Norlite, LLC

628 SO. SARATOGA STREET
PO BOX 684
COHOES, NY 12047
PHONE: (518) 235-0401
FAX: (518) 235-0233

June 30, 2020

Ms. Kate Kornak
Regional Permit Administrator – Region 4
New York State Department of Environmental Conservation
1130 North Westcott Rd.
Schenectady, NY 12306-2014

Ms. Lynn Winterberger
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7256

RE: Norlite, LLC
RCRA Part 373 Permit Renewal Application
EPA ID Number NYD080469935

Dear Ms. Kornak and Ms. Winterberger:

Attached please find the Resource Conservation and Recovery Act (RCRA) Part 373 Permit Renewal Application and supporting documentation for the Norlite, LLC (Norlite) facility located at 628 South Saratoga Street, Cohoes, New York. This submission is a straightforward renewal to Norlite's existing RCRA Part 373 Permit (EPA ID# NYD080469935); no major modifications are being requested.

The Norlite facility in Cohoes, New York site is a manufacturer of lightweight aggregate. The lightweight aggregate raw material is shale that is mined on the property. The shale is introduced to two rotary kilns where it is heated and expanded to produce the lightweight aggregate. The kilns are fueled by natural gas, fuel oils, used oils, comparable fuels and hazardous waste fuels, with the primary heat source being the hazardous waste fuels. The facility operates as a transfer, storage and disposal facility (TSDF), receiving hazardous wastes from off-site. These hazardous wastes are a mixture of industry related solvents and oils from an assortment of chemical and pharmaceutical manufacturers, petroleum refinement and storage facilities, and other hazardous waste treatment companies.

The kilns are considered industrial furnaces and are equipped with newly installed state of the art air pollution control systems to comply with emission standards for industrial furnaces burning hazardous waste under the Clean Air Act - Maximum Achievable Control Technology (MACT), Subpart EEE.

Norlite, LLC

Norlite's current RCRA Part 373 Permit expires on December 31, 2020. The attached permit renewal application seeks to extend Norlite's current operations until January 1, 2026. For NYSDEC's consideration, the following documents are attached:

- RCRA Subtitle C Site Identification Form & Hazardous Waste Permit Part A Form
- Executive Summary/Facility Briefing Document
- Operations Plan
- Waste Analysis Plan
- Integrated Contingency Plan
- Security and Inspection Plan
- Personnel Training Plan
- Closure Plan
- RCRA Permit Related Drawings

As a Cohoes corporate neighbor for over 60 years, Norlite has always fulfilled its corporate social responsibility of being an environmentally conscious neighbor by enhancing public outreach to our community. In collaboration with NYSDEC, Norlite will actively seek public participation throughout the review process. The permit renewal information will be available on Norlite's website Norliteagg.com as well as Norlite and NYSDEC 24-hour contact information.

Please notify us if you have any questions regarding the application. You may reach me at (518) 235-0401 or email at: Prince.Knight@Tradebe.com.

Sincerely,

Norlite, LLC

Prince M. Knight III
Environmental & Regulatory Compliance Manager

Attachments: RCRA Subtitle C Site Identification Form & Hazardous Waste Permit Part A Form
Executive Summary/Facility Briefing Document
Operations Plan
Waste Analysis Plan
Integrated Contingency Plan
Security and Inspection Plan
Personnel Training Plan
Closure Plan
RCRA Permit Related Drawings

ecc: Nancy Baker, NYSDEC

Norlite, LLC

Debbie Gardell, NYSDEC
Joseph Hadersbeck, NYSDEC
Brian Maglienti, NYSDEC
Vickie Schmitt, NYSDEC
David Maguffin, Tradebe
Tita LaGrimas, Tradebe
Maryann Ashworth, PWGC

United States Environmental Protection Agency
RCRA SUBTITLE C SITE IDENTIFICATION FORM

1. Reason for Submittal (Select only one.)

☐	Obtaining or updating an EPA ID number for an on-going regulated activity that will continue for a period of time. (Includes HSM activity)
☐	Submitting as a component of the Hazardous Waste Report for _____ (Reporting Year)
	☐ Site was a TSD facility and/or generator of ≥ 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)
☐	Notifying that regulated activity is no longer occurring at this Site
☐	Obtaining or updating an EPA ID number for conducting Electronic Manifest Broker activities
☑	Submitting a new or revised Part A Form

2. Site EPA ID Number

N	Y	D	0	8	0	4	6	9	9	3	5

3. Site Name

Norlite, LLC

4. Site Location Address

Street Address **628 South Saratoga Street**		
City, Town, or Village **Cohoes**		County **Albany**
State **New York**	Country **United States**	Zip Code **12047**

5. Site Mailing Address

☐ Same as Location Address

Street Address **628 South Saratoga Street**		
City, Town, or Village **Cohoes**		
State **New York**	Country **United States**	Zip Code **12047**

6. Site Land Type

☑ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

7. North American Industry Classification System (NAICS) Code(s) for the Site (at least 5-digit codes)

A. (Primary)	**212325**	C.	**327992**
B.	**562211**	D.	

8. Site Contact Information

☐ Same as Location Address

First Name **David**	MI	Last Name **Maguffin**
Title **Plant Manager**		
Street Address **628 South Saratoga Street**		
City, Town, or Village **Cohoes**		
State **New York**	Country **United States**	Zip Code **12047**
Email **David.Maguffin@Tradebe.com**		
Phone **1-518-235-0401**	Ext **4014**	Fax **NA**

9. Legal Owner and Operator of the Site

A. Name of Site's Legal Owner

☐ Same as Location Address

Full Name **Tradebe Treatment & Recycling**	Date Became Owner (mm/dd/yyyy) **4/15/2011**

Owner Type

☑ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

Street Address **1433 E 83rd Ave Suite 200**		
City, Town, or Village **Merillville**		
State **Indiana**	Country **United States**	Zip Code **46410**
Email **bob.obrien@tradebe.com**		
Phone **219-354-2458**	Ext **NA**	Fax **NA**
Comments		

B. Name of Site's Legal Operator

☐ Same as Location Address

Full Name **Norlite LLC**	Date Became Operator (mm/dd/yyyy) **1/1/1956**

Operator Type

☑ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

Street Address **628 South Saratoga Street**		
City, Town, or Village **Cohoes**		
State **New York**	Country **United States**	Zip Code **12047**
Email **info@norliteagg.com**		
Phone **518-235-0030**	Ext	Fax **518-235-0233**
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

☑ Y ☐ N	1. Generator of Hazardous Waste—If "Yes", mark only one of the following—a, b, c	
☑	a. LQG	-Generates, in any calendar month (includes quantities imported by importer site) 1,000 kg/mo (2,200 lb/mo) or more of non-acute hazardous waste; 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.
☐	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.
☐	c. VSQG	Less than or equal to 100 kg/mo (220 lb/mo) of non-acute hazardous waste.
☑ Y ☐ 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. *Note: If "Yes", you MUST indicate that you are a Generator of Hazardous Waste in Item 10.A.1 above.*	
☑ Y ☐ N	3. Treater, Storer or Disposer of Hazardous Waste—Note: Part B of a hazardous waste permit is required for these activities.	
☑ Y ☐ N	4. Receives Hazardous Waste from Off-site	
☐ Y ☑ N	5 Recycler of Hazardous Waste	
☐	a. Recycler who stores prior to recycling	
☐	b. Recycler who does not store prior to recycling	
☐ Y ☑ N	6. Exempt Boiler and/or Industrial Furnace—If "Yes", mark all that apply.	
☐	a. Small Quantity On-site Burner Exemption	
☐	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.

See Section 7, Description of Hazardous Wastes, on Hazardous Waste Permit Part A Form						

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.

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

A. Other Waste Activities

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

B. Universal Waste Activities

☐ Y ☑ 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.
☐	a. Batteries
☐	b. Pesticides
☐	c. Mercury containing equipment
☐	d. Lamps
☐	e. Other (specify) _____
☐	f. Other (specify) _____
☐	g. Other (specify) _____
☐ Y ☑ N	2. Destination Facility for Universal Waste Note: A hazardous waste permit may be required for this activity.

C. Used Oil Activities

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

D. Pharmaceutical Activities

☐ Y ☑ N	1. Operating under 40 CFR 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.
☐	a. Healthcare Facility
☐	b. Reverse Distributor
☐ Y ☐ N	2. Withdrawing from operating under 40 CFR 266 Subpart P for the management of hazardous waste pharmaceuticals. Note: You may only withdraw if you are a healthcare facility that is no longer an LQG or SQG.

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

☐ Y ☑ N	A. Opting into or currently operating under 40 CFR 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.
☐	1. College or University
☐	2. Teaching Hospital that is owned by or has a formal written affiliation with a college or university
☐	3. Non-profit Institute that is owned by or has a formal written affiliation with a college or university
☐ Y ☑ N	B. Withdrawing from 40 CFR 262 Subpart K for the management of hazardous wastes in laboratories.

13. Episodic Generation

☐ Y ☑ 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?

14. LQG Consolidation of VSQG Hazardous Waste

☐ Y ☑ 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 VSQGs hazardous waste.

15. Notification of LQG Site Closure for a Central Accumulation Area (CAA) (optional) OR Entire Facility (required)

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

16. Notification of Hazardous Secondary Material (HSM) Activity

☐ Y ☑ 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.

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)

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 0 CFR 270.10(b) and 270.11)**.

Signature of legal owner, operator or authorized representative	Date (mm/dd/yyyy) 6/8/2020
Printed Name (First, Middle Initial Last) David E Maguffin	Title Plant Manager
Email David.Maguffin@tradebe.com	

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

United States Environmental Protection Agency

HAZARDOUS WASTE PERMIT PART A FORM

1. Facility Permit Contact

First Name	**David**	MI		Last Name	**Maguffin**
Title	**Plant Manager**				
Email	**David.Maguffin@Tradebe.com**				
Phone	**1-518-235-0401**	Ext	**4014**	Fax	**NA**

2. Facility Permit Contact Mailing Address

Street Address	**234 Hobart Street**				
City, Town, or Village	**Meriden**				
State	**CT**	Country	**United States**	Zip Code	**06450**

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

1/1/1956

4. Other Environmental Permits

A. Permit Type	B. Permit Number	C. Description
N	**4-01036-16/20**	**Surface Water Discharge Permit**
P	**4-01036-16/48**	**Title V Air Permit**
E	**4-01036-16/19**	**Mined Land Reclamation Permit**
S	**4-01036-16/51**	**Water Withdrawl Permit**

5. Nature of Business

Norlite, LLC produces an expanded shale, lightweight aggregate by the rotary kiln process. Norlite, LLC uses spent solvents, oils, and certain industrial wastes as process fuels in the kilns. Air emissions are controlled with dry and semi-dry emissions control devices. Norlite, LLC also stores and blends wastes from off-site generators for use on-site or for off-site transfer.

6. Process Codes and Design Capacities

Line Number		A. Process Code			B. Process Design Capacity (1) Amount	B. Process Design Capacity (2) Unit of Measure	C. Process Total Number of Units	D. Unit Name
1		S	0	1	15,212	G	002	Gallons
2		S	0	2	152,704	G	015	Gallons
3		T	0	1	152,704	G	015	Gallons
4		T	8	3	1,260	E	002	Gallons Per Hour

7. Description of Hazardous Wastes (Enter codes for Items 7.A, 7.C and 7.D(1)) See attached for Item 7 continued

Line No.		A. EPA Hazardous Waste No.				B. Estimated Annual Qty of Waste	C. Unit of Measure	D. Processes (1) Process Codes								D. Processes (2) Process Description (if code is not entered in 7.D1))
0	1	K	0	5	4	900	P	T	0	3	D	8	0			
0	2	D	0	0	2	400	P	T	0	3	D	8	0			
0	3	D	0	0	1	100	P	T	0	3	D	8	0			
0	4	D	0	0	1	10,000	T	S	0	1	S	0	2	T	8	3
0	5	F	0	0	1	4,000	T	S	0	1	S	0	2	T	8	3
0	6	F	0	0	2	4,000	T	S	0	1	S	0	2	T	8	3
0	7	F	0	0	3	4,000	T	S	0	1	S	0	2	T	8	3
0	8	F	0	0	5	4,000	T	S	0	1	S	0	2	T	8	3
0	9	D	0	0	2	1,000	T	S	0	1	S	0	2	T	8	3
1	0	D	0	0	3	1,000	T	S	0	1	S	0	2	T	8	3
1	1	D	0	0	4	1,000	T	S	0	1	S	0	2	T	8	3

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

RCRA Form A/B Question 7, continued

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	2	D	0	0	5	1,000	T	S	0	1	S	0	2	T	8	3	
1	3	D	0	0	6	1,000	T	S	0	1	S	0	2	T	8	3	
1	4	D	0	0	7	1,000	T	S	0	1	S	0	2	T	8	3	
1	5	D	0	0	8	1,000	T	S	0	1	S	0	2	T	8	3	
1	6	D	0	0	9	1,000	T	S	0	1	S	0	2	T	8	3	
1	7	D	0	1	0	1,000	T	S	0	1	S	0	2	T	8	3	
1	8	D	0	1	1	1,000	T	S	0	1	S	0	2	T	8	3	
1	9	D	0	1	8	1,000	T	S	0	1	S	0	2	T	8	3	
2	0	D	0	1	9	1,000	T	S	0	1	S	0	2	T	8	3	
2	1	D	0	2	1	1,000	T	S	0	1	S	0	2	T	8	3	
2	2	D	0	2	2	1,000	T	S	0	1	S	0	2	T	8	3	
2	3	D	0	2	3	1,000	T	S	0	1	S	0	2	T	8	3	
2	4	D	0	2	4	1,000	T	S	0	1	S	0	2	T	8	3	
2	5	D	0	2	5	1,000	T	S	0	1	S	0	2	T	8	3	
2	6	D	0	2	6	1,000	T	S	0	1	S	0	2	T	8	3	
2	7	D	0	2	7	1,000	T	S	0	1	S	0	2	T	8	3	
2	8	D	0	2	8	1,000	T	S	0	1	S	0	2	T	8	3	
2	9	D	0	2	9	1,000	T	S	0	1	S	0	2	T	8	3	
3	0	D	0	3	0	1,000	T	S	0	1	S	0	2	T	8	3	
3	1	D	0	3	2	1,000	T	S	0	1	S	0	2	T	8	3	
3	2	D	0	3	3	1,000	T	S	0	1	S	0	2	T	8	3	
3	3	D	0	3	4	1,000	T	S	0	1	S	0	2	T	8	3	
3	4	D	0	3	5	1,000	T	S	0	1	S	0	2	T	8	3	
3	5	D	0	3	6	1,000	T	S	0	1	S	0	2	T	8	3	
3	6	D	0	3	7	1,000	T	S	0	1	S	0	2	T	8	3	
3	7	D	0	3	8	1,000	T	S	0	1	S	0	2	T	8	3	
3	8	D	0	3	9	1,000	T	S	0	1	S	0	2	T	8	3	
3	9	D	0	4	0	1,000	T	S	0	1	S	0	2	T	8	3	
4	0	D	0	4	1	1,000	T	S	0	1	S	0	2	T	8	3	
4	1	D	0	4	2	1,000	T	S	0	1	S	0	2	T	8	3	
4	2	D	0	4	3	1,000	T	S	0	1	S	0	2	T	8	3	
4	3	F	0	0	4	1,000	T	S	0	1	S	0	2	T	8	3	
4	4	F	0	3	2	1,000	T	S	0	1	S	0	2	T	8	3	
4	5	F	0	3	4	1,000	T	S	0	1	S	0	2	T	8	3	
4	6	F	0	3	5	1,000	T	S	0	1	S	0	2	T	8	3	
4	7	F	0	3	7	1,000	T	S	0	1	S	0	2	T	8	3	
4	8	F	0	3	8	1,000	T	S	0	1	S	0	2	T	8	3	
4	9	F	0	3	9	1,000	T	S	0	1	S	0	2	T	8	3	
5	0	K	0	0	1	1,000	T	S	0	1	S	0	2	T	8	3	
5	1	K	0	0	2	1,000	T	S	0	1	S	0	2	T	8	3	
5	2	K	0	0	3	1,000	T	S	0	1	S	0	2	T	8	3	
5	3	K	0	0	4	1,000	T	S	0	1	S	0	2	T	8	3	
5	4	K	0	0	5	1,000	T	S	0	1	S	0	2	T	8	3	
5	5	K	0	0	6	1,000	T	S	0	1	S	0	2	T	8	3	
5	6	K	0	0	7	1,000	T	S	0	1	S	0	2	T	8	3	
5	7	K	0	0	8	1,000	T	S	0	1	S	0	2	T	8	3	
5	8	K	0	0	9	1,000	T	S	0	1	S	0	2	T	8	3	
5	9	K	0	1	0	1,000	T	S	0	1	S	0	2	T	8	3	
6	0	K	0	1	1	1,000	T	S	0	1	S	0	2	T	8	3	
6	1	K	0	1	3	1,000	T	S	0	1	S	0	2	T	8	3	
6	2	K	0	1	4	1,000	T	S	0	1	S	0	2	T	8	3	
6	3	K	0	1	5	1,000	T	S	0	1	S	0	2	T	8	3	
6	4	K	0	1	6	1,000	T	S	0	1	S	0	2	T	8	3	
6	5	K	0	1	7	1,000	T	S	0	1	S	0	2	T	8	3	

RCRA Form A/B Question 7, continued

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)
6	6	K	0	1	8	1,000	T	S	0	1	S	0	2	T	8	3	
6	7	K	0	1	9	1,000	T	S	0	1	S	0	2	T	8	3	
6	8	K	0	2	0	1,000	T	S	0	1	S	0	2	T	8	3	
6	9	K	0	2	2	1,000	T	S	0	1	S	0	2	T	8	3	
7	0	K	0	2	3	1,000	T	S	0	1	S	0	2	T	8	3	
7	1	K	0	2	4	1,000	T	S	0	1	S	0	2	T	8	3	
7	2	K	0	2	5	1,000	T	S	0	1	S	0	2	T	8	3	
7	3	K	0	2	6	1,000	T	S	0	1	S	0	2	T	8	3	
7	4	K	0	2	7	1,000	T	S	0	1	S	0	2	T	8	3	
7	5	K	0	2	8	1,000	T	S	0	1	S	0	2	T	8	3	
7	6	K	0	2	9	1,000	T	S	0	1	S	0	2	T	8	3	
7	7	K	0	3	0	1,000	T	S	0	1	S	0	2	T	8	3	
7	8	K	0	4	6	1,000	T	S	0	1	S	0	2	T	8	3	
7	9	K	0	4	8	1,000	T	S	0	1	S	0	2	T	8	3	
8	0	K	0	4	9	1,000	T	S	0	1	S	0	2	T	8	3	
8	1	K	0	5	0	1,000	T	S	0	1	S	0	2	T	8	3	
8	2	K	0	5	1	1,000	T	S	0	1	S	0	2	T	8	3	
8	3	K	0	5	2	1,000	T	S	0	1	S	0	2	T	8	3	
8	4	K	0	6	0	1,000	T	S	0	1	S	0	2	T	8	3	
8	5	K	0	6	1	1,000	T	S	0	1	S	0	2	T	8	3	
8	6	K	0	6	2	1,000	T	S	0	1	S	0	2	T	8	3	
8	7	K	0	8	3	1,000	T	S	0	1	S	0	2	T	8	3	
8	8	K	0	8	4	1,000	T	S	0	1	S	0	2	T	8	3	
8	9	K	0	8	5	1,000	T	S	0	1	S	0	2	T	8	3	
9	0	K	0	8	6	1,000	T	S	0	1	S	0	2	T	8	3	
9	1	K	0	8	7	1,000	T	S	0	1	S	0	2	T	8	3	
9	2	K	0	9	3	1,000	T	S	0	1	S	0	2	T	8	3	
9	3	K	0	9	4	1,000	T	S	0	1	S	0	2	T	8	3	
9	4	K	0	9	5	1,000	T	S	0	1	S	0	2	T	8	3	
9	5	K	0	9	6	1,000	T	S	0	1	S	0	2	T	8	3	
9	6	K	1	0	0	1,000	T	S	0	1	S	0	2	T	8	3	
9	7	K	1	0	1	1,000	T	S	0	1	S	0	2	T	8	3	
9	8	K	1	0	2	1,000	T	S	0	1	S	0	2	T	8	3	
9	9	K	1	0	3	1,000	T	S	0	1	S	0	2	T	8	3	
10	0	K	1	0	4	1,000	T	S	0	1	S	0	2	T	8	3	
10	1	K	1	0	5	1,000	T	S	0	1	S	0	2	T	8	3	
10	2	K	1	1	1	1,000	T	S	0	1	S	0	2	T	8	3	
10	3	K	1	1	2	1,000	T	S	0	1	S	0	2	T	8	3	
10	4	K	1	1	3	1,000	T	S	0	1	S	0	2	T	8	3	
10	5	K	1	1	4	1,000	T	S	0	1	S	0	2	T	8	3	
10	6	K	1	1	5	1,000	T	S	0	1	S	0	2	T	8	3	
10	7	K	1	1	6	1,000	T	S	0	1	S	0	2	T	8	3	
10	8	K	1	1	7	1,000	T	S	0	1	S	0	2	T	8	3	
10	9	K	1	1	8	1,000	T	S	0	1	S	0	2	T	8	3	
11	0	K	1	3	6	1,000	T	S	0	1	S	0	2	T	8	3	
11	1	K	1	4	1	1,000	T	S	0	1	S	0	2	T	8	3	
11	2	K	1	4	2	1,000	T	S	0	1	S	0	2	T	8	3	
11	3	K	1	4	3	1,000	T	S	0	1	S	0	2	T	8	3	
11	4	K	1	4	4	1,000	T	S	0	1	S	0	2	T	8	3	
11	5	K	1	4	5	1,000	T	S	0	1	S	0	2	T	8	3	
11	6	K	1	4	7	1,000	T	S	0	1	S	0	2	T	8	3	
11	7	K	1	4	8	1,000	T	S	0	1	S	0	2	T	8	3	
11	8	K	1	4	9	1,000	T	S	0	1	S	0	2	T	8	3	
11	9	K	1	5	0	1,000	T	S	0	1	S	0	2	T	8	3	

RCRA Form A/B Question 7, continued

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)
12	0	K	1	5	1	1,000	T	S	0	1	S	0	2	T	8	3	
12	1	K	1	5	2	1,000	T	S	0	1	S	0	2	T	8	3	
12	2	K	1	5	6	1,000	T	S	0	1	S	0	2	T	8	3	
12	3	K	1	5	7	1,000	T	S	0	1	S	0	2	T	8	3	
12	4	K	1	5	8	1,000	T	S	0	1	S	0	2	T	8	3	
12	5	K	1	5	9	1,000	T	S	0	1	S	0	2	T	8	3	
12	6	K	1	6	1	1,000	T	S	0	1	S	0	2	T	8	3	
12	7	P	0	0	2	1,000	T	S	0	1	S	0	2	T	8	3	
12	8	P	0	0	3	1,000	T	S	0	1	S	0	2	T	8	3	
12	9	P	0	0	5	1,000	T	S	0	1	S	0	2	T	8	3	
13	0	P	0	0	7	1,000	T	S	0	1	S	0	2	T	8	3	
13	1	P	0	1	0	1,000	T	S	0	1	S	0	2	T	8	3	
13	2	P	0	1	1	1,000	T	S	0	1	S	0	2	T	8	3	
13	3	P	0	1	2	1,000	T	S	0	1	S	0	2	T	8	3	
13	4	P	0	1	3	1,000	T	S	0	1	S	0	2	T	8	3	
13	5	P	0	1	4	1,000	T	S	0	1	S	0	2	T	8	3	
13	6	P	0	1	6	1,000	T	S	0	1	S	0	2	T	8	3	
13	7	P	0	1	7	1,000	T	S	0	1	S	0	2	T	8	3	
13	8	P	0	1	8	1,000	T	S	0	1	S	0	2	T	8	3	
13	9	P	0	2	1	1,000	T	S	0	1	S	0	2	T	8	3	
14	0	P	0	2	2	1,000	T	S	0	1	S	0	2	T	8	3	
14	1	P	0	2	3	1,000	T	S	0	1	S	0	2	T	8	3	
14	2	P	0	2	8	1,000	T	S	0	1	S	0	2	T	8	3	
14	3	P	0	2	6	1,000	T	S	0	1	S	0	2	T	8	3	
14	4	P	0	2	7	1,000	T	S	0	1	S	0	2	T	8	3	
14	5	P	0	2	9	1,000	T	S	0	1	S	0	2	T	8	3	
14	6	P	0	3	0	1,000	T	S	0	1	S	0	2	T	8	3	
14	7	P	0	3	4	1,000	T	S	0	1	S	0	2	T	8	3	
14	8	P	0	3	6	1,000	T	S	0	1	S	0	2	T	8	3	
14	9	P	0	3	8	1,000	T	S	0	1	S	0	2	T	8	3	
15	0	P	0	4	1	1,000	T	S	0	1	S	0	2	T	8	3	
15	1	P	0	4	2	1,000	T	S	0	1	S	0	2	T	8	3	
15	2	P	0	4	6	1,000	T	S	0	1	S	0	2	T	8	3	
15	3	P	0	4	8	1,000	T	S	0	1	S	0	2	T	8	3	
15	4	P	0	4	9	1,000	T	S	0	1	S	0	2	T	8	3	
15	5	P	0	5	4	1,000	T	S	0	1	S	0	2	T	8	3	
15	6	P	0	6	0	1,000	T	S	0	1	S	0	2	T	8	3	
15	7	P	0	6	2	1,000	T	S	0	1	S	0	2	T	8	3	
15	8	P	0	6	4	1,000	T	S	0	1	S	0	2	T	8	3	
15	9	P	0	6	7	1,000	T	S	0	1	S	0	2	T	8	3	
16	0	P	0	6	8	1,000	T	S	0	1	S	0	2	T	8	3	
16	1	P	0	6	9	1,000	T	S	0	1	S	0	2	T	8	3	
16	2	P	0	7	4	1,000	T	S	0	1	S	0	2	T	8	3	
16	3	P	0	7	7	1,000	T	S	0	1	S	0	2	T	8	3	
16	4	P	0	8	2	1,000	T	S	0	1	S	0	2	T	8	3	
16	5	P	0	8	4	1,000	T	S	0	1	S	0	2	T	8	3	
16	6	P	0	9	3	1,000	T	S	0	1	S	0	2	T	8	3	
16	7	P	0	9	9	1,000	T	S	0	1	S	0	2	T	8	3	
16	8	P	1	0	1	1,000	T	S	0	1	S	0	2	T	8	3	
16	9	P	1	0	3	1,000	T	S	0	1	S	0	2	T	8	3	
17	0	P	1	0	4	1,000	T	S	0	1	S	0	2	T	8	3	
17	1	P	1	0	5	1,000	T	S	0	1	S	0	2	T	8	3	
17	2	P	1	1	0	1,000	T	S	0	1	S	0	2	T	8	3	
17	3	P	1	1	3	1,000	T	S	0	1	S	0	2	T	8	3	

RCRA Form A/B Question 7, continued

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)
17	4	P	1	1	4	1,000	T	S	0	1	S	0	2	T	8	3	
17	5	P	1	1	6	1,000	T	S	0	1	S	0	2	T	8	3	
17	6	P	1	1	8	1,000	T	S	0	1	S	0	2	T	8	3	
17	7	P	1	1	9	1,000	T	S	0	1	S	0	2	T	8	3	
17	8	P	1	2	0	1,000	T	S	0	1	S	0	2	T	8	3	
17	9	P	1	2	1	1,000	T	S	0	1	S	0	2	T	8	3	
18	0	P	1	8	8	1,000	T	S	0	1	S	0	2	T	8	3	
18	1	P	1	9	0	1,000	T	S	0	1	S	0	2	T	8	3	
18	2	P	1	9	1	1,000	T	S	0	1	S	0	2	T	8	3	
18	3	P	2	0	4	1,000	T	S	0	1	S	0	2	T	8	3	
18	4	U	0	0	1	1,000	T	S	0	1	S	0	2	T	8	3	
18	5	U	0	0	2	1,000	T	S	0	1	S	0	2	T	8	3	
18	6	U	0	0	3	1,000	T	S	0	1	S	0	2	T	8	3	
18	7	U	0	0	4	1,000	T	S	0	1	S	0	2	T	8	3	
18	8	U	0	0	5	1,000	T	S	0	1	S	0	2	T	8	3	
18	9	U	0	0	6	1,000	T	S	0	1	S	0	2	T	8	3	
19	0	U	0	0	7	1,000	T	S	0	1	S	0	2	T	8	3	
19	1	U	0	0	8	1,000	T	S	0	1	S	0	2	T	8	3	
19	2	U	0	0	9	1,000	T	S	0	1	S	0	2	T	8	3	
19	3	U	0	1	0	1,000	T	S	0	1	S	0	2	T	8	3	
19	4	U	0	1	2	1,000	T	S	0	1	S	0	2	T	8	3	
19	5	U	0	1	5	1,000	T	S	0	1	S	0	2	T	8	3	
19	6	U	0	1	6	1,000	T	S	0	1	S	0	2	T	8	3	
19	7	U	0	1	7	1,000	T	S	0	1	S	0	2	T	8	3	
19	8	U	0	1	8	1,000	T	S	0	1	S	0	2	T	8	3	
19	9	U	0	1	9	1,000	T	S	0	1	S	0	2	T	8	3	
20	0	U	0	2	0	1,000	T	S	0	1	S	0	2	T	8	3	
20	1	U	0	2	1	1,000	T	S	0	1	S	0	2	T	8	3	
20	2	U	0	2	2	1,000	T	S	0	1	S	0	2	T	8	3	
20	3	U	0	2	4	1,000	T	S	0	1	S	0	2	T	8	3	
20	4	U	0	2	5	1,000	T	S	0	1	S	0	2	T	8	3	
20	5	U	0	2	7	1,000	T	S	0	1	S	0	2	T	8	3	
20	6	U	0	2	8	1,000	T	S	0	1	S	0	2	T	8	3	
20	7	U	0	3	0	1,000	T	S	0	1	S	0	2	T	8	3	
20	8	U	0	3	1	1,000	T	S	0	1	S	0	2	T	8	3	
20	9	U	0	3	4	1,000	T	S	0	1	S	0	2	T	8	3	
21	0	U	0	3	5	1,000	T	S	0	1	S	0	2	T	8	3	
21	1	U	0	3	7	1,000	T	S	0	1	S	0	2	T	8	3	
21	2	U	0	3	9	1,000	T	S	0	1	S	0	2	T	8	3	
21	3	U	0	4	1	1,000	T	S	0	1	S	0	2	T	8	3	
21	4	U	0	4	2	1,000	T	S	0	1	S	0	2	T	8	3	
21	5	U	0	4	3	1,000	T	S	0	1	S	0	2	T	8	3	
21	6	U	0	4	4	1,000	T	S	0	1	S	0	2	T	8	3	
21	7	U	0	4	5	1,000	T	S	0	1	S	0	2	T	8	3	
21	8	U	0	4	6	1,000	T	S	0	1	S	0	2	T	8	3	
21	9	U	0	4	7	1,000	T	S	0	1	S	0	2	T	8	3	
22	0	U	0	4	8	1,000	T	S	0	1	S	0	2	T	8	3	
22	1	U	0	4	9	1,000	T	S	0	1	S	0	2	T	8	3	
22	2	U	0	5	0	1,000	T	S	0	1	S	0	2	T	8	3	
22	3	U	0	5	1	1,000	T	S	0	1	S	0	2	T	8	3	
22	4	U	0	5	2	1,000	T	S	0	1	S	0	2	T	8	3	
22	5	U	0	5	3	1,000	T	S	0	1	S	0	2	T	8	3	
22	6	U	0	5	5	1,000	T	S	0	1	S	0	2	T	8	3	
22	7	U	0	5	6	1,000	T	S	0	1	S	0	2	T	8	3	

RCRA Form A/B Question 7, continued

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)
22	8	U	0	5	7	1,000	T	S	0	1	S	0	2	T	8	3	
22	9	U	0	5	9	1,000	T	S	0	1	S	0	2	T	8	3	
23	0	U	0	6	3	1,000	T	S	0	1	S	0	2	T	8	3	
23	1	U	0	6	4	1,000	T	S	0	1	S	0	2	T	8	3	
23	2	U	0	6	8	1,000	T	S	0	1	S	0	2	T	8	3	
23	3	U	0	6	9	1,000	T	S	0	1	S	0	2	T	8	3	
23	4	U	0	7	0	1,000	T	S	0	1	S	0	2	T	8	3	
23	5	U	0	7	1	1,000	T	S	0	1	S	0	2	T	8	3	
23	6	U	0	7	2	1,000	T	S	0	1	S	0	2	T	8	3	
23	7	U	0	7	3	1,000	T	S	0	1	S	0	2	T	8	3	
23	8	U	0	7	4	1,000	T	S	0	1	S	0	2	T	8	3	
23	9	U	0	7	5	1,000	T	S	0	1	S	0	2	T	8	3	
24	0	U	0	7	6	1,000	T	S	0	1	S	0	2	T	8	3	
24	1	U	0	7	7	1,000	T	S	0	1	S	0	2	T	8	3	
24	2	U	0	7	8	1,000	T	S	0	1	S	0	2	T	8	3	
24	3	U	0	7	9	1,000	T	S	0	1	S	0	2	T	8	3	
24	4	U	0	8	0	1,000	T	S	0	1	S	0	2	T	8	3	
24	5	U	0	8	1	1,000	T	S	0	1	S	0	2	T	8	3	
24	6	U	0	8	2	1,000	T	S	0	1	S	0	2	T	8	3	
24	7	U	0	8	3	1,000	T	S	0	1	S	0	2	T	8	3	
24	8	U	0	8	5	1,000	T	S	0	1	S	0	2	T	8	3	
24	9	U	0	8	6	1,000	T	S	0	1	S	0	2	T	8	3	
25	0	U	0	8	7	1,000	T	S	0	1	S	0	2	T	8	3	
25	1	U	0	8	8	1,000	T	S	0	1	S	0	2	T	8	3	
25	2	U	0	8	9	1,000	T	S	0	1	S	0	2	T	8	3	
25	3	U	0	9	0	1,000	T	S	0	1	S	0	2	T	8	3	
25	4	U	0	9	1	1,000	T	S	0	1	S	0	2	T	8	3	
25	5	U	0	9	2	1,000	T	S	0	1	S	0	2	T	8	3	
25	6	U	0	9	3	1,000	T	S	0	1	S	0	2	T	8	3	
25	7	U	0	9	4	1,000	T	S	0	1	S	0	2	T	8	3	
25	8	U	0	9	5	1,000	T	S	0	1	S	0	2	T	8	3	
25	9	U	0	9	6	1,000	T	S	0	1	S	0	2	T	8	3	
26	0	U	0	9	7	1,000	T	S	0	1	S	0	2	T	8	3	
26	1	U	0	9	8	1,000	T	S	0	1	S	0	2	T	8	3	
26	2	U	0	9	9	1,000	T	S	0	1	S	0	2	T	8	3	
26	3	U	1	0	1	1,000	T	S	0	1	S	0	2	T	8	3	
26	4	U	1	0	2	1,000	T	S	0	1	S	0	2	T	8	3	
26	5	U	1	0	3	1,000	T	S	0	1	S	0	2	T	8	3	
26	6	U	1	0	5	1,000	T	S	0	1	S	0	2	T	8	3	
26	7	U	1	0	6	1,000	T	S	0	1	S	0	2	T	8	3	
26	8	U	1	0	7	1,000	T	S	0	1	S	0	2	T	8	3	
26	9	U	1	0	8	1,000	T	S	0	1	S	0	2	T	8	3	
27	0	U	1	0	9	1,000	T	S	0	1	S	0	2	T	8	3	
27	1	U	1	1	0	1,000	T	S	0	1	S	0	2	T	8	3	
27	2	U	1	1	1	1,000	T	S	0	1	S	0	2	T	8	3	
27	3	U	1	1	2	1,000	T	S	0	1	S	0	2	T	8	3	
27	4	U	1	1	3	1,000	T	S	0	1	S	0	2	T	8	3	
27	5	U	1	1	4	1,000	T	S	0	1	S	0	2	T	8	3	
27	6	U	1	1	5	1,000	T	S	0	1	S	0	2	T	8	3	
27	7	U	1	1	6	1,000	T	S	0	1	S	0	2	T	8	3	
27	8	U	1	1	7	1,000	T	S	0	1	S	0	2	T	8	3	
27	9	U	1	1	8	1,000	T	S	0	1	S	0	2	T	8	3	
28	0	U	1	1	9	1,000	T	S	0	1	S	0	2	T	8	3	
28	1	U	1	2	0	1,000	T	S	0	1	S	0	2	T	8	3	

RCRA Form A/B Question 7, continued

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)
28	2	U	1	2	1	1,000	T	S	0	1	S	0	2	T	8	3	
28	3	U	1	2	2	1,000	T	S	0	1	S	0	2	T	8	3	
28	4	U	1	2	3	1,000	T	S	0	1	S	0	2	T	8	3	
28	5	U	1	2	4	1,000	T	S	0	1	S	0	2	T	8	3	
28	6	U	1	2	5	1,000	T	S	0	1	S	0	2	T	8	3	
28	7	U	1	2	6	1,000	T	S	0	1	S	0	2	T	8	3	
28	8	U	1	2	7	1,000	T	S	0	1	S	0	2	T	8	3	
28	9	U	1	2	8	1,000	T	S	0	1	S	0	2	T	8	3	
29	0	U	1	3	1	1,000	T	S	0	1	S	0	2	T	8	3	
29	1	U	1	3	3	1,000	T	S	0	1	S	0	2	T	8	3	
29	2	U	1	3	4	1,000	T	S	0	1	S	0	2	T	8	3	
29	3	U	1	3	5	1,000	T	S	0	1	S	0	2	T	8	3	
29	4	U	1	3	7	1,000	T	S	0	1	S	0	2	T	8	3	
29	5	U	1	3	8	1,000	T	S	0	1	S	0	2	T	8	3	
29	6	U	1	4	0	1,000	T	S	0	1	S	0	2	T	8	3	
29	7	U	1	4	1	1,000	T	S	0	1	S	0	2	T	8	3	
29	8	U	1	4	3	1,000	T	S	0	1	S	0	2	T	8	3	
29	9	U	1	4	4	1,000	T	S	0	1	S	0	2	T	8	3	
30	0	U	1	4	6	1,000	T	S	0	1	S	0	2	T	8	3	
30	1	U	1	4	7	1,000	T	S	0	1	S	0	2	T	8	3	
30	2	U	1	4	9	1,000	T	S	0	1	S	0	2	T	8	3	
30	3	U	1	5	0	1,000	T	S	0	1	S	0	2	T	8	3	
30	4	U	1	5	2	1,000	T	S	0	1	S	0	2	T	8	3	
30	5	U	1	5	3	1,000	T	S	0	1	S	0	2	T	8	3	
30	6	U	1	5	4	1,000	T	S	0	1	S	0	2	T	8	3	
30	7	U	1	5	5	1,000	T	S	0	1	S	0	2	T	8	3	
30	8	U	1	5	6	1,000	T	S	0	1	S	0	2	T	8	3	
30	9	U	1	5	7	1,000	T	S	0	1	S	0	2	T	8	3	
31	0	U	1	5	8	1,000	T	S	0	1	S	0	2	T	8	3	
31	1	U	1	5	9	1,000	T	S	0	1	S	0	2	T	8	3	
31	2	U	1	6	0	1,000	T	S	0	1	S	0	2	T	8	3	
31	3	U	1	6	1	1,000	T	S	0	1	S	0	2	T	8	3	
31	4	U	1	6	2	1,000	T	S	0	1	S	0	2	T	8	3	
31	5	U	1	6	3	1,000	T	S	0	1	S	0	2	T	8	3	
31	6	U	1	6	4	1,000	T	S	0	1	S	0	2	T	8	3	
31	7	U	1	6	5	1,000	T	S	0	1	S	0	2	T	8	3	
31	8	U	1	6	6	1,000	T	S	0	1	S	0	2	T	8	3	
31	9	U	1	6	7	1,000	T	S	0	1	S	0	2	T	8	3	
32	0	U	1	6	8	1,000	T	S	0	1	S	0	2	T	8	3	
32	1	U	1	6	9	1,000	T	S	0	1	S	0	2	T	8	3	
32	2	U	1	7	0	1,000	T	S	0	1	S	0	2	T	8	3	
32	3	U	1	7	1	1,000	T	S	0	1	S	0	2	T	8	3	
32	4	U	1	7	2	1,000	T	S	0	1	S	0	2	T	8	3	
32	5	U	1	7	3	1,000	T	S	0	1	S	0	2	T	8	3	
32	6	U	1	7	4	1,000	T	S	0	1	S	0	2	T	8	3	
32	7	U	1	7	6	1,000	T	S	0	1	S	0	2	T	8	3	
32	8	U	1	7	7	1,000	T	S	0	1	S	0	2	T	8	3	
32	9	U	1	7	8	1,000	T	S	0	1	S	0	2	T	8	3	
33	0	U	1	7	9	1,000	T	S	0	1	S	0	2	T	8	3	
33	1	U	1	8	0	1,000	T	S	0	1	S	0	2	T	8	3	
33	2	U	1	8	1	1,000	T	S	0	1	S	0	2	T	8	3	
33	3	U	1	8	2	1,000	T	S	0	1	S	0	2	T	8	3	
33	4	U	1	8	3	1,000	T	S	0	1	S	0	2	T	8	3	
33	5	U	1	8	6	1,000	T	S	0	1	S	0	2	T	8	3	

RCRA Form A/B Question 7, continued

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)
33	6	U	1	8	7	1,000	T	S	0	1	S	0	2	T	8	3	
33	7	U	1	8	8	1,000	T	S	0	1	S	0	2	T	8	3	
33	8	U	1	9	0	1,000	T	S	0	1	S	0	2	T	8	3	
33	9	U	1	9	1	1,000	T	S	0	1	S	0	2	T	8	3	
34	0	U	1	9	3	1,000	T	S	0	1	S	0	2	T	8	3	
34	1	U	1	9	4	1,000	T	S	0	1	S	0	2	T	8	3	
34	2	U	1	9	6	1,000	T	S	0	1	S	0	2	T	8	3	
34	3	U	1	9	7	1,000	T	S	0	1	S	0	2	T	8	3	
34	4	U	2	0	1	1,000	T	S	0	1	S	0	2	T	8	3	
34	5	U	2	0	2	1,000	T	S	0	1	S	0	2	T	8	3	
34	6	U	2	0	3	1,000	T	S	0	1	S	0	2	T	8	3	
34	7	U	2	0	6	1,000	T	S	0	1	S	0	2	T	8	3	
34	8	U	2	0	7	1,000	T	S	0	1	S	0	2	T	8	3	
34	9	U	2	0	8	1,000	T	S	0	1	S	0	2	T	8	3	
35	0	U	2	0	9	1,000	T	S	0	1	S	0	2	T	8	3	
35	1	U	2	1	0	1,000	T	S	0	1	S	0	2	T	8	3	
35	2	U	2	1	1	1,000	T	S	0	1	S	0	2	T	8	3	
35	3	U	2	1	3	1,000	T	S	0	1	S	0	2	T	8	3	
35	4	U	2	1	4	1,000	T	S	0	1	S	0	2	T	8	3	
35	5	U	2	1	8	1,000	T	S	0	1	S	0	2	T	8	3	
35	6	U	2	1	9	1,000	T	S	0	1	S	0	2	T	8	3	
35	7	U	2	2	0	1,000	T	S	0	1	S	0	2	T	8	3	
35	8	U	2	2	1	1,000	T	S	0	1	S	0	2	T	8	3	
35	9	U	2	2	2	1,000	T	S	0	1	S	0	2	T	8	3	
36	0	U	2	2	3	1,000	T	S	0	1	S	0	2	T	8	3	
36	1	U	2	2	5	1,000	T	S	0	1	S	0	2	T	8	3	
36	2	U	2	2	6	1,000	T	S	0	1	S	0	2	T	8	3	
36	3	U	2	2	7	1,000	T	S	0	1	S	0	2	T	8	3	
36	4	U	2	2	8	1,000	T	S	0	1	S	0	2	T	8	3	
36	5	U	2	3	5	1,000	T	S	0	1	S	0	2	T	8	3	
36	6	U	2	3	6	1,000	T	S	0	1	S	0	2	T	8	3	
36	7	U	2	3	8	1,000	T	S	0	1	S	0	2	T	8	3	
36	8	U	2	3	9	1,000	T	S	0	1	S	0	2	T	8	3	
36	9	U	2	4	3	1,000	T	S	0	1	S	0	2	T	8	3	
37	0	U	2	4	4	1,000	T	S	0	1	S	0	2	T	8	3	
37	1	U	2	4	6	1,000	T	S	0	1	S	0	2	T	8	3	
37	2	U	2	7	7	1,000	T	S	0	1	S	0	2	T	8	3	
37	3	U	3	2	8	1,000	T	S	0	1	S	0	2	T	8	3	
37	4	U	3	5	3	1,000	T	S	0	1	S	0	2	T	8	3	
37	5	U	3	5	9	1,000	T	S	0	1	S	0	2	T	8	3	
37	6	U	3	7	5	1,000	T	S	0	1	S	0	2	T	8	3	
37	7	U	3	7	6	1,000	T	S	0	1	S	0	2	T	8	3	
37	8	U	3	7	7	1,000	T	S	0	1	S	0	2	T	8	3	
37	9	U	3	7	8	1,000	T	S	0	1	S	0	2	T	8	3	
38	0	U	3	7	9	1,000	T	S	0	1	S	0	2	T	8	3	
38	1	U	3	8	1	1,000	T	S	0	1	S	0	2	T	8	3	
38	2	U	3	8	2	1,000	T	S	0	1	S	0	2	T	8	3	
38	3	U	3	8	3	1,000	T	S	0	1	S	0	2	T	8	3	
38	4	U	3	8	4	1,000	T	S	0	1	S	0	2	T	8	3	
38	5	U	3	8	5	1,000	T	S	0	1	S	0	2	T	8	3	
38	6	U	3	8	6	1,000	T	S	0	1	S	0	2	T	8	3	
38	7	U	3	8	7	1,000	T	S	0	1	S	0	2	T	8	3	
38	8	U	3	9	0	1,000	T	S	0	1	S	0	2	T	8	3	
38	9	U	3	9	1	1,000	T	S	0	1	S	0	2	T	8	3	

