - 1.3. Soils are sampled from undisturbed areas as much as practicable.
  - 1.4. Samples are placed in precleaned glass jars with plastic or Teflon lined lids.
  - 1.5. The sampler shall fill out a written chain of custody listing sample identification numbers, sample name, time and date collected accompanies the samples.
  - 1.6. A bound blank book shall be maintained in the plant Environmental Office.
    - 1.6.1. Any samples sent to an off-site laboratory for the purpose of environmental compliance or assessment shall be recorded in the log book.
    - 1.6.2. Information in the sample log book shall be sufficient to allow another person to return to the sampling site and reconstruct the sampling in the absence of the original collector.
  - 1.7. The sampler shall prepare the samples to be transported according to DOT requirements.
  - 1.8. After the sample courier leaves the site, copies of the completed Chain of Custody (COC) forms shall be filed.
  - 1.9. The Environmental Department shall maintain the file of all COCs in the analytical data file.
- 2. **Sampling Equipment Needed:** The sampling equipment needed can vary depending on the physical state of the soil and the analysis being performed. Sampling equipment may include trowel, core sampler or similar apparatus. All samples are placed in a precleaned glass jars with Teflon lined lids. Volumes sizes will vary.
- 3. **Field Equipment Needed:** Field equipment may include trowel, core sampler or similar apparatus to complete this sample.
- 4. **Sampling &/or Field Equipment Decontamination Procedures:** The sampler uses a precleaned or new jar each time a sample is taken. New equipment will be used each time a sample is collected where possible. Other equipment will be washed thoroughly, rinsed and then rinsed again with DI water for each sample.
- 5. **Sample types, numbers, volumes, containers, labels:** Soil samples can vary depending upon the type of analysis being performed. Regardless of the type of sample, the jars are labeled properly, the log book in the Environmental Department is filled out, and the (COC) is completed.
- 6. **Sample preservatives and holding times:** As per sampling methodology.
- 7. **Sample Security and Shipping procedures:** Sample security is provided by the COC completed by the person performing the sampling. Shipping procedures will vary depending upon laboratory and type of analysis.
- 8. **Sampling Event Documentation**
  - 8.1. **Person performing the sampling:** The person performing the sampling can vary however they should be an environmental department member or in direct supervision of an environmental department member.



- 8.2. **Weather Conditions and any other Significant Observations:** Observations are noted in the log book. Conditions such as odor or appearance are recorded.
- 8.3. **Specific Analytical Tests Sampling for:** The specific analytes being tested are determined by the situation driving the soil sampling and the appropriate analysis that needs to be performed. Depending upon the sample, EPA's Test Methods for Evaluating Solid Waste (SW-846) and Methods for Chemical Analysis of Water and Wastes (EPA600/4-79-020) are used.
- 8.4. **Sample Identification, Location, Date, Time, Type (grab or composite), and Appearance:** Sample name, date, time, type of sample, appearance, suspected contaminants, etc. are filled out on the sample log book.
- 8.5. **Number of Containers, volumes, preservatives:** Number of containers, volumes, and preservatives can vary depending upon the type of analysis. All analyses are performed within the specifications of the EPA's Test Methods for Evaluating Solid Waste (SW-846) and Methods for Chemical Analysis of Water and Wastes (EPA600/4-79-020).
- 8.6. **Calibration of field equipment:** N/A
- 8.7. **Field Measurements (pH, Temperature, Conductivity, etc.):** N/A
- 8.8. **Field Equipment Decontamination:** The sampler uses a precleaned or new jar each time a sample is taken. New equipment will be used each time a sample is collected where possible. Other equipment will be washed thoroughly, rinsed and then rinsed again with DI water after each sample. Disposable equipment will be discarded properly.
- 8.9. **Sampling Equipment used:** The sampling equipment needed can vary depending on the physical state of the waste and the analysis being performed. Any waste samples in the form of a liquid shall be collected with a drum thief. Any solid waste samples shall be collected with a trowel. All samples are placed in a precleaned glass jars with Teflon lined lids. Volumes sizes will vary.
- 8.10. **Sampling Equipment Decontamination:** New sampling equipment is used for each sample taken.
- 8.11. **Descriptions of any variances of standard sampling procedures or protocols:** Resampling will take place if sample jars become broken during transport.
9. **Sampling documentation method used (Field notebook, Pre-printed form, field electronic device such as Marlin, lap-top, palm pilot, etc. ):** The sampler uses a label and a Chain of Custody.
10. **Chain of Custody procedures (Use of Sample Seals, Cooler Seals, forms used, how to fill out forms):** The chain of custody is filled out by the sampler once the sampling has been completed.



Attachment I-5

Closure Cost  
Estimate Calculation



## **Attachment I-5**

### **Closure Cost Estimate Calculation**



## **CLOSURE COST ESTIMATE**

- 1.0 RCRA STORAGE TANKS**
- 2.0 BIF RULE REGULATED BOILERS**
- 3.0 INFLATION ADJUSTED COST ESTIMATE**



## **1.0 RCRA STORAGE TANKS**

The next three pages of this attachment show the closure cost estimate for the three RCRA storage tanks located at the Haverhill, Ohio facility.. The closure cost estimate was developed in 2012, based on recent tank cleaning events at the plant. The numbers presented here are not inflation adjusted values carried over from the previous RCRA permit.



**ESTIMATED CLOSURE COST  
FOR TANK 2003-F**

· Removal of Maximum Waste Inventory			
1 Laborer	\$54/hr. x 40 hrs.	=	2,160
· Disconnecting Piping			
2 Pipe fitters	\$54/hr. x 10 hrs.	=	1,080
· Decontamination of Piping (Steam Purge)			
2 Laborers	\$54/hr. x 24 hrs.	=	2,592
· Decontamination/Clean Tank			
2 Laborers	\$54/hr. x 10 hrs.	=	1,080
· Clean and Seal Secondary Containment			
2 Laborers	\$54/hr. x 10 hrs.	=	1,080
· Sampling and Analysis			
1 laborer	\$54/hr. x 8 hrs.	=	432
Analysis	\$500/sample x 4	=	2,000
· Light Hydrocarbon Waste & Residual Disposal			
199,000 gallons LHC Oil @\$0.611/gallon (transportation included)		=	121,589
1,000 gallons LHC Sludge @\$0.611/gallon (transportation included)		=	611
1,000 gallons Wash & Rinse Water @\$0.611/gallon (transportation included)		=	611
Disposal of Contaminated Clothing and Debris		=	1,000
· Project Foreman			
1 Foreman	\$56/hr. x 64 hrs.	=	7,168
· Certification by Professional Engineer		=	7,500
Subtotal			<u>\$ 148,903</u>
Contingency (10%)			<u>14,890</u>
<b>TOTAL</b>			<b>\$ 163,793</b>



**ESTIMATED CLOSURE COST  
FOR TANK 2104-F**

· Removal of Maximum Waste Inventory (HHC Liquid)			
1 Laborer	\$54/hr. x 40 hrs.	=	2,160
· Removal of Maximum Waste Inventory (HHC Residual Sludge)			
3 Laborer	\$54/hr. x 40 hrs.	=	6,480
Equipment Rental		=	75,000
· Piping & Pump Connection/Disconnection for Circulation of Solvent in Circulation and Tank Lines for Decontamination			
3 Pipe fitters	\$54/hr. x 40 hrs.	=	6,480
· Decontamination/Cleaning of Tank and Piping			
Pipe Cleaning (Circulation of Solvent through Recirculation Line, Steam & Flush)			
2 Laborer	\$54/hr. x 40 hrs.	=	4,320
Solvent	5,000 gallons@0.70/gallon	=	7,000
Cleaning of Internal Tank Surfaces (Scarification)			
5 Laborer	\$54/hr. x 80 hrs.	=	21,600
Clean and Seal Secondary Containment			
2 Laborers	\$54/hr. x 10 hrs.	=	1,080
· Additional Decontamination of Piping and Equipment			
3 Laborers	\$54/hr. x 60 hrs.	=	6,480
· Sampling and Analysis			
1 laborer	\$54/hr. x 8 hrs.	=	432
Analysis	\$500/sample x 4	=	2,000
· Disposal of Waste Materials (transportation included in values)			
Heavy Hydrocarbon Waste (185,500 gallon @ 0.591/gallon)		=	109,631
Heavy Hydrocarbon Waste Residual Sludge (14,500 gallon @ 0.591/gallon)		=	8,570
Cleaning Agent Disposal (5,000gallon @ 0.591/gallon)		=	2,955
Contaminated Wash Water Disposal (5,000gallon @ 0.591/gallon)		=	2,955
Contaminated Materials & Protective Clothing Disposal		=	1,000
· Project Foreman			
1 Foreman	\$56/hr. x 220 hrs.	=	12,320
· Certification by Professional Engineer			7,500
Subtotal			<u>\$ 277,963</u>
Contingency (10%)			<u>27,796</u>
<b>TOTAL</b>			<b>\$ 305,758</b>



### ESTIMATED CLOSURE COST FOR TANK 2105-F

· Removal of Maximum Waste Inventory (HHC Liquid)			
1 Laborer	\$54/hr. x 40 hrs.	=	2,160
· Removal of Maximum Waste Inventory (HHC Residual Sludge)			
3 Laborer	\$54/hr. x 40 hrs.	=	6,480
Equipment Rental		=	75,000
· Piping & Pump Connection/Disconnection for Circulation of Solvent in Circulation and Tank Lines for Decontamination			
3 Pipe fitters	\$54/hr. x 40 hrs.	=	6,480
· Decontamination/Cleaning of Tank and Piping			
Pipe Cleaning (Circulation of Solvent through Recirculation Line, Steam & Flush)			
2 Laborer	\$54/hr. x 40 hrs.	=	4,320
Solvent	5,000 gallons@0.70/gallon	=	7,000
Cleaning of Internal Tank Surfaces (Scarification)			
5 Laborer	\$54/hr. x 80 hrs.	=	21,600
Clean and Seal Secondary Containment			
2 Laborers	\$54/hr. x 10 hrs.	=	1,080
· Additional Decontamination of Piping and Equipment			
3 Laborers	\$54/hr. x 60 hrs.	=	6,480
· Sampling and Analysis			
1 laborer	\$54/hr. x 8 hrs.	=	432
Analysis	\$500/sample x 4	=	2,000
· Disposal of Waste Materials (transportation included in values)			
Heavy Hydrocarbon Waste (232,000 gallon @ 0.591/gallon)		=	137,112
Heavy Hydrocarbon Waste Residual Sludge (18,000 gallon @ 0.591/gallon)		=	10,638
Cleaning Agent Disposal (5,000gallon @ 0.591/gallon)		=	2,955
Contaminated Wash Water Disposal (5,000gallon @ 0.591/gallon)		=	2,955
Contaminated Materials & Protective Clothing Disposal		=	1,000
· Project Foreman			
1 Foreman	\$56/hr. x 220 hrs.	=	12,320
· Certification by Professional Engineer			7,500
Subtotal			<u>\$ 307,512</u>
Contingency (10%)			<u>30,751</u>
<b>TOTAL</b>			<b>\$ 338,263</b>



## **2.0 BIF RULE REGULATED BOILERS**

The next page of this attachment shows the closure cost estimate for the two RCRA boilers located at the Haverhill, Ohio facility. The closure cost estimate was developed in 2012, based on recent boiler closure events at the plant. The numbers presented here are not inflation adjusted values carried over from the previous RCRA permit.