RCRA Form A/B Question 7, continued

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)
39	0	U	3	9	2	1,000	T	S	0	1	S	0	2	T	8	3	
39	1	U	3	9	3	1,000	T	S	0	1	S	0	2	T	8	3	
39	2	U	3	9	4	1,000	T	S	0	1	S	0	2	T	8	3	
39	3	U	3	9	5	1,000	T	S	0	1	S	0	2	T	8	3	
39	4	U	3	9	6	1,000	T	S	0	1	S	0	2	T	8	3	
39	5	U	4	0	0	1,000	T	S	0	1	S	0	2	T	8	3	
39	6	U	4	0	1	1,000	T	S	0	1	S	0	2	T	8	3	
39	7	U	4	0	2	1,000	T	S	0	1	S	0	2	T	8	3	
39	8	U	4	0	3	1,000	T	S	0	1	S	0	2	T	8	3	
39	9	U	4	0	4	1,000	T	S	0	1	S	0	2	T	8	3	
40	0	U	4	0	7	1,000	T	S	0	1	S	0	2	T	8	3	
40	1	U	4	1	0	1,000	T	S	0	1	S	0	2	T	8	3	
40	2	K	1	7	0	1,000	T	S	0	1	S	0	2	T	8	3	

Norlite Permit Modification Log 4-0103-00016/00016 As of 01/16/2019

#	Date Approved	6 NYCRR 373 Part B Permit (Section)	Modified Page/Reference Numbers		Date of Revised Pages	The nature of modifications
			Old	New		
1	4/1/2016	Attachment B	NY003-92023-2 100A/B/C	NY003-92023-100C	3/24/2016	Updated Tank Drawngs to reflect Major Tank Repair-100C
2	2/29/2016	Mod 1. Gen Cond.	I-9	I-9	2/29/2016	Language has been changed from "Condition C" to "Condition B".
3	2/29/2016	Mod 1. Sched 1 - Item #4	S1-8	S1-8	2/29/2016	Language has been changed from "paragraph 8" to "item 3".
4	2/29/2016	Mod 1. Sched 1 - E	S1-11	S1-11	2/29/2016	Language changed from "D.1.a" to "D.a"
5	2/29/2016	Mod 1. Sched 1 - F	S1-12	S1-12	2/29/2016	Language changed from "Exhibit B, Condition C" to "Exhibit B, Condition B".
6	2/29/2016	Mod 1. Sched 1 - C.5	A-5	A-5	2/29/2016	Language changed from "potable water" to " water/quarry water"
7	2/29/2016	Mod 1. Sched 1 - C.5	A-5 & 6	A-5 & 6	2/29/2016	Language changed from "Noise Impact Analysis…" to "Facility Noise Survey, 4/20.2009".
8	2/29/2016	Mod 1. Sched 1 - C	D-2	D-2,3	2/29/2016	Tank SP100 has been added to the list
9	2/29/2016	Executive Summary - Att A	3	3	2/29/2016	Permit Writer/DEC contact changed to Prince Knight
10	6/3/2016	Table of Contents	TOC	TOC	6/3/2016	Adjusted to include all current modifications
11	6/3/2016	Permit Application	Att A	Att A	6/3/2016	To include the signed permit application which was previously marked "Reserved".
12	6/3/2016	Mod 1. Sched 1 - F	S1-12	S1-12	6/3/2016	Requirement for Hazardous Waste Management copies to NYS DEC to reference 6 NYCRR 373-2.5(b)(1)(i)('b')('5')
13	6/3/2016	Mod 1. Sched 1 - F	S1-13	S1-13	6/3/2016	Requirement for reporting due date for "Tank Assessment report" changed to "Within 30 days of inspection".
14	6/3/2016	Mod 1. Sched 1 - Cond B Exhibit A	A-2 & 3	A-2 & 3	6/3/2016	Updated Contact information for Department submissions.
15	6/3/2016	Mod IV Cond K.4	IV-6 & 7	IV-6 & 7	6/3/2016	Remove the reference of 6 NYCRR 373-2.10(d)(4)(iii) and replace with Department standard language for secondary containment integrity assessment of tanks.
16	6/17/2016	Attachment B	NY003-92023-1 TK-200B/C	NY003-92023-200C	6/9/2016	Updated Tank Drawngs to reflect Major Tank Repair-200C
17	7/11/2016	Mod 1. Sched 1 -A	S1-4	S1-4	7/11/2016	Dept. Init. - Reference Final Statement of Basis
18	7/11/2016	Mod 1. Sched 1 -B Item#6	S1-9	S1-9	7/11/2016	Dept. Init. - Updated Financial Assurance Information
19	7/11/2016	Mod 1. Sched 1 - Exhibit B - A.1	B-1 thru 3	B-1 thru 3	7/11/2016	Dept. Init. - Update SWMU status
20	7/11/2016	Attachment E - 1,3,4	1-9	1-9	7/11/2016	Dept. Init. - Update Facility information
21	12/12/2016	Permit Application	Attachment	Attachment	11/9/2016	Integrated Contingency Plan Update November 2016
22	Not Required	Att A - Part A Application	Attachment	Attachment	2/13/2017	EPA 8700-12 Form - Transfer Facility
23	3/15/2017	Attachment B	NY003-92023-1 TK-200B/C	NY003-92023-200B	3/6/2017	Updated Tank Drawngs to reflect Major Tank Repair-200B
24	6/23/2017	Attachment B	NY003-1311	NY003-1311	3/7/2017	Updated Drawing to relect reomval of LGF Solids Grinders
25	5/3/2017	Attachment B	NY003-92023-2 Holding TK 100A/B/C	NY003-92023-100A	4/15/2017	Updated Tank Drawngs to reflect Major Tank Repair-100A
26	9/6/2018	Schedule 1, Module 1 & Module	A-2 & 3,IV-1 through IV-7	A-2 & 3,IV-1 through IV-7	9/6/2018	Dept Init. - Contact Information & Subconditions of Module IV - Secondary Containment inspections.
27	9/21/2018	Schedule 1, Module 1 & Module	S1-1 & D1 throug 3	S1-1	D1 & D2	TK SP-100 Removal and closure
28	1/16/2019	Schedule 1, Modlue I & Module VII	A1, D4	A1, D4	1/16/2019	Closure Modification to include 'Clean Debris' wording for scrap metal exclusion.

RCRA PART 373 PERMIT
EXECUTIVE SUMMARY/FACILITY BRIEFING DOCUMENT

NORLITE, LLC
COHOES, NEW YORK

JUNE 2020

RCRA PART 373 PERMIT
EXECUTIVE SUMMARY/FACILITY BRIEFING DOCUMENT

NORLITE, LLC
COHOES, NEW YORK

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1.0 FACILITY DESCRIPTION

1.1 Facility Permit Information

Permittee Name:	Norlite, LLC
Facility Name:	Norlite, LLC
Facility Location:	628 So. Saratoga Street, Cohoes, NY
EPA ID No.:	NYD080469935
DEC Permit No.:	04-0103-16/16
DEC DER No.:	401041
Commercial/Non-Commercial TSDF:	Commercial TSDF
Facility Contact:	Tita LaGrimas, Executive VP of Regulatory Affairs
DEC Contact/Responsible Permit Writer:	David Lates, NYSDEC
Initial/Renewal Permit:	Renewal Permit
Permit Term/Expiration Date:	5 years/Expires January 1, 2026
Estimated Closure Cost:	See Attachment C
Estimated Post-Closure Care Cost:	NA
Estimated Corrective Action Cost:	$109,438 (February 2020)
On-site Environmental Monitor(s):	Joseph Hadersbeck, NYSDEC
Annual Monitor Payment/Reimbursable State Costs:	$178,000

1.2 General Description

Since 1956, the Norlite LLC facility has been a manufacturer of lightweight aggregate. The lightweight aggregate raw material is shale that is mined on the property. To produce the lightweight aggregate, the shale is introduced to two rotary kilns where it is heated and expanded. The aggregate material is crushed and sized to meet the customers' specifications and is the necessary ingredient needed to produce lightweight concrete.

The kilns are fueled by natural gas, fuel oils, used oils, comparable fuels and hazardous waste fuels. The primary heat source is the hazardous waste fuels. The kilns are considered industrial furnaces and are equipped with air pollution control systems to comply with emission standards for industrial furnaces burning hazardous waste under the Resource Conservation and Recovery Act (RCRA) and the Clean Air Act - Maximum Achievable Control Technology (MACT).

Hazardous wastes received from off-site are a mixture of industry related solvents and oils from an assortment of chemical and pharmaceutical manufacturers, petroleum refinement and storage facilities, and other hazardous waste treatment companies.

1.3 Background Information

Norlite LLC is located on the southern boundary of the City of Cohoes, New York. Norlite LLC is a wholly owned subsidiary of Tradebe Environmental Services LLC. Norlite's aggregate plant, as state above, has been in existence since 1956. The facility consists of a production operation and the shale quarry. Norlite's processing facility occupies about 12 acres of a 221-acre plot owned by Norlite. Norlite's primary activity has always been the production of expanded shale aggregate. The facility began using alternative fuels in the late 1960s; prior to this time the primary fuel had been coal. The facility obtained interim status as a hazardous waste treatment facility in the early 1980s and has maintained compliance with the new regulations. The early 1990s saw a significant upgrade in the facility's fuel storage and delivery system. The facility was the second hazardous waste burner in the country to demonstrate compliance with the hazardous waste combustors MACT.

The most recent permit modification for new air pollution control systems began in 2019; both SEQR and Environment Justice were key components of this permitting process. Norlite held a public meeting on January 8, 2019 where attendance included 20 interested parties, this included community citizens, Cohoes and neighboring local officials.

1.4 Site Map

Please see permit drawing labeled as NY003-3731 which details the facility's permitted units, boundaries, wind rose, north directional, and facility topography. For reference, a copy of the site map has been attached to this document.

1.5 Other Facility Permits

The facility holds the following permits to support activities at the site.

- Wastewater Discharge (SPDES): Permit #4-0103-16/20
- Mining Permit: Permit #4-0103-16/19
- Title V Permit: Permit #4-0103-16/48
- Chemical Bulk Storage Registration: Reg. #4-000198
- Petroleum Bulk Storage Registration: Reg. #4-052574
- Water Withdrawal Permit: Permit #4-0103-00016/00051

2.0 RCRA PERMITTED UNITS

The following table summarizes the specific permitted units and activities at the facility:

Unit Type[1]	No. of Areas/Units	Activity Type	Waste Type	Quantity
Containers (S01)	2 areas 277 units	Storage	Hazardous Waste Fuels	15,235 gallons
Tanks (S02)	3 areas 15 units	Storage	Hazardous Waste Fuels	155,579 gallons
Industrial Furnaces (T03)	1 area 2 units	Treatment	Hazardous Waste Fuels	62 Million BTU/hour/kiln

Footnotes:

1. Unit codes are as described in the Part A Application.
2. Does not include 13 parking spaces in the Tanker Truck & Onsite Roll-off Staging Area.

3.0 CORRECTIVE ACTION SUMMARY

The following table summarizes the ongoing corrective action activities occurring at the facility:

Location Name / Designation	Activity Description	Estimated Completion Date
Site Wide	Site Management Plan (SMP) Development	2016
Site Wide	Environmental Easement Development/Filing	Filed May 2018

4.0 POST-CLOSURE CARE/SITE MANAGEMENT

The facility has a NYSDEC-approved:

Yes	No	
☐	☐	Post-Closure Plan
☐	☒	Site Management Plan – Under Review

The following table provides a summary of the post-closure care and site management activities currently occurring at the facility:

Area/Regulated Unit	Activity Description

4.1 Institutional Controls

There are no institutional controls in place for the facility at the time of this permit revision.

4.2 Engineering Controls

The facility prevents the release of hazardous materials from the site by using safety and air pollution controls.

All hazardous waste, petroleum bulk storage, and chemical bulk storage areas have been constructed with secondary containment systems made of materials that will prevent a release from the containment area into the environment. ,Hazardous waste secondary containment areas are inspected daily and others are inspected at a minimum of once a month for cracks or other damage which could allow the escape of released materials.

To prevent releases to the atmosphere, the hazardous waste within the storage tanks are blanketed with inert nitrogen gas and the tanks are vented to the kilns via a sealed system to control emissions.

Both kilns have identical air pollution control devices (APCDs) including cyclone particulate control, gas conditioning tower (GCT) to reduce dioxins and/or furans, gas suspension absorber (GSA)/scrubber, fabric filter baghouses and an induced draft (ID) fan.

To reduce aggregate dust and particulate releases, the facility has implemented a Fugitive Dust Control Plan. These procedures ensure that aggregate dust and other potential airborne particulates are not released from the site.

5.0 ISSUES AND CONCERNS

The following sections describe any potential issues or concerns for the facility related to its hazardous waste permit.

5.1 Human Health and Ecological Risk Assessment

Norlite LLC collected emissions data from 1999 to 2002 and demonstrated that carcinogenic and non-carcinogenic risks associated with the operation of the kilns are below the required USEPA benchmarks of 1E-5 and 0.25, respectively. ,Norlite's emissions have not increased since this data was collected, and the risk calculations were performed.

5.2 Regulatory Compliance History

- Norlite reached a settlement with USEPA on Order on Consent CAA-02-2020-1004 in June 2020, resulting from an Administrative Order issued in May 2016, for the time periods of 2012 through 2014. The Administrative Order was issued for items regarding Norlite's latest Notice of Compliance and conflicting Operating Parameter Limits (OPL) for Kiln 1. The order required Norlite to conduct a Comprehensive Performance Test (CPT). Norlite's position continues that the facility remained in OPL compliance under New York State DEC RCRA 373 Hazardous Waste Permit. Norlite conducted a CPT on Kiln 1 in December 2017. NYS DEC removed Kiln OPLs as part of the 373 Permit in January 2016 thus resulting in a permanent corrective action.

- Norlite received Order on Consent R4-2019-0731-48 in 2019. The Order was a combination of CAA and CWA violations. The CAA violations and most of the CWA exceedances were self-disclosed. All corrective actions and schedule of compliance items have been completed, apart from the certification of the closure of the WWTP building which will be finalized in July 2020.

• Norlite received Order on Consent R4-2016-0718-127 in 2016. The Order was a result from a Title V inspection and listed missing documentation for Visible emission forms and annual refresher training for Kiln Operators. It also listed a self-disclosed Stack Gas Flow Rate exceedance event. All resulting corrective actions and compliance activities have been resolved.

• Norlite received Order on Consent R4-2014-0017-6 on January 24, 2014. Items related to this permit include storing a vacuum truck in a non-permitted area, a missing sign on a storage tank, Best Management and Fugitive Dust Plan updates, and failure to provide a public outreach website. In response, Norlite started a Public Outreach section on their website in 2016.

• Findings from past inspections were captured in the January 24, 2014 Order on Consent.

• Norlite received Order on Consent R4-2009-0610-101 in 2010. Norlite has completed all items in the Schedule of Compliance.

5.3 Unresolved Issues and Concerns/Unilateral Department Conditions

At this time there are no unresolved issues or concerns which are not already being addressed or are in the process of being completed.

5.4 Compliance Schedule Items

To comply with Paragraph 12 of the Order on Consent R4-2009-0610-101, Norlite installed an automated fuel delivery system at the kilns. Norlite received approval of the concept of the new system on January 13, 2014. This improvement was finalized in February 2018.

5.5 Public Participation

The company is well engaged with the City of Cohoes and Towns of Colonie and Green Island and maintains an open-door policy for the community to visit the site and view the operations.

The permitting process has given opportunity to present an overview of Norlite as well as the modification to the permit to the community and local officials. A PowerPoint and question and answer period was presented by Norlite's Environmental and Regulatory Compliance Manager. The public meeting discussion went beyond the modification to other aspects of the

facility's operations. As stated previously, both SEQR and Environmental Justice were key components of the modification. The NYSDEC provided oversight of Environmental Justice Public Participation Plan that was implemented to our neighbors, community, and neighboring communities.

In 2013, Tradebe held an open house. During this time, a Norlite presented an overview of the operations, literature, and vehicle tours through the facility explaining the facility's operations. Attendance was approximately 100 from Cohoes and neighboring communities.

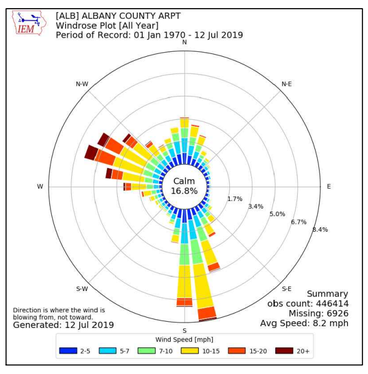
5.6 Upcoming Significant Permit Modifications

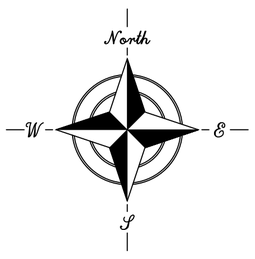
There are no proposed or upcoming significant permit modifications.

5.7 Upcoming Construction/Closure Activities

The facility is not proposing any construction activities at this time. The SP-100 Tank, located in the Fuel Farm, has been closed and a new drum stacking pattern finalized in September 2018.

WIND ROSE, ALBANY AIRPORT DATA (2019)





PERMITS:

1. SPDES Permit No. 4-103-16/01
2. PBS Permit No. 4-000198
3. Mining Permit No. 4-103-16/19-0
4. Hazardous Waste Part 373 Permit No. 4-0103-16/16-0
5. Title V Air Permit No. 4-0103-00016/00048
6. EPA ID: NYD080469935
7. NYSDEC Water Withdrawal Permit No. 4-0103-00016/00051

MAP REFERENCES:

1. Map "July 2019 Drone Flyover" Figure No. 1 Prepared by P.W. Grosser Consulting Inc. Dated 08/05/2019.
2. Map "Mine Plan Map, Norlite Corporation, Cohoes Mine Site" Prepared by Spectra Environmental Group, Inc. Dated 01/05/2012.
3. Map "Drainage Areas with Stormwater Controls" Prepared by Spec Engineering PLLC, 349 Northern Blvd., Albany, NY. Date 08/28/2014.
4. Map "Monitoring Well Network SWMUs 1, 7, 8, 9" Prepared by Arcadis, Dated 08/2013.
5. FEMA FIRMette Map 360006 and 360009, accessed 5/26/2020.
6. Map Set "Map Showing Location of Building and Improvements with Reference to Property Lines" Prepared by Hershberg and Hershberg Consulting Engineers and Land Surveyors, Albany, NY. Dated 05/11/2017. Latest revision date 12/19/2017.

Building/Process Area Location Legend

ID #	Building/Process
1	Used Oil Management Tanks & Containment
2	Utilities Building (fire suppression, electrical control & vacuum pump)
3	LGF Tank Storage Building
4	Container Storage Building
5	Waste Transfer Building
6	Exterior LGF Tank Pump Building
7	Offices, Lab, Training Rooms
8	Exterior LGF Tank Location
9	Maintenance Buildings
10	Water Treatment & Related Chemical Storage
11	Personnel Quarters/Parts/Storage
12	Silo
13	APC Tower
14	Shale Transfer Belts
15	Primary Plant
16	Kiln Control Room Building

NOTES:

1. ALL PHYSICAL FEATURES, PROPERTY BOUNDARIES AND MINING AREAS ARE DRAWN APPROXIMATELY TO SCALE. MAP FOR PERMITTING PURPOSES ONLY.
2. APPROXIMATE BOUNDARY OF COMMERCIAL LEASE BETWEEN COMFORTEX CORPORATION AND NORLITE CORPORATION EFFECTIVE 08/31/2012.
3. WETLANDS HAVE NOT BEEN DELINEATED. WETLAND FEATURES SHOWN WERE OBTAINED VIA U.S. FISH AND WILDLIFE NATIONAL WETLANDS INVENTORY WETLANDS MAPPER.

Structural Stormwater Controls

ID #	Description
1	Lower Stormwater Basin
2	Upper Stormwater Basin
3	Swale to Quarry
4	Salt Kill Bypass
5	Rain Garden 2
6	Rain Garden 3
7	Rain Garden 1

Land Use

ID #	Land Use Type
1	Land Conservation
2	Residential
3	Industrial
4	Mixed Use

Monitoring Wells

ID	Monitoring Well Type
	Bedrock
	Overburden
	Damaged
	Destroyed

Approximate Property Boundary

3 — Structural Stormwater Controls

100 year Flood Plain

Regulatory Floodway

Wetland

REVISIONS		
BY:	COMMENTS	DATE
JTL	Updated Permit Term Area	5/02
JMS/JPL	Add Detail for 373 Permit	7/02
HMK	Building Id's Added	08/2012
RB	Updated property line boundaries/easements, site contours, flood zone, and wetlands. Added monitoring wells, drainage areas, stormwater controls	06/2020

NORLITE CORPORATION
COHOES QUARRY
TOWN OF COLONIE, ALBANY COUNTY, NY

SITE PLAN MAP
FOR
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SCALE: 1 ": 200'
CONTOUR INTERVAL: 5'
DRAWN BY HS/RB
DATE: 06/2020

DRAWING NO. NY003-3731

Base Maps
Mining Plan Map, Rust Environment & Infrastructure, 1993
Mining Plan Map, Greenbush Resources, 1998
Topographic and Boundary Surveys by Danskin Surveyors

OPERATIONS PLAN

NORLITE LLC
COHOES, NEW YORK
NYD080469935

PREPARED FOR:

NORLITE LLC
628 SOUTH SARATOGA STREET
COHOES, NEW YORK 12047

PREPARED BY:

NORLITE LLC
628 SOUTH SARATOGA STREET
COHOES, NEW YORK 12047

JUNE 2020

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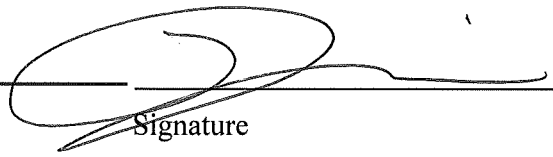
1.0 CERTIFICATION AND FACILITY DESCRIPTION

Due to the operations and hazardous waste management activities performed at the Norlite LLC (Norlite) located in Cohoes, New York, Norlite LLC is required to obtain a Part 373 Permit from the New York State Department of Environmental Conservation (NYSDEC). As part of the Part 373 Permit application process, the NYSDEC required Norlite LLC to prepare this Operations Plan for the Norlite LLC (Norlite). The purpose of this Operations Plan is to: describe the hazardous waste management activities that occur at the facility and the procedures that have been implemented to properly manage waste in accordance with the 6 NYCRR 373 regulations; describe the design and operation of the hazardous waste management units located at the facility to ensure compliance with the 6 NYCRR Part 373 regulations; describe compliance with other applicable federal and state regulations; and present the procedures and safeguards implemented at the facility to prevent hazards from adversely impacting human health or the environment.

This Operations Plan is incorporated by reference into the Norlite LLC (Norlite) Part 373 Permit. In the event that changes are made to the facility that affect the content of this Plan, this Plan will be updated in accordance with the requirements of Condition G of Module 1 of the facility's Part 373 Permit.

1.1 Certification

I certify under penalty of law that this document and the Part 373 Permit Application, including all attachments and documents incorporated by reference, 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 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.

Date: June 29, 2020 

Signature

Name: David Maguffin

Title: Plant Manager

Company: Norlite , LLC

1.2 General Description

Norlite LLC (Norlite) is located on the southern boundary of the City of Cohoes, New York. Norlite LLC is a wholly owned subsidiary of Tradebe Environmental Services LLC. Norlite's aggregate plant has been in existence since 1956. The facility consists of a production operation and a quarry for shale. Norlite's processing facility occupies about 12 acres of a 221 acres plot owned by Norlite.

The Norlite facility produces an expanded shale aggregate in two dry process rotary kilns. Raw materials are quarried on-site and transported to the kilns via a conveyor system. Kiln No. 1, manufactured by Taylor is 175 feet long, whereas Kiln No. 2, manufactured by Allis- Chalmers, is 180 feet long. Both kilns have an outside diameter of 11 feet and consist of a steel shell lined with 6-inch refractory brick, for an effective inside diameter of 10 feet. The operation is used in the production of lightweight building materials and construction products.

Norlite receives industrial organic wastes (hazardous waste), specification and off- specification used oil, fuel oil, and comparable fuels (in addition to natural gas) for use in its two kilns. These materials are tested in accordance with the Waste Analysis Plan (WAP) to ensure the wastes may be accepted at the facility under the facility's RCRA permit for use as liquid low grade fuel (LLGF). Additionally, the analysis is used to determine the composition of the waste to ensure compliance with emissions from the kilns.

Norlite uses a mixture of these energy sources as fuel for its two kilns. The raw shale and fuel source are fed into the hot end of the kiln at a specified feed rate. Temperatures within the kilns are maintained within the permit required range. Emissions from the kilns are then fed through an emissions control system.

Both kilns have identical emission control systems. The systems include semi-dry emission control devices and fabric filters for the collection and removal of particulate matter, hydrogen chloride (HCl), metals, and other gaseous species.

1.3 Facility Capacity

1.3.1 Capacity Authorized (Existing)

Current authorized storage area, waste types and capacity for LLGF is as follows:

AREA	ACTIVITY AND WASTE TYPE[1,2]	AUTHORIZED CONTAINER VOLUMES[3,4]	MAXIMUM VOLUME
CONTAINER MANAGEMENT AREAS			
LLGF and Drum Processing Building	Liquid Waste Storage in 5, 15, 30, 55, 85 and 275 gallon drums/totes Emptying drums to Tank 200A.	5, 15, 30, 55, 85, and 275 gallon drums/totes	10,450 gallons in 190 55-gallon drum equivalents
Truck Unloading Area	Liquid Waste 5, 15, 30, 55, 85 and 275 gallon drums/totes	5, 15, 30, 55, 85 and 275 gallon drums/totes	4,785 gallons in 87 55-gallon drum equivalents
TANKER TRUCK AND ROLL-OFF MANAGEMENT AREA			
Tanker Truck & Onsite Roll-off Staging Area	Onsite generated non-liquid solid waste (baghouse bags, PPE) stored in roll-offs, Offsite generated solid or liquid hazardous waste and tankers	Up to 50 cubic yard roll-off, 8,000 gallon tanker trucks, single trailer drum transport trucks	13 parking spaces (60’ x 200’)
	transports, Roll-off containers for transportation-related temporary storage and/or transfer		

TANK MANAGEMENT AREA			
LLGF Building	LLGF Storage and blending in tanks 100A, 100B, 100C, 200A, 200B, and 200C	8,613 Gal 8,613 Gal 8,613 Gal 9,271 Gal 8,613 Gal 8,613 Gal	9,491 Gal 9,491 Gal 9,491 Gal 10,663 Gal 9,491 Gal 9,491 Gal
Covered Tanks	LLGF Storage and blending In tanks 300, 400, 500, and 600	26,682 Gal 26,682 Gal 26,682 Gal 17,974 Gal	27,903 Gal 27,903 Gal 27,903 Gal 18,940 Gal
Equalization Tanks	LLGF Storage and blending in tanks 102A and 102B	1,174 Gal 1,174 Gal	1,266 Gal 1,266 Gal

Unit codes are as described in the Part A Application.

Specific waste types and waste codes are presented in Schedule 1 of Module I: Exhibit C (containers), and Exhibit D (tanks) and in the WAP incorporated by reference into this Permit.

85-gallon overpacks can be used to secure leaking/damaged drums.
The total volume stored in drums shall not exceed 14,700 gallons, which is equivalent to 267 55-gallon drums.

1.3.2 Capacity Applied for

RESERVED

1.4 Topographic Map

6 NYCRR Part 373-1.5(a)(2)(xix) requires that the application contain a topographical map containing a variety of specified parameters. The map includes all of the specified parameters. The topographical map and wind rose included in this application are set forth as follows:

Drawing NY003-373-1 is a topographic map with a scale of 1 inch equals 200 feet and contour intervals of 5 feet. Drawing NY003-373-1 shows the facility legal property line boundaries, an

area extending 1000 feet beyond the facility property line and surrounding land uses. It also contains the wind rose. The wind rose is based on data generated by the National Weather Service Station at the Albany, New York Airport. This weather station is located approximately 5.3 air miles west of the site and is the closest station to the site. This drawing also shows the 100-year floodplain area, surface waters including intermittent streams and direction of their flow.

The special additional information requirements for the protection of the groundwater of 6 NYCRR Part 373-1.5(a)(3) are not applicable because Norlite does not operate hazardous waste surface impoundments, land treatment units, or landfills.

1.5 Location Information: Floodplain Standard

The topographical map in Drawing NY003-373-1 shows the 100-year floodplain area at the facility and hazardous waste operations units at the facility. The 100-year floodplain information was obtained from the Flood Insurance Rate Map for Albany County, Map Number 36001C0089D, effective March 16, 2015 prepared as part of the National Flood Insurance Program.

The hazardous waste operating units at the facility are not located within the 100-year floodplain and therefore are not affected by the 100-year floodplain requirements of 6 NYCRR Part 373-2.2(j)(1). Accordingly, the information requirements of 6 NYCRR Part 373- 1.5(2)(xi)(b) are not applicable.

Norlite has Response Plan for Heavy Rain/Thaw Events Impacting the Salt Kill, dated July 1, 2010. The purpose of the plan is to enhance the preparedness of the facility to react to heavy rain or thaw events that could potentially impact property downstream of the facility if the Salt Kill overflows its banks with the facility at the headwall structure north of Kiln #2.

1.6 Traffic Information

6 NYCRR Part 373-1.5(a)(2)(x) requires information on the traffic patterns in and around the vicinity of the facility. The intent of requiring submittal of the traffic related information is to ensure that the movement of hazardous waste will be conducted safely to minimize the risk of accident. The traffic patterns at Norlite's facility support such a determination.

The hazardous waste movement at the plant for on-site processing and burning is minimal. Four (4) to seven (7) bulk tank deliveries of liquid waste and one (1) to two (2) truck- loads of containers and/or roll offs are received daily on average. Daily volume received averages between 25,000 to 50,000 gallons. Approximately, two (2) to four (4) truckloads of drums containing the filter sludge, tank sludge, and other ancillary waste material (an aggregate of 8,000 to 16,000 gallons) are shipped from the site annually, if not processed through the plant.

In addition to the above, up to 17 trucks per day of transshipments related to transfer station activities are received and/or shipped.

Figure B-1 shows the on-site traffic pattern. All roads are two-way. Waste delivery trucks are restricted to the entrance road from Elm Street, the road between the scale and the LGF/hazardous waste unloading area. Traffic control consists of a manned gatehouse at security gate 1, card access at security gate 2, and various traffic signs (for speed, directional, right of way, caution and flow) throughout the plant.

Fully loaded tankers and trailers of waste have a maximum gross weight of 80,000 lbs. All road surfaces consist of graded and compacted crushed shale as well as road rock base in high truck traffic areas. Roads are designed to accommodate a gross weight in excess of 100,000 pounds of off-highway earth movers.

Earth movers and frontend loaders involved in the quarry and raw mill operation are generally confined to that area. Twenty (20) to fifty (50) trailer and dump truck shipments of finished lightweight aggregate and raw shale are made from the site daily.

Company pickup trucks, cars, maintenance trucks, fuel truck, and water trucks have access to all roads on the site.

Figure B-2 shows the off-site traffic patterns. Trucks making deliveries of LLGF/hazardous waste to the facility proceed from the 23rd Street (Watervliet) exit of Interstate Route I-787 west on 23rd Street in the Town of Watervliet 0.10 miles to Broadway Avenue, then north 0.2 miles on Broadway Avenue to 25th Street. At 25th Street, the trucks proceed 0.5 miles west to Lansing Lane. At Lansing Lane, the trucks proceed north for 0.6 miles to Elm Street. The trucks proceed

east on Elm Street to the entrance road to Norlite, 0.15 miles from Lansing Lane.

The route from I-787 to Lansing Lane is a regularly traveled truck route for trucks serving industry along 25th Street, Lansing Lane, and Elm Street.

2.0 PROCEDURES TO PREVENT HAZARDS

The following sections describe the procedures implemented at the Norlite LLC to prevent hazards that could otherwise adversely impact human health or the environment.

2.1 Applicability

Norlite LLC is a facility that receives, handles and burns RCRA hazardous and nonhazardous waste. The facility accepts F, K, P, U listed wastes and D characteristic wastes. The facility can accept wastes that are coded with the D002 and D003 waste numbers, but the waste cannot actually exhibit the characteristics of corrosivity or reactivity, respectively. Complete information about waste is found in the facility Waste Analysis Plan. As described in Sections 3.4 and 4.6 of this Operations Plan, the storage and processing areas are designed to protect against incidents involving flammable, incompatible, and reactive materials.

2.2 Equipment Requirements

2.2.1 Internal Communications

Norlite has a warning system with a specific alarm signal consisting of a loud horn to initiate evacuation of all plant areas. Telephones are located throughout the plant to provide internal communication throughout the operating areas of the facility except for the quarry. Cellular telephones are carried by most personnel. In addition to the alarm, the internal telephone system can be used to notify plant personnel as to the emergency's nature and the recommended action plan. From the most remote section of the hazardous waste storage area, an employee could obtain access to the internal/external communication system in less than a minute.

2.2.2 External Communications

External communications are managed through the telephone system described above in Section 2.2.1. There is always at minimum of two employees at the facility. From the most remote section of the hazardous waste storage area, an employee could obtain access to the internal/external communication system in less than a minute. All emergency communication practices are detailed in the facility’s Integrated Contingency Plan.

2.2.3 Emergency Equipment

Norlite's emergency equipment is listed in the Norlite's approved Integrated Contingency Plan, which is incorporated by reference into the Permit.

2.2.4 Water for Fire Control

Norlite's facility has three fire hydrants for use by the fire department in case of an emergency. Norlite is connected to the City of Cohoes water system. Plant water is provided by a pumping system that uses water collected in the quarry. In addition, the Salt Kill, which crosses Norlite's facility, is a secondary water supply, which could be utilized in an emergency situation.

2.2.5 Testing and Maintenance of Equipment

Norlite's safety and emergency equipment is inspected to insure proper operation during emergency. The facility Security and Inspection Plan identifies the items inspected, the problems inspected for, and the frequency of the inspection.

2.3 Aisle Space Requirement

6 NYCRR Part 373-2.3(f) requires that a facility maintain aisle space sufficient to allow the unobstructed movement of emergency equipment and personnel in case of an emergency. Aisle space of at least thirty-six (36) inches between rows of containers will be maintained. The proposed stacking pattern is found on revised Drawing NY003-2475-1 and NY003-3008. Containers will not be stacked more than two pallets high.

2.4 Integrated Contingency Plan (Arrangements with Local Authorities)

Norlite has made arrangements with local representatives in an effort to coordinate responses to emergency situations and to educate the response agencies on the particular hazards posed by the facilities. To facilitate a response to any emergency, Norlite will maintain an access road from the Northwest section of the property to Central Ave.; coordinate portable radio frequencies access; and provide detailed facility maps and updates as required. A detailed description of those arrangements is set forth in the Integrated Contingency Plan, which is incorporated by reference into the Permit.

Norlite has also made arrangements with West Central Environmental, Inc. to act as emergency response contractors to handle an emergency incident involving hazardous waste that cannot be reasonable handled internally. The details of that arrangement are described in the Integrated Contingency Plan, which is included incorporated by reference into the Permit.

2.5 Preventive Procedures, Structures, and Equipment

6 NYCRR Part 373-1.5(a)(viii) requires that the applicant provide information on the procedures that will be taken to prevent accidents during loading and unloading operations; procedures to prevent undue contamination from the surface water runoff from hazardous waste handling area; procedures to prevent groundwater contamination; procedures to mitigate the damages from an equipment failure or power outage; and procedures to prevent undue exposure of personnel to hazardous waste. This information is provided in Sections 2.5.1-2.5.5 as follow.

2.5.1 Unloading Operations

Loading operations at the facility involve intermittent loading of containers for off-site disposal and loading/unloading of hazardous waste containers shipped from generators to Norlite. Containers are loaded/unloaded at the LLGF storage area using a forklift. Containers are managed under the Containerized Waste Management Plan presented in Appendix 1. During loading/unloading operations, spills are unlikely. In the event of an accident, however, the material will be contained with absorbent booms and pads or other absorbent materials, in addition to the loading/unloading area containment trench. Contaminated materials will be collected, and affected areas of the facility and contaminated equipment will be decontaminated. Spilled liquids that enter the containment trench are collected and treated on-site.

LLGF that is received in bulk via tank trucks and tank trailers is unloaded in the Loading/Unloading Areas # 1and #2. The vehicles back into Loading/Unloading Area #1 or #2 which provides secondary containment for the operation. Prior to delivery, the transporter must certify that s/he understands the Norlite delivery and operating procedure as described in the Security and Inspection Plan. All LLGF unloading operations are subject to the following LLGF unloading regulations, which are posted in the area:

LLGF UNLOADING REGULATIONS

NO UNLOADING WITHOUT NORLITE REPRESENTATIVE PRESENT
NO SMOKING
NO CELL PHONE USE
PARK IN DESIGNATED AREA

TURN OFF ENGINE

SET BRAKES

SET WHEEL CHOCKS

SECURE GROUND TO VEHICLE

OPEN TRAILER TANK VENT BEFORE UNLOADING

DO NOT REMOVE GROUND FROM VEHICLE UNTIL:

HOSES ARE DISCONNECTED AND SECURED
TRAILER TANK VENTS ARE CLOSED

YOU ARE READY TO LEAVE THE AREA
- DO NOT START ENGINE UNTIL YOU ARE READY TO LEAVE AREA

The mechanisms present in the tanks to prevent overfilling are described in Section 4 of this Operations Plan.

2.5.2 Runoff

Norlite's hazardous waste handling areas are not within a 100-year flood plain. Norlite has, however, taken precautions to handle surface water runoff from the hazardous waste handling areas. Norlite's runoff control system for its container storage area is described in Section 3.0 and its runoff control system for its tank storage area is described in Section 4.0.

2.5.3 Water Supplies

Norlite has taken precautions to prevent contamination of the surface water and groundwater.

Groundwater contamination is prevented by performing transfer operations within secondary containment areas. The container storage area and loading/unloading areas are constructed of concrete and treated with a chemical resistant coating to contain spills. A roof is provided over the Loading/Unloading Area #1 and the Drum Processing Building to divert precipitation. Similarly, a secondary containment system and precipitation diversion roof is provided for the tank pump and control valve area. Descriptions of the spill containment controls for the container storage area and for the tank storage area including a complete description of the design and construction of the LLGF storage and handling system are presented in Sections 3.0 and 4.0.

The soils underlying the tank storage area including the unloading area, container storage area, and containment dike are comprised of a clay liner with a maximum permeability rate of 1E-07 cm/sec. The permeabilities of the soils have been laboratory tested.

2.5.4 Equipment and Power Failure

Power failure will not cause a release of hazardous waste or materials. In the event of power interruption, magnetic switches controlling all LLGF pumps at the storage area will release causing LLGF flow to stop. The pumps must be restarted manually.

In case of an equipment failure or power outage which does result in the release of hazardous waste, Norlite's emergency coordinator, will implement Norlite's Integrated Contingency Plan.

2.5.5 Personal Protective Equipment

Norlite personnel are protected from undue exposure to hazardous waste and hazardous materials. Norlite's personnel protective equipment is described in the emergency equipment provisions of the Integrated Contingency Plan. The personal use of the protective equipment is covered by Norlite's Personnel Training Plan in which is incorporated by reference into the Permit. Norlite's personnel training program satisfies both the requirements of 6 NYCRR Part 373-2.2(h) and the requirements of the Mine Safety and Health Administrative Standards of 30 C.F.R. Part 46.

2.6 Prevention of Reaction of Ignitable, Reactive and Incompatible Wastes

2.6.1 Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Wastes

Norlite does not receive or store reactive or corrosive waste. The procedure for acceptance of all waste is described in the Waste Analysis Plan. This plan will prevent storage of reactive or incompatible wastes at the Norlite facility. Waste analysis testing at Norlite is performed on each delivery prior to unloading to ensure compatibility as outlined in the Waste Analysis Plan.

The main safety concern posed by Norlite's storage operations is the potential hazard posed by an accidental ignition of the LLGF. Ignitable wastes are stored only in the LLGF storage tanks and container storage area at the LLGF unloading station.

Norlite prevents the accidental ignition of LLGF by requiring the use of grounding and/or bonding cables during material transfer to prevent static electricity build up and discharge, by venting vapors directly to the kilns, and by displacing oxygen in the tank headspaces with a nitrogen blanket. The particulars of the tank design features and the management practices aimed at preventing accidental ignition are described in Section 4.0. During container transfer operations to tanks, in the area shown in Drawing NY003-3008, containers are grounded with grounding cables to prevent accidental ignition.

Signs which are legible from a distance of 25 feet are posted at the entrance of the active portion of the Norlite facility, as well as the Liquid Low Grade Fuel (LLGF) storage tank area, drum storage area, unloading area, and the kiln area. These signs are visible from all angles of approach, and bear the legend "DANGER - UNAUTHORIZED PERSONNEL KEEP OUT' and "No Smoking".

2.6.2 General Precautions for Handling Ignitable or Reactive Wastes and Mixing of Incompatible Wastes

To prevent the mixing of incompatible wastes, Norlite performs a compatibility analysis on a representative sample from all shipments. Only those deliveries found to be compatible with the current LLGF in the storage tank into which the LLGF is to be accepted and unloaded will be accepted. The details of Norlite's waste analysis procedure including its compatibility test are set forth in the Waste Analysis Plan. Containers are stored in such a manner as to segregate incompatible wastes as outlined in the Containerized (Drummed) Waste Management Plan Appendix 1.

2.6.3 Management of Ignitable or Reactive Wastes in Containers

Measures to prevent accidental fire and explosion of ignitable waste include the proper storage of containers, providing proper secondary containment, area ventilation, and posting appropriate warning signs.

Prior to storage, each container is sealed to prevent precipitation from entering the drum. The containers are labeled to identify the contents of the container and the date wastes were

generated. Container storage areas are required to be no closer than fifty (50) feet to the nearest property boundary. Norlite's container storage area is located 500 feet from the closest company property line (see Site Plan Map).

2.6.4 Management of Incompatible Wastes in Containers

Norlite does not receive or store reactive or corrosive waste. The procedure for acceptance of all waste is described in the Waste Analysis Plan. This plan will prevent storage of reactive or incompatible wastes at the Norlite facility. Testing at Norlite is performed on each delivery prior to unloading to ensure compatibility as outlined in the Waste Analysis Plan.

2.6.5 Management of Ignitable or Reactive Wastes in Tanks

Norlite prevents the accidental ignition of LLGF by requiring the use of grounding and/or bonding cables during material transfer to prevent static electricity build up and discharge, by venting vapors directly to the kilns, and by displacing oxygen in the tank headspaces with a nitrogen blanket. The particulars of the tank design features and the management practices aimed at preventing accidental ignition are described in Section 4.0. During container transfer operations to tanks, in the area shown in Drawing NY003-3008, containers are grounded using grounding cables to prevent accidental ignition.

2.6.6 Management of Incompatible Wastes in Tanks

To prevent the mixing of incompatible wastes, Norlite performs a compatibility analysis on a representative sample from the shipment. Only those deliveries found to be compatible with the current LLGF in the storage tank will be accepted. The details of Norlite's waste analysis procedure including its compatibility test are set forth in the Waste Analysis Plan.

3.0 MANAGEMENT OF WASTES IN CONTAINERS

The following sections describe the management of wastes in containers at the Norlite LLC (Norlite). Please refer to Section 1.3 for the container storage locations, waste types, container specifications and containment area capacities. The list of authorized hazardous waste codes is found in the Waste Analysis Plan.