## BOILER CLOSURE COST ESTIMATE

(2012 DOLLARS)

			Boiler 2001-UC	Boiler 2001-UE
•	<b>Disconnecting Pipe/Blinding</b>			
	2 Pipefitters @ \$54.00/hour × 16 hours	=	\$2,624	\$2,624
	1 Foreman @ \$56.00/hour × 16 hours			
•	<b>Boiler Decontamination</b>			
	2 Laborers @ \$54.00/hour × 48 hours	=	\$10,372	\$10,372
	1 Foreman @ \$56.00/hour × 48 hours			
	1 Pressure Cleaning @ \$2,500			
•	<b>Refractory Removal</b>			
	3 Laborers @ \$54.00/hour × 48 hours	=	\$10,464	0
	1 Foreman @ \$56.00/hour × 48 hours			
•	<b>Sampling and Analysis</b>			
	1 Geologist @ \$175.00/hour × 16 hours	=	\$6,200	\$6,200
	4 Rinsate Samples @ \$800.00			
•	<b>Treatment of Wastewater and Rinsate</b>			
	20,000 Gallons @ \$1.25/gallon (E Boiler 10,000 Gallons)		\$25,000	\$12,500
	<b>Certification by Professional Engineer</b>		\$7,500	\$7,500
•	<b>Disposal of Refractory and Contaminated Clothing</b>		\$7,000	\$1,000
	Subtotal		\$69,160	\$40,196
	Contingency (15%)		\$10,374	\$6,029
	Boiler TOTAL		\$79,534	\$46,225
	<b>OVERALL TOTAL</b>			\$125,759



### **3.0 INFLATION ADJUSTED COST ESTIMATE**

The following table shows the total closure cost estimate for the plant in 2012 dollars. Immediately following the 2012 total cost estimate are spaces that will be completed in future annual updates, using US Government factors to provide an inflation-adjusted total cost estimate for the plant, for the remaining years of the permit, after 2012.



**INFLATION ADJUSTED TOTAL CLOSURE COST ESTIMATE**  
(Cost Estimate Updated Annually between 2023 and 2032)

<b>Year</b>	<b>Inflation Adjustment Factor</b>	<b>Unit</b>	<b>\$</b>
2022	1.00 Base Year of Estimate	2003-F	\$24,014
		2104-F	\$412,714
		2105-F	\$455,284
		2001-UC	\$78,821
		Total	<b>\$970,833</b>
2023	1.07 <sup>1</sup>		\$1,038,791
2024	1.036 <sup>2</sup>		\$1,076,187
2025	Later		Later
2026	Later		Later
2027	Later		Later
2028	Later		Later
2029	Later		Later
2030	Later		Later
2031	Later		Later
2032	Later		Later

<sup>1</sup> The 2023 inflation factor was obtained from the Ohio EPA web-site <http://epa.ohio.gov/dmwm/Home/HazFinanceAssurance.aspx>. The value for 2024 is 7.0%.

<sup>2</sup> The 2024 inflation factor was obtained from the Ohio EPA web-site <http://epa.ohio.gov/dmwm/Home/HazFinanceAssurance.aspx>. The value for 2024 is 3.6%.



Attachment I-6

Financial Assurance Liability



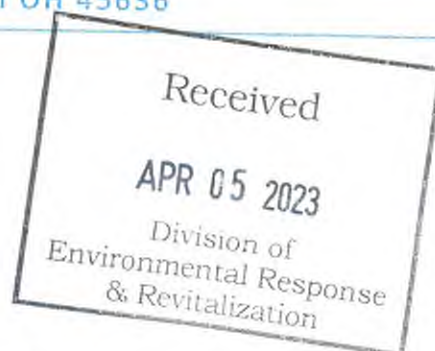


ALTIVIA PETROCHEMICALS, LLC  
1019 Haverhill Ohio Furnace Road  
PO Box 180  
Haverhill OH 45636

March 30, 2023

Anne M. Vogel, Director  
Ohio Environmental Protection Agency  
50 West Town Street, Suite 700  
Columbus, OH 43215

Attn.: Bradley Mitchell, DERR



Re.: Modification to Update Liability and Financial Assurance to 2022 Factors  
ALTIVIA Petrochemicals, LLC Haverhill, Ohio EPA ID# OHD 005 108 477

Dear Ms. Vogel,

Please find attached two copies of the RCRA Modification Request to update the facility permit as it pertains to the Financial Liability and Assurance.


As required by Ohio Administrative Code(s) (OAC) 3745-55-40 to 3745-55-51, ALTIVIA is submitting the attached documents to demonstrate compliance with the financial assurance and financial liability requirements of OAC 3745-55-47 and OAC 3745-66-47. ALTIVIA is submitting this information as a request for prior approval submitted to the Director as a Class 1A permit modification, in accordance with OAC 3745-50-51. The instruments and documents used to demonstrate compliance will be incorporated in the Part B application. Section I Closure Plans, Post-Closure Plans, and Financial Requirements. Attachment 1-6. The financial assurance will be demonstrated through a Financial Test equal to the amount of the closure cost estimate submitted in October of 2022.

ALTIVIA request that the Financial Test Document financial values be treated as confidential information and redacted prior to publishing on the Ohio Environmental Protection Agency website.

Please contact Jason Patrick at (740) 533-5267, if you have any questions regarding this submittal.

Very truly yours,

ALTIVIA Petrochemicals

  
Tim Albert  
Vice President of Manufacturing

cc: Baxter Foskuhl, Ohio EPA, SEDO, DMWM  
Scott Bergreen, Supervisor, Ohio EPA, SEDO, DMWM  
Kristy Hunt, Manager Ohio EPA  
Norberto Gonzales, EPA Region 5  
Jason Patrick, ALTIVIA

Attachment





ALTIVIA PETROCHEMICALS, LLC  
1019 Haverhill Ohio Furnace Road  
PO Box 180  
Haverhill OH 45636

---

### **Trade Secret Request Document**

ALTIVIA has determined that the Modification of the Liability and Financial Assurance information qualifies as information that:

- (1) It derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use.
- (2) It is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.

ALTIVIA's financial data enables competitors to determine the value of contracts, quantity of material sold to customers and suppliers the ability to demand greater prices for goods and services. The ability for competitors to derive production quantities or contractual worth is a threat to our business information and plans. ALTIVIA restricts access to financial data within the company to a need to know basis and does not share business plan information with individuals outside the company. ALTIVIA is not a publicly traded company and does not disseminate financial information to entities or individuals that do not have a need to know the information. The financial figures in the Alternative I Financial Test Demonstration page have been redacted as well as pages three through sixteen of the CARR RIGGS and INGRAM document.

I hereby swear or affirm that the trade secret request meets the requirements of Ohio Administrative Code 3745-49-03 and that the justification submitted with the trade secret request sets forth the basis for claiming the information should be considered a trade secret as defined in Ohio Administrative Code 3745-49-02(T).

**Tim Albert**  
**Plant Manager, Vice President of Manufacturing**





**Please Note:** Pages of this application which contain financial assurance mechanism details specific to policy or account numbers have been removed from this web-available version of the document.

To review redacted copies of these removed pages, please contact DERR's record management staff at (614) 644-2924.

Thank you.



## **SECTION J**

### **SOLID WASTE MANAGEMENT UNITS**



## SECTION J. SOLID WASTE MANAGEMENT UNITS

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## **SECTION J. SOLID WASTE MANAGEMENT UNITS**

### **LIST OF EXHIBITS**

- Exhibit J-1     Solid Waste Management Unit Summaries
- Exhibit J-2     Solid Waste Management Unit Period of Operation



## **SECTION J. SOLID WASTE MANAGEMENT UNITS**

### **LIST OF ATTACHMENTS**

Attachment J-1      Solid Waste Management Unit Locations



## **SECTION J. SOLID WASTE MANAGEMENT UNITS**

### **J-1 INTRODUCTION**

This section addresses applicable information on the plant's solid waste management units (SWMUs) at the plant. The description of the units in this section includes:

- Description of the Unit
- Wastes Managed
- Constituents of Concern
- Operating Status
- Description of Releases

The information provided in this section was obtained from the following sources:

- RCRA Facility Assessment (RFA) for the site performed by U.S. EPA-Region V in 1987.
- RCRA Corrective Action - Assessment of Current Conditions, April 1993.
- RCRA Facility Investigation (RFI) Work Plan, August 1995.
- RFI Report, April 1996.
- RFI Addendum, June 2001.
- RFI Addendum Report, Volume I, February 2003.
- RFI Data Summary Validation Report and Risk Calculation Report, August 2006.
- Certification of Closure of 2001-UA/UB, March 26, 2012.
- RFI Groundwater Assessment Work Plan Addendum, February 2016
- RFI Groundwater Assessment Work Plan Addendum, September 19, 2016.
- RFI Addendum Groundwater Assessment Report, May 2017.
- RFI Soil Vapor Intrusion Assessment Work Plan Addendum, October 2017
- RFI Response to Ohio EPA Comments (February 13, 2015) on the RCRA Facility Investigation Report (revised August 2006), December 22, 2017.
- RFI Multiple Vapor Intrusion Work Plan Addendums, March 12, 2018, March 28, 2018.
- RFI Initial Soil Gas Sampling Summary Report, June 21, 2018. Expanded RFI Soil Gas Point (SG-05) Area & Building BD-1014 Investigation Work Plan Addendum, April 15, 2019.
- Request for No Further Action at SWMU #33 Former Styrene Aeration Basin, June 6, 2019
- Expanded RFI Vapor Intrusion Investigation Work Plan Addendum, March 23, 2020.



- Expanded RFI Vapor Intrusion Investigation – Passive Sampling Pilot Test Work Plan, August 27, 2020.
- Expanded RFI Vapor Intrusion Investigation – Passive Sampling Pilot Test Work Plan – Revision – 1, September 10, 2020.
- Expanded RFI Vapor Intrusion Investigation – Soil Investigation Work Plan, November 12, 2020.
- Expanded RFI Vapor Intrusion Investigation – Source Investigation Work Plan - Addendum, April 8, 2021.

The RFI for the site was accomplished by using Aristech's knowledge of the plant's manufacturing and waste disposal practices as well as written historical records, the RFA, visual site inspections (VSIs), previous site investigations, aerial photographs, and interviews with knowledgeable plant personnel to identify potential sources of contamination requiring additional investigation.

The RFI began with the preparation of the Assessment of Current Conditions document (1993) for the plant. The ACC provided existing information on a total of 115 SWMUs at the plant: 69 SWMUs identified by the U.S. EPA during the RFA/VSI (and updated in the ACC) and 46 additional SWMUs identified by Aristech during review of historical records.

Based on the information provided in the RFI Work Plan (1995) and in the documents referenced above, 39 of the 115 identified SWMUs required additional investigation/discussion in the RFI. Exhibit J-1 identifies and briefly describes these 39 SWMUs, which were organized into the following five groups:

- Group 1: Wastewater/Land Treatment Areas, Lagoons and Ponds
- Group 2: Basins, Pits, Sewers, Sumps and Tanks
- Group 3: Solid Waste Handling, Loading and Storage Areas
- Group 4: RCRA Closure Areas
- Group 5: Consent Agreement and Final Order (CAFO) areas.

Exhibit J-2 presents the 115 identified SWMUS.

Groups 1, 2, and 3 list the SWMUs identified as requiring further investigation during the RFI. Group 4 lists the SWMUs identified by the U.S. EPA as requiring further discussion in the RFI report. Group 5 indicates CAFO areas that are incorporated into the RFI per an agreement



between Aristech and U.S. EPA. The RFI Report (April 1996) and subsequent documents contains the results of all sampling and analysis activities conducted to date, under the Correction Action Program.

Attachment J-1 presents a site map showing the location of all SWMUs. Note that the former PWWTS area and the process piping adjacent to the former BPA lagoons are also identifies as SWMU's (No. 38 and No. 69 respectively). A clean closure approval was received for PWWTS on September 29, 2000. The soils associated with SWMU No. 38 were sampled and analyzed as part of the RFI work at the plant. Details of this soils sampling were addressed in the RFI workplan addendum submitted in June 2001. A clean closure approval was received for the BPA lagoons on April 8, 2002. A clean closure approval was received for Utility Boilers 2001-UA and 2001-UB on June 12, 2012.

## **J-2    SWMU DESCRIPTIONS**

### **J-2a    Group 1 - Wastewater, Land Treatment Areas, Lagoons and Ponds**

#### ***SWMU #9 - Alcohol Holding Basin***

This unit consists of an unlined, excavated, earthen surface impoundment roughly rectangular in shape which measures 135 feet by 140 feet and is eight feet deep. The capacity of this unit is approximately 1,000,000 gallons. Non-contact cooling water and stormwater runoff feed this unit. This unit fed the Equalization Basin (SWMU #6) and the D-147 Mix Tank (SWMU #2).