3.1 Container Management

The truck unloading/containment and container storage areas are shown in Drawings Nos. NY003-3008 and NY003-2475-1. The container capacity in the container storage areas includes all hazardous waste, nonhazardous waste, and raw material containers/rolloffs.

The tanker staging area is used for staging waste tankers and trailers prior to unloading. This area is also used for transportation-related temporary storage and/or transfer activities in compliance with 6 NYCRR Part 372.3(a)(6) and (7).

Norlite accepts drums for treatment, storage, or disposal at other off-site permitted TSD facilities. Norlite therefore also functions as a ten-day transfer facility for facilitating movement of waste to other permitted treatment facilities. The description of these activities can be found in Appendix 2 of this Operations Plan.

Hazardous waste that is physically solid can be stored on the concrete pad on the west side of the drum processing building. This is strictly for hazardous waste that is being shipped off-site to another TSD facility.

The types of transfer operations practiced by Norlite are covered in more detail in Norlite SOP #6-001, "TRANSFER STATION SCENARIOS PRACTICED AT NORLITE", located in Appendix 2 of this Operations Plan.

Norlite has provisions for:

- 1029 square foot container storage area in the Drum Processing Building (10,427 gallons capacity) suitable for storage of 190 drums
- 1440 square foot container storage area in Loading/Unloading Area #1 (4,785 gallons capacity) suitable for storage of 87 containers

The tanker staging area can also be used to store roll-offs. This area is 200 feet by 60 feet, and has space for staging up to 13 trucks, tanks wagons and/or roll-off containers.

All drums received or used are of the removable head type or bung hole top openings. Drums received from off-site generators are unloaded and stored in the Drum Processing Building or Truck Unloading Area #1 (see Drawing No. NY003-3008). During times that drums are being stored in the Unloading Area #1, only one truck will be parked in that unloading area.

The drum stacking pattern for the maximum arrangement of drums in each area is shown in Drawing No. NY003-2475-1. Drums are stacked no more than two (2) tiers in height. The pallets will only be arranged as shown on Drawing No. NY003-3008 regardless of the size of the containers on the pallets.

The contents of the drums are transferred to the LLGF tanks in the Drum Processing Building shown in Drawing NY003-3008. Containerized wastes are transferred to the LLGF tanks using a vacuum transfer line to Tank 200A or are pumped onto a truck and subsequently transferred to another tank other than 200A. All drums are kept closed except when adding or removing material. The types of containerized wastes managed through this process are liquid and semi-solid materials including but not limited to oily sludges, tank bottoms, partially cured paint and varnish materials, sorbents contaminated with organic materials, and viscous resins. This process is used for wastes generated on-site and for those received from off-site.

The containers are off-loaded at Unloading Area #1 or directly into the Drum Processing Building shown in Drawing NY003-2475-1. Space is available for two (2) container trucks at the Drum Processing Building and space is available for (2) container trucks Unloading Area #1. The trucks will backup to a point where the rear door opens over the containment structure. Unloading Area #1 is authorized for storage of a single row of palletized containers on the north side of the containment area. Tank Wagons may also be parked in Unloading Area #2 as shown in Drawing

NY003-2475-1. In the event any spill does occur, the spill is contained, and will be promptly remediated with the spill control equipment described in the Integrated Contingency Plan.

3.2 Containers with Free Liquids

The container storage areas are designed and operated with the proper secondary containment, ventilation, vapor control, and fire suppression. Descriptions of the container storage areas square feet and secondary containment are summarized in the table below.

Storage Area	Container Capacity	Capacity Gallons)	Drawing No.	Area (Sq.Ft.)	Containment Volume (Gals)	% of Required Containment
Truck Unloading Area #1	87 (55 gal drum equivalent)	4,785	NY003-3008 NY003-2475-1	1,440	9,048	1891 *when used for drum storage
LLGF & Drum Processing Bldg.	190 (55 gal drum equivalent)	10,427	NY003-3008 NY003-2475-1	1,029	2,042	194

The Container Capacity is based on 55-gallon drums. The total volume Capacity is based on the maximum number of 55-gallon drums that can be stored in the storage area. Although most containerized waste received and stored at the facility is in 55-gallon drums, Norlite also receives waste in containers with capacities of 5, 15, and 30 gallons. Eighty-five (85) gallon overpacks are also used to manage smaller damaged or leaking containers. While the Container Capacity listed in the table above may be exceeded if the facility is storing a large number of smaller containers, the total volume Capacity will not exceed the volume listed above.

3.2.1 Basic Design Parameters, Dimensions, and Materials of Construction

The Drum Processing Building is separated from the Loading/Unloading Area #1 by a 3.5 inch high concrete berm with a scupper providing overflow to the Loading/Unloading Area #1. It is constructed of reinforced concrete with a design strength of 4,000 lbs./in^2 and sealed to the existing slab.

The area is pitched toward the scupper as shown in Drawing NY003-3008. The drum storage area is coated with Protectoline 900 floor finish (or its equivalent), which is a protective phenolic coating. It is applied to the concrete slab and to the curbing at a thickness of 3/32" in accordance

with the manufacturer's recommended procedure. Protectoline 900 floor finish has excellent solvent and abrasion resistance and good weathering characteristics. Selection data of the product is included in Appendix 3. Details of the joints on the concrete pad, including both the truck unloading/containment and drum storage areas, are given on Drawing NY003-3008. A urethane sealant is used in the joints, SIKAFLEX-1(a) elastic sealant, a copy of the technical data is found in Appendix 4. The sealant has short-term resistance to organic solvents, and it is compatible with the types of liquids delivered to Norlite.

3.2.2 Description of How Design Promotes Drainage

The current pad is presently in good condition, free of any gaps, holes or cracks. The scupper constructed in the curb between the drum storage area and the truck unloading/containment storage area allows any large spills (greater than 340 gallons) to overflow into the truck unloading/containment area providing tertiary containment. The pad is inspected daily as discussed in the Security and Inspection Plan to insure that it remains intact and in good condition. All drum storage areas as well as the truck unloading/containment area and unloading pumps are covered by a roof to preclude collection of rainwater in these areas.

3.2.3 Capacity of the Containment System

The containment capacity of each truck Loading/Unloading Areas 1 and 2 are 9,048 gallons and 22,991 gallons, respectively. Each area provides greater than 110% containment of the largest volume tank truck received, 6,500 gallons or tractor/ trailer rig received (80 drums x 55 gal = 4400 gals). Secondary containment calculations for storage areas are provided as an attachment to the Part 373 Permit.

3.2.4 Provisions for Preventing or Managing Run-on

Precipitation run-on is prevented from entering all containment areas by the presence of a 3-1/2 inch curb at the perimeter of the storage area. In addition, the land surrounding all containment area is graded to encourage drainage away from the area. Run-off is prevented from leaving the containment area by the 3-1/2 inch curb at the perimeter of the storage area.

3.2.5 Accumulated Liquids

All containment structures within the storage areas are checked daily. If liquids are detected within the storage area, the source is immediately corrected and liquids removed, ensuring that

the maximum containment capacity is available in the unlikely event that another spill or leak should occur. All liquids removed from a secondary containment system are sampled and handled as a hazardous waste in accordance with the Waste Analysis Plan.

3.3 Containers without Free Liquids

The Tanker Staging Area is authorized for the transportation-related temporary storage of roll off containers that contain hazardous waste that do not have free liquids. The area can hold up to 13 roll offs, which have a maximum individual capacity of fifty (50) cubic yards. The total maximum capacity of roll off storage is 650 cubic yards.

3.4 Requirements for Ignitable or Reactive Wastes and Incompatible Wastes

The location of all storage areas is more than fifty (50) feet from the facility property line.

Using procedures described in the Waste Analysis Plan Section 4.3.3, Norlite does not store incompatible wastes or wastes that are incompatible with the containers in which they are stored.

4.0 MANAGEMENT OF WASTES IN TANKS

The following sections describe the management of wastes in tanks at the Norlite LLC (Norlite).

Please refer to Section 1.3 for the permitted tank storage area, tanks, and permitted capacities. Each tank is authorized to store all hazardous waste (LLGF) identified as acceptable in the facility's waste analysis plan.

4.1 Existing Tank Systems

The following sections provide a description of the tanks systems existing at the Norlite LLC (Norlite).

4.1.1 Assessment of Existing Tank Systems

Norlite uses an independent engineer to review the integrity testing on the tanks using 6 NYCRR Part 373-2.10(b) as reference.

Tank thickness measurements, if possible, will be conducted when the tanks are emptied and cleaned. In the past, measurements were made on the inside of the tank using an ultrasonic thickness gage such as Panametrics Model 5230. The glass coating on the inside of Tanks 300, 400, 500 and 600 impact the accuracy of the foregoing measurement device. It would not be possible, however, to take thickness measurements from the outside of the tank since the polyethylene liner system and clay cover system would have to be disturbed to expose the tank. Excavation of the tank would jeopardize the integrity of these systems. The location of the testing sites is shown on Stetson-Harza sheet, Appendix 5.

The following table shows the current data of each tank at the time of application (based on last internal annual inspection):

TANK #	DIAMETER	SIDE LENGTH	SHELL THICKNESS	MAX. CAPACI
300	10'11"	40'10"	>3/8"	27,903
400	10'11'	40'10"	>3/8"	27,903
500	10'11'	40'10"	0.324"	27,903

TANK #	DIAMETER	SIDE LENGTH	SHELL THICKNESS	MAX. CAPACI
600	9'2"	39'3"	>3/8"	18,940
100A	11'0"	11'0"	1/4"	9,491
100B	11'0"	11'0"	>1/4"	9,491
100C	11'0"	11'0"	>1/4"	9,491
200A	11'0"	11'1"	>3/4"	10,663
200B	11'0"	11'0"	>1/4"	9,491
200C	11'0"	11'0"	>1/4"	9,491
102A	5'	7'6"	>1/4"	1,266
102B	5'	7'6"	>1/4"	1,266

*All dimensions are nominal

Daily pump inspections are scheduled as shown in Security and Inspection Plan, Section 3.5.2. The LLGF storage area including pumps is inspected three times each shift as indicated on the Trunnion Operators Shift LLGF Inspection Report.

The piping and instrumentation diagram for the LLGF system is shown Drawings NY003-1311, NY003-1312, NY003-1314, NY003-1315, NY003-5010, NY003-1317 and NY003-1903. Each pair of tanks in the Tank Farm Building (e.g. 100C and 200C) have identical loading, unloading, and control systems. The compatibility of the solvents with the carbon steel piping and the tanks is specified in the compatibility charts in Appendix 6.

The tanks are filled with LLGF by offloading trucks at the truck unloading areas. For Tanks 200A, B, C and 100A, B, C; a high level switch on each tank shuts down all the transfer pumps if the switch is activated. The level switches are set to activate when the level reaches 12 inches from the top of the tank. Each tank is equipped with a level indicator, pressure and vacuum rupture discs, and nitrogen blanketing.

For Tanks 300, 400, 500, and 600, there is a network of leak detection piping that was installed. This system consists of perforated drainpipes wrapped with filter fabric installed above each of the HDPE geo-membranes. The lower set of drainpipes discharge to the

secondary spill containment area as shown. The liner is sealed to the drainpipes at the locations where the pipes pass through the liner. The sealing method is as follows: a prefabricated boot is slipped over the penetrating pipe. The base sheet is welded to the HDPE liner with a fusion welding gun. The boot, also of HDPE, is strapped to the pipe with a butyl seal and a 3/4" stainless steel band. Information on the method as well as further quality assurance data is provided in Appendix 7. The upper set of "tell-tale" drainpipes are installed as shown on NY003-5430. These pipes do not discharge to the spill containment slab but instead are used to pump out any liquid, which collects above the upper HDPE geo-membrane.

Tanks 300, 400, 500, and 600 are glass-lined (approximately 1/16 inch) for chemical and corrosion resistance. Glass-lined tanks have been shown to be very resistant to a variety of chemicals in a wide range of concentrations including solvents. For any failures in the glass lining, the 3/8" carbon steel shell will provide sufficient protection. Reported corrosion rates for solvents being stored with carbon steel are between 0.002 and 0.02 in/yr. ("Corrosion Data Survey," 1967 Edision, G.A. Nelson, National Association of Corrosion Engineers). Using a median value of 0.011, and the assured shell thickness, the service life is calculated and presented in Appendix 8.

Corrosion of the external shell of the tanks will be prevented by the application of a corrosion resistant coating. Surface preparation was accomplished by sandblasting per SSPC- SP6 (commercial blast) prior to coating. Two coats of 5-7 mils each of Carbomastic 15 were then applied. The tanks were inspected for complete coverage by a registered professional engineer. The specifications for Carbomastic 15, an aluminum epoxymastic manufactured by Carboline are found in Appendix 9.

A cathodic protection system was installed for additional corrosion protection. This system is shown on Drawing NY003-5430. The material in which the tanks are imbedded is also slightly alkaline, a condition which further inhibits corrosive activity. The clay cap and liner system also prevent groundwater from being introduced to the medium surrounding the tanks. The entire installation as described provides a complete system of corrosion protection and prevention. Detail is provided in Appendix 10. To protect against static electric charges, all the tanks were grounded in a loop, thereby reducing the charge separation.

A piping and instrumentation diagram showing the storage tanks, instrumentation, and valving is shown on Drawing NY003-1317. Inlet and outlet valving are manually operated except for the fire safe valve and solenoid valve on the tank outlet.

The tanks were tested for tightness prior to and after back filling with a soap test after pressurizing the tanks. A visual test was done on the external coating prior to backfilling. The cathodic protection system was also tested in accordance to the manufacturer's recommendation. The cathodic protection system is tested monthly and annually.

4.2 New Tank Systems

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4.3 Secondary Containment for Tank Systems

Tanks 300, 400, 500, and 600 are imbedded in two (2) feet of coarse sand compacted with a vibrating plate to provide uniform support along the entire length of the tank as shown on Drawing NY003-5430. Beneath the sand is an impermeable liner consisting of the following components that were installed as follows:

- one (1) 40 mil. HDPE geo-membrane.
- one (1) layer consisting of 6"-12" compacted clay and sand.
- one (1) 40 mil HDPE geo-membrane.
- one (1) layer consisting of 12" of clay installed in two (2) 6" lifts compacted to 1 x 10^{-7} cm/sec.

This system provides three (3) impermeable barriers between the tank outer shell and the area beneath the compacted clay liner. The bottom of the excavation as well as the clay liner and HDPE geo-membranes are sloped towards the pump containment slab. The liner system was installed with seams necessary to connect the sections of geo-membrane. The liner system is extended upward on the sides and ends of the tanks and extended to connect with the pump containment slab.

The clay cover was installed to extend beyond the ends and sides of the tank and slopes down to the ground to prevent lateral transfer of rainwater towards the tanks. The clay cover is shown

on Drawing NY003-5430.

Norlite has installed secondary containment on Tanks 300, 400, 500, and 600. The secondary containment consists of an impermeable liner which discharges to a concrete pad (the pump pad) that has been coated with an impermeable coating. That sealant is the Phenoline 300 sealant, which is the same sealant that has been used to coat the truck unloading pad.

The 100-series (A, B, C) and 200-series tanks (A, B, C) are above ground tanks that are housed in a concrete containment system with a capacity of 57,289 gallons. The required containment capacity is 9,271 gallons based on the largest tank (200A) housed within the structure. The floors are sealed with Phenoline 300 sealant.

The 102-series tanks (A, B) are above ground tanks that are also housed within a concrete containment system. The containment capacity is 5,214 gallons. The required containment capacity is 1,266 gallons based on the size of the two (2) tanks housed within the structure. The floors are sealed with Phenoline 300 sealant.

4.4 Double-Walled Tanks/Diked Tanks

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4.5 General Tank Operating Requirements

Tank level for all tanks is indicated in gallons by an ultrasonic or radar level indicator with digital readouts. The level range is 12 inches off the bottom to full capacity. Since the agitators do not create any significant waves or splashing, the agitators do not interfere with the tank level indicators. Data sheets for the indicators are found in Appendix 11. Tank pressure is indicated by a pressure gauge mounted on the vent of the tank. Pressure relief is provided by rupture discs. The Tank 200A tank level is determined by manual gauging and sampling. Tank Sampling is described in SOP #4-007.

A high level alarm switch is included in the level indicator for Tanks 100A, B, C and 200A, B, C. The switch will operate when the tank level is 12 inches from the top. The switch actuates a solenoid valve in the discharge pipe of these tanks. For Tank 200A, the vacuum pump

automatically shuts off when the tank is full due to lack of air flow.

For Tanks 300, 400, 500, and 600, a fire safe valve is in the discharge pipe from the tank. This is a spring-loaded gate valve with a 180°F fusible link that actuates at low pressure.

Each tank (100A, B, C; 200A,B,C; 300-600) is equipped with a rupture disc. Tanks 100A,B,C and Tanks 200B,C have 6-inch discs that fail at 20 psig pressure and 8 inches H_2O vacuum. Because it is a vacuum vessel, Tank 200A is equipped with a 6-inch disc that fails at 20 psig only. Tanks 300, 400, 500, and 600 use 3-inch discs that fail at 20 psig pressure and 8 inches H_2O vacuum. Tanks 102A, B have 6-inch discs that fail at 20 psig pressure and 2 psig. The nitrogen vent from the tank is directly piped to the aggregate kiln eliminating any atmospheric emissions during normal operation. The tanks vent to the kiln at pressures greater than 6 psig. During tank filling operations venting is provided to the kiln whereas when the tank is emptied during fueling for the kiln, nitrogen is supplied to the tank. Rupture disc certifications are found in Appendix 12.

For kiln fueling operation from Tanks 100B, 100C, 200B, and 200C, the manual valve on the tank outlet is opened and the outlet pump is turned on. For Tanks 300, 400, 500, and 600, the manual valves on the kiln supply line and tank return are adjusted to provide the proper LLGF flow to the kiln and return to the top of the tank.

The following table indicates the circulation and agitation ability of each tank:

TANK #	**Agitators**	**Recirculation**	**Recirculation by return from kilns**
300	yes	Yes	yes
400	yes	Yes	yes
500	yes	Yes	yes
600	yes	Yes	yes
100A	yes	Yes	yes
100B	yes	yes, from the bell*	yes
100C	yes	yes, from the bell*	yes
200A	yes	Yes	yes
200B	yes	yes, from the bell*	yes

TANK #	Agitators	Recirculation	Recirculation by return from kilns
200C	yes	yes, from the bell*	yes
102A	no	Yes	yes
102B	yes	Yes	yes

*The tank has a suction line at the very bottom of the tank so that there is no static volume of material in the tank when recirculated

For Tanks 300, 400, 500, and 600, if there is a breach in the first liner, a leak would be detected by liquid exiting onto the containment slab from the tell-tale pipe under the tank. This pipe is a 4" perforated drainpipe that is positioned under the center of the tank and directly on top of the clay liner. The perforations face downward, and any liquid leaking from a tank and through the synthetic liner enters the pipe and runs out onto the pump containment slab. The flow capacity of the four inch perforated PVC drainpipe under the Tanks 300, 400, 500, and 600 is sufficient to handle small leaks and only serves to provide indication of the beginning of a tank failure. For catastrophic failure of a tank, the sloped clay and polyethylene liner system directs large flows to containment areas. To prevent clogging,1-inch gravel was installed as a covering for the drainpipe. The pipes are wrapped with a geotextile filter fabric to prevent sand from clogging the drainpipes. The PVC pipe between the tanks and the spill containment slab is non-perforated as shown on Drawing NY003-5430.

4.6 Requirements for Ignitable or Reactive Waste Storage in Tanks

Norlite has not found LLGF to be reactive but it is ignitable. There are no sources of ignition such as an open flame and no smoking is permitted in the vicinity of the storage tanks. All electrical devices in the area are explosion proof, Class 1, Division 1 and 2, as required. Oxygen is excluded from the tank by the nitrogen blanketing system and all vapors are vented from the tank to the aggregate kiln eliminating any vapor discharge or build-up around the tanks. All the tanks are grounded to prevent the generation of static electricity. The inlet fill pipe and the mixing nozzles both direct liquid entry to the bottom of the tank eliminating any falling liquid from a top entry nozzle that could produce static free charges on the surface of the liquid. The tanks are located more than 50 feet from the facility property line and from the nearest building as requirements in the National Fire Protection Association's "Flammable and Combustible Liquids Code" (NFPA30).

The specifications for joints, flanges, and threaded connections are presented in the piping specification in Appendix 13. For threaded connections, the sealant is Teflon tape or paste. Its compatibility with solvents shown in Appendix 6. Flanges are joined with compressed gaskets, Garlock Style 8748. The compatibility of this material with solvents is shown in the attached Garlock "Guide for Choice of Gasketing" as Appendix 14. In addition, corrosion charts for solvents and carbon steel are attached from "Corrosion Data Survey," 1967 Edition, G.A. Nelson, National Association of Corrosion Engineers as Appendix 15.

4.7 Requirements for Incompatible Waste Storage in Tanks

Due to the prescreening process described in the Waste Analysis Plan, Section 4.3.3, Norlite does not store incompatible wastes or wastes that are incompatible with the storage tanks in which they are stored.

4.8 Tank Inspection

In addition to the secondary containment provided by the liners under the Tanks 300, 400, 500, and 600, the LLGF building, used for Tanks 100A, B, C and 200A, B, C, also serves as a tertiary containment system for the outside tanks. In the event that the secondary containment system fills, liquid will overflow through a pipe to the LLGF storage building. The containment volume of this LLGF building is 33,940 gallons. This volume is sufficient to hold the entire contents of any LLGF tank that should fail.

Inspection of spill containment facilities will be conducted daily. The spill containment for loading/unloading areas, container sampling areas, and drums stored in the unloading areas will be inspected for any spills.

4.8.1 Tanks without Secondary Containment

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4.9 Tank Spills and Leakage

In the unlikely event of an emergency arising from a tank spill or tank leakage, the

procedures found in the Integrated Contingency Plan, Section II will be followed. Norlite personnel will act to minimize or remove the threat of any tank failure. As described in Section 4.3, the facility is designed to contain any spill of material from the tanks and prevent release to the environment.

4.10 Closure and Post-Closure Care

All LLGF stored in the tanks will be incinerated in the kiln, or, alternatively, pumped into tankers and transported to another permitted facility for treatment and/or burning as fuel. All LLGF sludge will be removed from the tanks by means of shoveling and placed into 55-gallon drums by a qualified environmental contractor. The material is then shipped off-site for proper treatment and disposal.

Full detail of closure activities is found in the facility's Closure Plan.

5.0 MANAGEMENT OF WASTES IN SURFACE IMPOUNDMENTS

Reserved

6.0 MANAGEMENT OF WASTES IN LANDFILLS

Reserved

7.0 MANAGEMENT OF WASTES IN BOILERS AND INDUSTRIAL FURNACES

The following sections describe the management of wastes in industrial furnaces at Norlite LLC (Norlite). The permit requirements for operation of the industrial furnaces can be found in Schedule 1 of Module 1, Exhibits A and E.

Identification Number	Waste Types and Hazardous Waste Codes	Physical Form of Waste	Design Thermal Capacity	Waste Source
Kilns 1 and 2	All hazardous waste described in the Waste Analysis Plan (LLGF)	Liquids blended with sludges and semi-solids	62 MM BTU/Hr.	Wastes received from offsite generators and wastes generated onsite as described in the Waste Analysis Plan

7.1 Design and Operation

Raw materials are quarried on-site and are conditioned by crushing and screening. The conditioned shale feed is stored in a silo and fed to the kiln via a gravimetric conveyor. Calcination of the shale occurs at a product temperature of approximately 1400^{o}F to 1600^{o}F. Within this temperature range the shale reaches a point of incipient fusion where it is in a semi-plastic state, which allows internal gases to expand, thereby creating voids. As the expanded product leaves the burning zone it begins to cool. Cooling continues as the product drops out of the kiln into a clinker cooler. The cooled vitreous clinker is then discharged and stockpiled. The shale feed rate limit to the kiln is 24.7 tons per hour maximum.

Heat is supplied to the kiln by firing fuels as described in the table below. All fuel is injected countercurrent to the product flow through the kiln via burners at the discharge (front) end of the kiln. Virgin fuel oil, specification used oil fuel, and comparable fuels are fed from Tanks R1, R2, M1, and M2, located in the tank farm adjacent to Tank 9. This delivery system is not interconnected to the LLGF delivery system in any way. No hazardous or nonhazardous waste is delivered to the kiln through this system.

Feed	Flow Measurement Instrument	Units	Recorded (manual/auto)	Inst/MRA/ HRA	Data Stored	AWFCO Valve
LLGF/Waste Fuel B	Micro Motion	GPM	Auto	MRA/HRA	Yes	Yes
Spec Used Oil	Micro Motion	GPM	Manual	Begin/End of Shift	Yes	No
Off-Spec Used Oil	Micro Motion	GPM	Auto	MRA/HRA	Yes	Yes[4]
Waste Fuel A	Micro Motion	GPM	Auto	MRA/HRA	Yes	Yes[4]
Natural Gas	Hart Thermatel TA2	Therms	Auto[1]	Monthly[2]	Yes	No
Diesel Fuel/ Kerosene/Comparable Fuels/ Fuel Oil #2, #4, #6	Micro Motion	GPM	Manual	Begin/End of Shift[3]	Yes	No
Water	Roto Meter	GPM	Manual	NA	Yes	No
Vapors	NA	NA	No	NA	NA	No
Air: Primary Atomization	Both Use Rosemount Pressure Transmitter	PSIG PSIG	NA Auto	Inst HRA	No Yes	N o Y es

Note: NA = Not Applicable

1- Metered by utility company

2- Includes Kiln 1 & Kiln 2

3- Depends on feed through on-spec or off-spec feed line

4- AWFCO valve only applies when Carbon Monoxide (CO) is over 500 ppm

The various feed streams to the kiln are delivered based on the table below:

Feed	Storage	Kiln Delivery
LLGF/Waste Fuel B	100A,100B,100C,200A, 200B, 200C, 300, 400, 500, 600	Main Burner Assembly
Spec Used Oil	M1, M2, R1, R2	Oil Pilot
Off-Spec Used Oil	M1, M2, R1, R2 and Tank 9	Main Burner Assembly
Waste Fuel A	M1, M2, R1, R2 and Tank 9	Main Burner Assembly
Natural Gas	NA	Main Burner Assembly Natural Gas Pilot
Diesel Fuel/ Kerosene/Comparable Fuels/ Fuel Oil #2, #4, #6	M1, M2, R1, R2	Oil Pilot
Water	NA	Main Burner Assembly

Feed	Storage	Kiln Delivery
Vapors	NA	Main Burner Assembly
Air: Primary Atomization	NA	Main Burner Assembly

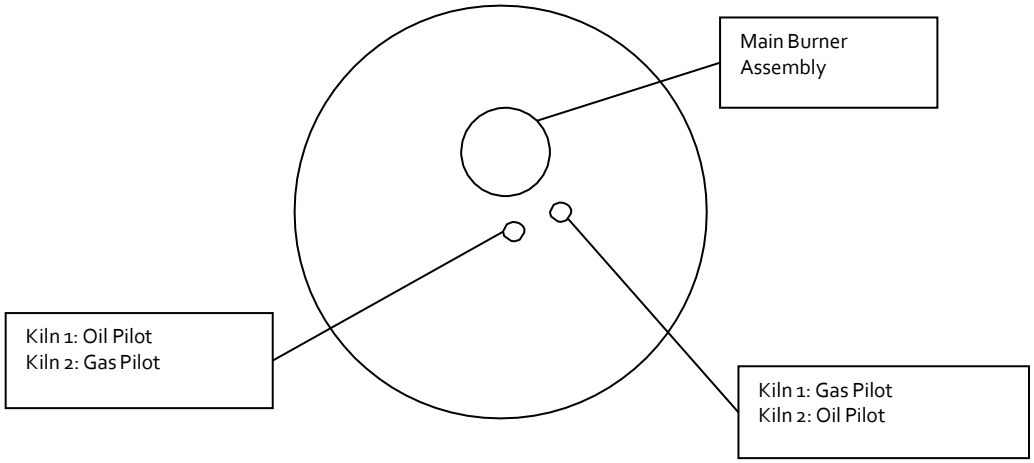
Each kiln has three injection points for these feeds:

1 - the main burner assembly,

2- the oil pilot, and

3 - the natural gas pilot.

They are situated in the front end wall of the kiln as shown below:



Typical kiln combustion gas and material retention times are 4 to 5 seconds and 45 minutes, respectively. Draft for the kiln is supplied by an induced draft fan. Secondary combustion air is supplied by forced draft fans from the clinker coolers. Secondary combustion air is preheated by passing it through a moving bed of hot product in the clinker cooler.

LLGF is pumped to the kiln's main burner at a maximum rate of 10.5 gpm. Fuel is supplied to the burner nozzle through an inner pipe while atomization air (or steam) is supplied through a concentric outer pipe.

Each kiln is manned on an around-the-clock basis by the burner operator from the kiln control

room. The burner operator can monitor critical operating variables from the control room via a computerized data acquisition system (DAS). The burner operator can also make operational set point changes via the computer system. Equipment stop/start circuitry is housed in the kiln control room or in the field via motor control centers. All field instrument signals are processed through an Allen Bradley Programmable Logic Controller (PLC). Information from the PLC is gathered by the DAS and processed into visual information for the use of the burner operator. The PLC is in control of the Automatic Waste Feed Cutoff System (AWFCO), as described below, at all times and operates independent of the DAS.

The burner operator is assisted by the kiln field operator and the mechanic who are responsible for activities outside the control room and burner floor area. The kiln field operator and mechanic perform routine inspections, make field only parameter adjustments, and perform routine mechanical maintenance of the kiln and air pollution control systems.

The burner operator in conjunction with the kiln field operator and mechanic make routine system adjustments to maintain the kiln at optimum conditions for the production of light weight aggregate while maintaining the system within the operating window as set forth by the AWFCO system.

In the event an AWFCO operating parameter has an excursion outside the operating window, LLGF is automatically cutoff by the AWFCO system. The burner operator will switch to an alternate fuel such as natural gas or oil until corrections are made to bring the operation within the operating window.

In the event a non-AWFCO operating parameter has an excursion, the burner operator will attempt to make system corrections to bring the parameter within specification. Should the corrections not bring the parameter within specifications, the excursion will ultimately cause one or multiple AWFCO parameters to trigger the AWFCO system to operate.

In the event of a power failure, all systems shutdown including, but not limited to, LLGF flow, fuel farm feed systems, raw shale feed, main flame, etc. All systems require manual restart. A virgin fuel is fired to bring all operating parameters within the operating window prior to commencing LLGF feed.

The main flame of the kiln is either self-sustaining or sustained by the presence of a virgin fuel pilot. The main flame and the pilot flame are monitored by an electronic eye to have proof positive that a flame exists. In the event of a loss of signal by the electronic eye, the virgin fuel feed to the pilot, the main natural gas valve, the LLGF AWFCO valve, and the used oil feed valve are closed and a manual reset is required to re-establish a proof positive of flame. Should operating parameters fall outside the operating window during a flame failure, a virgin fuel is fired to bring all operating parameters within the operating window prior to commencing LLGF feed.

7.1.1 Kiln Emission Control Systems

Both kilns have identical air pollution control devices (APCDs) and include both dry and semi-dry emission control devices for the collection and removal of particulate matter, SO_2, HCl, metals, and other gaseous emission products. The principal collection mechanisms are sedimentation, condensation, impaction, filtration, and interception for particulate matter and metals and absorption for HCl and other gaseous species. The overall APCD system also includes forced draft fans, an induced draft fan and exhaust stack, each of which is described below.

Cyclone

Kiln emissions first pass through a mechanical centrifugal collector to remove large particulate matter, an FLSmidth dedusting high efficiency cyclone. The cyclone is provided to remove coarse particulate matter before the kiln gases are cooled down. Dust collected in the cyclone as air is conveyed and combines with the baghouse fines, Gas Conditioning Tower (GCT) and Gas Suspension Absorber (GSA) fines which are added to the light weight aggregate becoming part of the product. The cyclone is insulated and refractory-lined to reduce wear, extend lifespan, and help keeping operational conditions controlled independently of the climatic conditions.

Gas Conditioning Tower

The kiln flue gas then passes through an FLSmidth GCT. The hot exhaust gases enter the top section of the vertical, cylindrically shaped and insulated tower, and are drawn through the cooling

tower by the system Induced Draft (ID) fan. Some of the dust from the gases is precipitated and collected in the bottom hopper of the conditioning tower and extracted by a conveyor. Kiln gases are cooled down by evaporating all of the water that is sprayed in the tower by means of a special set of high efficiency nozzles. Temperature drop through the GCT is constantly monitored and water spraying is adjusted in order to rapidly quench the gases and guarantee complete evaporation of the water. No liquid byproduct stream comes out of the GCT. By rapidly quenching the flue gasses the formation of dioxins and/or furans is reduced, achieving high efficiencies in the prevention of formation of those compounds.

Gas Suspension Absorber

After the kiln gasses are cooled down to an optimum temperature, they pass through the FLSmidth semi-dry scrubber. A standard FLSmidth GSA flue gas system comprises the following main components:

- Reactor
- Cyclone
- Re-circulation box
- Dust filter
- By-product system

The reactor system comprises an inlet bend, a venturi, and a riser section. Flue gas is led through the venturi via the inlet bend, and into the reactor. In the reactor, the pollutants are removed by chemical reactions with the only chemical reagent used in the APCD, injected hydrated lime [calcium hydroxide, $Ca(OH)_2$]. The increased velocity ensures that solid material can be transported by the flue gas to create a fluidized bed in the riser section. The main part of the flue gas treatment takes place in the riser section due to the intimate contact between the lime and the flue gas. In this section, the lime reacts with the acid constituents in the flue gases, thus capturing and neutralizing them. Because of the very large reaction surface formed by the fluidized bed, the contact between the lime and the acid constituents in the flue gas is very efficient, and the degree of acid removal correspondingly high. Additional water injected into the riser section through the nozzle is provided to cool down the flue gas. The main part of the cooling process takes place

through evaporation of water from the wetted, recirculated material. The amount of water is adjusted in order to maintain the required temperature in the purified flue gas. In the riser section the flue gas velocity is relatively high, and some of the solid particles are transported by the flue gas to the top of the riser section and into the cyclone. In the cyclone, the majority of the particles are separated from the flue gas. Approximately 99% are captured, and only the small particles are transported by the flue gas to the fabric filter. The captured particles are returned to the reactor via the re-circulation box, which is a buffer of reaction products with excess lime to maintain the absorption capacity and for peak temperature control purposes.

Fabric Filter

Following the GSA is a FLSmidth modular bag filter. The filter media is continuously pulsed one row at a time, controlled by a timer. Additional hydrated lime is injected into the air pollution control system immediately prior to the baghouse. This is primarily to increase control of SO_2 and HCl. Fines collected in each module of the baghouse are discharged via a rotary air lock to the GSA recirculation box where it is re-injected into the system in order to reduce the lime consumption. The baghouse is also equipped with a bag leak detection system.

Induced Draft Fan, Forced Draft Fans and Exhaust Stack

The baghouse is followed by an induced draft (ID) fan which induces draft through the kiln, cyclone, GCT, GSA, and baghouse and provides forced draft on the exhaust gases. Secondary combustion air is supplied by forced draft clinker cooler fans. Secondary air is preheated by the clinker cooler at the front end of the kiln. Clean gases pass to the atmosphere via a 2.95 ft. diameter carbon steel stack 125 feet above grade. Access platforms are provided for stack sampling.

7.2 Waste Analysis

The Waste Analysis Plan provides complete detail of the sampling and analysis procedures used to ensure that the LLGF feed complies with the operating limits set by the facility's Comprehensive Performance Test (CPT). Critical feedrate parameters are set for heat input, total halogens, and various metals.

7.3 Performance Standards and Operating Requirements

The following table displays the operating limits as determined by the latest MACT Comprehensive Performance Test (CPT).

2017 Comprehensive Performance Test OPLs (CPT) – Kiln 1

Kiln Operating Parameters	Units	CPT Test Results C1	CPT Test Results C2	How Set	Cond. Used	MIN or MAX	Final OPL
Process & CEM Parameters --							
Total (and Pumpable) LLGF Feed	gpm	10.5	10.3	(a)	1	MAX	10.5
Kiln Production Rate (Shale Feed)	tph	24.6	24.3	(a)	2	MAX	24.3
LLGF Atomization Pressure	psi	55.4	83.8	(c)	1	MIN	55.4
Back End Temperature	°F	866	865	(c)	1	MIN	866
Heat Exchanger Exit Temperature	°F	453	435	(c)	1	MAX	453
CO Conc. @ 7% O_2	ppm	40.2	40.4	(d)	N/A	MAX	40
APCS Parameters --							
Baghouse Inlet Temperature	°F	405	400	(c)	1	MAX	405
Venturi Pressure Drop	in. w.c.	4.0	3.8	(c)	2	MIN	3.8
Scrubber Blowdown Rate	gpm	21.0	14.9	(c)	2	MIN	14.9
Scrubber Liquid Ph	pH	8.5	7.9	(c)	2	MIN	7.9
Scrubber Tank Liquid Level	% Ht.	57.4	51.3	(c)	2	MIN	51.3
Scrubber Liquid to Gas Ratio	gal/10^3 ft^3	5.00	4.94	(c)	2	MIN	4.9
Lime Feed Rate	lb/hr	300	269	(c)	2	MIN	269
Lime Carrier Fluid Flow Rate	scfm	218.6	171.2	(c)	2	MIN	171.2
Constituent Feed Rates --							
Total Chlorine	lb/hr	(e)	114.4	(c)	2	MAX	114.4
Total SVM (Cd & Pb)	lb/hr	(e)	5.8	(c)	2	MAX	5.8
Total LVM (As + Be + Cr)	lb/hr	(e)	10.4	(c)	2	MAX	10.4
Total Pumpable LVM	lb/hr	(e)	9.25	(c)	2	MAX	9.25
Total Mercury	lb/hr	(e)	0.007	(c)	2	MAX	0.007

(a) Average of the maximum hourly rolling average for each run
(b) Based on manufacturer recommendation and Norlite operating experience
(c) Average of the test run. For metals, also based on extrapolation; see Table 4-3 and associated text.
(d) Regulatory citation
(e) Not calculated for Condition 1

7.4 Monitoring and Inspection

The kilns' PLCs, Continuous Monitoring Systems, and Continuous Emission Monitoring Systems are interlocked with the automatic waste feed cutoff (AWFCO) systems. All operating parameters are monitored at their required frequencies and are on display in the kiln control room and recorded on the kiln data reports.

Inspection of the kilns is described in the Security and Inspection Plan.

7.5 Closure

Norlite's two lightweight aggregate kilns are cylindrical, horizontally-mounted rotary kilns. The kilns are constructed of steel shells, with a six-inch refractory lining. The system involves piping and intermediate pumping station for feeding waste from the LLGF storage tanks to the kilns, the kilns, a mechanical collector, a heat exchanger, baghouse, a venturi and ducan scrubber for air emissions from the kilns, and an exhaust stack.

Since the LLGF is filtered prior to burning and due to the very high destruction efficiency of the kilns, there is no remaining hazardous waste residues within the kilns. Therefore, closure procedures associated with closure of the kiln operations will involve the decontamination and dismantling of waste feed lines to the kilns; disposal of contaminated washwaters generated from decontamination procedures; and, definition, excavation and disposal of any contaminated surface soils.

If closure of the hazardous waste energy recovery operations at the kiln occur in accordance with the procedures outlined, the operation of the kiln may continue following closure with the use of non-waste fuel. Thus, dismantling or demolition of the aggregate kilns and their ancillary equipment (i.e., air pollution control equipment, etc.) is not included in the final closure procedures. To indicate successful decontamination of the kiln upon cessation of the use of LLGF, the kiln will be operated in a "burnout" mode with only auxiliary fuel fired for an appropriate time period, but not less than four hours, maintaining at least the minimum temperature specified in the permit. This will allow for the combustion of any remaining organic constituents within the kiln system. As soon as practical, allowing for the kiln to properly cool prior to entry, a set of wipe samples (minimum of ten locations scattered throughout the kiln) will be taken. Wipe sampling will involve sampling kiln surfaces exposed to the LLGF and/or exhaust gases. Each wipe sample collected will be a 100 sq. cm. sample. Decontamination will be deemed successful if the resulting analytical results for the specified parameters, using appropriate GC methods of analysis in accordance with SW-846, do not exceed regulatory standards in effect at the time of closure.

8.0 MANAGEMENT OF WASTES IN CONTAINMENT BUILDINGS

Reserved

9.0 MANAGEMENT OF WASTES IN MISCELLANEOUS UNITS

Reserved

10.0 AIR EMISSION STANDARDS

The following sections describe compliance with the air emissions standards at Norlite LLC (Norlite).

10.1 Air Emission Standards for Process Vents - Subpart AA

RESERVED

10.2 Air Emission Standards for Equipment Leaks - Subpart BB

The details for compliance with Subpart BB are provided in Appendix 16 of the Operations Plan. The charts identify the requirements for each piece of equipment that is subject to Subpart BB.

10.3 Air Emission Requirements for Tanks, Surface Impoundments and Containers - Subpart CC

10.3.1 Waste Determination Procedures

Norlite does not operate any exempt tanks and presumes that all hazardous waste received contains greater than 500 ppmv. No actual analysis is performed to demonstrate that hazardous waste received or stored is eligible for the exemption. All tanks are operated with Level 2 controls.

10.3.2 Standards for Tanks, Surface Impoundments and Containers

Norlite operates six vertical above ground tanks, four horizontal covered aboveground tanks, and five other ancillary tanks for a total storage capacity of 152,704 gallons as per 6 NYCRR Part 373-2.29. These tanks are subject to routine and scheduled inspections as per 6 NYCRR Part 373-2.29(e)(7)(iii)(a): the fixed roof and its closure devices shall be visually inspected by the owner or operator to check for defects that could result in air pollutant emissions. The closure devices shall be designed to operate such that when the closure device is secured in the closed position there are no visible cracks, holes, gaps, or other open spaces in the closure device or between the perimeter of the cover opening and the closure device. For the purpose of this inspection, closure devices on the tanks are flanged and the inspection will focus on the flange connection. Overall defects to inspect for include, but are not limited to, visible cracks, holes, or gaps in the roof sections or between the roof and the tank wall; broken, cracked, or otherwise damaged gaskets; and broken or missing hatches, access covers, caps, or other closure devices. As per 6 NYCRR Part 373-2.29(i)(2): the owner or operator shall develop and

implement a written plan and schedule to perform the inspections and monitoring required. The owner or operator shall incorporate this plan and schedule into the facility inspection plan required under 6 NYCRR Part 373-2.2(g).

This section serves as a written plan and schedule to perform the required inspections and monitoring detailed in 6 NYCRR Part373-2.29(e)(7)(iii)(a). As detailed in 6 NYCRR Part 373- 2.29(e)(7)(iii)(c)(3): the owner or operator shall perform an initial inspection of the air emission control equipment and thereafter, the owner or operator shall perform the inspections at least once every year. Norlite will conduct an annual visual inspection for defects, cracks, holes, gaps, damaged gaskets or other defects which could result in air pollution emissions in conjunction with one of the quarterly Subpart BB inspections conducted by Norlite personnel. The results of the visual inspections will be kept on-site for three years and then stored off-site for the life of the facility.

10.3.3 Inspection and Monitoring Requirements

Norlite personnel will inspect the tanks listed in Schedule 1 of Module I of the Part 373 Permit. Specific drawings for these tanks and their associated equipment can be found on engineering drawings NY003-5010, NY003-1312, NY003-1314, NY003-1315, and NY003-1317. While 6 NYCRR Part 373-2.29(e)(7)(iii)(a) specifies a visual inspection of only the fixed roof and its closure devises, where accessible Norlite will visually inspect the entire outer tank surface plus any closure devices on the tank surface. Any other ancillary equipment attached to the tank is covered under 6 NYCRR Part 373-2.28 and will not be included in this inspection.

10.3.4 Recordkeeping and Reporting Requirements

As per 6 NYCRR Part 373-2.29(j)(2), the owner or operator shall record: a. a tank identification number as selected by the owner or operator, b. the date of the inspection was conducted, and c. any defects found. For each defect found during the inspection, the following information will be recorded: the location of the defect, a description of the defect, the date of detection, and corrective action taken to repair the defect. If the repair of the defect is delayed in accordance with the provisions of 6 NYCRR Part 373-2.29(e)(11), the owner or operator shall also record the reason for the delay and the date that completion of repair of the defect is expected.

As per 6 NYCRR Part 373-2.29(e)(11): the owner or operator shall repair each defect detected during an inspection as follows:

(i) The owner or operator shall make first efforts at repair of the defect no later than 5 calendar days after detection, and repair shall be completed as soon as possible but no later than 45 calendar days after detection.

(ii) Repair of a defect may be delayed beyond 45 calendar days if the owner or operator determines that repair of the defect requires emptying or temporary removal from service of the tank and no alternative tank capacity is available at the site to accept the hazardous waste normally managed in the tank. In this case, the owner or operator shall repair the defect the next time the process or unit that is generating the hazardous waste managed in the tank stops operation. Repair of the defect shall be completed before the process or unit resumes operation.

As per 40 CFR 265.1084(d)(1): the test shall be conducted in accordance with the procedures specified in Method 21 of 40 CFR part 60, appendix A. Each potential leak interface on the cover and associated closure devices shall be checked. Norlite currently conducts Method 21 testing on the agitators of all the tanks listed previously in this document. As per 40 CFR 265.1084(d)(9): for the seals around a rotating shaft that passes through a cover opening, the arithmetic difference between the maximum organic concentration indicated by the instrument and the background level shall be compared with the value of 10,000 ppm. If the difference is less than 10,000 ppm, then the potential leak interface is determined to operate with no detectable organic emissions. Norlite uses a limit of 500 ppm as a determination of leak. Any readings over 500 ppm will trigger maintenance to be conducted on the agitator packing.

Please see Appendix 17 for an example of the form which will be used to conduct and document the annual Subpart CC inspection.

11.0 REQUIREMENTS OF OTHER FEDERAL AND STATE LAWS

This section is presented to demonstrate compliance with 6 NYCRR Part 373-2.5 entitled, "Manifest System, Recordkeeping and Reporting," as well as annual generator and hazardous waste reduction reporting requirements, at the Norlite LLC (Norlite).

11.1 Manifest Requirements

As discussed in previous sections of this Operations Plan, the Norlite manages hazardous waste under the following scenarios:

- Receipt of hazardous waste for blending and burning in two rotary kilns to produce lightweight aggregate.
- Receipt of hazardous waste as part of transportation related transfer and temporary storage.

As a result, the manifest requirements applicable to generators of hazardous waste pursuant to 6 NYCRR Part 372.2(b) are complied with by Norlite LLC for both hazardous wastes transported to the Norlite facility, as well as for hazardous waste transported from the Norlite facility for off-site treatment and disposal. In addition, as required by the Land Disposal Restrictions, the required recordkeeping in accordance with 6 NYCRR Part 376.1(g) is maintained on-file at the facility.

11.2 Operating Record

In accordance with 6 NYCRR Part 373-2.5(c), Norlite is required to maintain an operating record at the facility. A description of the items included in the operating record follows:

- Date, type, location and quantity of hazardous waste stored;
- Date, type, location and quantity of hazardous waste generated;
- Records and results of waste analyses;
- Summary reports and details of all incidents requiring implementation of the Norlite LLC (Norlite) Integrated Contingency Plan;
- Records and results of inspections (only required to be maintained for three years);
- Monitoring, testing or analytical data and corrective action where required;
- For off-site facilities, notices to generators as specified in 6 NYCRR Part 373-

2.2(d)(2);

- Manifests (only required to be maintained for three years); and,
- Closure plan and closure cost estimates.

In addition, as required by 6 NYCRR Part 373-2.5(c)(2)(ix), a certification is submitted to the NYSDEC, no less often than annually, that a program is in place to reduce the volume and toxicity of hazardous waste that is generated to the degree determined by Norlite LLC to be economically practicable. Further, Norlite LLC certifies that the method of storage, treatment and disposal is the most practical method currently available to the Norlite LLC which minimizes the present and future threat to human health and environment. A copy of this certification is maintained in the operating record at the Norlite.

11.3 Availability, Retention and Disposition of Records

In accordance with 6 NYCRR Part 373-2.5(d), the operating record listed in the previous section will be retained until facility closure and will be available for inspection at all reasonable times by a representative of the NYSDEC. The operating record is maintained at the Norlite.

11.4 Annual Report

As a generator of hazardous waste within the State of New York, Norlite LLC is required to comply with the annual reporting requirements specified in 6 NYCRR 373-2.5(e). A Hazardous Waste Report is prepared annually by Norlite LLC for the Norlite facility and submitted to the Commissioner of the NYSDEC by March 1st for the preceding calendar year. Copies of the annual reports are maintained for at least three years at the Norlite LLC.

11.5 Hazardous Waste Reduction Plans

Since the Norlite LLC generates greater than 25 tons of hazardous waste per year and has received a Part 373 Permit from the NYSDEC, it was required to develop and submit a Hazardous Waste Reduction Plan (HWRP) in July 1, 1991. In subsequent years, Annual Status Reports and Biennial Updates to the HWRP have been prepared and submitted to the NYSDEC in accordance with the provisions of the Hazardous Waste Reduction Act.

Norlite LLC is strongly committed to reducing the volume of hazardous waste generated at the

Norlite facility and will continue to comply with the applicable requirements of the Hazardous Waste Reduction Act including the submittal of Annual Status and Biennial Update reports.

12.0 GLOSSARY

Term	Definition
6 NYCRR	Title 6 of the New York Codes, Rules and Regulations
40 CFR	Title 40 of the Code of Federal Regulations
AWFCO	Automatic Waste Feed Cutoff
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CEMS	Continuous Emission Monitoring System
CMS	Continuous Monitoring System
CPT	Comprehensive Performance Test
(US)DOT	(United States) Department of Transportation
DAS	Data Acquisition System
FIA	Federal Insurance Administration
GC	Gas Chromatograph
GPM	Gallons Per Minute
HCl	Hydrogen Chloride
HDPE	High Density Polyethylene
HRA	Hourly Rolling Average
HWM	Hazardous Waste Management (facility)
HWMU	Hazardous Waste Management Unit
HWRP	Hazardous Waste Reduction Plan
LGF	Low Grade Fuel
LLGF	Liquid Low Grade Fuel
MACT	Maximum Achievable Control Technology
MMV	Modified Multivane
MRA	Minute Rolling Average
NACE	National Association of Corrosion Engineers
NEPA	National Fire Prevention Association
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OSHA	Occupational Safety and Health Organization
P.E.	Professional Engineer
PLC	Programmable Logic Controller
PPE	Personal Protective Equipment
PPMV	Parts Per Million by Volume
PSIG	Pounds per Square Inch Gage
PVC	Polyvinyl Chloride
RCRA	Resource Conservation and Recovery Act
SOP	Standard Operating Procedure
SEQRA	(New York) State Environmental Quality Review Act
TSDF	(Hazardous Waste) Treatment, Storage or Disposal Facility
USEPA	United States Environmental Protection Agency
VO	Volatile Organic

APPENDIX

APPENDIX 1

SOP#4-011

NORLITE LLC

STANDARD OPERATING PROCEDURES

CONTAINERIZED (DRUMMED) WASTE MANAGEMENT PLAN

SOP#4-011
(Rev 1)

PROCEDURE NO: **Date:** June 1, 2020

TITLE: Containerized (drummed) Waste Management Plan

ORGANIZATION: Fuel Farm & Laboratory

PURPOSE: The waste management plan for containers describes the procedures used to obtain chemical and physical data on new waste streams and waste shipments prior to storage and treatment to ensure proper storage, treatment, and disposal. This data is necessary to determine compliance with 40 CFR §264.13, §268 (the Land Disposal Restriction Program) and the regulations of the State of New York. The purpose of the determinations is to ensure that the treatment units operate within their respective design specifications and permit limitations.

The waste analysis plan includes three tiers of evaluation to be performed on wastes. These categories ensure appropriate waste characterization information is available at various storage of waste acceptance and processing.

- **Initial Waste Characterization-** for new waste streams.
- **Waste fingerprinting-** for verification of safety and handling of each shipment of waste.
- **Process Control Analysis-** for process and feed planning information.

PROCEDURE:

1.0 Waste approvals

1.1 Initial Waste Characterization (IWC)

For each new off-site generated waste stream that is proposed to be treated, an initial waste characterization is to identify hazardous characteristics of concern, and define storage and handling requirements for the waste.

The generator must submit a Hazardous Waste/LGF specification for all prospective waste streams. The Specification Form provides a means for determining if a waste is subject to the Land Disposal Restrictions of 40 CFR §268, because it requests the generator to identify the applicable RCRA waste codes. The LGF specifications form contains a certification that the generator has properly gathered and evaluated the waste stream and that the information submitted to Norlite is true, accurate, complete, and the generator has confirmed that the waste submitted for approval is a representative sample.

Because Norlite has engineered the incinerator feed system to introduce materials that cover a wide spectrum of viscosities, Norlite has the ability to process wastes having a wide range of physical properties. Norlite relies upon its feed planning process (described below) to optimize incinerator feeds that comply with incinerator design specifications and permits.

2.0 INVENTORY MANAGEMENT

2.1 Receiving

Bulk Shipments: Bulk receipts will be tracked by laboratory control numbers. This number follows each shipment from date of receipt through the invoicing process.

Non-Bulk Containers:

These containers can include:

Steel Drums	(5-85 gallon)
Poly Drum	(5-85 gallon)
Totes	(200 – 300 gallon)

a. All drums are sampled in accordance with the Norlite Drum Receiving/Sampling Procedure.

b. Acceptable drums are issued a unique number that will allow tracking from receipt through disposition of the container received.

c. The following information may be referenced in the inventory system (not necessarily on the label):

(i) Outer container size
(ii) Inner container size
(iii) Location (drum storage, pumping station, empty)
(iv) Date of receipt
(v) Waste stream #/ Manifest #
(vi) Date processed & drum status (at each stage of handling).

d. The inventory system has the ability to issue reports with:

(i) #/volume of hazardous drums in inventory.
(ii) #/volume of non-hazardous drums in inventory
(iii) Drum aging
(iv) Destination of drums

2.2 Containerized Waste Receiving Procedures

Containerized waste generated off-site will be transported by licensed hazardous waste haulers, and will be received in accordance with the procedures described below. Upon receipt, each waste shipment will be

labeled for tracking purposes and the hazardous waste manifest will be reviewed for comparison with the initial waste profile before shipment is sampled. For each waste stream received in a shipment, 100% of the drums of a waste stream will be sampled for visual inspection and compatibility. Ten percent of the drum samples may be composited for each unique waste stream prior to analysis, with no more than 5 individual drum samples making up one composite sample (i.e. if there are more than 50 drums, 2 composites must be made). The samples will be analyzed as for the parameters described in Table C-01. This data will be used to verify treatability by Norlite.

All samplable wastes received are sampled in containment sampling area(s) and composited by waste streams in the laboratory. All composite samples of miscible liquids, sludges, or solids will be homogenized prior to placement in sample containers. Consistent with 40 CFR 264.71(b)(2), all analyses are not completed prior to signing the manifest and releasing the truck. Discrepancies discovered during later analysis are resolved within 15 days, or are reported as "unreconciled discrepancies" as required under 40 CFR 264.72(b) and as described in section three. If the discrepancy is such that the waste cannot be managed at Norlite; transportation back to the generator or to another treatment facility is arranged.

Upon arrival at Norlite all containerized waste trailer truck must follow these steps:

a. Truck drivers will report to Gate One and sign in. The gross weight of the load is scaled in.

b. The shipping papers and the manifest will be inspected and approved by security to ensure that delivery has been made to the proper facility and that the truck has the required permits. The following information is logged:

* Time/date
* Generator name and address
* Truck driver's name
* Truck scale weight

c. Loaded trucks will then be directed to the Fuel Farm unloading area.

d. Norlite will open the trailer and inspect the trailer's contents. If in order, Norlite will unload the truck's contents. The containers will be unloaded from the truck and organized into rows.

Sufficient aisle space is maintained as required by regulation

e. As the truck is being unloaded, the containers will also be inspected for damage incurred during transport and for leaks. Any leaking containers will be placed in appropriate overpack containers. Containers suitable for liquids such as eighty-five gallon poly or steel overpacks will be used. The overpack containers will be labeled to show contents.

f. LGF Technicians will verify the piece count after unloading. Any discrepancies in the count will be noted on a copy of the manifest and appropriate action will be taken to reconcile the discrepancy.

g. Once unloading has begun, all of the containers for Norlite will be unloaded. Typically, trucks will be unloaded on the day that the shipment arrives. However, if for unforeseen circumstances, (such as to reconcile manifest discrepancies, to allow for proper handling and characterization, etc.) it becomes necessary for a truck to remain overnight; the waste containers will be stored in the trailer if they have not been unloaded. The manifest will remain with the transporter, who has custody of the waste.

h. After the truck is unloaded, an authorized representative of Norlite will sign and date each copy of the manifest to certify that the waste covered by the manifest has been received. A copy of the complete manifest will then be furnished to the driver.

1. The guard will logout the truck after verifying that the driver has received a signed copy of the manifest. The truck is weighed out to determine the tare weight.

j. The LGF technician opens and samples the containers by waste streams for analysis as prescribed by the procedures described in the Waste Analysis Plan. The samples are delivered to the lab and logged on the sample log sheet. The sample log sheet is used to assign an internal lab tracking number (control numbers) for efficiency. The samples are also labeled with the control number. Logged

in samples will be analyzed for the parameters outlined in Table C-01 to verify that the waste type specified on the manifest conforms to the previously approved samples waste type. Analysis is not performed on samples of waste designated for transshipment to another permitted TSDF. If any significant discrepancies in waste type are found during the waste fingerprinting analysis, Norlite will follow the procedures outlined in section 3.

k. Pumpable liquid drums are fingerprinted, checked for compatibility, and then bulked into blend tank for analysis.

l. The drums are uniquely identified and the location and quantity of hazardous waste received along with the control number cross-references and the date received will be recorded in the operating record of Norlite. The location and quantity received will also be entered in the inventory.

m. The laboratory will record all results of the waste analysis in the operating record, cross-referencing with the manifest.

n. Within two business days after acceptance, copies of the manifest will be sent to the generator and to New York DEC.

o. A copy of each manifest will be retained at Norlite for at least three years from the date of delivery.

3.0 RESOLUTIONS OF MANIFEST DISCREPANCIES

3.1 Resolution of manifest discrepancies

Any significant discrepancies as defined by 40 CFR 264.72 and NYCRR 372.4(b) will be handled according to the following procedures:

a. Any significant discrepancies in piece count or waste type found during the receiving process will be noted on the manifest.

b. When significant discrepancies are found, Norlite management will attempt to reconcile the discrepancy with the generator and/or transporter by telephone, email or other written correspondence. Resolution will be accomplished by examining

all records of quantities and waste type associated with the disputed shipment.

c. If a discrepancy in waste type is such that the waste can still be treated by the facility, Norlite will accept the shipment, and steps will be taken to reconcile the difference as described above. Acceptable waste type discrepancies would include differences in physical properties (e.g., heat of combustion, specific gravity, physical state) that, although different from those measured in the characterization analysis, still fall within the range of physical properties that Norlite is capable of treating.

d. If the discrepancy cannot be resolved within 15 days, a letter will be submitted by Norlite to the EPA Regional Administrator and the New York DEC Director describing the discrepancy, the attempt to reconcile it, and a copy of the disputed manifest.

e. Records of all attempts to reconcile discrepancies will be kept in Norlite's Operating Record.

f. If Norlite discovers any significant discrepancies in waste type during the waste receiving analysis that indicates the waste is of a type which cannot be treated by Norlite, Norlite will either reject the waste back to the generator or ship the waste to another facility permitted to manage the waste. Examples of non-acceptable discrepancies would include un-permitted waste codes, TSCA-regulated levels of PCB's, pathological or etiological materials, radioactive components, or explosive materials under the conditions of incineration.

4.0 Review and use of Land Disposal Restrictions (LDR) notification forms and LDR certifications

In addition to manifests, bills of lading, and other paperwork required for the transportation of hazardous waste, each shipment of restricted hazardous waste must be accompanied by an LDR notification.

The LDR notification must include the manifest number associated with the waste being shipped, the EPA waste code(s), and waste analysis data where available.

In specifying the applicable treatment standard, the wastewater or non--wastewater category and treatment subcategory (where applicable) for all waste codes must be specified.

Once a waste shipment has passed though Gate one and has parked within a contained sampling station or unloading station for waste collection, a review of the LDR notification will be performed. The review will include:

a. A comparison of the manifest number on the LDR form with the accompanying manifest.
b. A comparison of the restricted waste codes specified in the manifest with the restricted waste codes listed in the LDR notification.

c. A determination as to whether treatment subcategories have been specified.

If discrepancies or deficiencies are noted during the LDR notification review, the generator will be contacted to resolve the discrepancy or correct the deficiency. Any discrepancies or deficiencies will be noted on the LDR notification form and the waste will be accepted for treatment.

5.0 Processing

5.1 Compatibility

All individual grab samples for pumpable liquid drums will be tested with material to assure compatibility according to Norlite SOP#4-005. Acceptable compatibility test results will be determined in a similar fashion as that used for determining compatibility of bulk waste receipts.

5.2 Unloading

The waste drums designated for a blend will be staged in the drum processing building according to the analysis and approved compatibility.

The drums are pumped into the storage tank using the pumps on the off-loading pad or a drum pump depending on material consistency and pump availability.

WAP 2 analysis will be conducted on the final drum liquid blend or drum-bulk liquid blend prior to incineration to ensure feed rate compliance. The sample will be analyzed as for the parameters described in Table C-01.

Unique "ID" numbers or batch numbers shall be used to identify groups of drums for blending (as compatibilities are completed) or LGF feedas is needed to comply with permit and operational needs.

As each drum is removed from the waste inventory, its inventory number will be entered in the log and data base to ensure proper waste tracking. The drum will then be pumped into the desire tank.

5.3 Analysis

After all the drums have been pumped into the storage tank, the tank permitted is agitated or circulated for a minimum of one hour. At the end of this period, the tank may be sampled for a complete analysis per the Waste Analysis Plan parameters.

5.4 Processing

Wastes in the LGF tanks may be processed in one of two ways depending on the final analysis:

a. Directly fed to the kiln if all the parameters are certifiable according to the Waste Analysis Plan.
b. Blending into another tank if one or more of the parameters are not within our feed limit.

APPENDIX 2

SOP#6-001

NORLITE LLC

STANDARD OPERATING PROCEDURE

TRANSFER STATION SCENARIOS PRACTICED AT NORLITE

SOP# 6-001 (Rev 1)

The following are the transfer station scenarios practiced by Norlite Corporation. These transfer station activities involve the receipt and direct transshipment of wastes to other permitted TSD Facilities, with no incineration activities at Norlite. These activities take place in the same Part 373 permitted storage and handling areas as for wastes treated on site. All transfer of containers or waste between vehicles takes place at the truck unloading areas shown in Drawings Nos. NY-D_C-3008 and 2475-50, or in the authorized Ten-day activities area in the Tanker Staging Area. All "drop and hook" scenarios below are manifested from the point of generation, or previous TSD, to another off-site TSD.

Transfer A

A transporter picks up non-hazardous waste from a generator and manifests it to another Tradebe facility or other permitted TSD Facility. The truck goes to Norlite where the driver unhooks the trailer and leaves it in the truck staging containment area shown in Drawing #NY003-D3202. The manifest remains with the trailer. Another driver comes with another truck and picks up the trailer to continue it to the UOR or other appropriate permitted TSD Facility. The trailer can be staged at Norlite for a maximum of 48 hours.

Transfer B

Same as Transfer A except that the material is hazardous waste.

Transfer C

Drummed wastes (hazardous and non-hazardous) are transferred truck-to-truck enroute to the Tradebe or other appropriate permitted TSD Facility. The manifest(s) are made out from the generator to the Tradebe or designated TSD Facility. Norlite's truck unloading containment area serves as a place to make a drum transfer from a straight box van to a tractor/box trailer rig.

Transfer D

Same as Transfer C except the drums are temporarily (24-48 hours) staged in the Norlite permitted drum storage areas before being loaded onto the tractor/box trailer. The manifests are made out to Tradebe or other appropriate permitted TSD Facility.

Transfer E

Drummed wastes (hazardous and non-hazardous) are manifested to Norlite where they are accepted using the normal operating procedures. The drums are stored in the Norlite permitted drum storage area. Instead of processing these drums, Norlite generates a new manifest and ships the drums to Tradebe or other permitted TSDF.

Transfer F

Drummed wastes (hazardous and non-hazardous) are manifested to another Tradebe facility. Drums are transferred to staged trailers on site. When trailers are full or after Ten (10) calendar days (whichever comes first) , the trailer is transported to the final TSDF destination. Manifests remain with Norlite compliance and are shipped with the accumulated drums. All transfers that occur as Ten-day activities are logged as part of the facility’s operating record.

For scenarios above, where material is manifested to Norlite, the hazardous waste must meet Norlite's waste acceptance criteria, as described in the Waste Analysis Plan. Protocols described in SOP# 4-010 and #4-011 and of the Waste Analysis Plan must be followed in executing the

above transfer station scenarios. Permitted storage capacity of the drum storage and Tanker Staging areas will not be exceeded.

For scenarios above, where material is manifested to another TSDF, Norlite must ensure that incompatible waste is not stored together. All applicable sections of SOP #04-011 will still apply to verify container conditions, piece counts and any other potential transportation concerns.

APPENDIX 3.

Protectoline 900

Dudick inc.

Corporate Offices
1818 Miller Parkway
Streetsboro, OH 44241
330-562-1970
330-562-7638 FAX
www.dudick.com

PROTECTO-LINE 900/905/900AR

TROWEL APPLIED, REINFORCED, NOVOLAC VINYL ESTER LINING AND FLOOR TOPPING, 1/8" (3.17 mm)

FEATURES

Low Permeability
Conductive Version Available

RECOMMENDED APPLICATIONS

Plating Room Floors
Acid Neutralization
Food Processing
Plating Room Floors
Concentrated Acid Spills
Paint Rooms

CHEMICAL RESISTANCE

Inorganic Acids	Organic Acids
Dilute Alkali Solutions	Oils
Fluorides (905-900AR)	Salts
Solvents	

TEMPERATURE LIMITS (METAL APPLICATION)

Immersion up to 180°F
Dry - 200°F Continuous
- 250°F Intermittent

PHYSICAL PROPERTIES

Compressive Strength	12,500 PSI
ASTM C-579	
Coefficient of Expansion	12-15 x 10^{-6}
in./in./ºF	
ASTM D-696	
Tensile Strength	2,400 PSI
ASTM C-307	
Taber Abrasion, CS-17 wheel, 40 mg. (G-1)	
1000 cycles, 1000 gram load	20 mg. (AR)
ASTM D-4060	
Flame Spread	
ASTM D-635	<5 mm
WVT	
ASTM E-96	0.0017 perm. in.

Protecto-Line 905

Electrical Properties	0-200,000 Ohms
ASTM F-150	
NFPA #99	

SPECIFICATIONS

Protecto-Line 900 shall be a nominal 1/8" thick, silica filled novolac vinyl ester lining, consisting of a penetrating primer, 1/16" basecoat, woven fiberglass roving and 1/16" topcoat as manufactured by Dudick, Inc. Material shall be trowel-applied in accordance with manufacturer's recommended practices.

Protecto-Line 905 is a novolac vinyl ester based system identical to **Protecto-Line 900**, but utilizes a carbon filler and synthetic fabric in place of the silica filler and glass roving for resistance to fluorides. The carbon filler also provides conductivity.

Protecto-Line 900AR uses a penetrating primer, 1/16" silica filled basecoat, woven fiberglass roving and a 1/16" aluminum oxide filled topcoat. Inert aluminum oxide fillers are used to significantly increase resistance to abrasion, fluorides, and strong caustics. A synthetic fabric can be substituted for the glass woven roving for strong fluoride and caustic solutions.

THE PROTECTO-LINE 900/905/900AR SYSTEM

Protecto-Line 900/905/900AR uses several layers of thermosetting, filled novolac vinyl ester resin to build up the protection that metal and concrete need in chemical manufacturing or processing operations. When fully cured, the separate elements lose their individual identity and become a single, monolithic lining.

Primer 27 is designed to prevent abrasive blasted metal form developing rust bloom prior to the application of the **Protecto-Line 900/905/900AR**. For maximum performance, all metal surfaces should be primed. Concrete must be primed to aid in the "wetting out" required for good bonding.

Primer 27C is designed for applications on concrete where spark testing is required or specified.

Basecoat: **Protecto-Line 900/905/900AR** novolac vinyl ester resins are filled with graded silica or carbon depending on the chemical environment involved to reduce the coefficient of expansion and provide a thixotropic base on which to embed the fiberglass roving or synthetic fabric.

Reinforcement: A woven fiberglass roving or synthetic fabric is used to help bridge small surface cracks and provides additional strength to resist thermal shock. It is applied to the wet basecoat and becomes an integral part of it, acting much the same as a reinforcing bar does in concrete.

Saturant: Catalyzed **Protecto-Line 900/905/900AR** novolac vinyl ester resin is used to wet out the reinforcement, thus providing a mechanical and chemical bond.

Topcoat: Protecto-Line 900 systems are aluminum oxide, carbon or silica filled to provide an abrasion and chemical resistant barrier**.**

ESTIMATING QUANTITIES AND ORDER BILL OF MATERIAL

Note: Resin includes 3 oz. hardener/gallon as standard and 6 oz. for carbon filled.

APPROXIMATE SQUARE FEET PER GALLON		
	CONCRETE	**STEEL**
PRIMER 27	150-200 ft.²	250-300 ft.²
Primer 27C	100-150 ft.²	----------
	P-Line 900	**PLINE 905**
Basecoat Saturant & Topcoat	16 ft.²	18 ft.²
Roving/Fabric	Area + 10%	Area + 10%
G-1 Filler (Silica)	1 lb./ ft.²	----------
G-9 Filler Carbon	0.7lb./ ft.²	0.7 lb./ ft.²
S-30 Liquid	150 ft.²	150 ft.²
S-10 Solvent	500 ft.²	500 ft.²

*For **Protecto-Line 900AR** use **AR Filler** at .65 lbs. / ft.². for topcoat.

*Quantities shown are for estimating purposes only. Actual field usage may vary.

During manufacturing, some air entrapment occurs in the more viscous lining systems. During storage and transportation, settling can occur when entrapped air escapes this mix indicating less than 100% volumetric fill. All products are priced and sold by weight and not necessarily by volume

APPLICATION INSTRUCTIONS

SURFACE PREPARATION

Metal: Abrasive blast to a white metal finish according to SSPC SP5 or NACE # 1 and a 3.0 mil minimum profile.

Concrete: Concrete must be mechanically prepared to remove surface laitance. Oils, grease or other contaminant must be removed prior to surface preparation. Concrete must be free of curing compounds and form release agents. Surface texture should be similar to 40-60-grit sandpaper or the visual standard, CSP-5 from the International Concrete Repair Institute **with exposed pea gravel**. The prepared surface should have a nominal tensile strength of 250 PSI per ASTM D-4541.

All concrete substrates must be checked for moisture prior to product application using the Plastic Sheet Test, ASTM D-4263.

Additional surface preparation will be required if a 40-60 grit texture **with exposed pea gravel** is not achieved and the surface laitance not completely removed with the first mechanical preparation procedure.

Mechanical preparation removes laitance, exposing honeycombs or voids beneath the surface that must be filled with **Scratch Coat 800.** (Refer to separate product bulletin.)

APPLICATION SPECIFICATIONS

Substrate temperature for concrete must be between 50ºF and 110ºF.

Relative humidity must not exceed 90%.

Substrate temperature must be 5ºF above the Dew Point.

Dudick inc.

Corporate Offices
1818 Miller Parkway
Streetsboro, OH 44241
330-562-1970
330-562-7638 FAX
www.dudick.com

Hardener Amount/Gallon Resin:

Hardener	Substrate Temp.	Primer		PL-900AR Basecoat	PL-905 Base-coat
		27	27C	Topcoat	Topcoat
PH-1	60º-70ºF	3-4 oz.	4-5 oz.	3-4 oz.	6-8 oz.
PH-1	70º-90ºF	2-3 oz.	3-4 oz.	2-3 oz.	4-6 oz.

Pot life of the mixed **Protecto-Line 900** systems will depend on the temperature. To prevent material waste and avoid damage to equipment, do not mix more material than can be used according to the following table:

TEMPERATURE	POT LIFE
50°F	60 min.
75°F	40 min.
90°F	25 min.

Do not attempt to store mixed material. Residual material should be properly disposed of at the end of each work period.

PRIMING

Metal: Mix **Primer 27** with the correct amount of **PH- 1 Hardener** for 2-3 minutes and apply with a roller, brush or spray at 3-4 mils WFT.

Concrete: Concrete must always be primed to aid in the "wetting out" required for good bonding. Mix **Primer 27/27C** with the correct amount of **PH-1 Hardener** for 2-3 minutes and apply with a brush, roller or spray. Do not allow the primer to puddle.

Always examine the primed surface before beginning the basecoat application. If any dry areas appear, they must be re-primed to insure proper concrete wet out before the lining is applied.

Important: Primer 27C must be mechanically mixed for 1-2 minutes prior to adding the correct amount of **PH-1 Hardener.**

Primer 27C must be roller applied. Use brush application for small touch-up repair work only.

BASECOAT

Add the correct amount of **PH- 1 Hardener** to the resin. Mix thoroughly for 2-3 minutes. For **Protecto-Line 900/900AR**, add 18-25 lbs. of **G-1 Filler**/gal. For **Protecto-Line 905** add 10-15 lbs. carbon filler/gal. Mix well and apply a 1/16" thick basecoat, using a plasterer's trowel. Apply to an even finish.

REINFORCEMENT AND SATURANT

Press the reinforcement into the wet basecoat. Lap all edges by 1 inch. Saturate the reinforcement with catalyzed **Protecto-Line 900/905/900AR** resin using a short nap paint roller. Roll vigorously until the reinforcement has lost its white color and turns translucent. Use enough resin to "wet out" the reinforcement but do not allow the saturant to drip or puddle. It is highly recommended, for good adhesion, that a clean dry sand be lightly broadcast into the wet saturant.

TOPCOAT

Before applying the topcoat, examine the overall application and grind any sharp glass protrusions and fill any voids with catalyzed saturant resin.

Add the correct amount of **PH- 1 Hardener** to the resin. Mix thoroughly for 2-3 minutes. For **Protecto-Line 900**, add 18-25 lbs. **G-1 Filler**/gal.

For **Protecto-Line 905,** add 10-15 lbs. **G-9 Carbon Filler**/gal. For **Protecto-Line 900AR**, add 25-30 lbs. **AR Filler**/gal. Mix well and apply a 1/16" thick topcoat, using a plasterer's trowel. Apply to an even finish.

SMOOTHING

Immediately after the trowel application and before the topcoat has cured dampen a natural bristle brush (thick bristle 4" wide) or roller with **S-30 Smoothing Liquid.** Lightly brush or roll the wet topcoat to remove trowel marks and pinholes. Never allow **S-30 Smoothing Liquid** to puddle.

Protecto-Line 900 topcoats must be applied within 6 hours when exposed to direct sunlight.

If this recoat time is exceeded, consult a Dudick representative; sanding or abrasive blasting may be required. Recoat times are dramatically reduced when the lining is exposed to direct sunlight.

Application of **Protecto-Line 900/905/900AR** systems in direct sunlight my lead to blistering, pinholes, or wrinkling due to out-gassing of air in the concrete and high substrate temperatures. Double priming shading or evening application may be required. Consult a Dudick representative.

In order to prevent curing problems with styrenated products, air movement and/or ventilation must be maintained not only during application but also after application until the system has totally cured. This will prevent high concentration of styrene inhibiting/retarding the cure of the system.

TESTING

If spark testing is required, use a DC spark/holiday tester set to the appropriate voltage to achieve a minimum 100 volts per mil of applied coating. An AC tester can be used, but is not as effective as a DC tester. Mark and repair all pinholes using the topcoat material. Retest only the repairs. Testing of **Protecto-Line 905** is limited to a visual inspection because the lining is conductive.

Concrete*:* The lining can be spark tested provided **Primer 27C** was used to prime the concrete.

CLEANING

Use **S-10 Cleaning Solvent** to clean tools and equipment. **DO NOT USE ACETONE.**

SHIPPING

Refer to Material Safety Data Sheets.

STORAGE

Warning: All Dudick products classified by DOT with either white, yellow or red labels must not be mixed or stored together as an explosive reaction may occur.

All products should be stored in a cool, dry area away from open flames, sparks or other hazards.
When properly stored in their original, unopened containers at 50°F-75°F, **Primer 27** and **Protecto-Line 900/905/900AR** components will have a shelf life of three months or less, at temperatures above 75°F, two months or less. **Primer 27C** will have a thirty-day shelf life. **PH-1 Hardener** has a six-month shelf life at 50°F-75°F.

SAFETY

M.S.D.S: Material Safety Data Sheets must always be read before using products. Protecto-Line 900 systems are intended for application by experienced, professional personnel. Dudick, Inc. can supply supervision to help determine that the surface has been properly prepared, the ingredients correctly mixed, and the materials properly and safely applied.

If **Protecto-Line 900** materials are to be applied by your own personnel or by a third party contractor, please be sure that they are aware of the following safety precautions:

- Exposure to resins and hardeners through direct skin contact and/or inhalation may cause severe dermatitis reactions in some people. Cleanliness of the skin and clothing is critical and must be of paramount concern.
- Fumes are flammable and heavier than air. Proper ventilation should be maintained to minimize breathing of concentrated fumes.
- Suitable respirators should be used during application.
- Safety glasses, gloves, and suitable protective clothing must be worn at all times during application.
- If contact with hardeners occurs, remove any clothing involved and flush the skin with flowing water. Discard the clothing. Do not attempt to wash and reuse it. **Protecto-Line 900** liquids can be removed with S-10 Cleaning Solvent, MEK, or lacquer thinner. **DO NOT USE ACETONE.**

- Keep open flames and sparks away from the area where materials are being mixed and applied.
- If a rash occurs, remove the individual from the work area and seek a physician's care for dermatitis.
- In case of eye contact, flush with water for at least 15 minutes and consult a physician.
- If swallowed, do not induce vomiting; call a physician immediately.

NOTE: Dudick, Inc. ("Dudick") warrants all goods of its manufacture to be as represented in its catalogs and that the manufacture of its products by its employees or sub-contractors shall be performed in a workmanlike manner. Dudick's sole obligation under this warranty shall be to replace any material which its examination shall disclose to be defective. Dudick makes no warranty concerning the suitability of its product for application to any surface, it being understood that the goods have been selected and the application ordered by the Purchaser. DUDICK, INC. MAKES NO WARRANTY, EXPRESS OR IMPLIED, THAT THE GOODS SHALL BE MERCHANTABLE OR THAT THE GOODS ARE FIT FOR ANY PARTICULAR PURPOSE. THE WARRANTY OF REPAIR OR REPLACEMENT SET FORTH HEREIN IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES ARISING BY LAW OR OTHERWISE; AND DUDICK INC. SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOST PROFITS, DOWN TIME, DAMAGES TO PROPERTY OF THE PURCHASER OR OTHER PERSONS, OR DAMAGES FOR WHICH THE PURCHASER MAY BE LIABLE TO OTHER PERSONS, WHETHER OR NOT OCCASIONED BY DUDICK'S NEGLIGENCE. This warranty shall not be extended, altered or varied except by written instrument signed by Dudick and Purchaser.

9/10/15

APPENDIX 4.

Sikaflex - 1a

BUILDING TRUST

PRODUCT DATA SHEET

Sikaflex®-1A

ELASTOMERIC JOINT SEALANT / ADHESIVE

PRODUCT DESCRIPTION

Sikaflex®-1A is a premium-grade, high-performance, moisture-cured, 1-component, polyurethane-based, non-sag elastomeric sealant. Sikaflex-1a can be used in green and damp concrete applications. Meets Federal Specification TT-S-00230C, Type II, Class A. Meets ASTM C-920, Type S, Grade NS, Class 35, use T, NT, O, M, G, I, A. Canadian standard CAN/CGSB 19.13-M87.

USES

- Designed for all types of joints where maximum depth of sealant will not exceed 1/2 in.
- Excellent for small joints and fillets, windows, door frames, reglets, flashing, common roofing detail applictions, and many construction adhesive applications.
- Suitable for vertical and horizontal joints; readily placeable at 40°F
- Has many applications as an elastic adhesive between materials with dissimilar coefficients of expansion.
- Submerged conditions, such as canal and reservoir joints.

CHARACTERISTICS / ADVANTAGES

- Eliminates time, effort, and equipment for mixing, filling cartridges, pre-heating or thawing, and cleaning of equipment.
- Fast tack-free and final cure times.
- High elasticity - cures to a tough, durable, flexible consistency with exceptional cut and tear -resistance.
- Stress relaxation.
- Excellent adhesion - bonds to most construction materials without a primer.
- Excellent resistance to aging, weathering.
- Proven in tough climates around the world.
- Can be applied to green concrete 24 hours after pour
- Can be applied to damp concrete 1 hour after getting wet
- Odorless, non-staining.
- Jet fuel resistant.
- Certified to the NSF/ANSI Standard 61 for potable water.
- Urethane-based; suggested by EPA for radon reduction.
- Paintable with water-, oil- and rubber-based paints.
- Capable of ±35% joint movement.

APPROVALS / STANDARDS

- ASTM C 920, Type S, Grade NS, Class 35, use NT, A, M
- Federal specification TT-S-00230 C Type II, Class A
- Canadian Standard CANICGSB 19.13-M87
- Certified to NSF/ANSI standard 61 for portable water

PRODUCT INFORMATION

Packaging	10.1 fl. oz. (300 mL) Cartridge, 20 fl. oz. uni-pac Sausages, 4.5 gal (17 L) in a 5 gal pail, 52 gal (197 L) in a 55 gal drum
Color	White, colonial white, aluminum gray, limestone, black, dark bronze, capitol tan, stone and medium bronze. Special architectural colors on request.
Shelf Life	**Cartridge and Sausage**: 12 months in original, unopened packaging. **Pail and Drum**: 6 months in original, unopened packaging.
Storage Conditions	Store at 40°-95°F (4°-35°C).

TECHNICAL INFORMATION

Shore A Hardness	(21 day) 45±5			(ASTM C 661)
Tensile Stress at Specified Elongation	21 day Tensile Stress	175 psi (1.21 MPa)		(ASTM D 412)
	Stress @ 100%	85 psi (0,59 N/mm²)		
Elongation at Break	550 %			(ASTM D-412)
Adhesion in Peel	**Substrate**	**Peel Strength**	**Adhesion loss**	(ASTM C-794) (TT-S-00230C)
	Concrete	20 lbs	0 %	
	Aluminium	20 lbs	0 %	
	Glass	20 lbs	0 %	
Tear Strength	55 lb./in.			(ASTM D-624)
Movement Capability	±35 %			(ASTM C-719)
Chemical Resistance	Good resistance to water, diluted acids, and diluted alkalines. Consult Technical Service for specific data.			
Resistance to Weathering	Excellent			
Service Temperature	–40 °F to +170 °F			

APPLICATION INFORMATION

Coverage

10.1 oz Cartridge: Yield in Linear Feet

Width/Depth	1/4"	3/8"	1/2"
1/4"	24.3		
3/8"	16.2	10.8	
1/2"	12.1	8.1	6.1
3/4"	8.1	5.4	4.0
1"			3.0
1.25"			2.4
1.5"			2.0

20 oz Sausage: Yield in Linear Feet

Width/Depth	1/4"	3/8"	1/2"
1/4"	48.1		
3/8"	32.1	21.4	
1/2"	24.1	16.0	12.0
3/4"	16.0	10.7	8.0
1"			6.0
1.25"			4.8
1.5"			4.0

1 gallon: Yield in Linear Feet

Width/Depth	1/4"	3/8"	1/2"
1/4"	307.9		
3/8"	205.3	136.8	
1/2"	153.9	102.6	77.0
3/4"	102.6	68.4	51.3
1"			38.5
1.25"			30.8
1.5"			25.7

Cure Time	Final cure: 4 to 7 days
Curing Rate	Tack-free time 3 to 6 hours Tack-free to touch 3 hours

APPLICATION INSTRUCTIONS

SUBSTRATE PREPARATION

Product Conditioning: Condition material to 65°-75°F before using.

Clean all surfaces. Joint walls must be sound, clean, frost-free, and free of oil and grease. Curing compound residues and any other foreign matter must be thoroughly removed. A roughened surface will also enhance bond. Install bond breaker tape or backer rod to prevent bond at base of joint. Priming is not usually necessary. Most substrates only require priming if testing indicates a need or where sealant will be subjected to water immersion after cure.

For green concrete applications control joints must be cut 8 hours prior to sealant installation and in expansion joint forms must be removed 4 hours prior to sealant installation. For wet concrete applications all excess or standing water must be displaced and concrete must then dry for a minimum of 60 min prior to sealant installation. Consult Sikaflex Primer Technical Data Sheet or Technical Service for additional information on priming.

APPLICATION METHOD / TOOLS

Recommended application temperatures: 40°-100°F. For cold weather application, condition units at approximately 70°F; remove prior to using. For best performance, Sikaflex-1a should be gunned into joint when joint slot is at mid-point of its designed expansion and contraction. Place nozzle of gun into bottom of the joint and fill entire joint. Keep the nozzle in the sealant, continue on with a steady flow of sealant preceding the nozzle to avoid air entrapment. Avoid overlapping of sealant to eliminate entrapment of air.

Sikaflex-1a can be applied on green concrete after the concrete has cured for a minimum of 24 hours at 75°F.Control joints must be cut and open for min of 8 hours prior to application. Expansion joints must have

forms removed a minimum of 4 hours prior to application. For damp concrete applications Sikaflex-1a can be applied 60 minutes after any and all water has been displaced.

Tooling & Finishing
Tool sealant to ensure full contact with joint walls and remove air entrapment. Joint dimension should allow for 1/4 inch minimum and 1/2 inch maximum thickness for sealant. Proper design is 2:1 width to depth ratio, For use in horizontal joints in traffic areas, the absolute minimum depth of the sealant is 1/2 in. and closed cell backer rod is recommended.

Removal
Use personal protective equipment (chemical resistant gloves/goggles/clothing). Without direct contact, remove spilled or excess product and placed in suitable sealed container. Dispose of excess product and container in accordance with applicable environmental regulations.

Over Painting
Allow 1-week cure at standard conditions when using Sikaflex-1a in total water immersion situations and prior to painting.

CLEANING OF TOOLS

Clean all tools and application equipment with Sika® Remover-208 immediately after use. Hardened material can only be removed mechanically.
For cleaning skin use Sika® Cleaning Wipes-100.

AVAILABILITY/WARRANTY

- Pre-treatment Sealing and Bonding Chart
- Method Statement: Joint Sealing
- Method Statement: Joint Maintenance, Cleaning and Renovation
- Technical Manual: Facade Sealing

LIMITATIONS

- Allow 1 week cure at standard conditions when using Sikaflex-1a in total water immersion situations.
- When overcoating with water, oil and rubber based paints, compatibility and adhesion testing is essential.
- Sealant should be allowed to cure for 7 days prior to overcoating
- Avoid exposure to high levels of chlorine. (Maximum continuous level is 5 ppm of chlorine.)
- Maximum depth of sealant must not exceed 1/2 in.; minimum depth is 1/4 in.
- Maximum expansion and contraction should not exceed 35% of average joint width.
- Do not cure in the presence of curing silicone sealants.
- Avoid contact with alcohol and other solvent cleaners during cure.
- Do not apply when moisture-vapor-transmission condition exists from the substrate as this can cause bubbling within the sealant.
- Use opened cartridges and uni-pac sausages the same day.
- When applying sealant, avoid air-entrapment.
- Since system is moisture-cured, permit sufficient exposure to air.
- White color tends to yellow slightly when exposed to ultraviolet rays.
- Light colors can yellow if exposed to direct gas fired heating element.
- The ultimate performance of Sikaflex-1a depends on good joint design and proper application with joint surfaces properly prepared.
- The depth of sealant in horizontal joints subject to traffic is 1/2 in.
- Do not tool with detergent or soap solutions.
- Do not use in contact with bituminous/asphaltic materials.
- In green concrete applications sealing joints in poor or low strength concrete 24 hours after pour may impact ability of sealant to gain proper adhesion.
- In damp concrete applications all standing water and excess water must be eliminated prior to the 60 minute waiting time.

BASIS OF PRODUCT DATA

Results may differ based upon statistical variations depending upon mixing methods and equipment, temperature, application methods, test methods, actual site conditions and curing conditions.

OTHER RESTRICTIONS

See Legal Disclaimer.

ENVIRONMENTAL, HEALTH AND SAFETY

For further information and advice regarding transportation, handling, storage and disposal of chemical products, user should refer to the actual Safety Data Sheets containing physical, environmental, toxicological and other safety related data. User must read the current actual Safety Data Sheets before using any products. In case of an emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

LEGAL DISCLAIMER

- **KEEP CONTAINER TIGHTLY CLOSED**
- **KEEP OUT OF REACH OF CHILDREN**
- **NOT FOR INTERNAL CONSUMPTION**
- **FOR INDUSTRIAL USE ONLY**
- **FOR PROFESSIONAL USE ONLY**

Prior to each use of any product of Sika Corporation, its subsidiaries or affiliates (“SIKA”), the user must always read and follow the warnings and instructions on the product’s most current product label, Product Data Sheet and Safety Data Sheet which are available at

usa.sika.com or by calling SIKA's Technical Service Department at 1-800-933-7452. Nothing contained in any SIKA literature or materials relieves the user of the obligation to read and follow the warnings and instructions for each SIKA product as set forth in the current product label, Product Data Sheet and Safety Data Sheet prior to use of the SIKA product.