In 1992, overflow from this unit into the Final Settler (SWMU #7) caused the NPDES limits for phenolics to be exceeded a single time. Chemicals/compounds of concern include phenol and cobalt.

#### ***SWMU #12 - Alcohol Pond***

This unit was an irregularly shaped, unlined earthen pond. The dimensions were 500 by 170 feet at its widest point, and two to three feet deep. Waste bio-sludge was pumped from the Alcohol Waste Treatment Unit to this unit by a pipeline for disposal.

No releases from this unit have been documented. Chemicals/compounds potentially present at this unit include: alcohol wastewater, sludge from the alcohol waste treatment unit, cobalt and chromium.



***SWMU #13 - West Lagoon***

This unit was an unlined, earthen surface impoundment. The unit was about 200 feet by 180 feet and three to four feet deep. Sludge from the Alcohol Waste Treatment Unit and organic sludge from the intermediate process tanks in the Alcohol Unit were deposited in this impoundment. Sludge was transported to this unit by a 10-ton dump truck. The unit was closed and capped in 1980.

No releases from this unit have been documented. Chemicals/compounds potentially present at this unit include: sludge from the alcohol waste treatment unit, cobalt and chromium.

***SWMU #30 - 100/800 Sump Drying Area***

This unit was an area located south of the Polystyrene Plant and east of Solar Avenue. When the Polystyrene Plant ceased operation, the solids in the two sumps (SWMUs #28 and #29) were removed and spread onto a plastic sheet in this area for dewatering before being disposed off-site.

No releases from this unit have been documented. Chemical/compounds of concern include: solids from the 100 and 800 sumps (SWMUs #28 and #29).



### ***SWMU #32 and #33 - Sludge Lagoons/Aeration Lagoon***

Unit #32 consisted of two excavated earthen impoundments (lagoons) that were constructed with a six-inch liner of clay and bentonite. In 1972, the use of one of the lagoons was discontinued, and it was closed in 1976. The remaining lagoon was lined with concrete, but it was later removed in 1994 and backfilled with clean soil to grade. Each lagoon was approximately 134 feet by 35 feet by nine feet deep and had a capacity of approximately 317,000 gallons. This unit was used to remove solids from wastewater by sedimentation, from the Polystyrene Plant.

Unit #33 was an excavated, earthen impoundment (lagoon) that was constructed with a six-inch liner of clay and bentonite. The lagoon was lined with a Hypalon liner membrane in 1976. This lagoon provided retention time and oxygen for biological treatment. The unit had two surface aerators. The dimensions of the lagoon are 115 feet by 75 feet by nine feet deep. The capacity of the lagoon is approximately 581,000 gallons.

Ohio EPA approved a Class 1A Hazardous Waste Permit Modification Indicating a No Further Action designation for Unit #33 on August 14, 2019 based upon a June 11, 2019 request from the Facility. The lagoon was filled with soil and compacted during the fill process to create an area suitable for future construction.

### ***SWMU #34 - Polystyrene Lagoons***

These four lagoons were unlined, earthen impoundments contained by earthen dikes. The dimensions of each lagoon were 200 feet by 200 feet and three feet deep. These lagoons handled the sludges that were periodically removed from the two sludge lagoons (SWMU #32), and aeration lagoon (SWMU #33). From 1971 until 1976 the sludge was piped to these lagoons. In 1976, the rotary vacuum filter (SWMU #16) was installed and sludge storage was no longer necessary.

No releases from this unit have been documented. Chemicals/contents potentially present at this unit include polystyrene wastewater components.

### ***SWMU #35 - Reactor Blowdown Area***

This unit was an unlined, earth and gravel area which was surrounded by a concrete curb. The dimensions for the area were 246 feet long by 28 feet wide. Approximately three to six times per year a batch of polymer at the Polystyrene Plant showed bad suspension characteristics and had to be dumped.



This unit was the area where it was placed. Liquid styrene was skimmed off and drummed for off-site landfill disposal. Wastewater from this area drained to the 100 Sump (SWMU #29) by a trench. Solids that remained and became hardened were also disposed at an off-site landfill.

No releases from this unit have been documented. Chemicals/compounds potentially present at this unit include: “bad” polymer from the Polystyrene Plant containing polystyrene, styrene monomer, calcium chloride, tricalcium phosphate, and polybutadiene rubber.

#### ***SWMU #55 - Land Treatment Area***

This unit is an unlined area with a total size of two acres. The current active area is approximately one-half acre in size. Sludge from the 2429-A Clarifier Blowdown Pits (SWMU #54) is placed in this area an average of twice per year. The sludge in this unit supports plant life.

No releases from this unit have been documented. Chemicals/compounds of concern include Ohio River silts with flocculating chemicals added. Sludge analysis indicated the presence of arsenic, barium and lead at low concentrations.

#### ***SWMU #100 - Land Application/Biosolids and Sediment Settling Pond Area***

This unit consists of two separate areas identified as biosolids and settling pond sediment areas. The biosolids area was located east of the settling pond and has dimensions of approximately 150 feet by 200 feet. The settling pond sediment area was located north of the settling pond and has dimensions of approximately 300 feet by 300 feet. Once the solids were dry, they were disposed off-site. The biosolids area (east area) was used in the early 1980s and the settling pond sediment (north area) was used in 1982, 1989 and 1991.

No releases were recorded by the plant; however, “operational” releases may have occurred. Chemicals/compounds of concern include: biosolids containing trace amounts of sodium sulfate, cobalt, oils (alcohol, aldehyde, olefin, paraffins) silt and fly ash.

#### ***SWMU #114 - BPA Maintenance and Central Stores***

This unit consists of a gravel lot in the BPA area. The lot was used to store lubrication oil drums and bags of off-specification BPA but is currently used to store other material such as replacement reactor parts, new piping, etc.

Waste is no longer stored in the area. Reportedly, drums were observed to overflow while stored



in the area. Chemicals/compounds of concern include: lubrication oil drums and off-specification BPA.

## **J-2b Group 2 - Basins, Pits, Sewers, Sumps and Tanks**

### ***SWMU #11 - Alcohol Sludge Pit***

This unit was an unlined, earthen surface impoundment that was about 75 feet by 75 feet (at surface grade) and 12 feet deep. The volume of the unit was approximately 2500 cubic yards. Liquids from the pit were drained back to the Alcohol Waste Treatment Unit by a pipe. The pipe was plugged in 1983. After 1983, a pump was used to transfer the liquids back to the treatment unit. The original purpose of this pit was to store sludge from the river water clarifiers which started operation in 1961 and continued until 1968 when sludge was sent to SWMU #54. From 1962 until 1983, the pit was also used for waste sludges from G-116 Clarifier (SWMU #8), API Separator skim oil in the Alcohol Waste Treatment Unit (SWMU #3), excess waste activated sludge from the Final Settler (SWMU #7), and sludge from the cooling tower CT-101.

This unit was clean closed in 1991 and backfilled to grade. Section 4.0 of the Assessment of Current Conditions document submitted to the U.S. EPA in April 1993 details the closure activities.

No releases from this unit have been documented. Chemicals/compounds potentially present at this unit include: alcohol wastewater, skim oil sludge and various other sludges.

### ***SWMU #24 - Sludge Pit***

This unit is a reinforced concrete pit measuring approximately 12 feet by 12 feet with a depth of about eight feet. The function of the pit was to pump waste materials, high in solids (“bottoms”) to the Sludge Lagoon (SWMU #32), or the F-806 Rotary Vacuum Filter (SWMU #16) via the T-819 Surge Tank (SWMU #26), or back to the pit.

No releases from this unit have been documented. Chemicals/compounds of concern include: bottoms from the W-809 solids (SWMU #27) and W-810 final clarifier (SWMU #22).

### ***SWMU #38 - 2422-A, 2423-A, 2424-A Holding Basins***

These three open top basins are constructed of steel reinforced concrete and are located above ground. Each basin is 75 feet square and eight feet high. The walls and base of each basin are



12 inches thick. The two internal walls between these basins contain one foot keyways. The capacity of each basin was approximately 500,000 gallons. Wastewater was discharged via swing suction pipe and was directed to the API separator (SWMU #39). In 1988, the basins were cleaned and Tanks 2426-F, 2427-F, and 228-F were installed inside the basins. The basins are presently being used for secondary containment for these tanks.

On 9 September 1986, excessive rainfall and winds caused approximately ten gallons of wastewater to overflow from 2422-A and 2423-A into the containment area.

Chemicals/compounds of concern include: combined process wastewater from the phenol, aniline and BPA process area and from the quality control laboratory.

#### ***SWMU #54 - 2429-A Clarifier Blowdown Pits***

The pits consist of two cells formed by earthen dikes. The cells are unlined but have concrete end walls. The total pit area is 140 feet by 40 feet and 6.5 feet deep. Each cell can hold 500 tons (or ~1,350 cubic yards) of sludge. The pits had been periodically drained and the sludge removed and disposed off-site at the landfill. This practice continued until 1980. In 1980, land treatment (SWMU #55) of the sludge started on-site. The current operating procedure allows the full cell to stand several months to maximize drying of the sludge. This generates a semi-solid to solid material that is hauled to the land treatment (SWMU #55) area where it is dumped and then spread by bulldozer.

No releases from this unit have been documented. Chemicals/compounds of concern include: Ohio River silts with flocculating chemicals added. Sludge analysis typical of pit contents between 1970 and 1976 indicated the presence of oil, phenol, cumene, acetophenone, DMBA, AMS and the presence of low concentrations of arsenic, barium and lead.

#### ***SWMU #59 - TK-902 Sump***

This unit is constructed of steel reinforced concrete, and lined with four inches of acid brick. Exposed concrete was sprayed with Ceilcote 6650 on a Type H glass cloth. The in-ground unit is ten feet by ten feet and is seven feet deep. The sump has a capacity of 5,000 gallons. The waste liquids were originally pumped to the BPA East Pond (SWMU #62). In the first part of 1981 the flow was changed to the West Pond (SWMU #63). Since the closure of the BPA lagoons, the waste stream goes through BPA waste treatment then to bio-waste treatment. There have been several releases from this unit as discussed below.

12 August 1985 - Approximately 200 gallons of liquid overflowed from the unit to the soil. The



released liquid had a pH of 0.5, and contained 0.33% phenol.

4 November 1985 - Approximately 200 gallons of liquid overflowed from the unit to the soil. The released liquid had a pH of 1.9, and contained 0.21% phenol and 0.1% HCL.

20 October 1986 - Approximately 20 gallons of liquid were released from the unit to the soil due to a surge. The released liquid contained 26.8% HCl and 3.8% phenol.

Chemicals/compounds of concern include: wastewater containing phenol, HCl, BPA and calcium chloride.

#### ***SWMU #61 - TK-903/904 Sump***

This unit is constructed of steel reinforced concrete which was sprayed with Ceilcote 6650 on a Type H glass cloth. The in-ground unit is 12 feet by 12 feet and is about four feet deep. The sump has a capacity of 4,000 gallons. The waste liquids were originally pumped to the BPA East Pond (SWMU #62). In the first part of 1981, the flow was changed to the West Pond (SWMU #63). The sump was drained and inspected on August 16, 1985. Subsequent to the inspection, the sump was lined with acid bricks and the concrete recoated with Ceilcote 6550. Currently, Wastewater from this sump bypassed the BPA Wastewater Treatment System and is pumped directly to the Phenol Wastewater Treatment System. Since the closure of the phenol wastewater treatment system, the waste stream goes to bio-waste treatment. No releases from this unit have been documented. Chemical/compounds of concern include: bisphenol A (BPA), and wastewater containing phenol and BPA.

#### ***SWMU #69 - Process and Stormwater Sewers***

These units consist of two separate systems of underground piping of various types and sizes. One system handles storm runoff, and the other system handles process wastewaters. The pipes usually discharged to the Alcohol Waste Treatment Unit or the Phenol Waste Treatment System. The BPA Waste Treatment System piping was originally underground; it was abandoned and relocated above-ground, and the Polystyrene Waste Treatment System is inactive.

No infiltration or inflow studies have been performed on the two sewer systems.