SIKA warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within the product's shelf life. User determines suitability of product for intended use and assumes all risks. User's and/or buyer's sole remedy shall be limited to the purchase price or replacement of this product exclusive of any labor costs. **NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.**

Sale of SIKA products are subject to the Terms and Conditions of Sale which are available at https://usa.sika.com/en/group/SikaCorp/termsandconditions.html or by calling 1-800-933-7452.

Sika Corporation
201 Polito Avenue
Lyndhurst, NJ 07071
Phone: +1-800-933-7452
Fax: +1-201-933-6225
usa.sika.com

Sika Mexicana S.A. de C.V.
Carretera Libre Celaya Km. 8.5
Fracc. Industrial Balvanera
Corregidora, Queretaro
C.P. 76920
Phone: 52 442 2385800
Fax: 52 442 2250537

APPENDIX 5.

Horizontal Tank Plan

MATERIAL TRANSFER FACILITY (UNLOADING AREA #2)

MANIFOLD

3" LGF RECIRCULATION LINE FROM KILN BURNERS

N2-601-1" N2-501-1" N2-401-1" N2-301-1"

OC-001-10"-CS150 TO LGF BUILDING SUMP

OC-001-10"-CS150 TO LGF BUILDING SUMP

N2-501/601-1" N2-301/401-1"

PI PSE LI AGITATOR

1/2" SP TT 3"X2" 24"ø MANWAY

REVISION NOTE #2

PCV

V-501-1" V-601-1" V-401-1" V-301-1"

LGF SUCTION/FILL

VENTS TO LGF BUILDING HEADER

AIR VENTS TO LGF BUILDING HEADER

TANK 600 TANK 500 TANK 400 TANK 300

SEALED

INSPECTION MANHOLE (SEALED) INSPECTION MANHOLE

FS-601-3" FS-603-3" (RECIRCULATION LINE) FS-503-3" (RECIRCULATION LINE) FS-501-3" FS-401-3" FS-403-3" (RECIRCULATION LINE) N-002-1" FS-303-3" (RECIRCULATION LINE) FS-301-3"

TU-008-3" TU-016-3" LGF-001-3"

PIPE CHASE / DRAIN TO LGF BUILDING

FS-601-3" FS-501-3" FS-401-3" FS-301-3"

FSV XCV

LGF-001-2"

IT-601-2" IT-501-2" IT-401-2" IT-301-2"

PUMP CONTAINMENT SLAB

LGF BUILDING

N2 SUPPLY N-001-1"

PIPE TUNNEL ABOVE

FOR PERMIT PURPOSES ONLY

NOTE:
PROPOSED AGITATOR MODIFICATIONS NOT SHOWN FOR CLARITY.

DRAWING REFERENCE:
DRAWING #6 "LGF (LOW GRADE FUEL) SYSTEM, PLAN VIEW OF TANKS 335-300 & 335-400". PREPARED BY STETSON-DALE, PC FOR NORLITE CORPORATION. DATED 02/24/84.

DRAWING #7 "LGF (LOW GRADE FUEL) SYSTEM, PLAN VIEW OF TANKS 335-500 & 335-600". PREPARED BY STETSON-DALE, PC FOR NORLITE CORPORATION. DATED 02/24/84.

A ROTARY KILN Norlite EXPANDED SHALE AGGREGATE

SCALE: NONE

REV.	DESCRIPTION	DRN	ENG.	CHK	DATE
7	2020 RCRA UPDATES	ARW			06/12/20
6	UPDATED CONFIGURATION	T.V.B.			02/08/14
5	UPDATED CONFIGURATION	T.V.B.			03/28/05
4	UPDATED CONFIGURATION	T.V.B.			06/08/04
3	PIPING MODIFICATIONS TO TANKS	T.V.B.			05/07/04
2	PIPING MODIFICATIONS TO TANKS	T.V.B.			12/12/03
1	UPDATED CONFIGURATION	T.V.B.			7/17/02

CLIENT APPROVAL: _____ DATE: _____

HARVEY M. KING, P.E.
ENVIRONMENTAL ENGINEERS & SCIENTISTS
4 STONY BROOK DRIVE, RENFORD, NEW YORK 12148-1608

NORLITE CORPORATION - COHOES, NY

SCHEMATIC PLAN VIEW
P & I DIAGRAM FOR EXTERIOR LGF TANKS 300, 400, 500, 600

DRAWN BY: T.V.B.	DATE: 04/29/02	DRAWING/FILE REF:	DRAWING #6 & #7
ENGINEER: H.M.K.	FILE NAME: NY003-5432-J	DRAWING NO.	NY003-5432

APPENDIX 6.

Compatibility Chart

COMPATABILITY CHART FOR FLUIDS, SEALS AND METALS

Resistance of Metals & Gasket Materials to Various Compounds

CODE: G = Good; F = Fair; P = Poor

FLUID	METAL					SEAL MATERIAL				
	ALUMINUM	BRONZE	IRON	STEEL	ST. STEEL	BUNA	BUTYL	NEOPRENE	TEFLON	VITON
Acetaldehyde	G	P	G	G	G	P	G	P	G	
Acetate Solvents - Crude	G	F	F	F	G	P	P	G	G	
Acetate Solvents - Pure	G	G	G	G	G	P		G	G	
Acetic Acid - Pure	G	G	P	P	G	F	F	F	G	
Acetic Anhydride	G	P	F	P	G	G	G	G	G	
Acetic - Glacial	G	G	P	P	G	G	G	G	G	P
Acetone	G	G	G	G	G	P	G	F	G	P
Acetyl Acetone	G	G	G	G	G	P	P	P	G	
Acetyl Chloride	F	F	F	G	G				G	
Acrylonitrile	G	G	G	G	G	P	F	G	G	
Aliphatic Hydrocarbons	G	G	G	G	G	G	P	G	G	G
Aluminum Chloride	F	F	P	P	F	G	G	G	G	
Aluminum Nitrate	G	-	P	P	G	G	G	G	G	
Aluminum Sulphate	G	F	P	P	G	G	G	G	G	
Ammonium Hydroxide	F	P	G	G	G	G	G	G	G	
Ammonium Liquors	F	P	G	G	G				G	
Ammonium Nitrate	G	P	G	G	G	G	G	G	G	
Ammonia, Anhydrous	G	P	G	G	G	G	G	G	G	
Ammonia, Aqua	F	P	G	G	G	F	G		G	
Amyl Alcohol	G	G	G	G	G	G	G	G	G	G
Anthracene	G	G	G	G	G				G	
Aromatic Hydrocarbons	G	G	G	G	G	G	F	F	G	G
Asphalt	G	G	G	G	G	F	F	F	G	
Aviation Gasoline	G	G	G	G	G	G		G	G	G
Beer - Beer Wort	G	G	F	F	G	P	G	G	G	G
Benzene - Benzol	G	G	G	G	G	P	F	P	G	F
Benzyl Alcohol	G	G	P	P	G	P	G	G	G	G
Benzyl Chloride	P	P	P	P	G	P	G	P	G	
Brines		G					G		G	
Butadiene	G	G	G	G	G	G			G	G
Butane	G	G	G	G	G	G	P	G	G	G
Butyl Acetate	G	G	G	G	G	P	F	F	G	
Butyl Alcohol - Butanol	G	G	G	G	G	G	G	G	G	G
Butyl Ether	G	G			G	F		P	G	
Butylene	G	G	G	G	G	G			G	G
Calcium Hydroxide	F	G	G	G	G	G	G	G	G	G
Calcium Nitrate	F	G	G	G	G	G		G	G	G
Carbitol Solvent	G	G				G	G	G	G	G
Carbolic Acid - Phenol	G	G	P	P	G	P	P	P	G	
Carbon Disulphide	G	F	G	G	G	P	P		G	G
Carbon Tetrachloride	F	G	F	G	G	F	P	F	G	
Carbonic Acid	G	P	P	P	G	F	G	G	G	
Castor Oil	G	G	F	F	G	G	G	G	G	G
China Wood Oil - (Tung Oil)	G	G	F	F	G	G		G	G	G
Chlorobenzene	P	G		G				G	G	
Chloroethane		G			G	P		P	G	
Chloroform	G	G	G	G	G	P	P	P	G	
Chlorobenzene	G	G	G	G	G	P	P	P	G	
Chlorine - Dry	F	F	G	G	G	F	F	F	G	
Chlorine Gas	F	G	G	G	G				G	
Chlorohydrine	G	G	F	F	G	P		P	G	
Citric Acid	G	F	P	P	C	G	F	G	G	G
Coco Oils	G	G	G	G	G	G	G	F	G	G
Cotton Seed Oil	G	G	G	G	G	G	G	G	G	G
Creosol	G	G	G	G	G	P	P	G	G	
Creosote, Crude	G	F	G	G	G	G	P	F	G	G
Cresylic Acid	G	G	G	G	G	G	P	P	G	G
Cutting Oils	G	G	G	G	G	G			G	G

FLUID	METAL					SEAL MATERIAL				
	ALUMINUM	BRONZE	IRON	STEEL	ST. STEEL	BUNA	BUTYL	NEOPRENE	TEFLON	VITON
Cyclohexane	G	G	G	G	G	G	P	G	G	G
Cyclohexanol	G	G	G	G	G	G		G	G	G
Cyclohexanone	G	G	P	G	G	P	F	P	G	
Detergent Oils			G	G	G	G		G	G	G
Diacetone Alcohol	G	G	G	G	G	P	G	F	G	
Dichlorobenzene	G	G	P	P	G	P	P	P	G	G
Dichloro Ethane	G	G		G	G	F			G	
Dichloro Ethylene	G	G	G	G	G	P	P	P	G	
Diesel Oil	G	G	G	G	G	G			G	G
Diethyl Ether	G	G	G	G	G	F		G	G	
Diethyl Phthalate		G	G	G	G	P		P	G	
Diethylene Glycol	G	G	G	G	G	G		G	G	G
Ethyl Acetate	G	G	G	G	G	P	F	F	G	
Ethyl Alcohol	G	G	G	G	G	G	G	G	G	G
Ethyl Benzene	G	G	F	F	G	P	P	P	G	
Ethyl Benzoate	G	G	G	G	G	G	P	P	G	G
Ethyl Chloride	G	G	G	G	G	G	G	G	G	G
Ethyl Ether	G	G	G	G	G	F	F	F	G	
Ethylene Chloride	G	G	P	G	G				G	
Ethylene Glycol	G	G	G	G	G	G	G	G	G	G
Ethylene Oxide	G	F	G	G	G	F		P	G	
Fatty Acids	G	F	P	P	G	G	F	F	G	G
Foods	G				G				G	
Formaldehyde	G	G	F	F	G	G	G	G	G	G
Formic Acid	G	F	P	P	G	P	G	P	G	
Freon, Dry	G	G	G	G	G	G	F	P	G	G
Fuel Oil	G	G	G	G	G	G	P	G	G	G
Gas, Natural - Manufactured	G	G	G	G	G	G	P	P	G	G
Gasolene, Sour	G	F	F	F	G	G	P	G	G	G
Gasolene, Motor	G	G	G	G	G	G	P	G	G	G
Gasolene, Aromatic	G	G	G	G	G	F	P	P	G	
Gasolene, Aviation	G	G	G	G	G	F	P	P	G	G
Glycerine - Glycerol	G	G	G	G	G	G	G	G	G	G
Grease	G	G	G	G	G	G	F	G	G	G
Heptane	G	G	G	G	G	G		G	G	G
Hexane	G	G	G	G	G	G	P	G	G	G
Hexanol - Hexyl Alcohol	G	G	G	G	G	G		G	G	G
Hi-Boiling Naptha		G			G				G	G
Hi Flash Naptha		G			G				G	G
Hydraulic Oil		G			G	G	G	F	G	G
Hydrochloric Acid 150°	P	P	P	P	P	G	G	G	G	G
Hydrogen Peroxide	G	P	P	P	G	G	G	G	G	G
Hydrogen Sulphide, Wet	G	F	G	G	G	F	G	F	G	
Isobutane	G	G	G	G	G	G	P	G	G	G
Isopentane		G			G	G			G	G
Isopropyl Acetate	G	G	G	G	G	P	G	P	G	
Isopropyl Alcohol	G	G	F	G	G	F	G	F	G	G
Isopropyl Ether	G	G	G	G	G	G	P	F	G	G
Jet Fuel JP-4 JP-5	G	G	G	G	G	G	P	F	G	G
Kerosene	G	G	G	G	G	G	P	G	G	G
Lactic Acid	G	G	G	G	G	G			G	G

Emco Wheaton Inc., *Loading Arm Assemblies*, Catalog E-12/72, EMCO Wheaton Inc., Chamberlain Blvd., Con- [illegible] Sept. 1974.

COMPATABILITY CHART FOR FLUIDS, SEALS AND METALS

FLUID	METAL					SEAL MATERIAL					FLUID	METAL					SEAL MATERIAL				
	ALUMINUM	BRONZE	IRON	STEEL	ST. STEEL	BUNA	BUTYL	NEOPRENE	TEFLON	VITON		ALUMINUM	BRONZE	IRON	STEEL	ST. STEEL	BUNA	BUTYL	NEOPRENE	TEFLON	VITON
Lard - Lard Oil	G	G	G		G	G	F	G	G	G	Rapeseed Oil	G	G			G			G	G	
Linseed Oil	G	G	G	G	G	G	G	G	G	G											
Lube Oil	G	G	G	G	G	G	P	G	G	G	Sewage	G		G		G	G	F	F	G	G
											Skydrol		G			G	G			G	G
Methyl Alcohol - Methanol	G	G	G	G	G	G	G	G	G	G	Sodium Bicarbonate	G	G	F	F	G	G	G	G	G	G
Methyl Amyl Alcohol	G	G			G	F		P	G		Sodium Bisulphite	F	F	P	P	G	G	G	G	G	G
Methyl Amyl Acetate	G	G			G	P		P	G		Sodium Carbonate	F	F	G	G	G	G	G	G	G	G
Methyl Acetate	G	G	G	G	G	P		P	G		Sodium Chloride	F	F	G	G	G	G	G	G	G	G
Methyl Chloride	P	P	P	P	G	F	F	P	G		Sodium Cyanide	P	P	G	G	G	G	G	G	G	G
Methyl Ether	G	G			G	F		P	G		Sodium Hydroxide	P	P	G	G	G	F	G	F	G	
Methyl Ethyl Keytone	G	G	G	G	G	P	F	P	G	P	Sodium Hypochlorite	P	P	P	P	G	F	F	F	G	
Methyl Isobutyl Keytone	G	G	G	G	G	P	F	P	G	P	Sodium Metaphosphate	P	P	P	P	G	G	G	F	G	G
Methyl Propyl Keytone	G	G	G	G	G	P		P	G	P	Sodium Nitrate	G	F	G	G	G	G	G	F	G	G
Methylene Chloride	P	G	G	G	G	P		P	G		Sodium Perborate	G	F	F	G	G	G	G	G	G	G
Milk	G	P	P	P	G	G	G	G	G	G	Sodium Peroxide	G	F	F	F	G	F	G	F	G	
Mineral Oils	G	G	G	G	G	G	F	F	G	G	Sodium Phosphate, Mono-Basic	G	F	F	F	G	G	G	G	G	G
Molasses	G	G	G	G	G	G		G	G	G	Sodium Phosphate, Di-Basic	F	F	F	F	G	G	G	G	G	G
											Sodium Phosphate, Tri-Basic	P	P	G	G	G	G	G	G	G	G
Naptha	G	G	G	G	G	G	P	P	G	G	Sodium Silicate	P	F	G	G	G	G	G	G	G	G
Naphthalene	G	G	G	G	G	P	P	P	G		Sodium Sulphate	G	G	G	G	G	G	G	G	G	G
Naptha Solvents	G	G	G	G	G	G	P	P	G	G	Sodium Sulphide	P	P	G	G	G	G	G	G	G	G
Natural Gas	G	G	G	G	G	G	P	G	G	G	Sodium Thiosulphate	G	F	F	F	G	G	G	G	G	G
Nitric Acid - (Conc)	P	P	P	P	G	P	P	P	G		Soya Bean Oil	G	G	F	F	G	G	G	G	G	G
Nitric Acid, Crude	P	P	P	P	G	P	P	P	G		Stoddard Solvent	G	G	G	G	G	G	P	F	G	G
Nitric Acid, Diluted	P	P	P	P	G	P	G	P	G		Styrene	G	G	G	G	G	P	P	P	G	
Nitrobenzene	G	G	G	G	G	P	G	P	G		Sugar	G	G			G		G	G	G	
Nitroethane	G	G	G	G	G	P	G	P	G		Sulphur, Dry	G	P	G	G	G	F	F	F	G	
Nitromethane	G	G	G	G	G	P	G	P	G		Sulphur, Chloride	P	P	F	F	F	F	P	F	G	
Nitropropane	G	G	G	G	G	P	G	F	G		Sulphuric Acid - 10% Cold	P	P	P	P	G	G	G	G	G	G
Nitrogen Fertilizers	G		G	G	G	G		G	G	G	Sulphuric Acid - 10% Hot	P	P	P	P	F	G	G	G	G	G
											Sulphuric Acid - 10-75% Cold	P	P	P	P	F	F	G	F	G	
Octyl Alcohol	G	G			G	F		G	G	G	Sulphuric Acid - 10-75% Hot	P	P	P	P	F	F	G	F	G	
Olive Oil	G	G			G			G	G	G	Sulphuric Acid - 75-95% Cold	P	P	G	G	G	F	G	F	G	
Oleic Acid	G	F	F	F	G	F	G	G	G		Sulphuric Acid Fuming	P	P	G	G	F	P	P	P	G	
Organic Phosphates	G	F	F	F	G	P	G	P	G		Sulphuric Acid Fuming Hot	P	P	G	G	F	P	P	P	G	
											Synthetic Lubricants		G			G	F	P	F	G	G
Palm Oil	G	G	F	F	G			G	G												
Paraffin Oil	G		G	G	G			G	G		Tar	G	G	G	G	G	G	P	G	G	G
Peanut Oil	G	G	F	F	G			G	G		Tetraethyl Lead		G			G				G	
Pentane	G	G	G	G	G	G		G	G	G	Toluene - Toluol	G	G	G	G	G	G	P	G	G	G
Perchloroethylene	G	G	G	G	G				G		Trichloroethylene	G	G	G	G	G	P	P	P	G	
Petroleum Ether	G	G	G	G	G	G	F	P	G	G	Tung Oil	G	G	F	F	G	G	G	G	G	G
Petroleum Naptha	G	G	G	G	G	G		P	G	G	Turbine Oil					G	G		G	G	G
Petroleum Oils	G	G	G	G	G	G	P	G	G	G	Turpentine	G	F	F	F	G	G	P	F	G	G
Petroleum Sperits	G	G	G	G	G	G		P	G	G											
Phenol	G	F	F	F	G	P	G	F	G		Varnish	G	G	F	F	G	G	P	G	G	G
Phosphoric Acid, Crude	P	P	F	F	G	F	G	F	G		Varsol	G	G	G	G	G				G	
Phosphoric Acid, Pure 45%	P	P	P	P	G	F	G	F	G		Vegetable Oils	G	G	G	G	G	G	G	G	G	G
Pine Oil	G	G			G	F	P	F	G												
Potassium Hydroxide	P	P	F	G	G	F	G	G	G		Water, Fresh	G	F	G	G	G	G	G	G	G	G
Propylene	G	G	G	G	G	P	P	P	G		Water, Sea	F	F	F	F	G			G	G	
Propane	G	G	G	G	G	G	P	G	G	G											
Propionic Acid	G	G	P	P	G	F	F	F	G		Xylene - Xylol	G	G	G	G	G	P	P	P	G	
Propyl Alcohol - Propanol	G	G	G	G	G	G	G	G	G	G											
Propylene Glycol	G	G			G	G	G		G	G											
Propylene Oxide	G	G	G	G	G				G												

EPA's Chemical Compatibility Chart

EPA-600/2-80-076 April 1980

A METHOD FOR DETERMINING THE COMPATIBILITY OF CHEMICAL MIXTURES

Please Note: This chart is intended as an indication of some of the hazards that can be expected on mixing chemical wastes. Because of the differing activities of the thousands of compounds that may be encountered, it is not possible to make any chart definitive and all inclusive. It cannot be assumed to ensure compatibility of wastes because wastes are not classified as hazardous on the chart, nor do any blanks necessarily mean that the mixture cannot result in a hazard occurring. Detailed instructions as to hazards involved in handling and disposing of any given waste should be obtained from the originator of the waste.

CODE	CONSEQUENCE
H	Heat Generation
F	Fire
G	Innocuous and non-flammable gas generation
GT	Toxic Gas formation
GF	Flammable Gas formation
E	Explosion
P	Violent Polymerization
S	Solubilization of toxic substance
U	May be hazardous, but Unknown

#	REACTIVITY GROUP NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	101	102	103	104	105	106	107
1	Acids, Mineral, Non-oxidizing																																									
2	Acids, Mineral, Oxidizing																																									
3	Acids, Organic		G H																																						
4	Alcohols and Glycols	H	H F	H P																																					
5	Aldehydes	H P	H F	H P																																					
6	Amides	H	H GT																																						
7	Amines, Aliphatic and Aromatic	H	H GT	H		H																																			
8	Azo Compounds, Diazo Compounds and Hydrazines	H G	H GT	H G	H G	H																																			
9	Carbamates	H G	H GT						G H																																
10	Caustics	H	H	H		H				H G																															
11	Cyanides	GT GF	GT GF	GT GF					G																																
12	Dithiocarbamates	H,F GF	H,F GF	H,GT GF		GF GT		U	H G																																
13	Esters	H	H F						H G		H																														
14	Ethers	H	H F																																						
15	Fluorides, Inorganic	GT	GT	GT																																					
16	Hydrocarbons, Aromatic		H F																																						
17	Halogenated Organics	H GT	H,F GT					H GT	H G		H GF	H																														
18	Isocyanates	H G	H,F GT	H G	H P			H P	H G		H,P G	H G	U																													
19	Ketones	H	H F						H G		H	H																														
20	Mercaptans and Other Organic Sulfides	GT GF	H,F GT						H G									H	H	H	20																				
21	Metals, Alkali and Alkaline Earth, Elemental	H,F GF	H,F GF	H,F GF	H,F GF	H,F GF	GF H	GF H	GF H	GF H	GF H	GF H	GF,H GT	GF H				H E	GF H	GF H	GF H	21																			
22	Metals, Other Elemental & Alloys as Powders, Vapors, or Sponges	H,F GF	H,F GF	G F					H,F GT	U	GF H							H E	GF H		H,F GF		22																		
23	Metals, Other Elemental & Alloys as Sheets, Rods, Drops, etc.	H,F GF	H,F GF						H,F G									H F						23																
24	Metals and Metal Compounds, Toxic	S	S	S			S	S			S														24																
25	Nitrides	GF HF	H,F E	H GF	H,E GF	GF H			U	H G	U	GF H	GF H	GF H				GF H	U	GF H	GF H	E				25														
26	Nitriles	H,GT GF	H,F GT	H							U											H P			S	GF H	26													
27	Nitro Compounds, Organic		H,F GT			H					H E											H,E GF				H,E GF		27												
28	Hydrocarbons, Aliphatic, Unsaturated	H	H F			H																	H E					28											
29	Hydrocarbons, Aliphatic, Saturated		H F																										29										
30	Peroxides and Hydroperoxides, Organic	H G	H E		H F	H G		H GT	H,F E	H,F GT		H,E GT	H,F GT					H E	H	E	H,F GT	H E	H G		H G	H,E GF	H,P GT		H P		30									
31	Phenols and Cresols	H	H F						H G										H P			GF H				GF H					H	31								
32	Organophosphates, Phosphothioates, Phosphodithioates	H GT	H GT						U		H E											H									U		32							
33	Sulfides, Inorganic	GT GF	HF GF	GT		H			E										H												H GT			33						
34	Epoxides	H P	H P	H P	H P	U		H P	H P		H P	H P	U								H P	H P	H P		H P	H P					H P	H P	U	H P	34					
101	Combustible and Flammable Materials, Miscellaneous	H G	H,F GT																			H,F G				H,F GF					H,F GT					101				
102	Explosives	H E	H E	H E					H E		H E			H E								H E	H E	H E	E	E					H E	H E		H E	H E	H E	102			
103	Polymerizable Compounds	P H	P H	P H					P H		P H	P H	U									P H	P H	P H	P H	P H					P H	P H		P H			H E	103		
104	Oxidizing Agents, Strong	H GT		H GT	H F	H F	H,F GT	H,F GT	H E	H,F GT		H,E GT	H,F GT	H F	H F		H F	H GT	H,F GT	H F	H,F GT	H,F E	H,F E	H F		H,F E	H F	H F	H F	H GT	H,F GT	H,F G	H,F G	H E	H,F GT	104		
105	Reducing Agents, Strong	H GF	H,F GT	H GF	H,F GF	H,F GF	H GF	H G				H GT	H F				H,F E	H E	H GF	H GF	H GF					H GF				H E		H GF	H	H GF	H E	H,P GF	H,F E	105		
106	Water and Mixtures Containing Water	H	H						G										H G			H GF	H GF		S	H GF								GT GF					GF GT	106	
107	Water Reactive Substances	<---EXTREMELY REACTIVE! DO NOT MIX WITH ANY CHEMICAL OR WASTE MATERIAL! EXTREMELY REACTIVE!--->																																						107
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	101	102	103	104	105	106	107

APPENDIX 7.

HDPE Liner Details

SLC Consultants/Constructors, Inc.

July 23, 1985

Norlite Corp.
628 S. Saratoga Street
Cohoes, NY 12047

ATTENTION: K.D. Hedges

Dear Mr. Hedges:

The Poly-America 40 mil High Density Polyethylene installed for your "low grade fuel" system was installed following the manufacturers installation procedures. Also, seam testing was performed in accordance with the American Society for Testing and Materials Standard D4437-84. All flat seams were vacuum checked.

If I can be of any further assistance, please let me know.

Sincerely,

Donald J. Kuhn
President
SLC CONSULTANTS/CONSTRUCTORS, INC.

DJK/rs

SLC Consultants/Constructors, Inc.

September 23, 1985

Norlite Corp.
628 So. Saratoga Street
Cohoe, NY 12047

ATTENTION: Mr. Hedges

Dear Mr. Hedges:

In response to your inquiry I am presenting the following information:

1. The personnel that have been working at your site were either Kenneth W. Kuhn or Wayne S. Less. Mr. Kuhn has been installing synthetic liners since 1978 and Mr. Less since 1980. Some of the projects are depicted on the enclosed sheets. Both men have millions of square feet of installation experience. Both are college graduates with extensive construction experience.
2. The flat welds were performed using a Leister Automatic Hot Air Welding machine, X-10. A picture is attached. Please note that there is no operating manual available from the manufacturer. This is very unusual but true. The Leister X-10 is the same machine that was used to seal the High Density Polyethylene liner at the Love Canal in 1984. In fact, one of our machines was rented to the contractor.
3. Any repairs or penetrations were done with a Wegener "WEG12M" extrusion welder. The operating manual is attached.
4. Seam testing was performed by using a vacuum box in accordance with ASTM D4437-84, copy attached.
5. The liner used was supplied by Poly-America, Inc. A brochure is attached. Please note on the second page the picture of the Leister X-10 welder. The thickness of the sheet supplied was 40 mil.

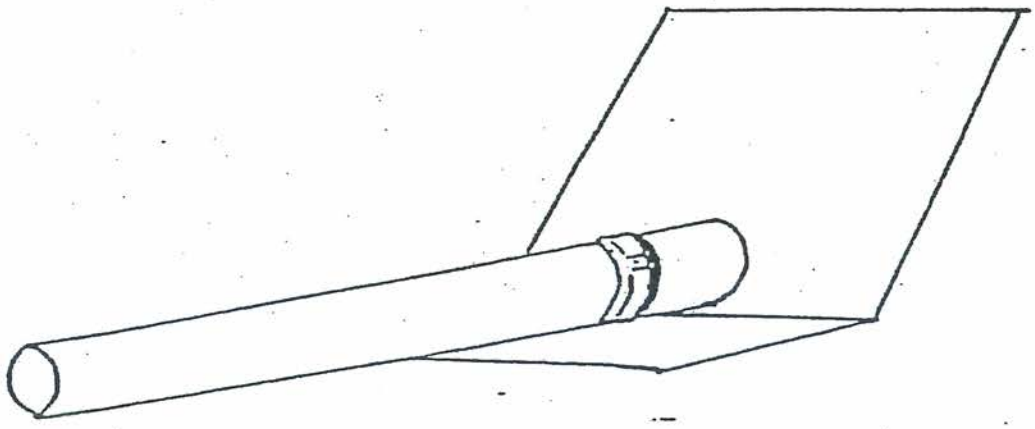
If any more details are required, please contact me.

Sincerely,

Donald J. Kuhn
President
SLC CONSULTANTS/CONSTRUCTORS, INC.

DJK/ss

PIPE PENETRATION DETAILS



A prefabricated boot is slipped over penetration pipe. The base sheet is welded to the HDPE liner with a Wegener Fusion Welding Gun. The boot is strapped to pipe with a butyl seal and 3/4" stainless steel band.

All work done by experienced liner installation workers under close supervision.

Norlite Corp.
628 S. Saratoga St.

APPENDIX 8.

Shell Thickness Measurements

MINIMUM SHELL THICKNESS (FROM ASME SECTION VIII)

For 15 psig internal pressure

Shall circumferential stress, UG-27(c)(l)

Allowable stress value
S = 15,000 psi

Joint Efficiency
E = 0.60 (table UW-12 for Type No.(3) butt joint)

$$t = \frac{PR}{SE - 0.6P}$$

$$t = \frac{15\ (116.6875)}{15{,}000\ (0.6) - 0.6\ (15)} = 0.195 \text{ in}$$

Measured Shell Thickness

Tank No.	2018 Thickness in Inches
335-300	0.394
335-400	0.369
335-500	0.383
335-600	0.392

Estimated Service Life

Estimated corrosion rate = 0.011 inches/year

$$\text{Estimated service life} = \frac{\text{Measured thickness - Minimum thickness}}{\text{Corrosion rate}}$$

Tank No.	Estimated Service Life in Years
335-300	18.1
335-400	15.8
335-500	17.1
335-600	17.9

APPENDIX 9.

Carbomastic 15

Carbomastic® 15

PRODUCT DATA SHEET

SELECTION & SPECIFICATION DATA

Generic Type	Epoxy mastic
Description	Aluminum-pigmented, low-stress, high-solids mastic with a proven field history. Carbomastic 15 was the pioneer mastic coating in a number of industrial markets and today still provides unmatched levels of barrier protection and corrosion resistance over existing finishes and rusted or SSPC-SP2 or SP3-cleaned steel.
Features	• Excellent performance over minimal surface preparation of steel substrates • Suitable as a topcoat for most tightly adhered existing coatings • Excellent choice for field touch-up of zinc-rich primers and galvanized steel • Unique formulation with aluminum flakes provides exceptional barrier protection • Available in a low temperature cure version (Carbomastic 15 FC) • Suitable for use under insulation on hot surfaces operating up to 300 °F (150 °C) • VOC compliant to current AIM regulations
Color	Aluminum (C901); Red (M500) Color variations within a batch and from batch to batch may occur due to the metallic pigments and variations in application techniques and conditions. *Red (M500) is available for use as a contrasting primer in multiple coat applications, but should always be topcoated.
Primer	Self-priming. May be applied over most tightly adhering coatings as well as inorganic zinc primers.
Dry Film Thickness	3 - 5 mils (76 - 127 microns) over existing coatings 7 - 10 mils (178 - 254 microns) in one or two coats in severe exposures **Do not exceed 10.0 mils (250 microns) in a single coat.**
Solids Content	By Volume 90% +/- 2%
HAPs Values	As supplied: 0.70 lbs/solid gal
Theoretical Coverage Rate	1444 ft²/gal at 1.0 mils (35.4 m²/l at 25 microns) 481 ft²/gal at 3.0 mils (11.8 m²/l at 75 microns) 144 ft²/gal at 10.0 mils (3.5 m²/l at 250 microns) Allow for loss in mixing and application.
Severe Exposures	Temperature resistance under insulation: Up to 300°F(150°C) Discoloration is observed above 180°F(82°C) but does not affect performance.
VOC Values	**As Supplied** : 0.7 lbs/gal (88 g/l) Thinner 10 : 32 oz/gal: 2.0 lbs/gal (242 g/l) Thinner 236 E : 32 oz/gal: 0.7 lbs/gal (88 g/l) Thinner 72 : 32 oz/gal: 2.07 lbs/gal (248 g/l) Thinner 76 : 32 oz/gal: 1.9 lbs/gal (231 g/l) These are nominal values.
Topcoats	May be coated with Acrylics, Epoxies, Alkyds, or Polyurethanes depending on exposure and need.

SUBSTRATES & SURFACE PREPARATION

General	Surfaces must be clean and dry. Employ adequate methods to remove dirt, dust, oil and all other contaminants that could interfere with adhesion of the coating in accordance with SSPC-SP 1 and follow the guidelines below.
Steel	Immersion: NACE No. 2/SSPC-SP 10 with a 2.0-3.0 mil (50-75 microns) surface profile. Non-Immersion: NACE No. 3/SSPC-SP 6 with a 2.0-3.0 mil (50-75 microns) surface profile for maximum protection. SSPC-SP 2, SSPC-SP 3, NACE No. 4/SSPC-SP 7, NACE/SSPC WJ-1 to WJ-4,or SSPC-SP 14 are also acceptable methods. For alternate methods contact Carboline Technical Service. When using under fireproofing products, defer to the primer surface preparation requirements in the product data sheet of the fireproofing product.
Galvanized Steel	For optimum performance clean and abrade in accordance with SSPC-SP 16. When using under fireproofing products, defer to the primer surface preparation requirements in the product data sheet of the fireproofing product.
Previously Painted Surfaces	Clean and lightly sand or abrade to roughen and degloss the surface. Existing coating must attain a minimum 3A rating in accordance with ASTM D3359 adhesion test.

PERFORMANCE DATA

Test Method	System	Results
ASTM 4060 Taber Abrasion	1 ct. CM15	130 mg loss; 1000 cycles using CS 17 wheel and 1000 gm load,
ASTM B117 Salt Spray	Rusted Steel 1 ct. CM 15	No blistering, rusting, or softening No rust creep from scribe
ASTM D1735 Water Fog	Rusted Steel 1ct CM 15	No blistering or softening, No creep from scribe
ASTM D522 Flexibility	Blasted steel 1 ct. CM15	A) Conical - crack 0.38", actual elongation 48.57% B) Cylindrical- no cracking observed
ASTM G 14 Impact Resistance	A) Blasted Steel 1 ct. CM 15, B) Rusted Steel 1 ct. CM 15	Area Damaged A) 1/4 inch (0.25") B) 1/4 - 9/16 inch (0.44")

Test reports and additional data available upon written request.

MIXING & THINNING

Mixing	Power mix separately, then combine and power mix. DO NOT MIX PARTIAL KITS.
Thinning	May be thinned up to 32 oz/gal (25%) with Thinner 10 for normal conditions. For application to hot substrates up to 200 °F (93 °C) it is recommended to thin approximately 25% (32 oz/gal) with Thinner 230. Thinner 72 may be used for hot or windy conditions. Use Thinner 76 for nonphotochemically reactive thinner or Thinner 236E for exempt thinner. Use of thinners other than those recommended and supplied by Carboline may adversely affect product performance and void product warranty, whether expressed or implied.
Ratio	1:1 Ratio (A to B)

MIXING & THINNING

Pot Life	2 hours @ 75 °F (24 °C) unthinned. 1 hour @ 90 °F (32 °C) unthinned Pot life ends when coating becomes too viscous to use

APPLICATION EQUIPMENT GUIDELINES

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.

Spray Application (General)	The following spray equipment has been found suitable and is available from manufacturers such as Binks, DeVilbiss and Graco.
Conventional Spray	Pressure pot equipped with dual regulators, 3/8” I.D. minimum material hose, 0.086” I.D. fluid tip and appropriate air cap.
Airless Spray	Pump Ratio: 30:1 (min.)* GPM Output: 3.0 (min.) Material Hose: 3/8” I.D. (min.) Tip Size: 0.019-0.025” Output PSI: 1900-2100 Filter Size: 60 mesh *PTFE packings are recommended and available from the pump manufacturer.
Plural Component	May be applied by plural component spray equipment. Contact Carboline Technical Service for specific recommendations.
Brush & Roller (General)	Multiple coats may be required to obtain desired appearance, recommended dry film thickness and adequate hiding. Avoid excessive re-brushing or rerolling. Use clean natural bristle brush or medium nap phenolic core roller. Work coating into all irregularities.

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	50°F (10°C)	50°F (10°C)	50°F (10°C)	0%
Maximum	90°F (32°C)	200°F (93°C)	100°F (38°C)	95%

This product simply requires the substrate temperature to be above the dew point. Condensation due to substrate temperatures below the dew point can cause flash rusting on prepared steel and interfere with proper adhesion to the substrate. Special application techniques and/or thinning may be required for application when conditions are above and below normal application conditions.

CURING SCHEDULE

Surface Temp.	Final Cure Immersion	Dry to Recoat or Topcoat
50°F (10°C)	15 Days	5 Days
60°F (16°C)	10 Days	3 Days
75°F (24°C)	5 Days	24 Hours
90°F (32°C)	3 Days	18 Hours

For CM 15 Dry to Touch is 5 hours at 75 °F (24 °C). Maximum re-coat/topcoat times are 30 days for epoxies and 90 days for polyurethanes at 75 °F (24 °C).
*These times are based on a 5.0-7.0 mil (125-175 micron) dry film thickness. Higher film thickness, insufficient ventilation or cooler temperatures will require longer cure times and could result in solvent entrapment and premature failure. Excessive humidity or condensation on the surface during curing can interfere with the cure, can cause discoloration and may result in a surface haze. Any haze or blush must be removed by water washing before recoating. Recoat intervals may vary from those listed above when using under intumescent fireproofing products. Consult Carboline Technical Service for recommended cure times before applying Carboline intumescent products. If the maximum recoat time is exceeded, the surface must be abraded by sweep blasting prior to the application of additional coats. **Note:** This product contains conductive pigments and cannot be holiday tested.

CLEANUP & SAFETY

Cleanup	Use Thinner 2 or Acetone. In case of spillage, absorb and dispose of in accordance with local applicable regulations.
Safety	Read and follow all caution statements on this product data sheet and on the SDS for this product. Employ normal workmanlike safety precautions. Use adequate ventilation. Keep container closed when not in use.
Ventilation	When used as a tank lining or in enclosed areas, thorough air circulation must be used during and after application until the coating is cured. The ventilation system should be capable of preventing the solvent vapor concentration from reaching the lower explosion limit for the solvents used. In addition to ensuring proper ventilation, appropriate respirators must be used by all application personnel.

PACKAGING, HANDLING & STORAGE

Shelf Life	Part A & B: Min. 36 months at 75°F (24°C) *Shelf Life : (actual stated shelf life) when kept at recommended storage conditions and in original unopened containers.
Storage Temperature & Humidity	45° - 110°F (7-43°C) 0-90% Relative Humidity
Storage	Store Indoors. This product is solvent based and not affected by excursions below these published storage temperatures, down to 10°F, for a duration of no more than 14 days. Always inspect the product prior to use to make sure it is smooth and homogeneous when properly mixed.
Shipping Weight (Approximate)	2 Gallon Kit - 25 lbs (11 kg) 10 Gallon Kit - 124 lbs (56 kg)
Flash Point (Setaflash)	Part A: >200°F (93°C) Part B: 76°F (24°C)

WARRANTY

To the best of our knowledge the technical data contained herein is true and accurate on the date of publication and is subject to change without prior notice. User must contact Carboline Company to verify correctness before specifying or ordering. No guarantee of accuracy is given or implied. We guarantee our products to conform to Carboline quality control. We assume no responsibility for coverage, performance, injuries or damages resulting from use. Carbolines sole obligation, if any, is to replace or refund the purchase price of the Carboline product(s) proven to be defective, at Carbolines option. Carboline shall not be liable for any loss or damage. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY CARBOLINE, EXPRESS OR IMPLIED, STATUTORY, BY OPERATION OF LAW, OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. All of the trademarks referenced above are the property of Carboline International Corporation unless otherwise indicated.

APPENDIX 10.

Cathodic Protection

HMI SERVICES™
TECHNICAL SOLUTIONS
HMI TECHNICAL SOLUTIONS, LLC | 1395 ATWOOD AVENUE | SUITE 115 | JOHNSTON, RI 02919 | (401) 944-6721

December 06, 2019

Mr. Prince Knight
Tradebe Environmental Services
628 South Saratoga Street
Cohoes, NY 12047

Reference: Annual Cathodic Protection Survey
Underground Storage Tanks
335-300, 335-400, 335-500, 335-600

Dear Mr. Knight,

On November 12, 2019 HMI Technical Solutions personnel performed the annual cathodic protection survey of the above-referenced underground storage tanks.

The following report contains our findings and conclusions, recommendations, and a discussion based on the test results. Copies of the field data sheets showing the complete history of the data for this site are also included with this report.

If you have any questions concerning this report, please contact our office at (401) 944-6721. Thank you for the opportunity to be of continued service.

Sincerely,

HMI Technical Solutions, LLC
Corrosion Control Services

Peter A. Lamb
Area Manager – New England
NACE International – Cathodic Protection Specialist #3571

FINDINGS AND CONCLUSIONS

1. Upon arrival to the site on November 12, 2019 the rectifier was found operating with a DC current output of 1.00 amperes at a driving voltage of 25.53 volts. The current output is now approximately 25% of the historic output and now indicates loss of anode material.

2. The rectifier output settings were increased prior to the survey to a point closely matching last year's output level of approximately 1.8 amps and allowed to polarize.

3. The original circuit resistance for this site in 1999 was approximately 1.5-2.0 ohms. The circuit resistance during this survey was 20.69 ohms. This indicates that most of the anodes have reach the end of their useful life.

4. Potentials at all but two of the standard test points on all four tanks meet or exceed one or more of the minimum criteria for cathodic protection as outlined in NACE International – Standard Practice SP-0285. "Corrosion Control of Underground Storage Tank Systems by Cathodic Protection"

5. The potential at the permanent reference electrode located between tanks 335-300 and 335-400 is unreliable. The data obtained is recorded for reference purposes but should not be used to establish levels of cathodic protection. Replacement of the permanent electrodes is recommended.

6. The two existing test stations housing the permanent reference electrodes are buried approximately 5-6 inches deep under the stone dust and gravel between the tanks.

RECOMMENDATIONS

1. Monitor the rectifier monthly to ensure proper and continuous operation.

2. Consider replacing the original anodes to restore the system to its original output. The present rate of decline in output will result in a loss of protection in the next year.
   Than anodes would have to be hand excavated around the and in between the tanks to ensure that the secondary containment system is not compromised.

3. Continue to perform annual surveys to ensure that protected levels are maintained at all locations on the tanks.

DISCUSSION

The anode header cables were replaced in 2016 and the remaining anodes were reconnected. It now appears that the remaining anodes may be reaching the end of their useful life. The original anodes were installed sometime in the late 1990's and have been operating at approximately 4-5 amps over that time. The actual number of anodes installed is not known but when the header cable was replaced there were only 5 or 6 remaining that were reconnected. Those remaining anodes were still enough to provide protection to the tanks. But now after 20+ years of output they appear to have been consumed. This is indicated by the increasing resistance over time, basically doubling on an annual basis over the last 3 years.

The anodes should be replaced. The general layout would be to add 3 anodes on the outside edges of tanks 335 -200 and 335-600 and then evenly space three anodes each in between each of the tanks using the existing header cable.

The rectifier was adjusted almost all the way up to its maximum output voltage to compensate for the increased resistance. No further effective adjustment is possible for next year when the resistance will exceed the rectifier rating.

The tanks, at all but two points on Tank 335-600, met or exceeded one or both of the NACE criteria for protection.

The two criteria used to evaluate the level of cathodic protection on these tanks are outlined in NACE International – Standard Practice SP-0285. "Corrosion Control of Underground Storage Tank Systems by Cathodic Protection". According to one criterion, the polarized potential (protective current instantaneously off) is required to be at least -0.85 volts with respect to a copper/copper sulfate (Cu/CuSO4) reference electrode. A second criterion requires a minimum of 100 mV of cathodic polarization between the structure surface and a stable reference electrode. The formation or decay of polarization can be measured to satisfy this criterion and is the difference between the native or static potential and the potential of the structure when the system is turned off momentarily.

The structure-to-electrolyte potentials were measured with respect to a portable Cu/CuSO4 reference electrode at previously established test point locations. Readings were taken while interrupting the DC output of the rectifier. The reference electrode was connected to the negative terminal of a high input resistance voltmeter. The structure was connected to the positive terminal of the voltmeter via direct aboveground connections to the tank risers to complete the test circuit. There is also a permanent Cu/CuSO4 reference electrode installed between tanks 335-300 and 335-400 and another between tanks 335-500 and 335-600 for use in measuring the structure-to-electrolyte potential near the bottom of the tanks.