Chemicals/compounds of concern include: stormwater runoff and process wastewaters ancillary to the Alcohol Waste Treatment Unit, Phenol Waste Treatment System, BPA Waste Treatment System and the inactive Polystyrene Waste Treatment System.



#### ***SWMU #84 - Fire Burning Pit***

This unit consisted of a constructed metal pan measuring eight feet wide by ten feet long by one foot high. The unit was located just inside Gate #8 on the west side of D Street. The pan was in operation from 1974 until the present time. Typically, a layer of oil was placed on top of water, ignited, and extinguished by plant personnel. The oil in the pan was process waste oil, spent olefins, heptane, octane, and alcohol heavy ends.

No releases from this unit have been documented. Chemicals/compounds of concern include: process waste oil, spent olefins, heptane, octane, and alcohol heavy ends.

#### ***SWMU #98 - Septic Tank Oil Trap***

This unit is a septic tank oil trap located in the Alcohol Tank dike field. Material collected in the dike field flowed into the trap and the water was sent to the Bio-waste Treatment System. At the present time, the Alcohol Tanks have been emptied.

Reportedly, visible contamination was noted on accumulated precipitation within the dike field by plant personnel. Chemicals/compounds of concern include: floating oil and small quantities of process material.

#### ***SWMU #99 - Cobalt Catalyst Tank***

This unit consists of a steel underground tank. The tank has a diameter of four feet and is 16 feet in length. The tank received bottoms from D-128. The tank was emptied and high pressure water cleaned in March 1989. At this time, the unit is not operational.

Reportedly, visible contamination was observed in soils around this tank. Chemicals/compounds of concern include: high cobalt wastewater, cobalt tally oil phase and bottoms from D-128 with an EPTox chromium value of 33 mg/kg.

#### ***SWMU #103 - D-143 Biowaste Oil Collection Tank***

This unit consists of an above-ground horizontal, cylindrical, steel tank. The tank capacity is approximately 500 gallons. The tank was used to collect oil skimmed off the storm cell and process cell. Skim oil in the tank went to D-125 (SWMU #101).

Visible contamination was noted in the past. Chemicals/compounds of concern include: alcohols, aldehydes, olefins and paraffins.



### ***SWMU #115 - 2102 FA Tank***

This is a steel tank with a one-million gallon capacity (40 feet high, 32.5 feet radius) all of which is above-ground. The tank is surrounded by asphalt-covered earthen dikes.

In April 1991, it was determined that a leak had developed in the tank. Engineering calculations indicated that the leak was limited to 32 gallons. From sampling, the affected area was determined to be approximately 2,500 square feet. The tank was repaired immediately, but remediation was postponed for 16 months, so that the soils could be remediated when service of the tank was not needed. Chemicals/compounds of concern include phenol.

### **J-2c Group 3 - Solid Waste Handling, Loading and Storage Areas**

#### ***SWMU #15 - Alcohol RR Loading Area***

This unit consists of two parallel ballasted railroad tracks constructed on an earthen foundation, and a loading/unloading rack. The rack consists of an elevated structural steel platform. The platform is 195 feet long.

Chemicals/compounds of concern include: products (i.e., iso-decyl alcohol, iso-octyl alcohol, iso-nonyl alcohol) and feedstocks (i.e., cumene, phenol). Pre-excavation results from soil samples obtained between 13-15 May 1985 indicated cumene levels between 21 and 4,658 mg/kg. Post-excavation results obtained 10 February 1987 indicated cumene levels at less than 0.1 mg/kg.

#### ***SWMU #65 - BPA RR Loading Area***

This unit consists of a ballasted spur railroad track, constructed on an earthen foundation, under the BPA loading shed. A concrete pad and dust collector were added in 1986.

This unit has had periodic minor spills. Chemicals/compounds of concern include spilled BPA solids.

#### ***SWMU #66 - BD-908 Drum Storage Area***

This unit was open on three sides, and located on the south side of building BD-908. Currently, the unit is enclosed and covered by a reinforced concrete platform of BD-908's second floor. The floor of the unit is constructed of reinforced concrete which is coated. There is secondary containment constructed of coated concrete around the interior perimeter of the building. The dimensions of the building are approximately 40 feet by 70 feet.



No releases from this unit have been documented. Chemicals/compounds of concern include: various drummed waste materials contaminated with commercial chemical products such as phenol (U188), alpha-methyl styrene (D001), cumene (U055), non-hazardous BPA unit spent filter cartridges, and slag from the boilers (SWMU #57) which contains D007 characteristics and retains the K022 code.

***SWMU #86 - Surplus Equipment/Scrap Dump Area***

This unit stored surplus equipment and scrap. The surplus equipment and scrap were placed on railroad ties. The unit was located just outside Gate #8. Some of the equipment and scrap consisted of old exchanges and pumps from the alcohol unit.

No releases from this unit have been documented. Chemicals/compounds of concern include: cooling water, alcohol, aldehyde, olefin, paraffins, and cobalt.

***SWMU #87 - Coal Yard/Ash Storage Area***

This unit consisted of an area approximately 225 feet by 175 feet and was used to store coal and ash. No releases from this unit have been documented. Chemicals/compounds of concern include: ash with low pH, and heavy metals.

***SWMU #88 - Waste Drum Storage***

This unit consisted of three separate areas which were used to store drums of spent catalyst and oil. The drums were stored on slag/gravel above dirt located near the northwest corner of the General Plant Storage Yard and near the northwest and southwest corner of Utilities Maintenance Storage Yard.

No releases from this unit have been documented. Chemicals/compounds of concern include: spent catalyst consisting of cobalt and chromium, and process oils consisting of alcohols, aldehydes, olefins and paraffins.

***SWMU #93 - Ash Silo/Ash Loading Area***

The ash silo is approximately 10 feet by 20 feet and located 15 feet above the ash truck loading area. The ash silo received ash from the coal boilers. Water was added to the ash, and the wet ash was loaded into trucks below the silo. The loading area was part concrete and part soil. The trucks removed the ash to an off-site landfill five days a week. During the weekends, the trucks were unloaded in the Ash Storage Area (SWMU #87) for weekday removal.



No releases from this unit have been documented. Chemicals/compounds of concern include: ash from the coal boilers with a low pH, heavy metals, and stormwater runoff.

***SWMU #97 - BD-17 Waste/Surplus Drum Storage Area***

This unit consists of an area inside and two areas outside of Building BD-17. The building has a concrete floor and the outside areas are covered with gravel. Both raw materials and waste containers were periodically stored in these areas.

Reportedly, outside drums containing oil overflowed into gravel during storm events. Chemicals/compounds of interest for the outside and inside areas are:

**Outside Area**

Spent catalyst (cobalt and chromium), spent saddles, packing from MEA (monoethanolamine) Tower.

**Inside Area**

Catalyst (copper, nickel, iron, chromium, cobalt solids), filtered decyl alcohol bottoms, methanol, lubrication oil, electrical oil (Exxon Univolt 60), n-heptane, miscellaneous maintenance material and potassium permanganate.

**J-2d Group 4 - RCRA Closure Areas**

***SWMU #51 - Underground Injection Wells 1 and 2***

Injection Well #1 was completed 24 July 1968 with a total drilled depth of 5,617 feet below grade. The injection well was completed in the Mount Simon sandstone formation. Injection Well #2 was completed 31 August 1978 with a directionally total drilled depth of 6,024 feet below grade. The wellheads are on concrete pads inside buildings. Both wells have been RCRA closed.

No releases from this unit have been documented. Chemicals/compounds of concern include: combined treated, process wastewater from the Phenol Waste Treatment Unit.



### ***SWMU #56 - Northwest Lagoon***

This unit is an unlined, earthen impoundment that was 200 feet by 200 feet and three feet deep. The unit was closed under RCRA Interim Status regulations and a Post-Closure Care Permit Application was submitted to the U.S. EPA.

No releases from this unit have been documented. Chemicals/compounds of concern include: sludges from the 2433-A Filter Cake Pit (SWMU #52), Phenol Waste Treatment Holding Basing (SWMU #38), bisphenol A (BPA) lagoon sludge and phenol-contaminated environmental media such as soil and gravel.

### ***SWMU #57 - Boilers***

These boilers are co-fired natural gas and oil fired positive draft boiler systems. Each boiler is rated for 150,000 lbs/hr of 450 psig steam. Boilers 2001-UA & UB are Riley type and were permitted to burn light and heavy hydrocarbon waste fuel and were RCRA closed in 2012 and were scrapped in 2019 and 2021. Boiler 2001-UC is a Riley type and is permitted to burn light and heavy hydrocarbons. Boiler 2001-UE is Babcock and Wilcox type and is permitted to burn light hydrocarbon and heavy hydrocarbon waste fuel. All four boilers provide steam for plant operations and are located on a bermed concrete pad with a drain.

No releases from this unit have been documented. Chemicals/compounds of concern include: fuel oil or natural gas with mixed heavy hydrocarbon waste fuel consisting of phenol heavy ends.

Ohio EPA provided a partial closure for Utility Boilers 2001-UA and 2001-UB on June 12, 2012 based upon a March 26, 2012 Certification of Closure of 2001-UA/UB report and facility requested dated March 29, 2012.

### ***SWMU #62 - East Pond***

This pond is an incised basin measuring 145 feet by 55 feet and is eight feet deep. This unit is separated from the West Pond (SWMU #63) by an earthen dike with a crest width of six feet. Side slopes are at a ratio of two horizontal units to one vertical unit (2H:1V). The West Pond (SWMU #63) began pumping to this unit during the first part of 1981. Originally, the TK-904 and TK-902 Sumps (SWMUs #61 and #59, respectively) flowed directly to this unit. Sodium hydroxide was added to this unit for neutralization purposes. This was followed by the addition of sodium carbonate to precipitate calcium. The treated water was then filtered by the F-2101 Guard Filter (SWMU #64) prior to pumping to the Phenol Waste Treatment Unit. The



impoundment was taken out of service prior to 8 November 1988. Aristech submitted a revised RCRA Interim Status Closure Plan for SWMU #62 and SWMU #63 (West Pond) in August 1995. The plan addresses the closure of the impoundments and underlying soils to the waste table within the impoundment's unit boundaries. The east pond has been RCRA closed.

A release in 1982 resulted from a torn liner. Remediation/partial closure of the pond (and SWMU #63 West Pond) was performed, consisting of removal and proper disposal of accumulated sludges and the High Density Polyethylene (HDPE) liner, treatment of the liquid contents of the ponds at the Phenol Wastewater Treatment System and sampling and testing of the subsoil.

#### ***SWMU #63 - West Pond***

This pond is an incised basin measuring 145 feet by 55 feet and is eight feet deep. This unit is separated from the East Pond (SWMU #62) by an earthen dike with a crest width of six feet. Side slopes are at a ratio of two horizontal units to one vertical unit (2H:1V). This pond was lined with a compacted bentonite liner and a 100-mil HDPE liner. This pond originally received wastewater from the HCl Recovery Unit. Then it received BPA Plant wastewater from the TK-904 and TK-902 Sumps (SWMUs #61 and #59, respectively) in addition to the HCL Recovery Unit wastewater. This wastewater was then pumped to the East Pond (SWMU #62). The impoundment was taken out of service prior to 8 November 1988. Aristech submitted a revised RCRA Interim Status Closure Plan for SWMUs #62 (East Pond) and #63 (West Pond) in August 1995. The plan addresses the closure of the impoundments and underlying soils to the water table within the impoundment's unit boundaries. The west pond has been RCRA closed.

A release in 1982 resulted from a torn liner. Remediation/partial closure of the pond (and SWMU #62 East Pond) was performed, consisting of removal and proper disposal of accumulated sludges and the HDPE liner, treatment of the liquid contents of the ponds at the Phenol Wastewater Treatment System and sampling and testing of the subsoil.

#### **J-2e Group 5 - Consent Agreement and Final Order Areas (CAFO)**

##### ***SWMU #53 - Phenol RR Loading Area***

Historically, this unit consisted of two parallel ballasted railroad tracks constructed on an earthen foundation, and concrete drip pans at each loading position adjacent to the loading rack. Subsequently, the unit was excavated to approximately 18 feet below ground surface (bgs) to remove any soil contamination, then backfilled with clean soil to grade. The area was then



covered by concrete to provide secondary containment for loading operations. Drainage piping connects the area to the Oily Waste Sump (SWMU #37) at the Phenol Waste Treatment Unit. SWMU #53 was originally part of a CAFO by U.S. EPA Region V Enforcement Branch. It was subsequently included in the RFI Program per an agreement (August 1994) between Aristech and U.S. EPA Region V.

Five releases have been recorded by the plant. On 30 March 1981, 15 gallons of alpha-methyl styrene were released. On 10 October 1984, 12,000 pounds of phenol were released. On 25 March 1986, 3,000 gallons of acetone were released. On 18 June 2006, 3,900 gallons of phenol were released. On 10 October 2006, 1,300 gallons of acetone were released.

Chemicals/compounds of concern include: alpha-methyl styrene, phenol and acetone.

#### ***SWMU #67 - Wastewater Ditches and Settling Ponds***

The plant contains numerous in-plant unlined stormwater ditches in various sections of the plant. The Main Ditch was excavated from the native soils in the area. The two settling ponds are excavated, unlined earthen impoundments. A portion of this SWMU, known as the "Third Street Ditch," was originally part of a CAFO identified by U.S. EPA Region V Enforcement Branch. It was subsequently (August 1994) included in the RFI Program per an agreement between Aristech and U.S. EPA Region V. In the Spring of 1981, the settling pond leaked to Gervais Run.

Chemicals/compounds of concern include: stormwater runoff from the entire plant, cooling tower and boiler blowdowns, effluent from the sanitary wastewater plant, Alcohol Waste Treatment Unit, and Polystyrene Waste Treatment Unit (when it was operational) and potentially BPA Waste Treatment Unit effluent.

On 25 January 1985, the BPA Plant had a number of lines freeze due to prolonged sub-zero weather. Several lines froze, broke, and spilled into Ditch #2 (part of SWMU #67) which runs adjacent to 3rd Street. An estimated 175,000 gallons of process water spilled.

#### ***SWMU #68 - Emergency Dike Fields***

These dike fields are constructed of native soils surrounded by earthen dikes that are covered with a light layer of asphalt-like material. Each dike field has a capacity of 880,000 gallons.

On 25 January 1985, the BPA Plant had a number of lines freeze due to prolonged sub-zero weather. Several lines froze, broke, and spilled into Ditch #2 (part of SWMU #67) which runs



adjacent to 3rd Street. To avoid an overflow to the site's main outfall ditch (part of SWMU #67; NPDES Outfall #OIF0000901), the spilled material (low pH water) was pumped into the adjacent dike field surrounding Tank D-134, and later to the dike field of D-113. An estimated 175,000 gallons of process water spilled.



## EXHIBIT J-1

### SOLID WASTE MANAGEMENT UNIT SUMMARIES



**Exhibit J-1: SWMU Description**

<b>SWMU ID</b>	<b>Description of SWMU</b>
<b><i>Group 1 – Wastewater/Land Treatment Areas, Lagoons and Ponds</i></b>	
9	Alcohol Holding Basin
12	Alcohol Pond
13	West Lagoon
30	100/800 Sumps Drying Area
32	Sludge Lagoon
33	Aeration Lagoon
34	Polystyrene Lagoons
35	Reactor Blowdown Area
55	Land Treatment Area
100	Land Application/Biosolids & Sediment Settling Pond Area
114	BPA Maintenance and Central Stores
<b><i>Group 2 – Basins, Pits, Sewers, Sumps and Tanks</i></b>	
11	Alcohol Sludge Pit
24	Sludge Pit
38	2422-A, 2423-A, 2424-A Holding Basins
54	2429-A Clarifier Blowdown Pits
59	TK-902 Sump
61	TK-903/904 Sump
69	Process Stormwater Sewers
84	Fire Burning Pit
98	Septic Tank Oil Traps
99	Cobalt Catalyst Tank
103	D-143 Bio-Waste Oil Collection Tank
115	2102-FA Tank
<b><i>Group 3 – Solid Waste Handling, Loading and Storage Areas</i></b>	
15	Alcohol RR Loading Area
65	BPA RR Loading Area
66	BD-908 Drum Storage Area
86	Surplus Equipment/Scrap Dump Area
87	Coal Yard/Ash Storage Area
88	Waste Drum Storage
93	Ash Silo/Ash Loading Area
97	BD-17 Waste/Surplus Drum Storage Area
<b><i>Group 4 – RCRA Closure Areas</i></b>	
51	Underground Injection Wells 1 & 2 – RCRA CLOSED
56	Northwest Lagoon – RCRA CLOSED
57	Boilers
62	East Pond – RCRA CLOSED
63	West Pond – RCRA CLOSED
<b><i>Group 5 – CAFO Areas</i></b>	
53	Phenol RR Loading Area
67	Wastewater Ditches & Settling Ponds
68	Emergency Dikefields



EXHIBIT J-2

SOLID WASTE MANAGEMENT UNIT PERIOD OF OPERATION



## RCR Part B SWMUs

Information taken from the Assessment of Current Conditions, April 1993

SWMU ID	Description of SWMU	Period of Operation		Type of Unit	Comments
		From	To		
1	Influent Surge Basin	1962	Present	NPDES	
2	D-147 Mix Tank	1977	1992	NPDES	
3	API Separator	1962	Present	NPDES	
4	Oil Recovery Cell	1962	Unknown	NPDES	Non-Operational
5	Aeration Basin	1962	Present	NPDES	
6	Secondary Aeration Basin	1977	Present	NPDES	
7	Final Settler	1962	Present	NPDES	
8	G-116 Clarifier	1962	1969	NPDES	Non-Operational
"	"	1978	8/84	NPDES	
9	Alcohol Holding Pond	1962	Present	NPDES	
10	Equalization Basin	1977	Present	NPDES	Same as SWMU # 6
11	Alcohol Sludge Pit	1962	1983	NPDES	Closed
12	Alcohol Pond	1968	1980	Non-Regulated	Closed
13	West Lagoon	1963	1980	Non-Regulated	Closed
14	Ash Settling Pit	1962	1992	Non-Regulated	Non-Operational
15	Alcohol Railroad Loading Area	1962	1984	Non-Regulated	Non-Operational
16	F-806 Rotary Vacuum Filter	10/77	12/81	Non-Regulated	Non-Operational
17	F-806 Rotary Vacuum Filter Dumpster	10/77	12/81	Non-Regulated	No Longer in Existence
18	T-801 Bead Sump Tank	5/71	12/81	Non-Regulated	Non-Operational
19	T-802 Effluent Sump Tank	5/71	12/81	Non-Regulated	Non-Operational
20	T-806 Neutralization Tank	5/71	12/81	Non-Regulated	Non-Operational
21	T-807 equalization Tank	5/71	12/81	Non-Regulated	Non-Operational
22	W-810 Final Clarifier	5/71	12/81	Non-Regulated	Non-Operational
23	T-817 Anion/Cation Backwash Tank	5/71	12/81	Non-Regulated	Non-Operational
24	Sludge Pit	5/71	12/81	Non-Regulated	Non-Operational
25	T-818 Backwash Sump	5/71	12/81	Non-Regulated	Non-Operational
26	T-819 Surge Tank	5/71	12/81	Non-Regulated	Non-Operational
27	W-809 Solids Contact Clarifier	5/71	12/81	Non-Regulated	Non-Operational
28	800 Sump	5/71	12/81	Non-Regulated	Non-Operational
29	100 Sump	1973	12/81	Non-Regulated	Non-Operational
30	100 and 800 Sumps Drying Area	12/81	1982	Non-Regulated	No Longer in Existence
31	Waste Effluent Sump	5/71	12/81	Non-Regulated	Non-Operational
32	Sludge Lagoons	5/71	12/81	Non-Regulated	Non-Operational
33	Aeration Lagoon	5/71	12/81	Non-Regulated	Non-Operational



# RCRA Part B SWMUs

Information taken from the Assessment of Current Conditions, April 1993

SWMU ID	Description of SWMU	Period of Operation		Type of Unit	Comments
		From	To		
34	Polystyrene Lagoons	1971	12/81	Non-Regulated	Closed
35	Polystyrene Unit: Reactor Blowdown Area	5/71	12/81	Non-Regulated	Non-Operational
36	Polystyrene Unit: Reactor Sample Drum Storage Area	1971	1980	Non-Regulated	No Longer in Existence
37	2421-A Wastewater Sump	8/69	Present	RCRA	
38	2422-A, 2423-A Holding Basins	8/69	1988	RCRA	Currently Secondary Containment for RCRA Regulated Units
"	2424-A Holding Basin	7/79	1988	RCRA	Currently Secondary Containment for RCRA Regulated Units
39	2426-A API Separator	8/69	1988	RCRA	Currently Secondary Containment for RCRA Regulated Units
40	2428-A Skimmed Oil Sump	8/69	1988	RCRA	Currently Secondary Containment for RCRA Regulated Units
41	2421-F Decanter Tank	8/69	Present	RCRA	
42	2427-A Wastewater Sump	1968	1988	RCRA	Currently Secondary Containment for RCRA Regulated Units
43	2421-FA Oil Storage Tank	7/79	Present	Less Than 90 Days of Storage	
44	2423-F, 2424-F Surge Tanks	7/79	Present	RCRA	
45	2421-UA/UB Anthracite Filters	8/69	Present	RCRA	
"	2421-UC/UD Anthracite Filters	7/79	Present	RCRA	
46	Spent Anthracite Box	12/84	1989	Less Than 90 Days of Storage	No Longer in Existence
47	2422-F Holding Tank	8/69	1988	RCRA	Closed
48	2422-U/UA Guard Filters	8/69	Present	RCRA	
"	2422-UB Guard Filters	7/79	Present	RCRA	
49	D-133 Storage Tank	1967	Present	NPDES	
"	D-134 Storage Tank	1967	9/90	NPDES	Non-Operational
50	Aniline Unit: A-90 Oily Water Sump	3/82	Present	Less Than 90 Days of Storage	
51	Injection Well #1	1968	1996	UIC	Closed
"	Injection Well #2	1977	1996	UIC	Closed
52	2433-A Filter Cake Pit ( Enzinger Pit )	5/77	Present		
53	Phenol Railroad Loading Area	8/69	Present	Non-Regulated	
54	2429-A Clarifier Blowdown Pits	8/68	Present	Non-Regulated	
55	Land Treatment Area	12/81	Present	Permitted by OEPA	
56	Northwest Lagoon	1970	1984	RCRA	Closed
57	2001-UA/UB/UC/UD/UE Boilers	1969	Present	OEPA Air and RCRA	
58	2104-F Storage Tank	1969	Present	RCRA	
"	2105-F Storage Tank	1988	Present	RCRA	
59	TK-902 Sump	7/78	Present	?	
60	TK-903 Sump				Same as SWMU # 61
61	TK-903/904 Sump	7/78	Present	?	