The permanent reference electrodes were designed to provide an indication of protected levels near the bottom of the tanks. While they are not required to establish protection on the tanks, it is usually desirable to have the information from year to year. The remaining potentials on the tanks are consistent

with testing performed in other years when the reference electrodes were still performing normally. Since the data at most other locations meets or exceeds the values for prior years it can be extrapolated to indicate that the same levels of protection on the bottom of the tanks is being achieved.

FIELD DATA

TANK 335-300

HMI TECHNICAL SOLUTIONS, LLC
Periodic Survey Report
Client: Norlite Corporation
System: Four (4) Underground Storage tanks - Cohoes, NY
Year Protection Energized: 1986
Type of Protection: Rectifier and Close-coupled Anode System

DESCRIPTION OF MEASUREMENTS		SURVEY DATA								
		Oct-99	Nov-00	Oct-01	Oct-02	Mar-03	Mar-04	Jan-05	Feb-06	Jan-07
Rectifier Current Output	(Amps)	3.26	2.68	2.58	2.38	2.99	3.05	3.14	3.92	0.59
Rectifier Driving Voltage	(Volts)	4.49	5.62	5.46	5.60	9.25	10.04	9.10	11.58	14.56
Circuit Resistance	(Ohms)	1.38	2.10	2.12	2.35	3.09	3.29	2.90	2.95	24.85
Rectifier Setting	Rheostat	28	28	28	28	30	40	40	40	40
TANK 335-300										
Vg ON Pump	(Volts)	0.88	0.95	0.96	0.94	1.01	1.33	1.18	0.98	0.68
Vg OFF	(Volts)	0.75	0.80	0.81	0.81	0.86	0.95	0.90	0.89	0.64
R Vg	(V/A)	0.04	0.06	0.06	0.05	0.05	0.12	0.09	0.02	0.07
Vg STATIC	(Volts)	0.64	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Polarization	(Volts)	0.11	0.10	0.11	0.11	0.16	0.25	0.20	0.19	-0.06
Vg ON Manway	(Volts)	0.80	1.02	0.98	0.99	1.16	1.34	1.24	0.91	0.56
Vg OFF	(Volts)	0.75	0.85	0.81	0.82	0.86	0.97	0.92	0.80	0.56
R Vg	(V/A)	0.02	0.06	0.07	0.07	0.10	0.12	0.10	0.03	0.01
Vg STATIC	(Volts)	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Polarization	(Volts)	0.05	0.15	0.11	0.12	0.16	0.27	0.22	0.10	-0.14
Vg ON Gauge Point	(Volts)	0.90	1.18	0.99	1.13	1.31	1.17	1.13	0.89	0.58
Vg OFF	(Volts)	0.88	0.91	0.86	0.86	1.04	0.93	0.92	0.81	0.57
R Vg	(V/A)	0.01	0.10	0.05	0.11	0.09	0.08	0.07	0.02	0.01
Vg STATIC	(Volts)	0.65	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Polarization	(Volts)	0.24	0.12	0.07	0.07	0.25	0.14	0.13	0.02	-0.22
Vg ON Yellow Vent 1	(Volts)	0.91	1.18	1.10	1.10	1.19	1.04	1.08	1.10	0.63
Vg OFF	(Volts)	0.89	0.92	0.87	0.85	0.95	0.86	0.87	0.97	0.62
R Vg	(V/A)	0.01	0.10	0.09	0.11	0.08	0.06	0.07	0.03	0.00
Vg STATIC	(Volts)	0.65	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Polarization	(Volts)	0.24	0.13	0.08	0.06	0.16	0.06	0.08	0.18	-0.17
Vg ON Green Fill	(Volts)	0.90	1.19	1.03	1.09	1.19	1.18	1.08	1.01	0.61
Vg OFF	(Volts)	0.86	0.92	0.86	0.84	0.95	0.89	0.83	0.94	0.61
R Vg	(V/A)	0.01	0.10	0.07	0.11	0.08	0.09	0.08	0.02	0.00
Vg STATIC	(Volts)	0.67	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Polarization	(Volts)	0.19	0.13	0.07	0.05	0.16	0.10	0.04	0.15	-0.18
Vg ON vs. Perm. Ref.	(Volts)	1.34	1.19	1.10	1.25	1.31	1.33	1.39	1.14	0.58
Vg OFF	(Volts)	1.01	0.86	0.86	0.96	0.96	0.91	0.99	0.84	0.58
R Vg	(V/A)	0.10	0.12	0.09	0.12	0.12	0.14	0.13	0.08	0.00
Vg STATIC	(Volts)	-	-	-	-	-	-	-	-	-
Polarization	(Volts)	-	-	-	-	-	-	-	-	-

Notes: Depolarized Potentials Measured in Oct/Nov 1996.
Depolarized Potentials Re-Measured in Nov 2000.

HMI TECHNICAL SOLUTIONS, LLC
Periodic Survey Report
Client: Norlite Corporation
System: Four (4) Underground Storage tanks - Cohoes, NY
Year Protection Energized: 1986
Type of Protection: Rectifier and Close-coupled Anode System

DESCRIPTION OF MEASUREMENTS		SURVEY DATA								
		May-07	May-08	May-08	Apr-09	May-10	Oct-11	Dec-12	Jun-14	Jul-15
			as-found	final						
Rectifier Current Output	(Amps)	4.00	3.19	4.32	4.60	4.04	3.99	2.56	3.20	4.70
Rectifier Driving Voltage	(Volts)	13.60	12.40	16.69	19.40	19.86	19.86	21.31	21.60	24.17
Circuit Resistance	(Ohms)	3.40	3.89	3.86	4.22	4.92	4.98	8.32	6.75	5.14
Rectifier Setting	Rheostat	48	48	60	60	60	60	60	60	73
TANK 335-300										
Vg ON Pump	(Volts)	0.88	0.96	0.95	0.97	0.93	0.98	1.01	0.95	1.01
Vg OFF	(Volts)	0.82	0.86	0.88	0.89	0.83	0.92	0.94	0.85	0.85
R Vg	(V/A)	0.02	0.03	0.02	0.02	0.02	0.02	0.03	0.03	0.05
Vg STATIC	(Volts)	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
Polarization	(Volts)	0.18	0.22	0.24	0.25	0.19	0.28	0.30	0.21	0.21
Vg ON Manway	(Volts)	0.99	1.28	1.27	1.34	1.08	1.02	1.45	1.32	1.06
Vg OFF	(Volts)	0.85	0.95	0.99	1.07	0.90	0.91	0.98	0.97	0.82
R Vg	(V/A)	0.04	0.10	0.06	0.06	0.04	0.03	0.18	0.11	0.07
Vg STATIC	(Volts)	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Polarization	(Volts)	0.15	0.25	0.29	0.37	0.20	0.21	0.28	0.27	0.12
Vg ON Gauge Point	(Volts)	0.97	1.19	1.31	1.16	1.02	1.12	1.27	1.18	1.05
Vg OFF	(Volts)	0.88	0.98	1.05	1.02	0.97	0.95	1.08	0.93	0.82
R Vg	(V/A)	0.02	0.06	0.06	0.03	0.01	0.04	0.07	0.08	0.07
Vg STATIC	(Volts)	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Polarization	(Volts)	0.23	0.33	0.40	0.37	0.32	0.30	0.43	0.28	0.17
Vg ON Yellow Vent 1	(Volts)	0.97	1.37	1.54	1.33	1.28	1.24	1.06	1.17	1.03
Vg OFF	(Volts)	0.91	1.02	1.08	1.10	0.99	0.99	0.96	0.91	0.82
R Vg	(V/A)	0.02	0.11	0.11	0.05	0.07	0.06	0.04	0.08	0.07
Vg STATIC	(Volts)	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Polarization	(Volts)	0.26	0.37	0.43	0.45	0.34	0.34	0.31	0.26	0.17
Vg ON Green Fill	(Volts)	1.12	1.22	1.37	1.39	1.08	1.11	1.14	1.10	0.95
Vg OFF	(Volts)	1.00	0.96	0.99	1.10	0.88	0.93	0.91	0.87	0.78
R Vg	(V/A)	0.03	0.08	0.09	0.06	0.05	0.04	0.09	0.07	0.05
Vg STATIC	(Volts)	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Polarization	(Volts)	0.33	0.29	0.32	0.43	0.21	0.26	0.24	0.20	0.11
Vg ON vs. Perm. Ref.	(Volts)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vg OFF	(Volts)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R Vg	(V/A)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vg STATIC	(Volts)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Polarization	(Volts)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes: Depolarized Potentials Measured in Oct/Nov 1996.
Depolarized Potentials Re-Measured in Nov 2000.

HMI TECHNICAL SOLUTIONS, LLC
Periodic Survey Report
Client: Norlite Corporation
System: Four (4) Underground Storage tanks - Cohoes, NY
Year Protection Energized: 1986
Type of Protection: Rectifier and Close-coupled Anode System

DESCRIPTION OF MEASUREMENTS		SURVEY DATA							
		Jun-16	Jun-17	Jan-19					
Rectifier Current Output	(Amps)	4.70	2.56	2.08					
Rectifier Driving Voltage	(Volts)	21.40	21.40	25.40					
Circuit Resistance	(Ohms)	4.55	8.36	12.21					
Rectifier Setting		C2/3 F3/6	C2/3 F3/6	C2/3 F4/6					
TANK 335-300									
Vg ON Pump	(Volts)	-0.960	-0.925	-1.005					
Vg OFF	(Volts)	-0.670	-0.710	-0.864					
R Vg	(V/A)	-0.062	-0.084	-0.068					
Vg STATIC	(Volts)	-0.371	-0.371	-0.371					
Polarization	(Volts)	-0.299	-0.339	-0.493					
Vg ON Manway	(Volts)	-1.445	-1.106	-1.245					
Vg OFF	(Volts)	-0.783	-0.879	-0.941					
R Vg	(V/A)	-0.141	-0.089	-0.146					
Vg STATIC	(Volts)	-0.401	-0.401	-0.401					
Polarization	(Volts)	-0.382	-0.478	-0.540					
Vg ON Gauge Point	(Volts)	-1.170	-0.938	-1.001					
Vg OFF	(Volts)	-0.680	-0.768	-0.778					
R Vg	(V/A)	-0.104	-0.066	-0.107					
Vg STATIC	(Volts)	-0.397	-0.397	-0.397					
Polarization	(Volts)	-0.283	-0.371	-0.381					
Vg ON Yellow Vent 1	(Volts)	-0.998	-0.972	-1.135					
Vg OFF	(Volts)	-0.641	-0.766	-0.871					
R Vg	(V/A)	-0.076	-0.080	-0.127					
Vg STATIC	(Volts)	-0.436	-0.436	-0.436					
Polarization	(Volts)	-0.205	-0.330	-0.435					
Vg ON Green Fill	(Volts)	-0.758	-1.046	-0.820					
Vg OFF	(Volts)	-0.577	-0.735	-0.722					
R Vg	(V/A)	-0.039	-0.121	-0.047					
Vg STATIC	(Volts)	-0.443	-0.443	-0.443					
Polarization	(Volts)	-0.134	-0.292	-0.279					
Vg ON vs. Perm. Ref.	(Volts)	N/A	N/A	N/A					
Vg OFF	(Volts)	N/A	N/A	N/A					
R Vg	(V/A)	N/A	N/A	N/A					
Vg STATIC	(Volts)	N/A	N/A	N/A					
Polarization	(Volts)	N/A	N/A	N/A					

Notes: Depolarized Potentials Measured in Oct/Nov 1996.
Depolarized Potentials Re-Measured in Nov 2000.
Depolarized Potentials Re-Measured in June 2016.
New Rectifier installed in June 2016.

TANK 335-400

HMI TECHNICAL SOLUTIONS, LLC
Periodic Survey Report
Client: Norlite Corporation
System: Four (4) Underground Storage tanks - Cohoes, NY
Year Protection Energized: 1986
Type of Protection: Rectifier and Close-coupled Anode System

DESCRIPTION OF MEASUREMENTS		SURVEY DATA								
		Oct-99	Nov-00	Oct-01	Oct-02	Mar-03	Mar-04	Jan-05	Feb-06	Jan-07
Rectifier Current Output	(Amps)	3.26	2.68	2.58	2.38	2.99	3.05	3.14	3.92	0.59
Rectifier Driving Voltage	(Volts)	4.49	5.62	5.46	5.60	9.25	10.04	9.10	11.58	14.56
Circuit Resistance	(Ohms)	1.38	2.10	2.12	2.35	3.09	3.29	2.90	2.95	24.85
Rectifier Setting	Rheostat	28	28	28	28	30	40	40	40	40
TANK 335-400										
Vg ON Pump	(Volts)	1.03	1.16	1.03	1.08	1.24	2.39	1.54	1.39	0.74
Vg OFF	(Volts)	0.84	0.87	0.86	0.86	0.92	1.05	1.00	1.08	0.66
R Vg	(V/A)	0.06	0.11	0.07	0.09	0.11	0.44	0.17	0.08	0.14
Vg STATIC	(Volts)	0.67	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Polarization	(Volts)	0.17	0.07	0.06	0.06	0.12	0.25	0.20	0.28	-0.14
Vg ON Manway	(Volts)	1.17	1.51	1.18	1.30	1.78	2.39	1.50	0.79	0.61
Vg OFF	(Volts)	0.83	0.92	0.89	0.88	0.95	1.02	0.99	0.71	0.60
R Vg	(V/A)	0.10	0.22	0.11	0.18	0.27	0.45	0.16	0.02	0.02
Vg STATIC	(Volts)	0.74	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Polarization	(Volts)	0.09	0.22	0.19	0.18	0.25	0.32	0.29	0.01	-0.11
Vg ON Gauge Point	(Volts)	1.50	1.37	1.20	1.30	2.18	2.17	1.51	1.04	0.63
Vg OFF	(Volts)	0.94	0.93	0.88	0.90	0.97	1.01	1.02	0.87	0.60
R Vg	(V/A)	0.17	0.16	0.12	0.17	0.40	0.38	0.16	0.04	0.05
Vg STATIC	(Volts)	0.65	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Polarization	(Volts)	0.29	0.09	0.04	0.06	0.13	0.17	0.18	0.03	-0.24
Vg ON Yellow Vent 1	(Volts)	1.50	1.38	1.25	1.20	2.18	2.04	1.78	1.22	0.61
Vg OFF	(Volts)	0.94	0.93	0.90	0.90	0.94	1.04	1.16	1.03	0.58
R Vg	(V/A)	0.17	0.17	0.14	0.13	0.42	0.33	0.20	0.05	0.05
Vg STATIC	(Volts)	0.65	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Polarization	(Volts)	0.29	0.09	0.06	0.06	0.10	0.20	0.32	0.19	-0.26
Vg ON Green Fill	(Volts)	1.46	1.38	1.29	1.41	2.17	1.29	1.33	1.34	0.52
Vg OFF	(Volts)	0.92	0.94	0.92	0.92	0.93	0.86	1.01	1.05	0.52
R Vg	(V/A)	0.17	0.16	0.14	0.21	0.42	0.14	0.10	0.07	0.00
Vg STATIC	(Volts)	0.67	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Polarization	(Volts)	0.26	0.10	0.08	0.08	0.09	0.02	0.17	0.21	-0.32
Vg ON vs. Perm. Ref.	(Volts)	1.33	1.19	1.12	1.24	1.30	1.47	1.39	1.14	0.58
Vg OFF	(Volts)	1.01	0.85	0.87	0.96	0.94	1.02	0.98	0.84	0.58
R Vg	(V/A)	0.10	0.13	0.10	0.12	0.12	0.15	0.13	0.08	0.00
Vg STATIC	(Volts)	-	-	-	-	-	-	-	-	-
Polarization	(Volts)	-	-	-	-	-	-	-	-	-

Notes: Nov 1998 - Depolarized Potentials Measured in Oct/Nov 1996.
Depolarized Potentials Re-Measured in Nov 2000.

HMI TECHNICAL SOLUTIONS, LLC
Periodic Survey Report
Client: Norlite Corporation
System: Four (4) Underground Storage tanks - Cohoes, NY
Year Protection Energized: 1986
Type of Protection: Rectifier and Close-coupled Anode System

DESCRIPTION OF MEASUREMENTS		SURVEY DATA								
		May-07	May-08	May-08	Apr-09	May-10	Oct-11	Dec-12	Jun-14	Jul-15
			as-found	final						
Rectifier Current Output	(Amps)	4.00	3.19	4.32	4.60	4.04	3.99	2.56	3.20	4.70
Rectifier Driving Voltage	(Volts)	13.60	12.40	16.69	19.40	19.86	19.86	21.31	21.60	24.17
Circuit Resistance	(Ohms)	3.40	3.89	3.86	4.22	4.92	4.98	8.32	6.75	5.14
Rectifier Setting	Rheostat	48	48	60	60	60	60	60	60	73
TANK 335-400										
Vg ON Pump	(Volts)	1.02	1.14	1.28	1.38	1.10	1.03	1.28	1.20	1.16
Vg OFF	(Volts)	0.87	0.89	0.93	1.07	0.87	0.90	1.08	0.84	0.84
R Vg	(V/A)	0.04	0.08	0.08	0.07	0.06	0.03	0.08	0.11	0.10
Vg STATIC	(Volts)	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Polarization	(Volts)	0.20	0.22	0.26	0.40	0.20	0.23	0.41	0.17	0.17
Vg ON Manway	(Volts)	0.98	0.94	1.47	1.75	1.52	1.04	1.20	1.32	1.17
Vg OFF	(Volts)	0.87	0.83	0.97	1.20	1.03	0.89	0.95	0.94	0.85
R Vg	(V/A)	0.03	0.03	0.12	0.12	0.12	0.04	0.10	0.12	0.10
Vg STATIC	(Volts)	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Polarization	(Volts)	0.13	0.09	0.23	0.46	0.29	0.15	0.21	0.20	0.11
Vg ON Gauge Point	(Volts)	1.46	1.77	2.04	1.48	1.83	1.33	1.37	1.34	2.04
Vg OFF	(Volts)	0.90	1.04	1.08	1.05	1.09	1.04	0.95	0.99	1.01
R Vg	(V/A)	0.14	0.23	0.22	0.09	0.18	0.07	0.16	0.11	0.32
Vg STATIC	(Volts)	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Polarization	(Volts)	0.25	0.39	0.43	0.40	0.44	0.39	0.30	0.34	0.36
Vg ON Yellow Vent 1	(Volts)	1.57	2.00	2.36	1.47	1.49	1.54	1.42	1.46	1.86
Vg OFF	(Volts)	0.98	1.07	1.13	1.02	1.00	1.00	0.97	0.94	0.82
R Vg	(V/A)	0.15	0.29	0.28	0.10	0.12	0.14	0.18	0.16	0.33
Vg STATIC	(Volts)	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Polarization	(Volts)	0.33	0.42	0.48	0.37	0.35	0.35	0.32	0.29	0.17
Vg ON Green Fill	(Volts)	1.21	0.95	1.50	1.43	1.35	1.44	1.34	1.40	1.14
Vg OFF	(Volts)	0.97	0.71	1.10	1.04	1.09	1.04	0.88	0.86	0.78
R Vg	(V/A)	0.06	0.07	0.09	0.08	0.06	0.10	0.18	0.17	0.11
Vg STATIC	(Volts)	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Polarization	(Volts)	0.30	0.04	0.43	0.37	0.42	0.37	0.21	0.19	0.11
Vg ON vs. Perm. Ref.	(Volts)	N/A	0.74	0.80	0.75	0.76	0.58	0.62	0.11	0.65
Vg OFF	(Volts)	N/A	0.61	0.64	0.60	0.60	0.47	0.51	0.06	0.50
R Vg	(V/A)	N/A	0.04	0.04	0.03	0.04	0.03	0.04	0.02	0.05
Vg STATIC	(Volts)	N/A	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Polarization	(Volts)	N/A	0.03	0.06	0.02	0.02	0.00	-0.07	-0.52	-0.08

Notes: Nov 1998 - Depolarized Potentials Measured in Oct/Nov 1996.
Depolarized Potentials Re-Measured in Nov 2000.

HMI TECHNICAL SOLUTIONS, LLC
Periodic Survey Report
Client: Norlite Corporation
System: Four (4) Underground Storage tanks - Cohoes, NY
Year Protection Energized: 1986
Type of Protection: Rectifier and Close-coupled Anode System

DESCRIPTION OF MEASUREMENTS		SURVEY DATA		
		Jun-16	Jun-17	Jan-19
Rectifier Current Output	(Amps)	4.70	2.56	2.08
Rectifier Driving Voltage	(Volts)	21.40	21.40	25.40
Circuit Resistance	(Ohms)	4.55	8.36	12.21
Rectifier Setting		C2/3 F3/6	C2/3 F3/6	C2/3 F4/6
TANK 335-400				
Vg ON Pump	(Volts)	-1.060	-1.042	-1.295
Vg OFF	(Volts)	-0.646	-0.784	-0.930
R Vg	(V/A)	-0.088	-0.101	-0.175
Vg STATIC	(Volts)	-0.370	-0.370	-0.370
Polarization	(Volts)	-0.276	-0.414	-0.560
Vg ON Manway	(Volts)	-1.936	-1.170	-1.460
Vg OFF	(Volts)	-0.784	-0.870	-1.040
R Vg	(V/A)	-0.245	-0.117	-0.202
Vg STATIC	(Volts)	-0.377	-0.377	-0.377
Polarization	(Volts)	-0.407	-0.493	-0.663
Vg ON Gauge Point	(Volts)	-2.450	-1.780	-1.990
Vg OFF	(Volts)	-0.779	-0.952	-1.019
R Vg	(V/A)	-0.356	-0.323	-0.467
Vg STATIC	(Volts)	-0.380	-0.371	-0.371
Polarization	(Volts)	-0.399	-0.581	-0.648
Vg ON Yellow Vent 1	(Volts)	-1.950	-1.608	-1.885
Vg OFF	(Volts)	-0.629	-0.773	-0.921
R Vg	(V/A)	-0.281	-0.326	-0.463
Vg STATIC	(Volts)	-0.372	-0.372	-0.372
Polarization	(Volts)	-0.257	-0.401	-0.549
Vg ON Green Fill	(Volts)	-0.972	-0.610	-0.990
Vg OFF	(Volts)	-0.623	-0.530	-0.746
R Vg	(V/A)	-0.074	-0.031	-0.117
Vg STATIC	(Volts)	-0.323	-0.323	-0.323
Polarization	(Volts)	-0.300	-0.207	-0.423
Vg ON vs. Perm. Ref.	(Volts)	0.227	-0.860	-0.977
Vg OFF	(Volts)	-0.008	-0.715	-0.770
R Vg	(V/A)	0.050	-0.057	-0.100
Vg STATIC	(Volts)	-0.118	-0.118	-0.118
Polarization	(Volts)	0.110	-0.597	-0.652

Notes: Nov 1998 - Depolarized Potentials Measured in Oct/Nov 1996.
Depolarized Potentials Re-Measured in Nov 2000.
Depolarized Potentials Re-Measured in June 2016
New Rectifier installed in June 2016
Grade level TS 36" from where Tank 400 yellow piping joins main above grade yellow piping 15" off yellow pipi

TANK 335-500

HMI TECHNICAL SOLUTIONS, LLC
Periodic Survey Report
Client: Norlite Corporation
System: Four (4) Underground Storage tanks - Cohoes, NY
Year Protection Energized: 1986
Type of Protection: Rectifier and Close-coupled Anode System

DESCRIPTION OF MEASUREMENTS		SURVEY DATA								
		Oct-99	Nov-00	Oct-01	Oct-02	Mar-03	Mar-04	Jan-05	Feb-06	Jan-07
Rectifier Current Output	(Amps)	3.26	2.68	2.58	2.38	2.99	3.05	3.14	3.92	0.59
Rectifier Driving Voltage	(Volts)	4.49	5.62	5.46	5.60	9.25	10.04	9.10	11.60	14.56
Circuit Resistance	(Ohms)	1.38	2.10	2.12	2.35	3.09	3.29	2.90	2.96	24.85
Rectifier Setting	Rheostat	28	28	28	28	30	40	40	40	40
TANK 335-500										
Vg ON Pump	(Volts)	1.21	1.09	1.42	1.42	1.59	3.59	2.26	0.97	0.71
Vg OFF	(Volts)	0.97	0.81	0.95	0.90	0.93	1.10	1.07	0.89	0.68
R Vg	(V/A)	0.07	0.10	0.18	0.22	0.22	0.82	0.38	0.02	0.05
Vg STATIC	(Volts)	0.69	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Polarization	(Volts)	0.28	0.11	0.25	0.20	0.23	0.40	0.37	0.19	-0.02
Vg ON Manway	(Volts)	1.74	1.74	1.73	1.82	2.23	3.56	2.89	1.75	1.69
Vg OFF	(Volts)	1.01	0.88	1.02	0.93	0.98	0.99	1.09	1.08	0.89
R Vg	(V/A)	0.22	0.32	0.28	0.37	0.42	0.84	0.57	0.17	1.37
Vg STATIC	(Volts)	0.64	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Polarization	(Volts)	0.37	0.11	0.25	0.16	0.21	0.22	0.32	0.31	0.12
Vg ON Gauge Point	(Volts)	2.00	2.27	2.23	2.34	3.09	3.53	2.83	1.28	0.99
Vg OFF	(Volts)	1.02	0.99	1.01	1.00	0.98	1.04	1.10	1.02	0.88
R Vg	(V/A)	0.30	0.48	0.47	0.56	0.70	0.82	0.55	0.07	0.19
Vg STATIC	(Volts)	0.67	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Polarization	(Volts)	0.35	0.13	0.15	0.14	0.12	0.18	0.24	0.16	0.02
Vg ON Yellow Vent 1	(Volts)	1.94	2.28	2.25	2.35	3.07	2.70	1.70	1.12	1.58
Vg OFF	(Volts)	1.01	1.00	1.02	0.97	0.98	1.07	1.15	0.96	1.00
R Vg	(V/A)	0.29	0.48	0.48	0.58	0.70	1.80	0.18	0.04	0.99
Vg STATIC	(Volts)	0.67	0.86	0.86	0.86	0.86	1.01	1.01	1.01	1.01
Polarization	(Volts)	0.34	0.14	0.16	0.11	0.12	0.06	0.15	-0.04	0.00
Vg ON Green Fill	(Volts)	1.64	2.26	2.12	2.14	3.07	1.83	1.32	1.56	0.84
Vg OFF	(Volts)	0.93	0.99	0.98	0.92	0.97	1.01	0.99	1.04	0.72
R Vg	(V/A)	0.22	0.47	0.44	0.51	0.70	0.27	0.11	0.13	0.20
Vg STATIC	(Volts)	0.62	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Polarization	(Volts)	0.31	0.13	0.12	0.06	0.11	0.15	0.13	0.18	-0.14
Vg ON vs. Perm. Ref.	(Volts)	1.98	1.94	2.07	2.35	2.25	3.56	3.13	2.80	1.88
Vg OFF	(Volts)	1.00	0.87	1.02	1.01	0.96	1.10	1.09	1.03	0.66
R Vg	(V/A)	0.30	0.40	0.41	0.56	0.43	0.81	0.65	0.45	2.08
Vg STATIC	(Volts)	-	-	-	-	-	-	-	-	-
Polarization	(Volts)	-	-	-	-	-	-	-	-	-

Notes: Nov 1998 - Depolarized Potentials Measured in Oct/Nov 1996.
Depolarized Potentials Re-Measured in Nov 2000.

HMI TECHNICAL SOLUTIONS, LLC
Periodic Survey Report
Client: Norlite Corporation
System: Four (4) Underground Storage tanks - Cohoes, NY
Year Protection Energized: 1986
Type of Protection: Rectifier and Close-coupled Anode System

DESCRIPTION OF MEASUREMENTS		SURVEY DATA								
		May-07	May-08	May-08	Apr-09	May-10	Oct-11	Dec-12	Jun-14	Jul-15
			as-found	final						
Rectifier Current Output	(Amps)	4.00	3.19	4.32	4.60	4.04	3.99	2.56	3.20	4.70
Rectifier Driving Voltage	(Volts)	13.60	12.40	16.69	19.40	19.86	19.86	21.31	21.60	24.17
Circuit Resistance	(Ohms)	3.40	3.89	3.86	4.22	4.92	4.98	8.32	6.75	5.14
Rectifier Setting	Rheostat	48	48	60	60	60	60	60	60	73
TANK 335-500										
Vg ON Pump	(Volts)	1.15	1.05	1.11	1.26	1.14	1.15	1.13	1.19	1.04
Vg OFF	(Volts)	0.95	0.99	1.03	0.99	1.02	0.99	1.03	0.94	0.84
R Vg	(V/A)	0.05	0.02	0.02	0.06	0.03	0.04	0.04	0.08	0.06
Vg STATIC	(Volts)	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Polarization	(Volts)	0.26	0.30	0.34	0.30	0.33	0.30	0.34	0.25	0.15
Vg ON Manway	(Volts)	1.62	1.85	2.44	1.52	2.00	1.81	1.56	0.97	1.24
Vg OFF	(Volts)	1.20	1.13	1.15	1.18	1.15	1.17	1.19	0.86	0.82
R Vg	(V/A)	0.11	0.23	0.30	0.07	0.21	0.16	0.14	0.03	0.13
Vg STATIC	(Volts)	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
Polarization	(Volts)	0.56	0.49	0.51	0.54	0.51	0.53	0.55	0.22	0.18
Vg ON Gauge Point	(Volts)	1.56	1.31	1.91	1.28	2.20	1.69	1.76	1.27	1.83
Vg OFF	(Volts)	1.08	1.07	1.15	1.13	1.24	1.13	1.11	1.09	1.06
R Vg	(V/A)	0.12	0.08	0.18	0.03	0.24	0.14	0.25	0.06	0.24
Vg STATIC	(Volts)	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Polarization	(Volts)	0.41	0.40	0.48	0.46	0.57	0.46	0.44	0.42	0.39
Vg ON Yellow Vent 1	(Volts)	1.34	2.00	2.42	1.31	2.10	1.91	1.45	1.57	2.68
Vg OFF	(Volts)	1.04	1.08	1.10	1.09	1.22	1.19	1.06	1.07	1.03
R Vg	(V/A)	0.08	0.29	0.31	0.05	0.22	0.18	0.15	0.16	0.52
Vg STATIC	(Volts)	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Polarization	(Volts)	0.37	0.41	0.43	0.42	0.55	0.52	0.39	0.40	0.36
Vg ON Green Fill	(Volts)	1.24	0.95	1.15	1.25	1.09	1.16	1.66	1.27	1.26
Vg OFF	(Volts)	0.87	0.71	0.91	1.16	0.95	0.97	1.08	0.98	0.85
R Vg	(V/A)	0.09	0.07	0.06	0.02	0.03	0.05	0.23	0.09	0.13
Vg STATIC	(Volts)	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Polarization	(Volts)	0.25	0.09	0.29	0.54	0.33	0.35	0.46	0.36	0.23
Vg ON vs. Perm. Ref.	(Volts)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vg OFF	(Volts)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R Vg	(V/A)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vg STATIC	(Volts)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Polarization	(Volts)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes: Nov 1998 - Depolarized Potentials Measured in Oct/Nov 1996.
Depolarized Potentials Re-Measured in Nov 2000.

HMI TECHNICAL SOLUTIONS, LLC
Periodic Survey Report
Client: Norlite Corporation
System: Four (4) Underground Storage tanks - Cohoes, NY
Year Protection Energized: 1986
Type of Protection: Rectifier and Close-coupled Anode System

DESCRIPTION OF MEASUREMENTS		SURVEY DATA		
		Jun-16	Jun-17	Jan-19
Rectifier Current Output	(Amps)	4.70	2.56	2.08
Rectifier Driving Voltage	(Volts)	21.40	21.40	25.40
Circuit Resistance	(Ohms)	4.55	8.36	12.21
Rectifier Setting		C2/3 F3/6	C2/3 F3/6	C2/3 F4/6
TANK 335-500				
Vg ON Pump	(Volts)	-0.575	-0.705	-0.860
Vg OFF	(Volts)	-0.466	-0.635	-0.772
R Vg	(V/A)	-0.023	-0.027	-0.042
Vg STATIC	(Volts)	-0.300	-0.300	-0.300
Polarization	(Volts)	-0.166	-0.335	-0.472
Vg ON Manway	(Volts)	-1.483	-1.660	-2.085
Vg OFF	(Volts)	-0.881	-0.994	-1.047
R Vg	(V/A)	-0.128	-0.260	-0.499
Vg STATIC	(Volts)	-0.525	-0.525	-0.525
Polarization	(Volts)	-0.356	-0.469	-0.522
Vg ON Gauge Point	(Volts)	-1.417	-1.717	-2.643
Vg OFF	(Volts)	-0.861	-1.036	-1.125
R Vg	(V/A)	-0.118	-0.266	-0.730
Vg STATIC	(Volts)	-0.561	-0.561	-0.561
Polarization	(Volts)	-0.300	-0.475	-0.564
Vg ON Yellow Vent 1	(Volts)	-1.380	-1.290	-1.855
Vg OFF	(Volts)	-0.846	-0.925	-1.087
R Vg	(V/A)	-0.114	-0.143	-0.369
Vg STATIC	(Volts)	-0.671	-0.671	-0.671
Polarization	(Volts)	-0.175	-0.254	-0.416
Vg ON Green Fill	(Volts)	-0.920	-0.733	-1.057
Vg OFF	(Volts)	-0.610	-0.652	-0.848
R Vg	(V/A)	-0.066	-0.032	-0.100
Vg STATIC	(Volts)	-0.370	-0.370	-0.370
Polarization	(Volts)	-0.240	-0.282	-0.478
Vg ON vs. Perm. Ref.	(Volts)	N/A	N/A	N/A
Vg OFF	(Volts)	N/A	N/A	N/A
R Vg	(V/A)	N/A	N/A	N/A
Vg STATIC	(Volts)	N/A	N/A	N/A
Polarization	(Volts)	N/A	N/A	N/A

Notes: Nov 1998 - Depolarized Potentials Measured in Oct/Nov 1996.
Depolarized Potentials Re-Measured in Nov 2000.
Depolarized Potentials Re-Measured in June 2016
New Rectifier installed in June 2016

TANK 335-600

HMI TECHNICAL SOLUTIONS, LLC
Periodic Survey Report
Client: Norlite Corporation
System: Four (4) Underground Storage tanks - Cohoes, NY
Year Protection Energized: 1986
Type of Protection: Rectifier and Close-coupled Anode System

DESCRIPTION OF MEASUREMENTS		SURVEY DATA								
		Oct-99	Nov-00	Oct-01	Oct-02	Mar-03	Mar-04	Jan-05	Feb-06	Jan-07
Rectifier Current Output	(Amps)	3.26	2.68	2.58	2.38	2.99	3.05	3.14	3.92	0.59
Rectifier Driving Voltage	(Volts)	4.49	5.62	5.46	5.60	9.25	10.04	9.10	11.60	14.56
Circuit Resistance	(Ohms)	1.38	2.10	2.12	2.35	3.09	3.29	2.90	2.96	24.85
Rectifier Setting	Rheostat	28	28	28	28	30	40	40	40	40
TANK 335-600										
Vg ON Pump	(Volts)	1.65	1.33	1.32	1.69	1.79	2.94	2.79	1.23	1.14
Vg OFF	(Volts)	0.82	0.75	0.86	0.85	0.88	0.95	0.98	0.87	0.78
R Vg	(V/A)	0.25	0.22	0.18	0.35	0.31	0.65	0.58	0.09	0.61
Vg STATIC	(Volts)	0.60	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Polarization	(Volts)	0.22	0.12	0.23	0.22	0.25	0.32	0.35	0.24	0.15
Vg ON Manway	(Volts)	2.60	2.13	1.92	2.14	2.87	5.05	2.97	1.52	1.47
Vg OFF	(Volts)	0.95	1.00	1.02	0.91	0.98	1.06	1.06	1.01	0.94
R Vg	(V/A)	0.51	0.42	0.35	0.52	0.63	1.31	0.61	0.13	0.90
Vg STATIC	(Volts)	0.61	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Polarization	(Volts)	0.34	0.19	0.21	0.10	0.17	0.25	0.25	0.20	0.13
Vg ON Gauge Point	(Volts)	2.66	2.62	2.84	2.58	3.53	4.93	1.16	1.62	1.76
Vg OFF	(Volts)	0.97	0.93	0.96	0.91	0.93	0.85	1.03	1.05	1.04
R Vg	(V/A)	0.52	0.63	0.73	0.70	0.87	1.34	0.04	0.15	1.23
Vg STATIC	(Volts)	0.66	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Polarization	(Volts)	0.31	0.08	0.11	0.06	0.08	0.00	0.18	0.20	0.19
Vg ON Yellow Vent 1	(Volts)	2.34	2.63	2.21	2.97	3.53	3.71	1.16	2.89	3.40
Vg OFF	(Volts)	0.91	0.94	0.98	0.88	0.93	1.02	1.03	1.05	1.00
R Vg	(V/A)	0.44	0.63	0.48	0.88	0.87	0.88	0.04	0.47	4.10
Vg STATIC	(Volts)	0.66	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Polarization	(Volts)	0.25	0.09	0.13	0.03	0.08	0.17	0.18	0.20	0.15
Vg ON Green Fill	(Volts)	1.65	2.61	2.35	2.31	3.53	2.41	1.06	1.10	1.07
Vg OFF	(Volts)	0.81	0.91	0.86	0.90	0.94	0.95	0.93	0.87	0.82
R Vg	(V/A)	0.26	0.63	0.58	0.59	0.87	0.48	0.04	0.06	0.43
Vg STATIC	(Volts)	0.58	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Polarization	(Volts)	0.23	0.06	0.01	0.05	0.09	0.10	0.08	0.02	-0.03
Vg ON vs. Perm. Ref.	(Volts)	1.98	1.93	2.09	2.33	2.25	3.22	3.12	2.80	1.88
Vg OFF	(Volts)	1.00	0.87	1.01	1.02	0.99	0.89	1.09	1.03	0.66
R Vg	(V/A)	0.30	0.40	0.42	0.55	0.42	0.76	0.65	0.45	2.08
Vg STATIC	(Volts)	-	-	-	-	-	-	-	-	-
Polarization	(Volts)	-	-	-	-	-	-	-	-	-

Notes: Nov 1998 - Depolarized Potentials Measured in Oct/Nov 1996.
Depolarized Potentials Re-Measured in Nov 2000.

HMI TECHNICAL SOLUTIONS, LLC
Periodic Survey Report
Client: Norlite Corporation
System: Four (4) Underground Storage tanks - Cohoes, NY
Year Protection Energized: 1986
Type of Protection: Rectifier and Close-coupled Anode System

DESCRIPTION OF MEASUREMENTS		SURVEY DATA								
		May-07	May-08	May-08	Apr-09	May-10	Oct-11	Dec-12	Jun-14	Jul-15
			as-found	final						
Rectifier Current Output	(Amps)	4.00	3.19	4.32	4.60	4.04	3.99	2.56	3.20	4.70
Rectifier Driving Voltage	(Volts)	13.60	12.40	16.69	19.40	19.86	19.86	21.31	21.60	24.17
Circuit Resistance	(Ohms)	3.40	3.89	3.86	4.22	4.92	4.98	8.32	6.75	5.14
Rectifier Setting	Rheostat	48	48	60	60	60	60	60	60	73
TANK 335-600										
Vg ON Pump	(Volts)	1.23	1.30	1.45	1.47	1.46	1.37	1.12	1.13	1.28
Vg OFF	(Volts)	0.90	0.93	0.99	1.08	1.02	0.93	0.95	0.87	0.94
R Vg	(V/A)	0.08	0.12	0.11	0.08	0.11	0.11	0.07	0.08	0.11
Vg STATIC	(Volts)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Polarization	(Volts)	0.30	0.33	0.39	0.48	0.42	0.33	0.35	0.27	0.34
Vg ON Manway	(Volts)	1.38	1.37	1.61	1.34	1.72	1.79	1.15	1.13	1.30
Vg OFF	(Volts)	0.96	1.00	1.10	1.04	1.22	1.02	0.92	1.00	0.81
R Vg	(V/A)	0.11	0.12	0.12	0.07	0.12	0.19	0.09	0.04	0.15
Vg STATIC	(Volts)	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Polarization	(Volts)	0.35	0.39	0.49	0.43	0.61	0.41	0.31	0.39	0.20
Vg ON Gauge Point	(Volts)	1.59	1.83	2.07	2.11	2.74	2.92	2.45	1.71	1.22
Vg OFF	(Volts)	1.04	1.11	1.15	1.25	1.21	1.18	1.00	1.11	0.86
R Vg	(V/A)	0.14	0.23	0.21	0.19	0.38	0.44	0.57	0.19	0.11
Vg STATIC	(Volts)	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Polarization	(Volts)	0.38	0.45	0.49	0.59	0.55	0.52	0.34	0.45	0.20
Vg ON Yellow Vent 1	(Volts)	2.98	4.31	5.38	4.54	3.70	3.58	1.80	3.27	3.29
Vg OFF	(Volts)	1.03	1.14	1.21	1.33	1.26	1.16	1.17	1.13	0.93
R Vg	(V/A)	0.49	0.99	0.97	0.70	0.60	0.61	0.25	0.67	0.74
Vg STATIC	(Volts)	0.66	0.66	0.66	0.66	0.66	0.66	0.60	0.60	0.60
Polarization	(Volts)	0.37	0.48	0.55	0.67	0.60	0.50	0.57	0.53	0.33
Vg ON Green Fill	(Volts)	1.47	1.84	2.21	2.19	1.84	1.74	1.16	1.89	1.49
Vg OFF	(Volts)	0.98	1.01	1.05	1.10	1.15	1.00	0.98	1.07	0.79
R Vg	(V/A)	0.12	0.26	0.27	0.24	0.17	0.19	0.07	0.26	0.22
Vg STATIC	(Volts)	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Polarization	(Volts)	0.40	0.43	0.47	0.52	0.57	0.42	0.40	0.49	0.21
Vg ON vs. Perm. Ref.	(Volts)	N/A	2.62	3.16	3.46	3.39	2.58	2.12		2.13
Vg OFF	(Volts)	N/A	1.07	1.11	1.30	1.26	1.03	1.05	CAN	0.77
R Vg	(V/A)	N/A	0.49	0.47	0.47	0.53	0.39	0.42	NOT	0.43
Vg STATIC	(Volts)	N/A	0.66	0.66	0.66	0.66	0.66	0.66	LOCATE	0.66
Polarization	(Volts)	N/A	0.41	0.45	0.64	0.60	0.37	0.39		0.11

Notes: Nov 1998 - Depolarized Potentials Measured in Oct/Nov 1996.
Depolarized Potentials Re-Measured in Nov 2000.