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OHIO EPA, DHMM



# RC Part B SWMUs

Information taken from the Assessment of Current Conditions, April 1993

SWMU ID	Description of SWMU	Period of Operation		Type of Unit	Comments
		From	To		
62	East Pond	7/78	1988	RCRA	Non-Operational
63	West Pond	7/78	1988	RCRA	Non-Operational
64	F-2101 Guard Filter	9/78	1988	Formerly RCRA	Removed
65	BPA Railroad Loading Area	9/78	Present	Non-Regulated	
66	BD-908 Drum Storage Area	8/70	Present	Less Than 90 Days of Storage	
67	Wastewater Ditches	1961	Present	NPDES	
"	Settling Ponds	12/78	Present	NPDES	
68	Emergency Wastewater Storage Dikefields (D-113 & D134)	1/25/85	4/25/85	?	
69	Storm and Process Sewers	1961	Present	Non-Regulated	
70	F-94	1982	Present	Less Than 90 Days of Storage	
71	D-115/D-116A Tanks	1990	Present	Non-Regulated	
"	D-116B/D-117/D118 Tanks	1992	Present	Non-Regulated	
72	TK-2122	1985	Present	NPDES	
73	T-809	1971	1981	Non-Regulated	Non-Operational
74	2427-A Neutralization Tank	1988	Present	RCRA	
75	2426-F/2427-F/2428-F Holding Tanks	1988	Present	RCRA	
76	2424 UA-UH Bag Filters	1978	Present	RCRA	
77	Static Mixers #1 and #2	1988	1990	Non-Regulated	No Longer in Existence
78	TK-2101	1977	1991	Non-Regulated	
"	TK-2101-R	1991	Present	Non-Regulated	
79	TK-2123 Clarifier	1988	Present	Non-Regulated	
80	TK-2108 Clarifier Effluent Tank	1988	Present	Non-Regulated	
81	F-2102 Filter Press	1988	Present	Non-Regulated	
82	TK-2124 Surge Tank	1988	Present	Non-Regulated	
83	TK-2103	1988	1990		Non-Operational
84	Fire Burning Pit	1962	1970		No Longer in Existence
85	Trash Area on North D Street	1962	1970		No Longer in Existence
86	Surplus Equipment/Scrap Dump	1970	1980's		No Longer in Existence
87	Coal Yard/Ash Storage	1962	1992		Non-Operational
88	Waste Drum Storage	1978	1982		No Longer in Existence
89	D-733 Effluent Collection Tank	1978	1982		No Longer in Existence
90	D-129 Heavy End Fuel Oil Tank	1962	1981		Non-Operational
91	H-101/H-102 Coal Boilers	1962	1992		Non-Operational
92	Sludge Feed Tank	1981	1982		Non-Operational

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# RC. Part B SWMUs

Information taken from the Assessment of Current Conditions, April 1993

SWMU ID	Description of SWMU	Period of Operation		Type of Unit	Comments
		From	To		
93	Ash Silo/Ash Loading Area	1962	1992		Non-Operational
94	M-115 Baghouse	1981	1992		Non-Operational
95	Oil Separator Sump	?	Present		Non-Operational
96	D-121/D-122 Spent Olefin Tanks	1962	1982		Non-Operational
97	BD-17 Waste/Surplus Drum Storage	1970	1980's		Non-Operational
98	Septic Tank Oil Trap	1962	Present	Non-Regulated	
99	Cobalt Catalyst Tank	1970	1982		Non-Operational
100	Land Application/Biosolids and Settling Pond Sediment	1980's	1991		Non-Operational
101	D-125 Bio Oil Storage Tank	1962	Present	NPDES	
102	D-157 Bio Sludge Settling Tank	1985	Present	NPDES	
103	D-143 Bio Waste Oil Collection Tank	1962	Present	Non-Regulated	
104	D-802 Organics Waste Tank	1977	Present	Non-Regulated	
105	TK-2001 Organic Waste Tank	1977	1979		Non-Operational
106	D-714 Tar Pit	1977	Present	Non-Regulated	
107	401-F Phenol I Wastewater Collection Vessel	1969	Present		
108	T-702 Phenolic Wastewater Tank	1988	1991		Currently in fire water service
109	A-92 Wastewater Sump	1992	Present	Non-Regulated	
110	2439-F Stormwater Tank	10/92	3/93	Non-Regulated	Currently a stormwater tank
111	Poly-100 Warehouse	1980	Present	Less Than 90 Days of Storage	
112	2003-F Light Hydrocarbon Tank	1969	Present	RCRA	
113	2402-L Coalescer	1989	Present	RCRA	
114	BPA Maintenance/Central Stores	1978	1988		Non-Operational
115	Tank 2102-FA Leak	4/91	1992		Remediation Complete

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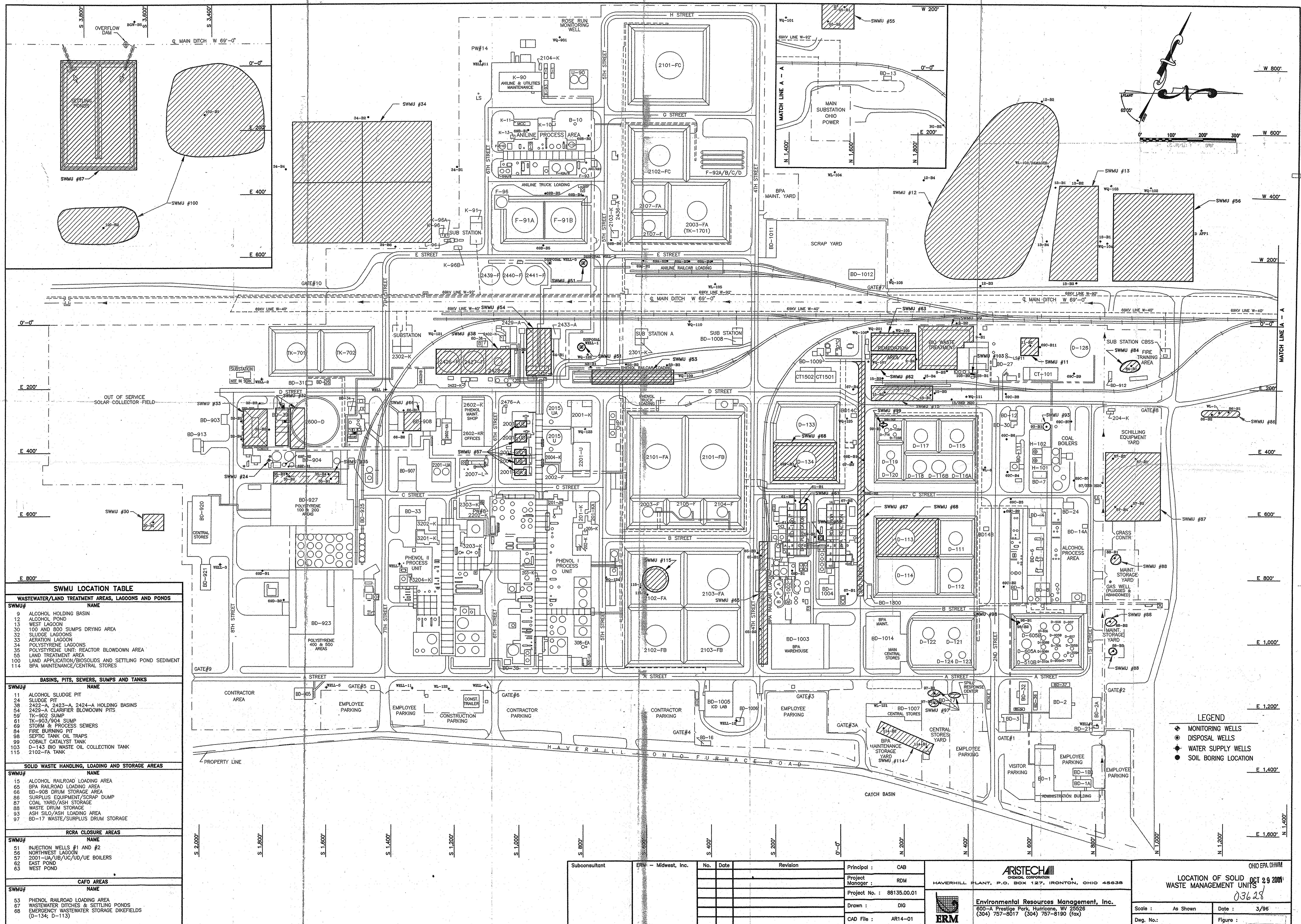
4 OF 4



Attachment J-1

Solid Waste Management Unit Locations







**SECTION K**  
**OTHER FEDERAL LAWS**

**( 3629**

**OHIO EPA. DHWM**

**OCT 29 2001**



Revision: 0  
Date: December 1997

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**OTHER FEDERAL LAWS**  
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**C 3630**

**OHIO EPA. DHWM**

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**OCT 29 2001**



Revision: 0  
Date: December 1997

**SECTION K**  
**OTHER FEDERAL LAWS**  
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**Attachment K-1 Ohio Department of Natural Resources**

**C 3631**

**OHIO EPA, DHWM**

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**OCT 29 2001**



Revision: 0  
Date: December 1997

## **SECTION K**

### **OTHER FEDERAL LAWS**

In accordance with 40 CFR 270.3, the following laws have been reviewed for applicability with respect to the hazardous waste management activities at the Haverhill Plant.

#### **WILD AND SCENIC RIVERS ACT: Section 1501.16 (Wild and Scenic Rivers - Under DNR)**

There are no wild or scenic rivers within one mile of the plant. This information was verified by the Ohio Department of Natural Resources - Division of Natural Areas and Preserves (Attachment K-1).

#### **THE NATIONAL HISTORIC PRESERVATION ACT**

The Haverhill Plant is not listed on the National Register of Historic Places.

#### **THE FISH WILDLIFE COORDINATION ACT**

There are no waters of any stream or other body of water that will be proposed or authorized to be impounded, diverted, controlled, or modified at this plant.

#### **THE COASTAL ZONE MANAGEMENT ACT**

The Haverhill Plant is not located within a designated coastal zone.

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#### **ENDANGERED SPECIES ACT: Chapters 1518 and 1531, OAC (Wildlife and Endangered Species)**

There are no endangered species within one-quarter mile of the plant. This information was verified by the Ohio Department of Natural Resources - Division of Natural Areas and Preserves (Attachment K-1).

K-1 OHIO EPA. DHMM

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Revision: 0  
Date: December 1997

**ATTACHMENT**

**C 3633**

**OHIO EPA. DHWM**

**OCT 29 2001**



Revision: 0  
Date: December 1997

**ATTACHMENT K-1**  
**OHIO DEPARTMENT OF NATURAL RESOURCES**

**C 3634**

**OHIO EPA, DHWM**

**OCT 29 2001**



## Information?

Prospective data users should obtain data request forms from:

Heritage Data Services  
ODNR Division of Natural Areas & Preserves  
Fountain Square, Building F-1  
Columbus, OH 43224

These forms request detailed information about the planned use of the data and require the data user to agree to certain restrictions. These restrictions include the need to acquire written permission to publish information provided by the Heritage Program and a requirement that the division be given credit as the information source.

The Heritage staff will review the data request form and will contact the prospective data user to answer any questions. A decision will be made about the level of detail necessary to fulfill the data user's needs. A cost estimate for the data search can be given at this time if requested. Fees for services rendered help recover actual costs for the Division of Natural Areas and Preserves. A fee schedule is provided with each form.

The requested information will be retrieved from the Heritage data systems using the most cost-efficient methods, and will be provided to the user with specified restrictions. If the application for access to data is denied, a written explanation will be provided.

Information will not be provided by telephone or to drop-in visitors. Normally, users will receive the requested data within two weeks of ONHP's receipt of the data request form.

## Memoranda Of Agreement

Written agreements can be negotiated to offset fees for services. Data users providing useful information to the Heritage Program can obtain reduced or deferred fees. Contact the Heritage Data Manager for details.



OHIO DEPARTMENT OF  
NATURAL RESOURCES

ODNR

Richard F. Celeste, Governor  
Joseph J. Sommer, Director

Ohio Natural Heritage Program  
Ohio Department of Natural Resources  
Division of Natural Areas and Preserves  
Fountain Square, Building F  
Columbus, OH 43224  
614) 265-6453 (Voice)  
614) 265-6994 (TDD)

# Ohio Natural Heritage Data Services



Ohio Department of Natural Resources  
Division of Natural Areas & Preserves

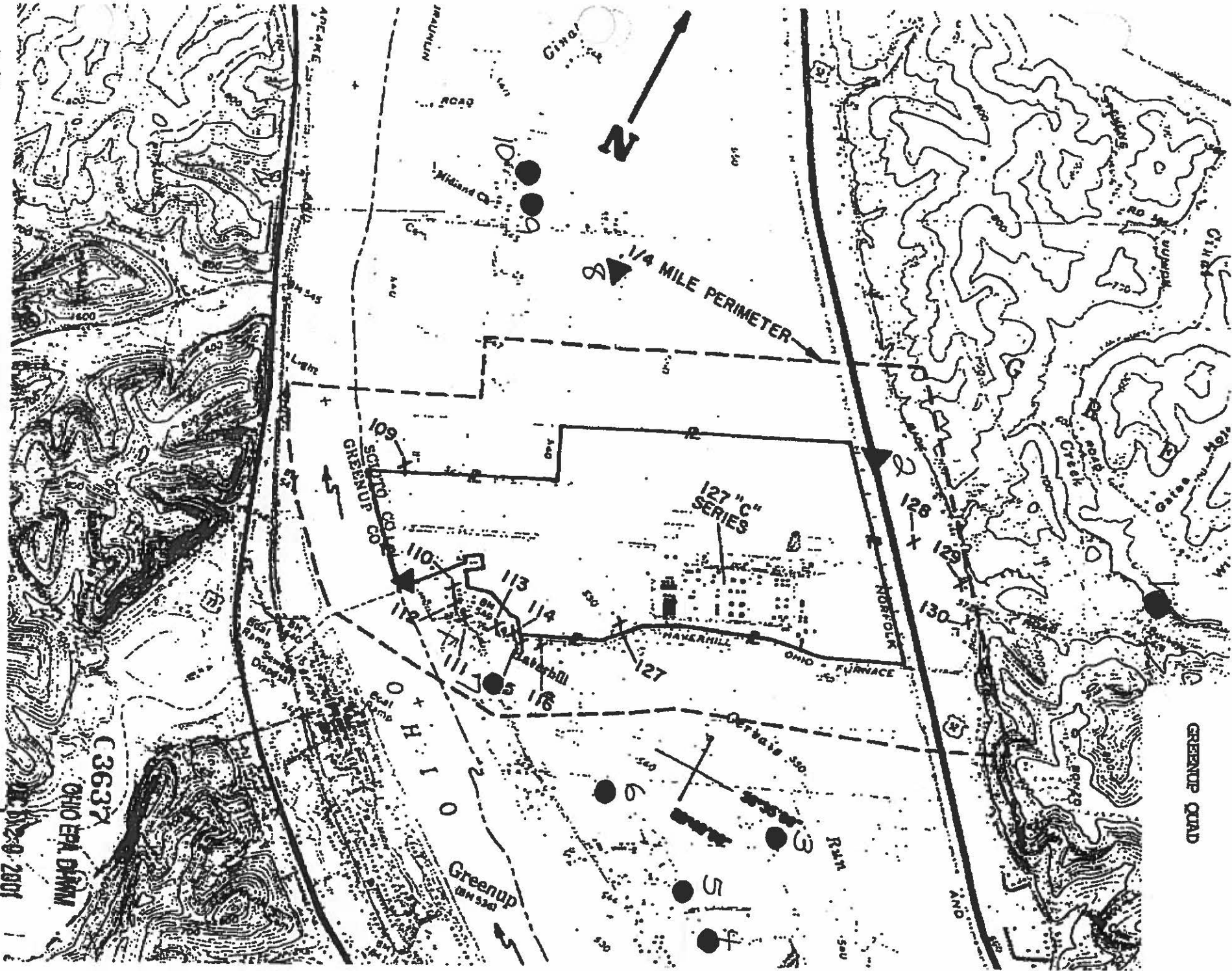
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OHIO EPA DNMW

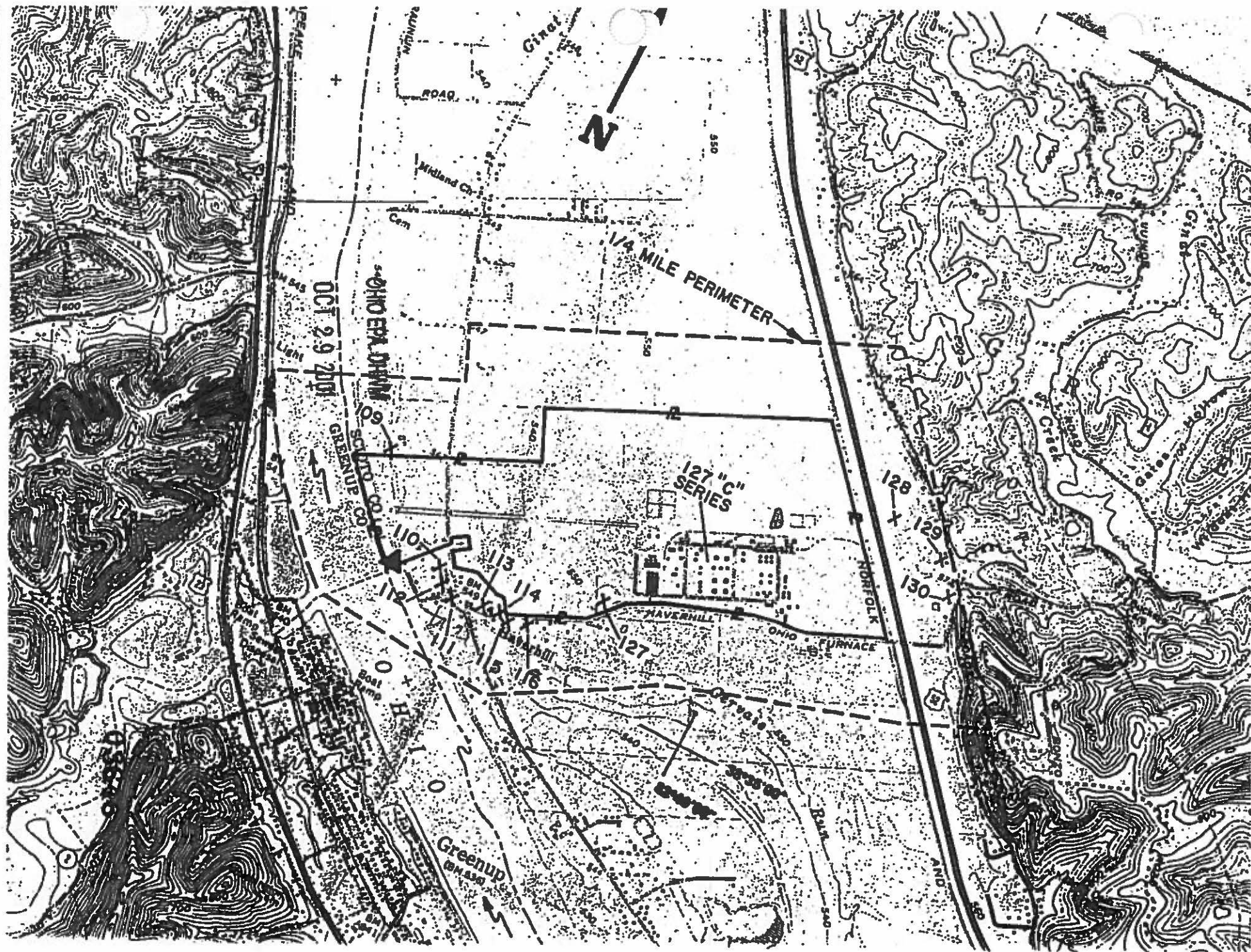
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OHIO EPA DATA









## Scioto County

Scientific Name	Common Name	Last Observed	State Status	Federal Status
<i>Aconitum uncinatum</i>	Southern Monkshood	2011-05-18	E	
<i>Ageratina aromatica</i>	Small White Snakeroot	2009-09-12	E	
<i>Anomobryum filiforme</i>	Common Silver Moss	2006-03-10	E	
<i>Asclepias amplexicaulis</i>	Blunt-leaved Milkweed	2007-06-06	P	
<i>Asclepias variegata</i>	White Milkweed	2009-07-30	P	
<i>Astragalus canadensis</i>	Canada Milk-vetch	2008-07-12	T	
<i>Botrychium biternatum</i>	Sparse-lobed Grape Fern	1978-08-30	E	
<i>Carex crinita</i> var. <i>brevicrinis</i>	Short-fringed Sedge	2005-07-10	T	
<i>Carex purpurifera</i>	Purple Wood Sedge	2011-04-29	T	
<i>Carex reznicekii</i>	Reznicek's Sedge	2011-05-07	T	
<i>Chionanthus virginicus</i>	Fringe-tree	2006-08-05	P	
<i>Cirsium carolinianum</i>	Carolina Thistle	2007-06-06	T	
<i>Clitoria mariana</i>	Butterfly-pea	2006-07-12	P	
<i>Collinsonia verticillata</i>	Early Stoneroot	2012-05-21	E	
<i>Corallorhiza maculata</i>	Spotted Coral-root	1978-08-30	P	
<i>Corallorhiza wisteriana</i>	Spring Coral-root	2003-05-28	P	
<i>Crataegus uniflora</i>	Dwarf Hawthorn	2012-08-15	P	
<i>Descurainia pinnata</i>	Tansy Mustard	1991-04-30	T	
<i>Dichanthelium villosissimum</i>	Villous Panic Grass	2011-08-26	P	
<i>Dichanthelium yadkinense</i>	Spotted Panic Grass	2011-06-24	P	
<i>Eryngium yuccifolium</i>	Rattlesnake-master	2006-07-12	P	
<i>Erythronium rostratum</i>	Golden-star	2008-04-09	E	
<i>Eupatorium album</i>	White Thoroughwort	2011-07-22	T	
<i>Eurybia surculosa</i>	Creeping Aster	2009-09-12	E	
<i>Gentiana villosa</i>	Sampson's Snakeroot	2006-08-22	E	
<i>Gratiola virginiana</i>	Round-fruited Hedge-hyssop	1982-05-12	T	
<i>Gratiola viscidula</i>	Short's Hedge-hyssop	2011-07-31	P	
<i>Heuchera longiflora</i>	Long-flowered Alum-root	2004-05-05	T	
<i>Heuchera parviflora</i>	Small-flowered Alum-root	2009-06-09	T	
<i>Hottonia inflata</i>	Featherfoil	1984-05	X	
<i>Iris verna</i>	Dwarf Iris	2011-05-10	T	





## Scioto County

Scientific Name	Common Name	Last Observed	State Status	Federal Status
<i>Isoetes engelmannii</i>	Appalachian Quillwort	2012-07	E	
<i>Isotria medeoloides</i>	Small Whorled Pogonia	1985-08-09	E	
<i>Juncus platyphyllus</i>	Flat-leaved Rush	1951-08-28	E	
<i>Juncus secundus</i>	One-sided Rush	2011-07-03	P	
<i>Lactuca hirsuta</i>	Hairy Tall Lettuce	2011-07-22	T	
<i>Lechea tenuifolia</i>	Narrow-leaved Pinweed	2011-07-16	P	
<i>Liatris scariosa</i>	Large Blazing-star	1979-08-26	T	
<i>Lilium philadelphicum</i>	Wood Lily	1985-06-10	E	
<i>Luzula bulbosa</i>	Southern Woodrush	1975-04-24	P	
<i>Magnolia tripetala</i>	Umbrella Magnolia	2011-08-26	P	
<i>Malaxis unifolia</i>	Green Adder's-mouth	2007	P	
<i>Orbexilum pedunculatum</i>	False Scurf-pea	2011-07-31	P	
<i>Paspalum repens</i>	Riverbank Paspalum	1995-10-25	T	
<i>Phacelia bipinnatifida</i>	Fern-leaved Scorpion-weed	1990-05-09	P	
<i>Phacelia dubia</i>	Small-flowered Scorpion-weed	2006-05-23	E	
<i>Phaseolus polystachios</i>	Wild Kidney Bean	2011-08-26	P	
<i>Phyllanthus caroliniensis</i>	Carolina Leaf-flower	2003-08-14	T	
<i>Platanthera ciliaris</i>	Yellow Fringed Orchid	2012-08-03	T	
<i>Polygala incarnata</i>	Pink Milkwort	2011-07-03	E	
<i>Potamogeton pulcher</i>	Spotted Pondweed	1980-05-30	E	
<i>Potamogeton tennesseensis</i>	Tennessee Pondweed	1993-07-19	T	
<i>Prenanthes trifoliolata</i>	Gall-of-the-earth	2009-08-19	E	
<i>Prosartes maculata</i>	Nodding Mandarin	2012-04-17	T	
<i>Quercus falcata</i>	Spanish Oak	2011-07-31	T	
<i>Quercus marilandica</i>	Blackjack Oak	2011-08-26	P	
<i>Ranunculus ambigens</i>	Water-plantain Spearwort	1981-08-21	X	
<i>Ranunculus pusillus</i>	Low Spearwort	1994-05-05	T	
<i>Rhexia virginica</i>	Virginia Meadow-beauty	2011-07-03	P	
<i>Rhododendron maximum</i>	Great Rhododendron	2003-10-15	T	
<i>Rhododendron periclymenoides</i>	Pinxter-flower	2011-07-31	T	
<i>Rosa blanda</i>	Smooth Rose	2009-08-01	P	