HMI TECHNICAL SOLUTIONS, LLC
Periodic Survey Report
Client: Norlite Corporation
System: Four (4) Underground Storage tanks - Cohoes, NY
Year Protection Energized: 1986
Type of Protection: Rectifier and Close-coupled Anode System

DESCRIPTION OF MEASUREMENTS		SURVEY DATA		
		Jun-16	Jun-17	Jan-19
Rectifier Current Output	(Amps)	4.70	2.56	2.08
Rectifier Driving Voltage	(Volts)	21.40	21.40	25.40
Circuit Resistance	(Ohms)	4.55	8.36	12.21
Rectifier Setting		C2/3 F3/6	C2/3 F3/6	C2/3 F4/6
TANK 335-600				
Vg ON Pump	(Volts)	-0.841	-1.070	-1.140
Vg OFF	(Volts)	-0.595	-0.730	-0.820
R Vg	(V/A)	-0.052	-0.133	-0.154
Vg STATIC	(Volts)	-0.275	-0.275	-0.275
Polarization	(Volts)	-0.320	-0.455	-0.545
Vg ON Manway	(Volts)	-0.840	-1.304	-0.765
Vg OFF	(Volts)	-0.670	-0.831	-0.650
R Vg	(V/A)	-0.036	-0.185	-0.055
Vg STATIC	(Volts)	-0.610	-0.610	-0.610
Polarization	(Volts)	-0.060	-0.221	-0.040
Vg ON Gauge Point	(Volts)	-0.905	-1.004	-0.831
Vg OFF	(Volts)	-0.756	-0.826	-0.756
R Vg	(V/A)	-0.032	-0.070	-0.036
Vg STATIC	(Volts)	-0.681	-0.681	-0.681
Polarization	(Volts)	-0.075	-0.145	-0.075
Vg ON Yellow Vent 1	(Volts)	-1.832	-1.240	-1.318
Vg OFF	(Volts)	-0.725	-0.868	-0.889
R Vg	(V/A)	-0.236	-0.145	-0.206
Vg STATIC	(Volts)	-0.562	-0.562	-0.562
Polarization	(Volts)	-0.163	-0.306	-0.327
Vg ON Green Fill	(Volts)	-0.918	-0.892	-1.220
Vg OFF	(Volts)	-0.669	-0.735	-0.891
R Vg	(V/A)	-0.053	-0.061	-0.158
Vg STATIC	(Volts)	-0.556	-0.556	-0.556
Polarization	(Volts)	-0.113	-0.179	-0.335
Vg ON vs. Perm. Ref.	(Volts)	-3.035	-2.082	-2.020
Vg OFF	(Volts)	-0.223	-0.964	-0.697
R Vg	(V/A)	-0.598	-0.437	-0.636
Vg STATIC	(Volts)	-0.105	-0.105	-0.105
Polarization	(Volts)	-0.118	-0.859	-0.592

Notes: Nov 1998 - Depolarized Potentials Measured in Oct/Nov 1996.
Depolarized Potentials Re-Measured in Nov 2000.
Depolarized Potentials Re-Measured in June 2016
New Rectifier installed June 2016

Grade level TS 18" from where Tank 600 yellow piping joins main above grade yellow piping 8" off yellow piping

Rectifier Sheet

HMI TECHNICAL SOLUTIONS, LLC		**CORROSION CONTROL SURVEY**	
INFRASTUCTURE ENGINEERING GROUP		SHEET NO. OF	
CORROSION CONTROL SERVICES			
COMPANY	TRADEBE - NORLITE, LLC	JOB NUMBER	
LOCATION	Cohoes, NY	METERS USE	FLUKE 87
TESTERS	M. Praisner	DATE	1/3/2019

RECTIFIER INFORMATION

RECTIFIER LOCATION:		RECTIFIER MFG.	MESA
MODEL NO.:	ES-2	SERIAL NO.:	160365
TYPE:	AIR COOLED	CYCLES:	60
PHASE:	1		
AC VOLTS:	115	DC VOLTS:	40
AC AMPS:	2.4	DC AMPS:	5

DC AS FOUND: (INTERNAL METERS)	(ON) VOLTS:	23	AMPS:	1.80
	(OFF) VOLTS:	4	AMPS:	0.00
	DELTA:	19		1.80
(PORTABLE METER)	(ON) VOLTS:	22.68	AMPS:	1.76
	(OFF) VOLTS:	3.38	AMPS:	0.00
	DELTA:	19.3		1.76
TIME:				
SHUNT: 1A/5mV	VOLTAGE ACROSS SHUNT:		8.8 mV	

DC FINAL: (INTERNAL METERS)	(ON) VOLTS:	26	AMPS:	2.1
	(OFF) VOLTS:	0	AMPS:	0
	DELTA:	0		2.1
(PORTABLE METER)	(ON) VOLTS:	25.4	AMPS:	2.08
	(OFF) VOLTS:	0	AMPS:	0
	DELTA:	25.4		2.08
TIME:				
SHUNT: 0.2A/1mV	VOLTAGE ACROSS SHUNT:		10.4 mV	

TAP SETTING AS FOUND	COARSE: 2/3	FINE:	3/6
TAP SETTING AS LEFT	COARSE: 2/3	FINE:	4/6

SKETCHES - CALCULATIONS - COMMENTS

Rectifier appears to operating normally and is in good condition. (Like New)

Fine setting increased from Fine 3/6 to Fine 4/6 after readings were taken, prior to leaving site.

Norlite, LLC

June 20, 2020

Memorandum of Information

To: File
From: Prince Knight
CC: David Maguffin

Re: Cathodic Protection Repair Plan

As part of the Norlite, LLC (Norlite) NYS 373 Hazardous Waste Permit renewal, Norlite has provided the most recent Cathodic Protection Annual survey (December 2019). The Cathodic protection of tanks 335-300, 400, 500 & 600 requires a monthly inspection along with a full annual survey.

The annual report has indicated that an inspection and possible repair of the anode material. Norlite is in the process of working with HMI Services to coordinate this work to commence during July 2020. Once the repairs are completed and an inspection report is made available, it will be forwarded to NYS DEC.

The Cathodic Protection system has continued the monthly inspections without interruption. Furthermore, daily containment inspections and weekly RCRA inspections are conducted to ensure no release from the tanks has occurred.

628 SARATOGA STREET
COHOES, NY 12047
518-235-0401

APPENDIX 11.

Level Sensors

Specification sheet

VEGAPULS 64

4 … 20 mA/HART - two-wire

Radar sensor for continuous level measurement of liquids

Application area

VEGAPULS 64 is a radar sensor for continuous level measurement of liquids.

The small process fittings offer particular advantages in small tanks or tight mounting spaces. The very good signal focusing ensures the use in vessels with many installations such as stirrers and heating spirals.

Your benefit

- Maintenance-free operation thanks to non-contact measuring principle
- High plant availability, because wear and maintenance free
- Exact measuring results independent of process conditions

Function

The sensor emits a continuous radar signal through the antenna. The emitted signal is reflected by the medium and received as an echo by the antenna.

The frequency difference between the emitted and received signal is proportional to the distance and depends on the filling height. The determined filling height is converted into a respective output signal and outputted as measured value.

Technical data

Measuring range up to	30 m (98.43 ft)
Deviation	≤ 1 mm
Process fitting	Thread from G¾, ¾NPT, flanges from DN 50, 2", mounting strap, adapter flanges from DN 100, 4"
Process pressure	-1 … 25 bar (-100 … 2500 kPa/-14.5 … 362.6 psig)
Process temperature	-196 … +200 °C (-321 … +392 °F)
Ambient, storage and transport temperature	-40 … +80 °C (-40 … +176 °F)
Operating voltage	12 … 35 V DC

Materials

The wetted parts of the instrument are made of 316L, PP, PTFE or PEEK. The process seal is made of FKM, FFKM, EPDM or PTFE.

You will find a complete overview of the available materials and seals in the "*Configurator*" at www.vega.com and "*VEGA Tools*".

Housing versions

The housings are available as single chamber or double chamber version in plastic, stainless steel or aluminium.

They are available with protection ratings up to IP 68 (1 bar).

Electronics versions

The instrument is available with electronics 4 … 20 mA/HART as well as HART and power pack.

Approvals

Approvals are planned for the instrument for use in hazardous areas as well as in the ship and food processing industry.

You can find detailed information of the approvals for all instruments at www.vega.com/downloads and "*Approvals*".

Adjustment

Adjustment on the measurement loop

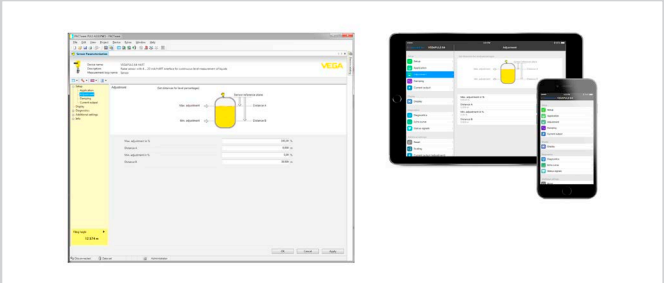
The adjustment of the instrument is carried out via the optional display and adjustment module PLICSCOM or via a PC with the adjustment software PACTware and corresponding DTM.

Wireless adjustment via Bluetooth

The Bluetooth version of display and adjustment module enables a wireless connection to standard adjustment units. This can be smartphones/tablets with iOS or Android operating system or PCs with PACTware and Bluetooth USB adapter.

Wireless connection to standard operating devices

Adjustment is hence carried out via a free-of-charge app from the Apple App Store or the Google Play Store or the adjustment software PACTware and respective DTM.

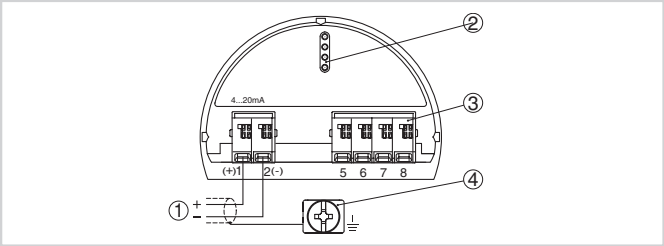


Adjustment via PACTware or app

Adjustment via remote systems

Further adjustment options are possible via a HART Communicator as well as manufacturer-specific programs such as AMS™ or PDM.

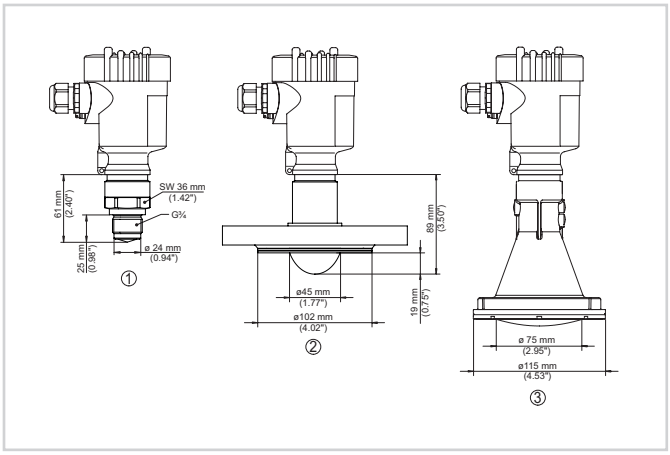
Electrical connection



Electronics and terminal compartment, single chamber housing

1 *Voltage supply/Signal output*
2 *For display and adjustment module or interface adapter*
3 *For external display and adjustment unit*
4 *Ground terminal for connection of the cable screen*

Dimensions



Dimensions VEGAPULS 64

1 *Version thread with integrated horn antenna*
2 *Version flange with encapsulated antenna system*
3 *Version, plastic horn antenna*

Information

You can find further information about the VEGA product line on www.vega.com.

In the download section at www.vega.com/downloads you'll find operating instructions, product information, brochures, approval documents, instrument drawings and much, much more.

There, you will also find GSD and EDD files for Profibus PA systems as well as DD and CFF files for Foundation Fieldbus systems.

Instrument selection

Under "*Specify product*" on www.vega.com and "*Products*" you can select the suitable measuring principle and instrument for your application.

You can find detailed information on the instrument versions in the "*Configurator*" at www.vega.com and "*Products*".

Contact

You can find your personal contact person at VEGA on our homepage www.vega.com and "*Contact*".

AMETEK®

DREXELBROOK®

TECHNICAL DATA SHEET

DR7500

80 GHz Radar (FMCW) Level Transmitter for liquids in narrow tanks with internal obstructions

- Large measuring range from the antenna up to 100 m / 328 ft
- Small beam angle due to 80 GHz and process connections starting from ¾¨ thread
- PEEK Lens antenna insensitive to deposits

“Full TBF” mode

TBF = Tank Bottom Following. If the dielectric constant of the liquid is very low (ε_r <1.4), you must use "TBF Full" mode to measure level correctly. The device uses the radar reflection on the bottom of the tank (the signal goes through the liquid). This mode can be used only in tanks with flat bottoms or in stilling wells with a reference plate at the bottom.

2.1 Technical data

- *The following data is provided for general applications. If you require data that is more relevant to your specific application, please contact us or your local sales office.*
- *Additional information (certificates, special tools, software,...) and complete product documentation can be downloaded free of charge from the website (drexelbrook.com).*

Measuring system

Measuring principle	2-wire loop-powered level transmitter; FMCW radar
Frequency range	W-band (78...82 GHz)
Max. radiated power (EIRP)	< -41.3 dBm according to ETSI EN 307 372 (TLPR) and ETSI EN 302 729 (LPR)
Application range	Level measurement of powders and granulates
Primary measured value	Distance and reflection
Secondary measured value	Level, volume and mass

Design

Construction	The measurement system consists of a measuring sensor (antenna) and a signal converter
Options	Integrated LCD display (-20..+70°C / -4…+158°F); if the ambient temperature is not in these limits, then this condition can stop the display
	Distance piece (for process temperature: +150...+200°C / +302...+392°F)
	Weather protection
Max. measuring range	Lens, DN20 (¾"): 10 m / 32.8 ft
	Lens, DN25 (1"): 25 m / 82 ft
	Lens, DN40 (1½"): 50 m / 164 ft
	Lens, DN70 (2¾"): 100 m / 328.1 ft
	Refer also to “Measuring accuracy” on page 17
Min. tank height	.2 m / 12"
Recommended minimum blocking distance	0.1 m / 4" (add 112 mm / 4.4" if the DN40 Lens antenna has antenna extension)
Beam angle (antenna)	Lens, DN20 (¾"): 15°
	Lens, DN25 (1"): 10°
	Lens, DN40 (1½"): 8°
	Lens, DN70 (2¾"): 4°
Display and user interface	
Display	Backlit LCD display
	128 × 64 pixels in 64-step greyscale with 4-button keypad
Interface languages	English, French, German, Italian, Spanish, Portuguese, Chinese (simplified), Japanese, Russian, Czech, Polish and Turkish

Measuring accuracy

Resolution	1 mm / 0.04¨
Repeatability	±1 mm / ±0.04¨
Accuracy	Standard: ±2 mm / ±0.8¨, when distance ≤ 10 m / 33 ft; ±0.02% of measured distance, when distance > 10 m / 33 ft. For more data, refer to *Measuring accuracy on page 17.*
Digital temperature drift	Max. ±10 mm / ±0.39¨ for the full temperature range
Reference conditions acc. to EN 61298-1	
Temperature	+15...+25°C / +59...+77°F
Pressure	1013 mbara ±50 mbar / 14.69 psia ±0.73 psi
Relative air humidity	60% ±15%
Target	Metal plate in an anechoic chamber. The device has specified settings.

Operating conditions

Temperature	
Ambient temperature	-40…+80°C / -40…+176°F
	Ex: see supplementary operating instructions or approval certificates
Relative humidity	0...99%
Storage temperature	-40…+85°C / -40…+185°F
Process connection temperature (higher temperature on request)	-50…+150°C / -58…+302°F The process connection temperature must agree with the temperature limits of the gasket material. Refer to “Materials” in this table.) Ex: see supplementary operating instructions or approval certificates
Pressure	
Process pressure	-1…40 barg / -14.5…580 psig Subject to the process connection used and the process connection temperature.
Other conditions	
Dielectric constant (ε_r)	Direct mode: ≥1.4 TBF mode: ≥1.1
Ingress protection	IEC 60529: IP66 / IP68 (0.1 barg / 1.45 psig)
	NEMA 250: NEMA type 6 - 6P (housing) and type 6P (antenna)
Maximum rate of change	60 m/min / 196 ft/min

Installation conditions

Process connection size	The nominal diameter (DN) should be equal to or larger than the antenna diameter.
Process connection position	Make sure that there are not any obstructions directly below the process connection for the device. For more data, refer to *Installation* on page 30.
Dimensions and weights	For dimensions and weights data, refer to Dimensions and weights on page 24.

Materials

Housing	Standard: Polyester-coated aluminium
	Option: Stainless steel (1.4404 / 316L) – non-Ex devices only. Ex approvals will be available in the second quarter of 2018.
Wetted parts, including antenna	PEEK – this material complies with FDA regulations
Process connection	Stainless steel (1.4404 / 316L)
Cable gland	Standard: none
	Options: Plastic (Non-Ex: black, Ex i-approved: blue); nickel-plated brass; stainless steel; M12 (4-pin connector)
Weather protection (Option)	Stainless steel (1.4404 / 316L)

Process connections

DN20 (¾") Lens antenna	
Thread	G ¾ A (ISO 228); ¾ NPT (ASME B1.20.1)
Flange, EN 1092-1	Low-pressure flanges: DN50...200 in PN01; Standard flanges: DN50 in PN40; DN80...200 in PN10, PN16 and PN40 (Type B1); others on request Optional flange facing for standard flanges: Type A
Flange, ASME B16.5	Low-pressure flanges: 2"...8" in 150 lb (max. 15 psig); Standard flanges: 2"…8" in 150 lb RF and 300 lb RF; others on request Optional flange facing for standard flanges: FF (Flat Face)
JIS B2220	40…200A in 10K RF; others on request
DN25 (1") Lens antenna	
Thread	G1 A (ISO 228); 1 NPT (ASME B1.20.1)
Flange, EN 1092-1	Low-pressure flanges: DN50...200 in PN01; Standard flanges: DN50 in PN40; DN80...200 in PN10, PN16 and PN40 (Type B1); others on request Optional flange facing for standard flanges: Type A
Flange, ASME B16.5	Low-pressure flanges: 3"...8" in 150 lb (max. 15 psig); Standard flanges: 2"…8" in 150 lb RF and 300 lb RF; others on request Optional flange facing for standard flanges: FF (Flat Face)
JIS B2220	40…200A in 10K RF; others on request
DN40 (1½") Lens antenna	
Thread	G1½ A (ISO 228); 1½ NPT (ASME B1.20.1)
Flange, EN 1092-1	Low-pressure flanges: DN50...200 in PN01; Standard flanges: DN50 in PN40; DN80...200 in PN10, PN16 and PN40 (Type B1); others on request Optional flange facing for standard flanges: Type A
Flange, ASME B16.5	Low-pressure flanges: 2"...8" in 150 lb (max. 15 psig); Standard flanges: 2"…8" in 150 lb RF and 300 lb RF; others on request Optional flange facing for standard flanges: FF (Flat Face)
JIS B2220	40…200A in 10K RF; others on request
DN70 (2¾") Lens antenna	
Thread	G3 A (ISO 228); 3 NPT (ASME B1.20.1)
Flange, EN 1092-1	Low-pressure flanges: DN50...200 in PN01; Standard flanges: DN50 in PN40; DN80...200 in PN10, PN16 and PN40 (Type B1); others on request Optional flange facing for standard flanges: Type A
Flange, ASME B16.5	Low-pressure flanges: 2"...8" in 150 lb (max. 15 psig); Standard flanges: 2"…8" in 150 lb RF and 300 lb RF; others on request Optional flange facing for standard flanges: FF (Flat Face)
JIS B2220	40…200A in 10K RF; others on request

Electrical connections

Power supply	**Terminals output – Non-Ex / Ex i:** 12…30 VDC; min./max. value for an output of 21.5 mA at the terminals
	Terminals output – Ex d: 16…36 VDC; min./max. value for an output of 21.5 mA at the terminals
Maximum current	21.5 mA
Current output load	**Non-Ex / Ex i:** RL [Ω] ≤ ((Uext -12 V)/21.5 mA). For more data, refer to *Minimum power supply voltage on page 15*.
	Ex d: RL [Ω] ≤ ((Uext -16 V)/21.5 mA). For more data, refer to Minimum power supply voltage on page 15.
Cable entry	Standard: M20×1.5; Option: ½ NPT
Cable gland	Standard: none
	Options: M20×1.5 (cable diameter: 7…12 mm / 0.28…0.47"); others are available on request
Cable entry capacity (terminal)	0.5…3.31 mm² (AWG 20...12)

Input and output

Current output	
Output signal	Standard: 4…20 mA
	Options: 3.8…20.5 mA acc. to NAMUR NE 43; 4…20 mA (reversed); 3.8…20.5 mA (reversed) acc. to NAMUR NE 43
Output type	Passive
Resolution	±5 µA
Temperature drift	Typically 50 ppm/K
Error signal	High: 21.5 mA; Low: 3.5 mA acc. to NAMUR NE 43
HART®	
Description	Digital signal transmitted with the current output signal (HART® protocol) ①
Version	7.4
Load	≥ 250 Ω
Digital temperature drift	Max. ±15 mm / 0.6" for the full temperature range
Multi-drop operation	Yes. Current output = 4 mA. Enter Program mode to change the polling address (1...63).

Approvals and certification

CE	The device meets the essential requirements of the EU Directives. The manu–facturer certifies successful testing of the product by applying the CE marking.
	For more data about the EU Directives and European Standards related to this device, refer to the EU Declaration of Conformity. This documentation can be downloaded free of charge from the website.
Vibration resistance	EN 60068-2-6 and EN 60721-3-4 (1...9 Hz: 3 mm / 10...200 Hz:1g, 10g shock ½ sinus: 11 ms)
Explosion protection	
ATEX (EU Type Approval)	II 1/2 G Ex ia IIC T6...T3 Ga/Gb;
	II 1/2 D Ex ia IIIC T85°C...T*°C Da/Db; ②
	II 1/2 G Ex db ia IIC T6...T3 Ga/Gb;
	II 1/2 D Ex ia tb IIIC T85°C...T*°C Da/Db ②
ATEX (Type Approval)	II 3 G Ex nA IIC T6...T3 Gc;
	II 3 G Ex ic IIC T6...T3 Gc;
	II 3 D Ex ic IIIC T85°C...T*°C Dc ②
IECEx	Ex ia IIC T6...T3 Ga/Gb;
	Ex ia IIIC T85°C...T*°C Da/Db; ②
	Ex db ia IIC T6...T3 Ga/Gb;
	Ex ia tb IIIC T85°C...T*°C Da/Db; ②
	Ex ic IIC T6...T3 Gc;
	Ex ic IIIC T85°C...T*°C Gc ②
cQPSus	**Division ratings**
	XP-IS, Class I, Div 1, GPS ABCD, T6...T3
	DIP, Class II, III, Div 1, GPS EFG, T85°C...T*°C ②
	IS, Class I, Div 1, GPS ABCD, T6...T3;
	IS, Class II, III, Div 1, GPS EFG, T85°C...T*°C; ②
	NI, Class I, Div 2, GPS ABCD, T6...T3
	NI, Class II, III, Div 2, GPS EFG, T85°C...T*°C ②
	Zone ratings
	Class I, Zone 1, AEx db ia [ia Ga] IIC T6...T3 Gb (US) – antenna suitable for Zone 0 Ex db ia [Ex ia Ga] IIC T6...T3 Gb (Canada) – antenna suitable for Zone 0
	Class I, Zone 0, AEx ia IIC T6...T3 Ga (US); Ex ia IIC T6...T3 Ga (Canada);
	Class I, Zone 2, AEx nA IIC T6...T3 Gc (US); Ex nA IIC T6...T3 Gc (Canada);
	Zone 20, AEx ia IIIC T85°C...T*°C Da (US); Ex ia IIIC T85°C...T*°C Da (Canada); ②
	Zone 21, AEx ia tb [ia Da] IIIC T85°C...T*°C Db (US) – antenna suitable for zone 20 Ex ia tb [Ex ia Da] IIIC T85°C...T*°C Db (Canada) – antenna suitable for zone 20 ②

Other standards and approvals	
Electromagnetic compatibility	**EU:** Electromagnetic Compatibility directive (EMC)
Radio approvals	**EU:** Radio Equipment directive (RED)
	FCC Rules: Part 15
	Industry Canada: RSS-211
Electrical safety	**EU:** Complies with the safety part of the Low Voltage directive (LVD)
	USA and Canada: Complies with NEC and CEC requirements for installation in ordinary locations
NAMUR	NAMUR NE 21 Electromagnetic Compatibility (EMC) of Industrial Process and Laboratory Control Equipment
	NAMUR NE 43 Standardization of the Signal Level for the Failure Information of Digital Transmitters
	NAMUR NE 53 Software and Hardware of Field Devices and Signal Processing Devices with Digital Electronics
	NAMUR NE 107 Self-Monitoring and Diagnosis of Field Devices
CRN	This certification is applicable for all Canadian provinces and territories. For more data, refer to the website.
Construction code	Option: NACE MR 0175 / MR 0103 / ISO 15156

① HART® is a registered trademark of the HART Communication Foundation

② T*°C = 150°C or 200°C. For more data, refer to the related Ex approval certificate.

Technical
Information
TI 215F/00/en

Operating Instructions
015081-1008

Ultrasonic Level Measurement
Sensors DU 40 C, DU 41 C

Continuous, non-contact level measurement in tanks and silos containing liquids and bulk solids

DU 40 C

DU 41 C

Application
The DU 40 C and DU 41 C ultrasonic sensors are used for continuous, non-contact measurement.

- DU 40 C:
  for liquid tanks up to 10 m (30 ft),
  for bulk solids silos up to 5 m (15 ft)
- DU 41 C:
  for liquid tanks up to 20 m (60 ft),
  for bulk solids silos up to 10 m (30 ft)

Examples:
Corrosive liquids such as acids and alkalis.
Coarse and lumpy bulk solids such as grain, coal, ore, rubble and gravel.

Features and Benefits
- Sensor housing and flange in polypropylene – especially resistant to corrosive vapours.
- Unaffected by condensation due to automatic resonance frequency control.

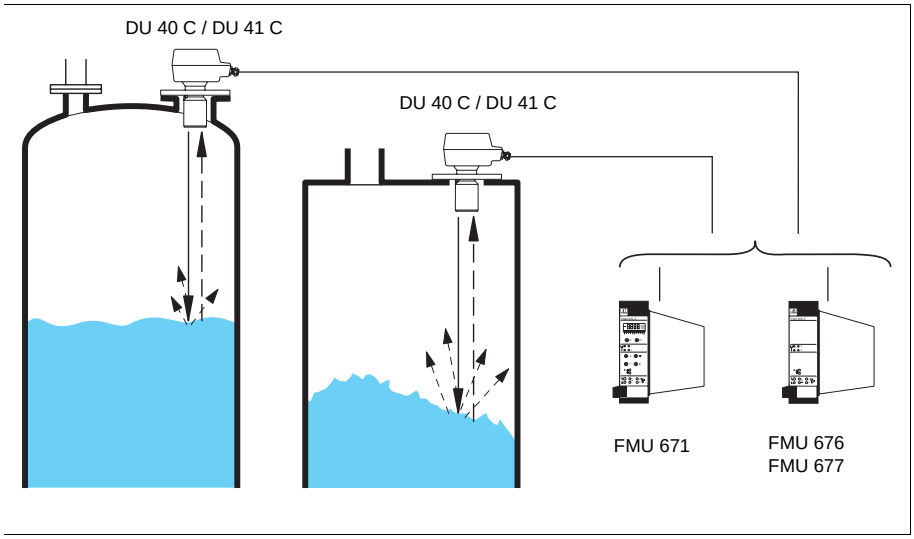
Endress+Hauser
Nothing beats know-how

Measuring System

Components of the measuring system:
- Nivosonic FMU 671, FMU 676 or FMU 677 transmitter mounted in the control room

and
- DU 40 C or DU 41 C ultrasonic sensor mounted on the tank or silo

A temperature probe is integrated into the sensor in order to compensate for variations in the run time of the ultrasonic pulses caused by temperature fluctuations.

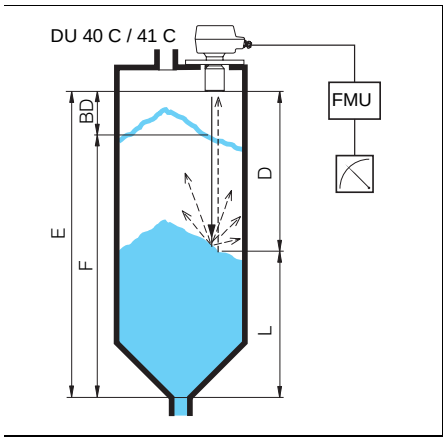


Measuring system for continuous, non-contact level measurement using ultrasonic waves in tanks and silos

Operating Principle

The emitter in the sensor is excited electrically and sends an ultrasonic pulse in the direction of the surface of the product which partially reflects the pulse. This echo is detected by the same sensor, now acting as a directional microphone, and then converted back into an electrical signal. The time between transmission and reception of the pulse (the sonic run time) is directly proportional to the distance between the sensor and the product surface. This distance D is determined by the velocity of sound c and the run time t using the formula:

$$D = \frac{c \cdot t}{2}$$



Measuring system and function
BD=blocking distance (maximum level)
D = distance from sensor to surface of material
L = level in tank or silo
F = maximum level (100%, Full)
E = zero point of measurement (0%, Empty)

Measuring Range
The measuring range is limited by the attenuation of the sonic pulse in air and the interference characteristics of the surface of the material.

Measurement Conditions
Ultrasonic measurement ultimately depends upon an echo signal being received from the surface of the material.

- Liquids
  The sensor must be vertically aligned directly above the surface of the material.
  The surface must not be covered by a thick layer of foam.

- Bulk Solids
  A sufficiently large number of scattered echoes coming from the surface of the product will be received by the sensor if the surface coarseness of the filling mound is larger than 4 mm (diffuse reflection). With fine-grained or powdery solids, e.g. quartz, sand, cement, plastic powder, raw meal, etc., correct functioning of the sensor depends on the profile of the surface (mirror reflection).

Blocking Distance
Due to the decay characteristic of the sensor, there is an area immediately below it in which no pulses can be received. This blocking distance BD is the minimum distance between the sensor and the maximum product level in the tank or silo.
For the DU 40 C sensor, this blocking distance is approx. 0.5 m (1.6 ft); for the DU 41 C approx. 0.8 m (2.6 ft).

Project Planning

Maximum Possible Range

The measurement range depends upon the following factors:

- the strength of the signal coming from the surface of the material (scattered echoes)
- attenuation of the signal in the area between the sensor and material
- background echoes due to e.g. the filling process
- interference echoes coming from internal structures within the tank or silo

The first three factors are dependent upon the conditions of the application. Interference echoes can be reduced by following the recommendations given in this brochure.

Conditions are favourable when:

- the lower edge of the sensor protrudes into the tank or silo
- the area of detection does not include any internal structures or the filling curtain
- the surface of the liquid is calm and not covered with a layer of foam
- little vapour is present in the tank
- the bulk solid is hard and coarse-grained
- no dust is present in the silo
- the temperature difference in the tank or silo is small

To calculate the range of the ultrasonic sensor for your particular application:

- Refer to the table to identify which factors affect the measurement.
- Add together the corresponding attenuation values (dB).

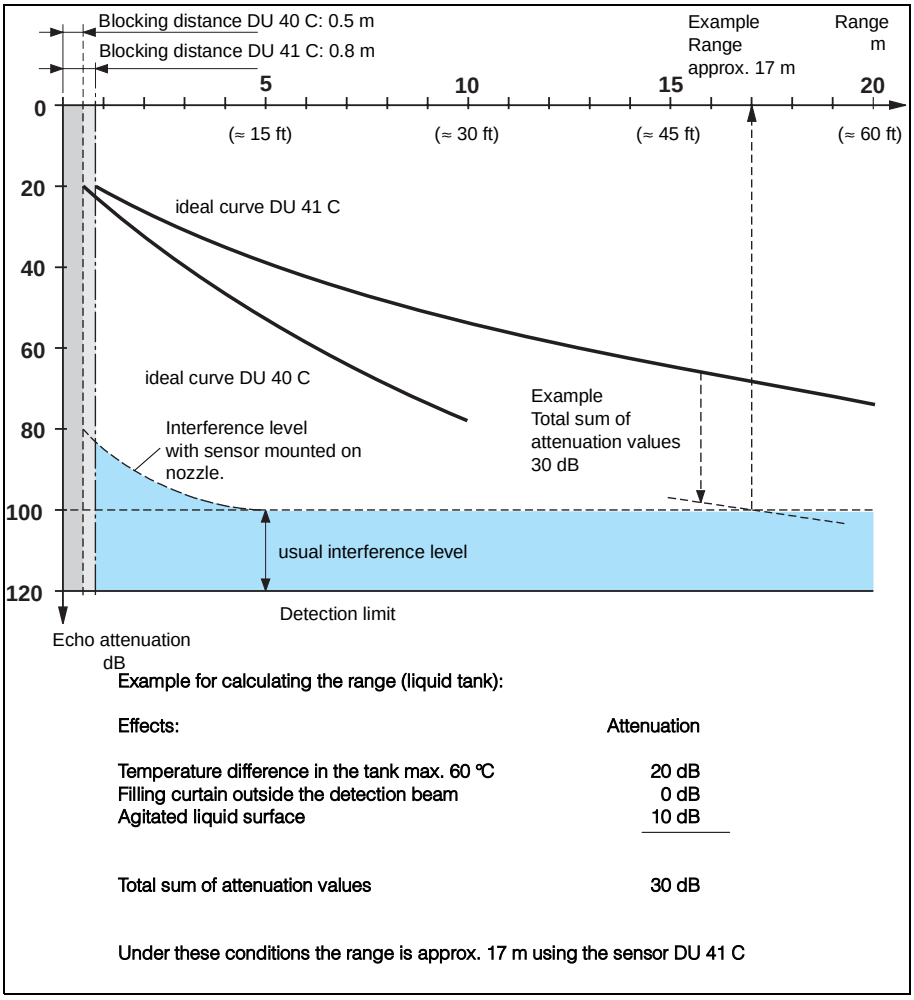
The diagram shows the ideal echo attenuation curves for the sensors DU 40 C and DU 41 C.

- Move the curve downwards until it corresponds to the sum of the attenuation values.
- Subtract the value of background noise expected from the detection limit of 120 dB. The background noise, caused by filling or discharging and interference reflections coming from the silo walls, is usually approx. 20 dB.
- The maximum range is that point where the curve crosses the interference level. See example.

Is the calculated range sufficient for your specific application?

Effects		Attenuation (dB)
Temperature layering:		
Difference in air temperature between sensor and product surface	up to 20 °C	0
	up to 40 °C	5...10
	up to 60 °C	10...20
Filling curtain:		
outside the detection beam		0
Small amounts in the detection beam		5...10
Large amounts in the detection beam		10...20
Liquid surface:		
Calm		0
Agitated		5...10
Very agitated (e.g. agitator vessels)		10...20
Foam:		
Please contact Endress+Hauser		
Solids surface:		
Coarse, hard		20
Coarse, soft e.g. peat, dust-coated clinker		20...40
Dust:		
None		0
Light		5
Heavy		5...10

Attenuation in dB with interference in a tank or silo.



Right:
Echo attenuation as a function of the range, with an example for calculating the range

In a nozzle, the sensor generates an interference signal which decreases with increasing path

Example for calculating the range (liquid tank):

Effects:	Attenuation
Temperature difference in the tank max. 60 °C	20 dB
Filling curtain outside the detection beam	0 dB
Agitated liquid surface	10 dB
Total sum of attenuation values	30 dB

Under these conditions the range is approx. 17 m using the sensor DU 41 C

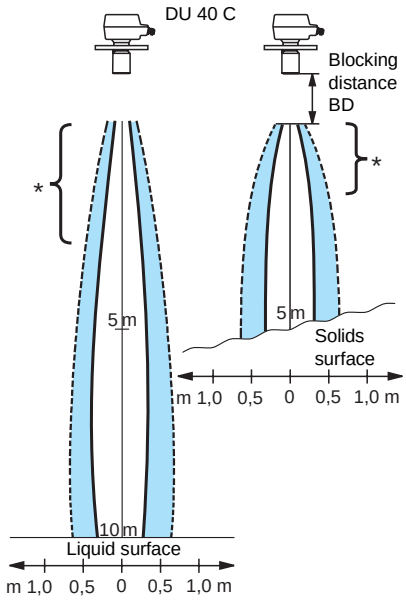
Detection Limits and Interference Signals

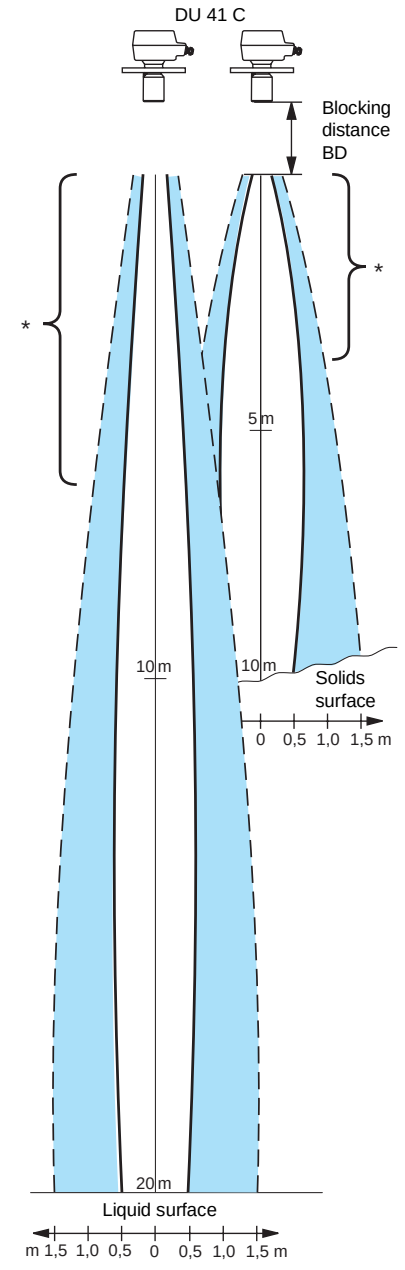
If internal fixtures are present in the tank or silo, then careful alignment of the sensor is critical in order to keep the interference echoes as low as possible. The ultrasonic pulse should travel unimpeded to the surface of the material. The signal leaves the sensor as a narrow beam which widens as the distance increases. Every object within this beam gives rise to an echo which is then received by the sensor.

- Edges, internal fixtures, etc. within the sound cone are of greatest importance in the first third of the range as the energy of the beam is highly concentrated and, due to the short distance, the interference echoes are only weakly attenuated. Small surfaces can therefore produce strong interference echoes.
- The energy in the last third of the range is distributed over a larger area so that internal structures and edges are not as critical.
- Objects in the middle of the beam (continuous line in the diagram) produce strong echoes.
- Echoes from the edge (dashed lines) are important only when a weak working signal is received from the surface of the material.

Accuracy

- The effect of pressure variations is less than 0.1% (in air or nitrogen).
- A constant temperature and sound velocity within the measuring path enable a high degree of accuracy to be achieved; error limits less than 1%. The effects of large temperature variations within the measuring path and changing gas mixtures must be calculated and the Nivosonic programmed accordingly.
  A nitrogen atmosphere increases the sound velocity by +1% only.
  With liquids having a high partial pressure, the gas composition must be determined to see if it remains constant.
- The resolution is 1.7 cm at a sound velocity of 340 m/s.

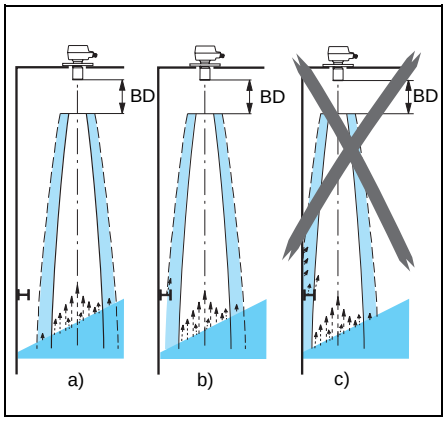




* Interference echoes should in particular be avoided in this region

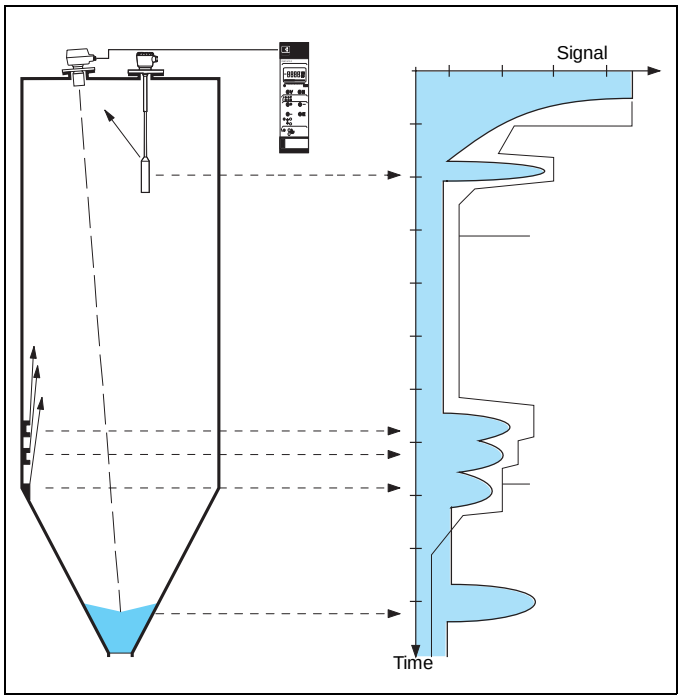
Right:
Detection zone is dependent on the range
(lines of equal attenuation)

1 m ≈ 3 ft



Left:
Avoid interference echoes from internal structures and rough silo walls!

a) Ideal mounting, no interference echo
b) Non-critical mounting, weak interference echo only
c) Incorrect mounting, strong interference echo from internal structures and uneven wall (e.g. welding seams)



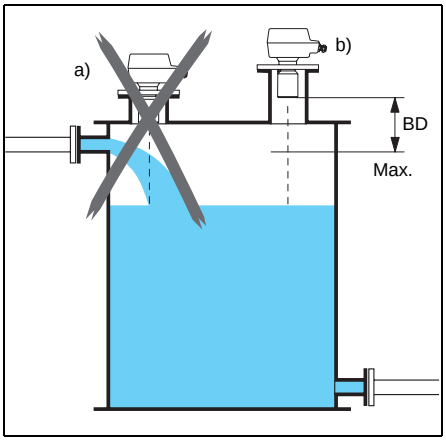
Suppression of interference echoes from internal fixtures:

- Decay curve of the sensor
- Time dependent threshold which an echo signal must overstep in order to be detected by the evaluating unit.
- Interference echoes
- Interference echo suppression (with characteristic detection threshold)
- Working signal from the material surface

Interference Suppression

Interference echoes coming from internal fixtures can be suppressed with the Nivosonic FMU 671...677 using "fixed target suppression".
This enables the detection level to be automatically adjusted to the interference profile so that these signals are no longer included and used for further signal processing.
Please note that adjusting the detection level to the interference profile shortens the measuring range.
With weak working signals (e.g. in cement silos), the interference level should be kept as low as possible by mounting and aligning the sensor correctly.

Mounting



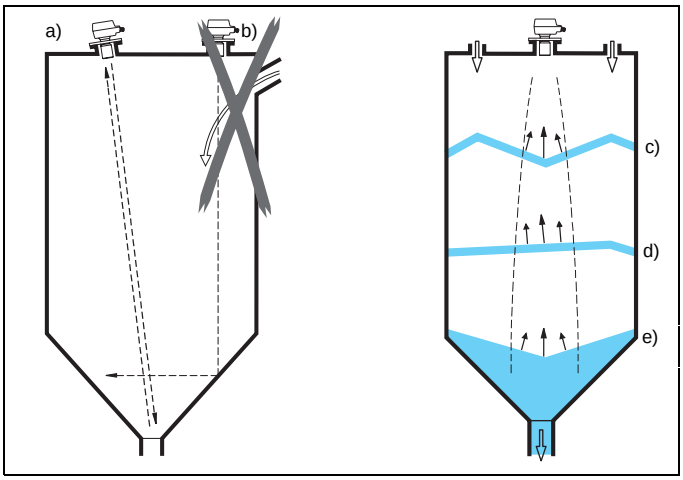
a) Do not measure through the filling curtain
b) Distance BD (blocking distance) to maximum level must be upheld. See diagram on the next page for the height and shape of the nozzle.

Mounting on a Tank

- Align the sensor ensuring that it is perpendicular to the surface of the liquid.
- Avoid measurement through the filling curtain.
- The sensor should be mounted so that the blocking distance is not overstepped even when the tank overfills.
- Note the sizes recommended for nozzles.

Mounting on a Silo

- Align the sensor with the centre of the outlet cone so that an echo is reflected even when the silo is empty.
- Avoid measurements through the filling stream.
- No diffuse reflections are produced from the smooth surfaces of very fine-grained or dusty bulk solids. The wave is reflected back in a similar way to light (angle of incidence = angle of reflection) so that selecting the installation point is critical for carrying out measurement.
  Please refer to the diagram, below right.

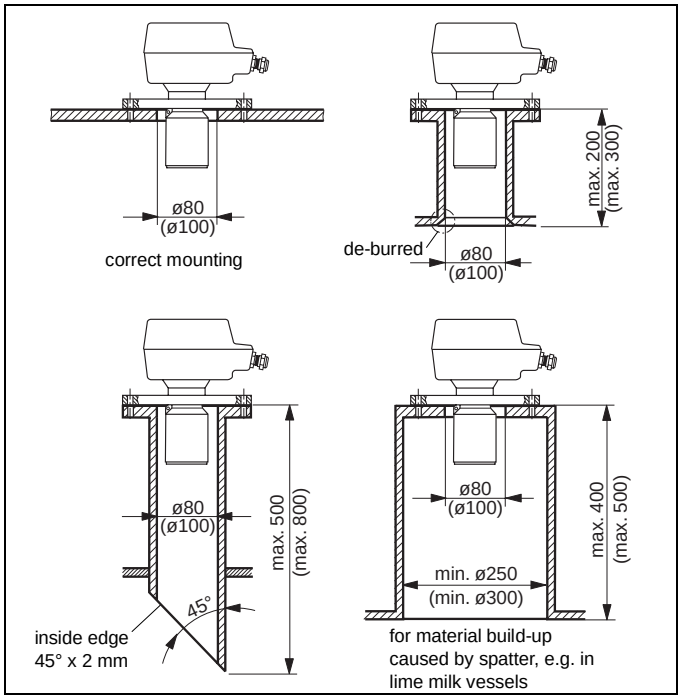


Left:
a) Correct mounting: As far as possible from the silo wall and material inlet. The centre of the outlet cone also produces an echo which is received by the sensor even when the silo is empty.
b) Incorrect mounting
1. Detection through the filling curtain
2. The echo is reflected to the side when the silo is empty and receives no signal

Right:
Installation point with powdery bulk solids.
c) A trough between mounds produces a strong echo in the direction of the sensor.
d) Shallow slopes up to 5° still reflect enough of the signal in the direction of the sensor.
e) The centre of the outlet cone produces a sufficiently strong echo in the direction of the sensor.