## Scioto County

Scientific Name	Common Name	Last Observed	State Status	Federal Status
<i>Saccharum alopecuroides</i>	Silver Plume Grass	2013-07-25	E	
<i>Sagina decumbens</i>	Southern Pearlwort	2005-05-04	E	
<i>Salix caroliniana</i>	Carolina Willow	2006-07-20	P	
<i>Scleria oligantha</i>	Tubercled Nut-rush	2009-09-01	P	
<i>Scleria pauciflora</i>	Few-flowered Nut-rush	2012-08-15	P	
<i>Scutellaria saxatilis</i>	Rock Skullcap	1985-07-31	T	
<i>Sericocarpus linifolius</i>	Narrow-leaved Aster	2011-08-26	T	
<i>Sida hermaphrodita</i>	Virginia-mallow	1992-10-06	P	
<i>Silene caroliniana ssp. wherryi</i>	Wherry's Catchfly	2005-05-04	T	
<i>Solidago odora</i>	Sweet Goldenrod	2011-09-27	T	
<i>Solidago squarrosa</i>	Leafy Goldenrod	2009-08-19	T	
<i>Spermacoce glabra</i>	Smooth Buttonweed	1992-10-06	P	
<i>Spiraea virginiana</i>	Appalachian Spiraea	2006-08-02	E	FT
<i>Spiranthes lucida</i>	Shining Ladies'-tresses	1974-08	P	
<i>Stenanthium gramineum</i>	Feather-bells	2009-07-29	P	
<i>Triadenum tubulosum</i>	Large Marsh St. John's-wort	1991-07-28	T	
<i>Viburnum rufidulum</i>	Southern Black-haw	2008-05-17	P	
<i>Viola lanceolata</i>	Lance-leaved Violet	1982-05	P	
<i>Viola pedata</i>	Birdfoot Violet	2007-06-06	T	
<i>Viola primulifolia</i>	Primrose-leaved Violet	2011-08-11	T	
<i>Viola tripartita var. glaberrima</i>	Wedge-leaved Violet	2002-04-25	T	
<i>Xyris torta</i>	Twisted Yellow-eyed-grass	2003-10-15	T	



Ohio Division of Wildlife

Ohio Natural Heritage Database

Date Accessed: March 6, 2015

Status based on 2014-15 Rare Plant List.

### Status:

X = Extirpated

E = Endangered





## Scioto County

Scientific Name	Common Name	Last Observed	State Status	Federal Status
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*T = Threatened*

*P = Potentially Threatened*

List Created: July 2016



## Scioto County State Listed Animal Species

Common Name	Scientific Name	Group	State Status	Federal Status
Green Salamander	<i>Aneides aeneus</i>	Amphibian	Endangered	
Eastern Hellbender	<i>Cryptobranchus alleganiensis alleganiensis</i>	Amphibian	Endangered	
Eastern Spadefoot	<i>Scaphiopus holbrookii</i>	Amphibian	Endangered	
Uhler's Sundragon	<i>Helocordulia uhleri</i>	Dragonfly	Endangered	
Blue corporal	<i>Ladona deplanata</i>	Dragonfly	Endangered	
Goldeye	<i>Hiodon alosoides</i>	Fish	Endangered	
Northern Brook Lamprey	<i>Ichthyomyzon fossor</i>	Fish	Endangered	
Shortnose Gar	<i>Lepisosteus platostomus</i>	Fish	Endangered	
Shoal chub	<i>Macrhybopsis hyostoma</i>	Fish	Endangered	
Popeye Shiner	<i>Notropis ariommus</i>	Fish	Endangered	
Bigeye Shiner	<i>Notropis boops</i>	Fish	Endangered	
Northern Madtom	<i>Noturus stigmosus</i>	Fish	Endangered	
Gilt Darter	<i>Percina evides</i>	Fish	Endangered	
Shovelnose Sturgeon	<i>Scaphirhynchus platyrhynchus</i>	Fish	Endangered	
Black Bear	<i>Ursus americanus</i>	Mammal	Endangered	
Wartyback	<i>Cyclonaias nodulata</i>	Mollusk	Endangered	
Fanshell	<i>Cyprogenia stegaria</i>	Mollusk	Endangered	Endangered
Butterfly	<i>Ellipsaria lineolata</i>	Mollusk	Endangered	
Elephant-ear	<i>Elliptio crassidens</i>	Mollusk	Endangered	
Purple Cat's Paw	<i>Epioblasma obliquata</i>	Mollusk	Endangered	Endangered





Common Name	Scientific Name	Group	State Status	Federal Status
Northern Riffleshell	<i>Epioblasma rangiana</i>	Mollusk	Endangered	Endangered
Snuffbox	<i>Epioblasma triquetra</i>	Mollusk	Endangered	Endangered
Longsolid	<i>Fusconaia subrotunda</i>	Mollusk	Endangered	
Pocketbook	<i>Lampsilis ovata</i>	Mollusk	Endangered	
Yellow Sandshell	<i>Lampsilis teres</i>	Mollusk	Endangered	
Washboard	<i>Megaloniaia nervosa</i>	Mollusk	Endangered	
Sheepnose	<i>Plethobasus cyphus</i>	Mollusk	Endangered	Endangered
Ohio Pigtoe	<i>Pleurobema cordatum</i>	Mollusk	Endangered	
Pyramid Pigtoe	<i>Pleurobema rubrum</i>	Mollusk	Endangered	
Ebonyshell	<i>Reginaia ebenus</i>	Mollusk	Endangered	
Monkeyface	<i>Theliderma metanevra</i>	Mollusk	Endangered	
Rayed Bean	<i>Villosa fabalis</i>	Mollusk	Endangered	Endangered
Little Spectaclecase	<i>Villosa lienosa</i>	Mollusk	Endangered	
Hebard's Noctuid Moth	<i>Erythroecia hebardii</i>	Moth	Endangered	
Timber Rattlesnake	<i>Crotalus horridus</i>	Reptile	Endangered	
Mud Salamander	<i>Pseudotriton montanus</i>	Amphibian	Threatened	
Midland Mud Salamander	<i>Pseudotriton montanus diastictus</i>	Amphibian	Threatened	
American Eel	<i>Anguilla rostrata</i>	Fish	Threatened	
Blue Sucker	<i>Cycleptus elongatus</i>	Fish	Threatened	
Tippecanoe Darter	<i>Etheostoma tippecanoe</i>	Fish	Threatened	
Channel Darter	<i>Percina copelandi</i>	Fish	Threatened	
River Darter	<i>Percina shumardi</i>	Fish	Threatened	





Common Name	Scientific Name	Group	State Status	Federal Status
Paddlefish	<i>Polyodon spathula</i>	Fish	Threatened	
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	Mammal	Threatened	Threatened
Black Sandshell	<i>Ligumia recta</i>	Mollusk	Threatened	
Threehorn Wartyback	<i>Obliquaria reflexa</i>	Mollusk	Threatened	
Fawnsfoot	<i>Truncilla donaciformis</i>	Mollusk	Threatened	
Eastern Cricket Frog	<i>Acris crepitans crepitans</i>	Amphibian	Species of Concern	
Four-toed Salamander	<i>Hemidactylium scutatum</i>	Amphibian	Species of Concern	
Sharp-shinned Hawk	<i>Accipiter striatus</i>	Bird	Species of Concern	
Henslow's Sparrow	<i>Ammodramus henslowii</i>	Bird	Species of Concern	
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	Bird	Species of Concern	
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	Bird	Species of Concern	
Ruffed Grouse	<i>Bonasa umbellus</i>	Bird	Species of Concern	
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	Bird	Species of Concern	
Northern Bobwhite	<i>Colinus virginianus</i>	Bird	Species of Concern	
American Coot	<i>Fulica americana</i>	Bird	Species of Concern	
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	Bird	Species of Concern	
Cerulean Warbler	<i>Setophaga cerulea</i>	Bird	Species of Concern	
Northern Crayfish	<i>Orconectes (Gremicambarus) virilis</i>	Crayfish	Species of Concern	
Western Creek Chubsucker	<i>Erimyzon claviformis</i>	Fish	Species of Concern	
Muskellunge	<i>Esox masquinongy</i>	Fish	Species of Concern	
Blue Catfish	<i>Ictalurus furcatus</i>	Fish	Species of Concern	
Big Brown Bat	<i>Eptesicus fuscus</i>	Mammal	Species of Concern	





Common Name	Scientific Name	Group	State Status	Federal Status
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	Mammal	Species of Concern	
Red Bat	<i>Lasiurus borealis</i>	Mammal	Species of Concern	
Hoary Bat	<i>Lasiurus cinereus</i>	Mammal	Species of Concern	
Woodland Vole	<i>Microtus pinetorum</i>	Mammal	Species of Concern	
Little Brown Bat	<i>Myotis lucifugus</i>	Mammal	Species of Concern	
Tri-colored Bat	<i>Perimyotis subflavus</i>	Mammal	Species of Concern	
Deer Mouse	<i>Peromyscus maniculatus</i>	Mammal	Species of Concern	
Southern Bog Lemming	<i>Synaptomys cooperi</i>	Mammal	Species of Concern	
Common Gray Fox	<i>Urocyon cinereoargenteus</i>	Mammal	Species of Concern	
Elktoe	<i>Alasmidonta marginata</i>	Mollusk	Species of Concern	
Purple Wartyback	<i>Cyclonaias tuberculata</i>	Mollusk	Species of Concern	
Round Pigtoe	<i>Pleurobema sintoxia</i>	Mollusk	Species of Concern	
Kidneyshell	<i>Ptychobranhus fasciolaris</i>	Mollusk	Species of Concern	
Salamander Mussel	<i>Simpsonaias ambigua</i>	Mollusk	Species of Concern	
Deertoe	<i>Truncilla truncata</i>	Mollusk	Species of Concern	
Eastern Hognose Snake	<i>Heterodon platirhinos</i>	Reptile	Species of Concern	
Black Kingsnake	<i>Lampropeltis getula nigra</i>	Reptile	Species of Concern	
Northern Rough Greensnake	<i>Opheodrys aestivus</i>	Reptile	Species of Concern	
Queensnake	<i>Regina septemvittata</i>	Reptile	Species of Concern	
Little Brown Skink	<i>Scincella lateralis</i>	Reptile	Species of Concern	
Smooth Earthsnake	<i>Virginia valeriae</i>	Reptile	Species of Concern	
Chuck-will's-widow	<i>Caprimulgus carolinensis</i>	Bird	Special Interest	





Common Name	Scientific Name	Group	State Status	Federal Status
Least Flycatcher	<i>Empidonax minimus</i>	Bird	Special Interest	
Golden-crowned Kinglet	<i>Regulus satrapa</i>	Bird	Special Interest	
Blue-headed Vireo	<i>Vireo solitarius</i>	Bird	Special Interest	
Fisher	<i>Martes pennanti</i>	Mammal	Special Interest	
Bewick's Wren	<i>Thryomanes bewickii</i>	Bird	Extirpated	
Rice Rat	<i>Oryzomys palustris</i>	Mammal	Extirpated	
Mucket	<i>Actinonaias ligamentina ligamentina</i>	Mollusk	Extirpated	
Ring Pink	<i>Obovaria retusa</i>	Mollusk	Extirpated	
Rough Pigtoe	<i>Pleurobema plenum</i>	Mollusk	Extirpated	
Tubercled Blossom	<i>Epioblasma torulosa torulosa</i>	Mollusk	Extinct	





## CERTIFICATION

This Permit Application is signed below in accordance with the requirements of OAC Rule 3745-50-42:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."



Timothy Albert, Vice President Manufacturing  
ALTIVIA

March 25, 2022

Date