Mounting Recommendations

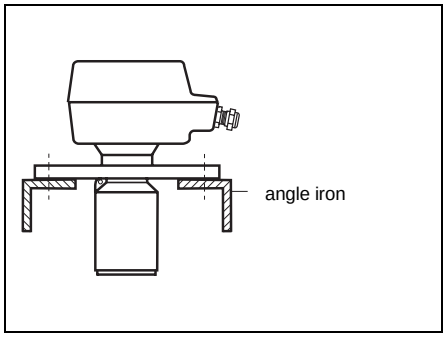
- Select the installation point so that the lower edge of the sensor is below the roof of the tank or silo.



Mounting example for *closed* tanks or silos.

Figures without brackets refer to DU 40 C, Figures in brackets ( ) refer to DU 41 C. These apply to the smallest flange in each case

Dimensions in mm
100 mm = 3.94 in
1 in = 25.4 mm



Mounting example for *open* tanks or silos

This is possible when the blocking distance is not overstepped at the maximum level, i.e. when the tank or silo is full and there is still a gap of at least 50 cm (1.6 ft) with DU 40 C or 80 cm (2.6 ft) with DU 41 C between the maximum level and the sensor flange.

- If the level in the tank or silo encroaches in the blocking distance, then the sensor can be mounted on a nozzle.

Note:

- There should be no condensate and no material build-up in the nozzle.
- The nozzle should have the largest possible diameter.
- The inner surface should be as smooth as possible (no edges or welded seams).
- Insulate the nozzle when mounting in the open to prevent condensate forming in it.

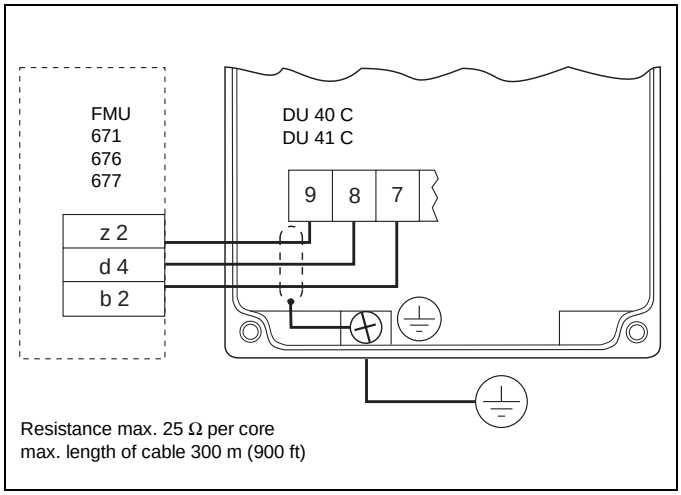
- When mounting in the open, protect the sensor by using an all-weather cover (accessory).
  This prevents build-up of condensation in the housing which is caused by wide temperature variations. It also increases the measuring accuracy of the temperature probe inside the sensor by protecting it from direct sunlight.
- Cylindrical tanks and silos:
  Avoid mounting the sensor in the centre of the roof as interference echoes and multiple echoes will arrive simultaneously. This is especially important with curved domes.
- The sensor can also be attached to two angle irons for mounting over an open silo.

Mounting

Always use a gasket designed for the application when mounting flanged units to a vessel under pressure.

Tighten the screws on opposite sides first. The minimum torque for tightness is 40 Nm at an operating pressure of 1 bar. The maximum torque is 70 Nm.

Electrical Connection



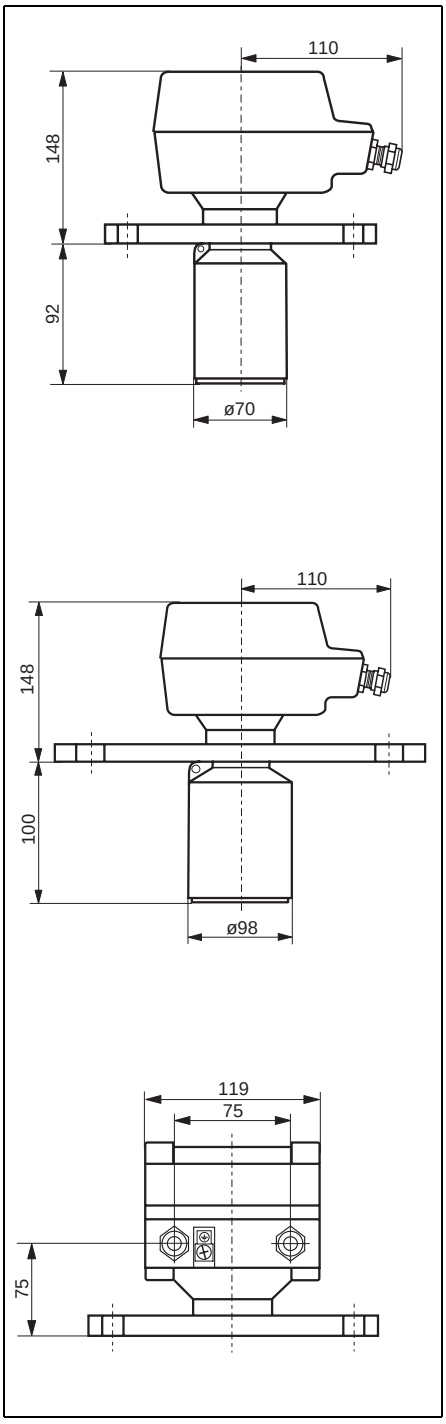
To Prevent Interference

The following measures are recommended to prevent interference e.g. caused by electrical or magnetic fields in the path of the cabling or by RFI near to the sensor:

- Use screened cabling.
- Connect screening to the inner ground terminal of the DU 40 C/DU 41 C sensor; not to the Nivosonic.
- Connect the ground or potential compensation cable to the outer ground terminal of the sensor.

These measures ensure that the sensors correspond to industrial (NAMUR) and European EMC Standards EN 50081-1 for interference emission and EN 50082-1 for interference immunitiy. For general information on EMC (test methods, installation hints) see TI 241F/00/e.

Technical Data



Dimensions
100 mm = 3.94 in
1 in = 25.4 mm

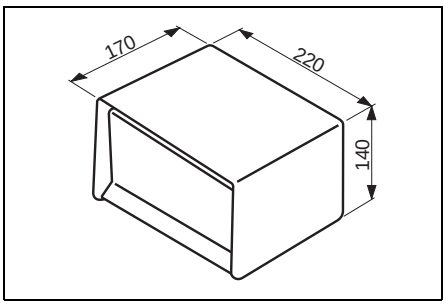
Above:
DU 40 C

Centre:
DU 41 C

Below:
Front view
of housing

Refer to text on right and product structure on the next page for flange standards and sizes

Accessories
All-weather housing
Material: PVC, light grey
Weight: 0.9 kg
Ambient temperature:
–20°C…+80°C (0…180°F)
Order Number: 918624-0000



Protective cover

Versions
- DU 40 C
  Measuring range:
  max. 10 m (30 ft) for liquids,
  max. 5 m (15 ft) for bulk solids
  Flange: from DN 80 or 4" upwards
- DU 41 C
  Measuring range:
  max. 20 m (60 ft) for liquids,
  max. 10 m (30 ft) for bulk solids
  Flange: from DN 100 or 4" upwards

Operating Data
- Operating pressure p_e:
  –0.5 bar…+1 bar (–7…+15 psi)
- Operating temperature
  (air temperature) in tank or silo:
  –20°C…+80°C (0 ... 180°F)
  Further information available for higher temperatures on request
- Ambient temperature for housing:
  Nominal operating range 0…+60°C (0…140°F)
  Operating limits –20°C…+60°C.
- Air humidity in tank: 100% (0…+80°C)
- Ultrasonic run time compensation:
  integrated silicon temperature sensor behind sensor diaphragm
- Operating frequency DU 40 C:
  approx. 43 kHz
- Operating frequency DU 41 C:
  approx. 29 kHz
- Pulse frequency DU 40 C: ≈ 6 Hz
- Pulse frequency DU 41 C: ≈ 1.5 Hz
- Blocking distance DU 40 C:
  approx. 0.5 m (1.6 ft)
- Blocking distance DU 41 C:
  approx. 0.8 m (2.6 ft)

Materials
- Housing: aluminium (AlSi 12),
  with polyurethane or epoxy resin finish
- Flange: polypropylene
- Sensor: PP/glass fibre

Flange Standards and Sizes:
- DIN: DN 80 to DN 200, PN 16
  to DIN 2501, Sheet 1
- ANSI: 4" to 8", 150 psi
  to ANSI B 16.5
- JIS: 10 K 100 or 150
  to JIS B 2210, Table 3-1 ("thick")

Flange thickness differs slightly to the standard.

Electromagnetic Compatibility
Interference emission to EN 50081-1
Interference immunity to EN 50082-1

Transmitters
- Nivosonic FMU 671
  7 HP wide Racksyst plug-in board with adjustment elements for on-site dialogue
- Nivosonic FMU 676
  Like the FMU 671, configuration via handheld terminal
- Multipoint FMU 677
  7 HP wide Racksyst plug-in board for the Multipoint echo level system behind a common front panel.

Product Structure

Ultrasonic Sensor DU 40 C

		Weight
Certificates, Approvals		
R	Standard (non-certified)	
Process Connection (Max. Operating Pressure p_e = 1 bar)		
A	Flange DN 80 PN 16, PP	2.5 kg
B	Flange DN 100 PN 16, PP	2.6 kg
C	Flange ANSI 4" 150 psi, PP	2.7 kg
D	Flange JIS 10K 100, PP	2.6 kg
Material Exposed to Product		
1	Sensor module, PP	
Housing		
A	Aluminium lacquered, IP 65	
B	Aluminium coated, IP 65	
Y	Others on request	

1 kg = 2.2 lbs

DU 40 C [ ][ ][ ][ ][ ] Complete Order Code

Ultrasonic Sensor DU 41 C

		Weight
Certificates, Approvals		
R	Standard (non-certified)	
Process Connection (Max. Operating Pressure p_e = 1 bar)		
A	Flange DN 100 PN 16, PP	3.3 kg
B	Flange DN 150 PN 16, PP	3.8 kg
C	Flange DN 200 PN 16, PP	4.5 kg
D	Flange ANSI 4 " 150 psi, PP	3.3 kg
E	Flange ANSI 6 " 150 psi, PP	3.9 kg
F	Flange ANSI 8 " 150 psi, PP	4.9 kg
G	Flange JIS 10K 100, PP	3.3 kg
H	Flange JIS 10K 150, PP	3.8 kg
Y	Others on request	
Material Exposed to Product		
1	Sensor module, PP	
Housing		
A	Aluminium lacquered, IP 65	
B	Aluminium coated, IP 65	
Y	Others on request	

1 kg = 2.2 lbs

DU 41 C [ ][ ][ ][ ][ ] Complete Order Code

Supplementary Documentation

Nivosonic
FMU 671
transmitter
(in Monorack
housing)
with LED display and
operating elements

- ☐ Summary of non-contact level measurement using the Nivosonic ultrasonic echo measurement system
  Product Information PI 004F/00/e
- ☐ Nivosonic FMU 671, FMU 676
  Transmitters for connecting to the ultrasonic sensor DU
  Technical Information TI 062F/00/e
- ☐ Multipoint echo level system for level measurement at multiple measuring points
  Technical Information TI 086F/00/e
- ☐ Chemical resistance table for polypropylene (English)
  Technical Information TI 214F/00/e
- ☐ EMC test procedures
  Technical Information TI 241F/00/e

APPENDIX 12.

Rupture Disc Certifications

CERTIFICATION

Continental Disc® Corporation // LaMOT® BRAND PRODUCTS

3160 W. HEARTLAND DRIVE, LIBERTY, MO 64068 USA // (816) 792-1500 // FAX: (816) 792-2277 // PRESSURE@CONTDISC.COM

Manufactured and Tested under an ISO-9001 Certified Quality System. TÜV SÜD AMERICA Certificate Reg No. 951 04 2489. Inspection Certificate EN 10 204 3.1

Certificate of Conformance:

This is to certify that the materials listed were furnished by Continental Disc Corporation in strict accordance with the requirements and applicable specifications of your purchase order. Quality data pertaining to acceptance results are on file attesting to conformance to these specifications and requirements. The product did not come in contact with mercury during manufacture.

Type: Special 3" CAL-VAC (FS) Continental Rupture Disc w/ B.D.I. Alarm Strip Per SC11866A0001

Material
316 SS Top Section
Copper Strip
Standard Plug B.D.I. Connection
Fluoropolymer Seal
Fluoropolymer Girdle

Date: 6/19/2020 Year Built: 2020
Sold To: NORLITE CORPORATION
Cust PO: 4501462820
S. O. No: 920060078
Item: 002 Rel: 001
Mfg No: 8390451A Quantity: 3

ENDUSER: NORLITE CORPORATION
COUNTRY: USA (US)

For Tanks 300, 400, 500, 600

Requested Pos. Rupture Pressure and Temperature:
Pos. Rated: 20 psig @ 80 Deg F

Stamped Pos. Rupture Pressure and Temperature
POS. RATED: 19.1 psig @ 80 Deg F

Pos. Burst Test Results in psig
1)18.9 2)19.3

Requested Vac. Rupture Pressure and Temperature:
VAC PRESS RATING: 8 MIN to 14 MAX in. water @ 80 Deg F

Stamped Vac. Rupture Pressure and Temperature
VAC PRESS RATING: 8 MIN to 14 MAX in. water @ 80 Deg F

Vac. Burst Test Results in in. water
1)13 2)13.7

Continental Disc Corporation®
DIRECTOR, QUALITY AND CERTIFICATIONS

CERTIFICATION

Continental Disc® Corporation // LaMOT® BRAND PRODUCTS

3160 W. HEARTLAND DRIVE, LIBERTY, MO 64068 USA // (816) 792-1500 // FAX: (816) 792-2277 // PRESSURE@CONTDISC.COM

Manufactured and Tested under an ISO-9001 Certified Quality System. TÜV SÜD AMERICA Certificate Reg No. 951 04 2489. Inspection Certificate EN 10 204 3.1

Certificate of Conformance:

This is to certify that the materials listed were furnished by Continental Disc Corporation in strict accordance with the requirements and applicable specifications of your purchase order. Quality data pertaining to acceptance results are on file attesting to conformance to these specifications and requirements. The product did not come in contact with mercury during manufacture.

Type: Special 6" (150mm) CAL-VAC (FS) Continental Rupture Disc w/ B.D.I. Alarm Strip Per SC16926A0001

Material
316 SS Top Section
Fluoropolymer Seal
Fluoropolymer Girdle
Integral B.D.I. Specifications:
Copper B.D.I. Strip
Standard Plug B.D.I. connection

Date: 6/19/2020 Year Built: 2020
Sold To: NORLITE CORPORATION
Cust PO: 4501462820
S. O. No: 920060078
Item: 001 Rel: 001
Mfg No: 8390450A Quantity: 3

ENDUSER: NORLITE CORPORATION
COUNTRY: USA (US)

For Tanks 100A, 100B, 100C
200B, 200C

Requested Pos. Rupture Pressure and Temperature:
POS. RATED: 20 psig @ 80 Deg F

Stamped Pos. Rupture Pressure and Temperature
POS. RATED: 17.9 psig @ 80 Deg F

Pos. Burst Test Results in psig
1)17.9 2)17.9

Requested Vac. Rupture Pressure and Temperature:
VAC PRESSURE RATING:8 MIN to 14 MAX in. water @ 80 Deg F

Stamped Vac. Rupture Pressure and Temperature
VAC PRESSURE RATING:8 MIN to 14 MAX in. water @ 80 Deg F

Vac. Burst Test Results in in. water
1)10.2 2)10.6

Continental Disc Corporation®
DIRECTOR, QUALITY AND CERTIFICATIONS

APPENDIX 13.

Piping Specifications

Stetson-Dale
1225 Peoples Avenue, Troy, NY 12180 / (518) 274-8663

PIPING SPECIFICATIONS

SPEC. LGF				PIPING MATERIAL Carbon Steel
ISSUE 1		REV. 0		SERVICE LIMITS 150 psig @ 300°F
ITEM	DIAMETER	CONN	CLASS	MATERIAL SPECIFICATION
PIPE	½ - 1½" 2 - 6"	S.E. Plain	Sch 80 Sch 40	Seamless carbon steel per ASTM A106 or A53 Gr. B
FITTING	½ - 1½" 2 - 6"	S.E. B.W.	2000# Sch 40	Forged carbon steel ASTM A105 Seamless carbon steel ASTM A234 or A106
FLANGES	½ - 1½"	Slip-on	150#	Forged carbon steel ASTM A105
UNION	None			
BOLTING	Bolt Studs - cadmium plated carbon steel A307 Gr. 2 Nuts - cadmium plated carbon steel A563 Gr. A			
GASKETS	Compressed asbestos Garlock Style 8748			
SEALANT	Teflon tape for threaded connections			

STATE OF NEW YORK
DALE ENGINEERING COMPANY INCORPORATED
LICENSED PROFESSIONAL ENGINEER
NO. 076

K. Mahadin

APPENDIX 14.

Gasket Materials

TABLE 1

Basic Guide for Choice of Gasketing

● Preferred
○ Satisfactory

PRODUCT	BASIC COMPOSITION	STYLE	Hardness, Durometer	MEDIA: Acids – Mild	Acids – Corrosive	Alkalies – Mild	Alkalies – Corrosive	Gases – Air & Dry Inerts	Gases – Bromines, Chlorine	Gases – Oxygen	Oils – Petroleum	Oils – Synthetics, Blister	Solvents – Aromatic (Benz., etc.)	Solvents – Aliphatic (Gas., etc.)	Solvents – Chlorinated	Refrigerants, Halocarbons	Steam	Water & Salt Solution	Field Where Non-Contamination Required	COMMENTS
Compressed Asbestos	White Asbestos, SBR Binder	900/7735	NA	○		○	○	○	●	*							●	●		Prime General Service
Compressed Asbestos	White Asbestos, SBR Binder	7006/7819	NA	○		○	○	○	●								●	●		Commercial Grade
Compressed Asbestos	White Asbestos, SBR Binder	7021	NA	○		○	○	○	○		●						○	○		Hot Oil Resistant
Compressed Asbestos	White Asbestos, Neoprene Binder	7228	NA	○		○	○	●	○		●		○	●	○	○	○	○		Prime for Oils
Compressed Asbestos	White Asbestos, Neoprene Binder	9057	NA	○		○	○	○	○		○					●	○	○		Prime for Refrigerants
Compressed Asbestos	White Asbestos, Nitrile Binder	8748	NA	○		○	●	○	○		○	●	●	○	●		○	○		General Solvent Service
Compressed Asbestos	Blue Asbestos, SBR Binder	7705	NA	○	●	○	○	○	○		○						○	○		Acid Resistant
Homogeneous Rubber	Natural Rubber	6023	35	○		○		○										○	●	Soft Tan Gum Rubber
Homogeneous Rubber	SBR	152	50	○		○		○										●		
Homogeneous Rubber	SBR	91	60	○		○		○										●		
Homogeneous Rubber	SBR	22	80	○		○		○										●	●	Prime "Red Rubber"
Homogeneous Rubber	SBR	353	80	○		○		●										○		
Homogeneous Rubber	Neoprene	8312	50	○		○		○			○			●		○		○		
Homogeneous Rubber	Neoprene	7986	60	○		○		○						●		○		○		
Homogeneous Rubber	Neoprene	8639	70	●		○	○	○			●			●		○		○		
Homogeneous Rubber	Neoprene	7797	80	●		○	●	●			●			●		●		○		
Homogeneous Rubber	Nitrile	9122	60	○		○	○	○			○	○	●	○				○		
Homogeneous Rubber	Nitrile	8495	70	○		○	●	○			○	●	●	○				○		
Homogeneous Rubber	Nitrile	8459	80	○		○	●	●			○	●	●	○				○		
Reinforced Rubber	SBR Rubber, 12-oz. Cotton Chafer	19	80					○										●		⅛"; uses 5-oz. Cotton Sheeting
Diaphragm	SBR Rubber, 22-oz. Tire Duck	619	50					○										●		Heavy Cotton Reinforcement
Diaphragm	Neoprene, 22-oz. Tire Duck	7992	50					●										○		Heavy Cotton Reinforcement
Diaphragm	Neoprene, 13-oz. Nylon	8798	50					●			●							○		Prime General Duty
Diaphragm	Nitrile, 4.5-oz. Nylon	9205	50					○			●	○						○		Very Sensitive
Woven Asbestos	White Asbestos, White SBR Impreg.	605	NA	○		○		○									●	○		Soft and Conforming
Vegetable Fiber	Cellulose Fiber, Cork, Glue, Glyc.	660	NA					○			●	○	○	○	○					Soft, Resilient, Non-water
Vegetable Fiber	Cellulose Fiber, Glue, Glycerine	681	NA					○			●	○	○	○	○					Firm, Non-water
TFE	TFE plus Inert Filler	Gylon	NA	○	●		●		●	●			●	●	●	○				Low Cold Flow

* Style 900 Compressed Asbestos sheet has never been officially approved by any governmental or other independent laboratory for oxygen service. Despite the fact that we have many satisfied customers who have used this product for [illegible] oxygen service, we cannot guarantee its fitness for such use. †NA=not [illegible]

APPENDIX 15.

Chemical-Alloy Compatibility Chart

METALS

Centigrade	Aluminium (a)			Aluminium Bronze			Brass (b)			Cast Iron (c)			Copper			Gunmetal and Bronze (d)			High Si Iron (14% Si) (e)			Lead			Mild Steel BSS 15			Nickel (cast)		
	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°
Acetaldehyde	R	R	R	R	R	R	R	R	R	R	ND	ND	R	R	R	R	R	R	R	R	R	R	ND			No data		R	R	R
Acetic acid (10%)	R	R		R	R	R							R	R	R	R	R	R	R	R	R	R	ND					R[20]	R	R
Acetic acid (glac. & anh.)	R[1]	R	R	R	R	R							R	R	R	R	R	R	R	R	R	R	ND					R	R	R
Acetic anhydride	R[1]	R	R	R	R	R				R	R	R	R	R	R	R	R		R	R	R							R	R	R
Acetone	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		R[11]			R	R	R
Other ketones	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R			No data		R	R	R
Acetylene	R	R	R				R	R	R[42]	R	R	R							R	R	R	R	R		R	R	R	R	R	R
Acid fumes	R[2]	R	R	R[2]	R[2]	R[2]																R[2]	R							
Alcohols (most fatty)	R[1]	R	R	R	R	R	R	R	R	R[24]	R	R	R	R	R	R	R	R	R	R	R	R	R		R	R	R	R	R	R
Aliphatic esters	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R			No data		R	R	R
Alkyl chlorides		No data			No data					R[11]	R	R	R	R	R	R	R	R	R	R	R	R			R[11]			R	R	R
Alum	R	R	R	R	R	R							R	R	R	R	R	R	R	R	R	R	R[18]	R[10]				R		
Aluminium chloride	R[11]	ND	ND	R[20]	R[20]								R	R	R	R	R	R	R	R	R	R[4,10]								
Ammonia, anhydrous	R	R	R	R	R	R				R			R	R	R[83]	R	R	R	R	R	R	R	R	R[62]	R	R	R			
Ammonia, aqueous	R	R	R							R	R								R	R	R	R	R		R	R				
Ammonium chloride	R[84]	R	R							R									R	R	R	R	R					R	R	R
Amyl acetate	R	R	R	R	R	R				R[11]	R	R	R	R	R	R	R	R	R	R	R	R[4]	ND	ND		No data		R	R	R
Aniline	R	R	R							R	R	R							R	R	R	R	R			No data		R	R	R
Antimony trichloride					No data					R[11]	R	R		No data		R			R[11]	R	R	R[4]	R					R[11]	R	R
Aqua regia																														
Aromatic solvents	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		R[11]			R	R	R
Beer	R	R	R	R	R	R	R	R	R	R	R	ND	R	R	R	R	R	R	R	R	ND							R	R	R
Benzoic acid	R	R	R	R	R	R	R	R	R				R	R	R	R	R	R	R	R	R	R[4]						R	R	R
Boric acid	R	R		R	R	R	R	R	R				R	R	R	R	R	R	R	R	R	R	R	R[62]				R	R	R
Brines, saturated	R	R	R	R	R	R				R[84]			R	R	R[20]	R	R		R	R	R	R	R					R	R	R
Bromine	R[11]	R	R	R[20]						R[11]	R								R			R[24]								
Calcium chloride	R	R	R	R	R	R				R	R		R	R	R	R	R	R	R	R	R	R[4]						R[20]	R	R
Carbon disulphide	R	R	R	R			R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R				R		
Carbonic acid	R	R	R	R	R	R													R	R	R	ND						R		
Carbon tetrachloride	R			R	R	R	R	R	R	R[11]	R	R	R	R	R	R	R	R	R	R	R	R	R[11]		R[11]	R		R	R	R
Caustic soda & potash				R						R	R		R	R	R	R	R	R							R	R		R	R	R
Chlorates of Na, K, Ba	R[11]	R	R	R	R	R							R	R	R	R	R	R	R	R	R							R	R	R
Chlorine, dry	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R[4]	R	R	R	R	R	R
Chlorine, wet																			R	R	R	R	R							
Chlorides of Na, K, Mg	R	R	R	R	R	R							R	R	R[20]	R	R	R	R	R	R	R[4]	R[4,22]					R	R	R
Chloracetic acids					No data									No data			No data									No data		R[11]	R	R
Chlorobenzene	R	ND	ND	R	R	R		No data		R	R	R		No data		R	R	R	R	R	R	R	R		R[11]	R		R	R	R
Chloroform	R[1]	R	R	R	R	R	R	R	R	R	R		R	R	R	R	R	R		No data		R	R		R[11]	R		R	R	R
Chlorosulphonic acid				R[20]	R[20]	R[20]		No data		R[11]	R	R							R	R		R[4]			R					
Chromic acid (80%)																			R	R		R	R							
Citric acid	R	R	R	R	R	R							R	R	R	R	R	R	R	R	R	R	R[29]					R	R	R
Copper salts (most)				R	R	R													R	R	R	R[16]	R		R			R		
Cresylic acids (50%)	R	R	R	R	R	R							R	R	R	R	R	R	R	R	R							R	R	R
Cyclohexane	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R			No data		R	R	R
Detergents, synthetic	R	R	R		No data		R	R	R		No data		R	R	R	R	R	R		No data		R	R			No data		R	R	R
Emulsifiers (all conc.)	R	R	R	R	R	R		No data			No data		R	R	R		No data			No data		R	R			No data			No data	
Ether	R[1]	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		R	R	R	R	R	R
Fatty acids (> C_6)	R	R	R	R	R	R							R	R	R	R	R	R	R	R	R	R[4]	R	R[58]				R	R	R
Ferric chloride																			R			R[4]								
Ferrous sulphate				R[20]	R[20]	R[20]													R	R	R	R	R	R						
Fluorinated refrigerants, aerosols, e.g. *Freon*	R[11]	ND	ND	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		R[11]	ND	ND		No data	
Fluorine, dry	R	R	R	R	R	R[11]							R	R	R	R	R	R				R[4]	R		R	R	R	R	R	R
Fluorine, wet											No data											R	R	ND				R	R	R
Fluosilicic acid																						R	R	R[58]				R[20]	R	R
Formaldehyde (40%)	R			R	R	R	R			R			R	R	R	R	R	R	R	R	R		No data		R			R	R	R
Formic acid	R			R	R	R		No data					R	R	R	R	R	R	R	R	R	R[30]	R[36]					R	R	R

METALS

Nickel-Copper Alloys (e)			Ni Resist (High Ni Iron) (e)			Platinum			Silver			Stainless Steel 18/8 (f)			Molybdenum Stainless Steel 18/8 (f)			Austenitic Ferritic Stainless Steel (x)			Tantalum			Tin (g)			Titanium			Zirconium		
20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°
R	R	R	R	ND		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		R	R	R	R	R	R
R	R	R	R			R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R			R	R	R	R	R	R
R	R					R	R	R	R	R	R	R	R		R	R	R[84]	R	R		R	R	R				R	R	R	R	R	R
R	R		R			R	R	R	R	R	R	R[80]			R	R		R	R	R	R	R	R				R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R				R	R	R	R	R	R
			R	R	R	R	R	R				R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	ND	ND	R	R	R
R[2]	R	R				R	R	R				R[2]	R	R	R[2]	R	R	R[102]	R[102]	R[102]	R[3]	R	R	R[84]	R	R	R[2]	R[2]	R[2]	R[2]	R	R
R	R	R	R	R	R	R	R	R	R[16]	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R[93]	R[95]	R[85]	R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R[11]	R	R	R[11]	R	R	R	R	R	R	R	R	R				R	R	R	R	R	R
R	R		R	R		R	R	R	R	R	R	R	R[13]		R	R		R	R		R	R	R	R			R	R	R	R	R	R
R						R	R	R	R	R	R	R[84]			R[84]	R		R	R		R	R	R	R[57]			R	R	R[10]	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
			R	R	R	R	R	R	R[30]	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R[13]			R	R	R	R	R	R
R			R	R	R	R	R	R	R[75]	R	R	R[84]			R[84]	R		R			R	R	R	R			R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R			R	R	R	R	R	R
R			R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R			R	R	ND	R	R	R
R	ND	ND				R	R	R	R	R	R	R[11]			R[11]	R[11]		R	R		R	R	R				R	R	ND		No data	
																					R	R	R									
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	ND	R	R	R
R	R	R	R	R	ND	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		R	R	R	R	R	R
R	R	R				R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R				R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	No data		R	R	R	R	R	R	R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R[42]			R[42]			R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R	R				R	R	R	R	R	R										R	R	R				R[90]			R[90]	R	R
R	R	R	R	R	R	R	R	R	R	R	R				R[42]						R	R	R	R			R	R	R	R	R	R
R	R		R	R	R	R	R	R	R	R	R	R	R	ND	R	R	ND	R	R	R	R	R	R	R	R		R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R[11]	R	R	R[11]	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R[13]	R	R	R[13]	R[103]	R[103]		R[10]	R	R				R	R[39]	R[15]	R	R	R
R			R	R	R	R	R	R	R	R	R	R[16]	R	R	R[16]	R	R	R	R	R	R[75]	R	R		R	R		R[78]	R[79]	R[79]	R[75]	R[75]	R[75]
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R				R	R	R							R[91]	R	R
						R	R	R	R	R	R										R	R	R				R	R	R			
R	R	R	R	R	R	R	R	R	R[79]	R	R	R[84]			R[84]	R		R[56]	R[56]		R	R	R	R[57]	R	R	R	R	R	R	R	R
			ND	ND	ND	R	R	R	R	R	R							R	R	R	R	R	R				R	R[2]	R[2]	R	R	R
R	R		R	R	R	R	R	R	R	R	R	R[11]	R	ND	R[11]	R	R	R	R	R	R	R	R		No data			No data		R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R[11]	R	R	R[11]	R	R	R	R	R	R	R	R	R[11]	R	R	R	R	ND	R	R	R
R	R					R	R	R	R	R	R				R[84]				No data		R	R	R							R	R	
						R[30]	R	R	R	R	R										R	R	R	R	R	R	R	R	R	R	R	R
R	R					R	R	R	R	R	R	R[13]	R	R	R	R	R[13]	R	R	R	R	R	R	R[20]	R	R	R	R	R[59/27]	R	R	R[59]
R						R	R	R	R[30]	R	R	R[16]	R	R	R[16]	R	R	R[16]	R[16]	R[16]	R	R	R				R	R	R	g[16]	R	R
R			R	ND	ND	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R			R	ND	ND	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R	R		No data		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	ND	R	R	R
				No data		R	R	R							R	R	R				R	R	R				R		No data	R	R	R
R	R	R				R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
						R	R								R	R	R	R	R	R	R	R	R				R	R	R			
R	R		R			R	R	R				R	R	R	R	R	R	R	R	R	R	R	R				R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R[11]	R	R	R[11]	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R	R		No data		R	R	R				R	ND	ND	R	ND	ND	R	R									R[5]	R	R			
R	R	R		No data		R	R	R							R	ND	ND															
R	R	R	R[32]	R[32]	ND	R	R	R	R	R	R																					
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R					R	R	R	R	R	R	R			R	R		R	R		R	R	R				R[67/68]	R	R[10/20]	R	R	R

METALS

Centigrade	Aluminium (a)			Aluminium Bronze			Brass (b)			Cast Iron (c)			Copper			Gunmetal and Bronze (d)			High Si Iron (14% Si) (e)			Lead			Mild Steel BSS 15			Nickel (cast)		
	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°
Fruit juices	R	R	R	R	R	R							R	R	R	R	R	R	R	R	R					No data		R	R	R
Gelatine	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R			No data		R	R	R
Glycerine	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		R	R		R	R	R
Glycols	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R					R	R	R
Hexamine																			R	R	R	R	R			No data		R	R	R
Hydrazine	R	ND	ND							No data										No data		ND			R	R	R	R	ND	ND
Hydrobromic acid (50%)										ND	ND																			
Hydrochloric acid (10%)				R															R	R								R		
Hydrochloric acid (conc.)				R[62]																		R[4,11]								
Hydrocyanic acid	R	R	R	R[20]	R[20]	R[20]													R	R	R	R	R					R	R	R
Hydrofluoric acid (40%)				R[62]																		R						R[30]		
Hydrofluoric acid (75%)				R[62]																								R		
Hydrogen peroxide (30%)	R	R	R																R									R		
(30–90%)	R	R	R																											
Hydrogen sulphide	R	R	R	R[11]	R	R	R[11]	R	R	R			R[11]	R	R	R[11]	R	R	R	R	R	R	R	R	R[11]	R	R	R[11]	R	R
Hypochlorites				R															R	R	R	R[4,34,35]								
Lactic acid (100%)	R	R	R	R	R								R	R		R[4]	R[4]		R	R	R	ND						R	R	R
Lead acetate	R[11]	R	R		No data						No data								R	R	R							R	R	R
Lime (CaO)	R[11]			R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R[4]			R[11]	R	R	R	R	R
Maleic acid	R	R	R		No data			No data					R	R	R		No data		R	R	ND		No data			No data		R	R	R
Meat juices	R	R	R	R	R	R					No data									No data			No data			No data			No data	
Mercuric chloride																			R											
Mercury										R	R	R							R	R	R				R	R	R	R[27]	R	R
Milk & its products	R	R	R	R	R	R					No data					R	R	R		No data								R	R	R
Moist air	R	R	R	R	R	R							R	R	R	R	R	R	R	R	R	R	R	R				R	R	R
Molasses	R	R	R	R[30]	R[30]	R[30]	R[30]	R		R	R	R	R[30]	R	R	R[30]	R	R	R	R	R					No data		R	R	R
Naphtha	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		No data		R	R		R			R		
Naphthalene	R	R	R		No data			No data		R	R	R	R	R	R		No data		R	R	R	R	R		R			R	R	R
Nickel salts					No data						No data					R	R	R	R	R	R	R	R					R[40]	R	R
Nitrates of Na, K, NH_3	R	R	R	R[73]	R[73]	R[73]				R[11]	R	R							R	R	R							R	R	R
Nitric acid (<25%)																			R											
Nitric acid (50%)																			R	R	R									
Nitric acid (95%)	R	R	R																R	R	R				R					
Nitric acid, fuming	R	ND	ND																R	R	R				R					
Oils, essential	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		No data		R	R		R	R	R
Oils, mineral	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		R	R		R	R	R
Oils, vegetable & animal	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		R	R		R	R	R
Oxalic acid	R[50]			R	R	R		No data					R	R	R	R	R	R	R	R	R	R[4]								
Ozone	R	R	R		No data			No data		R	ND	ND		No data			No data		R	R	R		No data		R[11]	R	R		No data	
Paraffin wax	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	ND	R	R		R	R		R	R	R
Perchloric acid								No data											R	R	R									
Phenol	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R[4]	R	R[10]		No data		R	R	R
Phosphoric acid (25%)	R			R	R	R							R	R	R				R	R	R	R	R	R						
Phosphoric acid (50%)				R	R	R													R	R	R	R	R	R[4]						
Phosphoric acid (95%)				R	R	R													R	R	R	R	R							
Phosphorus chlorides				R[11]	R[11]	R[11]				R[11]	R								R	R	R[11]	R	R	R	R[11]	R	R	R	R	R
Phosphorus pentoxide	R[11]	ND	ND		No data														R	R	R				R[11]	R	R		No data	
Phthalic acid	R	R	R	R	R	R		No data					R	R	R	R	R	R	R	R	R	R	R			No data		R	R	R
Picric acid	R	ND	ND																R	R	R	R[4]						R[11]		
Pyridine	R	R	R		No data					R	R	R							R	R	R	R	R			No data		R	R	R
Sea water	R	R	R	R	R	R	R[62]	R	R	R[84]			R	R	R	R	R	R	R	R	R	R	R					R	ND	ND
Silicic acid	R	R	R					No data					R	R	R		No data		R	R	ND	R	R			No data		R	R	ND
Silicone fluids	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		No data						No data		R	R	R
Silver nitrate										ND	ND								R	R	R									
Sodium carbonate	R[42]	R		R	R	R[4]	R	R	R	R[11]	R	R	R	R	R	R	R	R	R	R	R	R[4]			R	R	R	R	R	R
Sodium peroxide										R[10]	R	R							R[10]	R[10]	R[10]							R	R	R

METALS

Nickel-Copper Alloys (e)			Ni Resist (High Ni Iron) (c)			Platinum			Silver			Stainless Steel 18/8 (f)			Molybdenum Stainless Steel 18/8 (f)			Austenitic Ferrier Stainless Steel (x)			Tantalum			Tin (g)			Titanium			Zirconium		
20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°
R			R	R		R	R	R	R	R	R	R[94]	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R[8]	ND	ND	R	R	R
R			R	R	R	R	R	R	R	R	R	R[16]	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R[6]	R	ND	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	ND	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	ND	R	R	R	R
R			R	ND	ND	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	ND		No data		R	R	R
			No data			R[19]	R	R				R	R	R	R	R	R	R	R	R		No data			R[17]				No data		R	ND	ND
R						R	R	R	R[45]												R	R	R				R	R	ND	R[90]	R	R
R	R		R			R[70]	R	R	R	R	R										R	R	R				R	R[42]	R	R	R	R
R						R[70]	R	R													R	R	R				R[78]	R	ND	R[92]	R[92]	R[92]
R			R	R	R	R	R	R	R[88]	R	R	R	R		R	R		R	R		R	R	R	R	R		No data			No data	
R	R	R				R	R	R	R	R	R																					
R	R	R				R	R	R	R	R	R																					
R	R					R[87]	R	R				R	R	R	R	R	R	R	R	R	R	R	R							R	R	R
R[83]						R[87]	R	R				R	R	R[87]	R[63]			R	R		R	R	R	R	R					R	R	R
R	R		R	R		R	R	R				R	R	R	R	R	R	R[11]	R[11]	R[11]	R	R	R	R[11]	R	R	R	R	R	R	R	R
			R[7]			R	R	R	R[48]												R	R	R				R	R	R	R	R	R
R			R			R	R	R	R	R	R	R			R	R		R	R		R	R	R				R	R	R	R	R	R
R	R			No data		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R				R	ND	ND		No data	
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		No data		R				No data		R	R	R
R	R		R	R	R	R	R	R	R	R	R	R[13]	R[13]	R[13]	R[13]	R	R	R	R	R	R	R	R	R[20]	R	R	R	R	R	R	R	R	R
	No data		R	R	R	R	R	R	R	R	R	R	R		R	R		R	R	R	R	R	R	R	R	R		No data		R	R	R
				ND	ND	R	R	R										R	R	R	R	R	R				R	R	R[7]	R	R	R
R	R	R	R	R	R	R	R	R				R	R	R	R	R	R	R	R	R	R	R	R				R	R	ND	R	R	R
R			R	R	R	R	R	R	R[86]	R	R	R	R	R	R	R	R	R	R	R	R	R	R					No data		R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		No data		R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R					No data		R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R					No data		R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	ND	R	R	R	R
R	R	R	R	ND	ND	R	R	R	R	R	R	R[16]	R	R	R[16]	R	R	R	R	R	R	R	R				R	R	R[21]	R	R	R
R	R		R	R	R	R	R	R	R[30]	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R[21]	R	R	R
						R	R	R				R	R	R	R	R	R	R	R	R	R	R	R									
						R	R	R				R	R	R	R	R	R	R	R	R	R	R	R				R	R	R	R	R	R
						R	R	R				R						R	R	R	R	R	R				R	R	R	R	R	R
												R	R[80]					R	R	R	R	R	R	R	ND							
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	ND	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	ND	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	ND	R	R	R
R	R		R	R	R	R	R	R	R	R	R	R[13]			R[10]	R		R	R	R	R	R	R	R[23]	R	R	R[23]			R	R	R
R	R	R	R	R	R	R	R	R	R[11]	R	R	R	R	R	R	R	R	R	R	R	R[99]	R	R	R	R	ND		No data			No data	
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
						R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R				R	R	ND	R[52]	R	R
R			R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		R	R	ND	R	R	R
R	R					R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R				R	R	R[46]	R	R	R
R	R					R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R				R	R	R	R	R	R
R						R	R	R	R	R	R	R	R	R	R	R	R	R[104]	R[104]	R[104]	R[30]	R	R				R[8]	R	R	R		
R			R[11]	ND	ND	R	R	R	R	R	R										R	R	R				R[12]	R[11]	ND	R		
R			R	R	R	R	R	R	R	R	R	R	R	R[11]	R	R	R[11]	R	R	R	R	ND	ND	R	R			No data			No data	
R	R	R	R	ND	ND	R	R	R	R	R	R		No data			No data		R	R	R	R	R	R				R	ND	ND	R	ND	ND
R				ND	ND	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R					No data			No data	
R			R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	ND	R	R	ND	R	R	R
R[57]	R	R	R	R	R	R	R	R	R[70]	R	R	R[57]			R[57]			R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
				No data		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
			ND	ND	ND	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R				R[29]	R[19]	ND	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R			R	R	R	R	R	R
	No data		R[10]	R[10]	R[33]	R	R	R	R	R	R	R[10]			R[10]	R	R	R	R	R	R	R[10]	R[33]					No data		R	R	R

METALS

Centigrade	Aluminium (a)			Aluminium Bronze			Brass (b)			Cast Iron (c)			Copper			Gunmetal and Bronze (d)			High Si Iron (14% Si) (e)			Lead			Mild Steel BSS 15			Nickel (cast)		
	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°
Sodium silicate	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		R	R	R	R	R	R
Sodium sulphide										R	R	R							R	ND		R[4]	R	R				R	R	R
Stannic chloride				R[11]															R	R										
Starch	R	R	R	R	R	R		No data		R	R	R	R	R	R	R	R	R	R	R	R		No data			No data		R	R	R
Sugar, syrups, jams	R	R	R	R	R	R	R	R	R	R	R	ND	R	R	R	R	R	R	R	R	R		No data			No data		R	R	R
Sulphamic acid	R[30]				No data														R	R	R					No data			No data	
Sulphates (Na, K, Mg, Ca)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R					R	R	R
Sulphites	R	R	R	R	R	R				R[38]	R	R	R	R	R	R	R	R	R[38]	R		R	R					R	R	R
Sulphonic acids		No data			No data			No data		R[11]							No data		R	R	R	R	R			No data			No data	
Sulphur	R	R	R							R	R								R	R	R				R	R	R	R	R	R
Sulphur dioxide, dry	R	R	R	R	R	R	R	R	R	R	R		R	R	R	R	R	R				R	R	R	R	R	R	R	R	R
Sulphur dioxide, wet	R[4]	R	R	R	R	R																R	R	R						
Sulphur trioxide				R[11]	R	R	R[11]	R	R				R[11]	R	R	R[11]	R	R	R	R	R	R	R[4]	R	R[11]	R	R	R	R	R
Sulphuric acid (< 50%)				R	R	R							R	R	R				R	R	R	R	R	R						
Sulphuric acid (70%)				R	R[62]					R									R	R	R	R	R	R	R					
Sulphuric acid (95%)				R[62]						R	R								R	R	R	R	R		R					
Sulphuric acid, fuming	R[4]									R	R	R							R	R	R				R	R				
Sulphur chlorides										R[11]	R[11]									No data		R[4]							No data	
Tallow	R	R	R	R	R	R		No data		R	R	R	R	R	R		No data		R	R	R	R	R			No data			No data	
Tannic acid (10%)	R	R	R	R	R	R	R	R	R				R	R	R	R	R	R	R	R	R							R	ND	ND
Tartaric acid	R	R	R	R	R	R	R	R	R				R	R	R	R	R	R	R	R	R	R[4]	R	R				R[20]	R	R
Trichlorethylene	R	R	R	R	R	R	R	R	R	R	R		R	R	R	R	R	R	R	R	ND	R	R		R[11]	R		R	R	R
Vinegar	R	R	R	R	R	R													R	R	R							R	R	R
Water, distilled	R	R	R	R[53]	R					R	R	R	R[53]	R		R[53]	R	R	R	R	R	R[53]	R	R	R[53]	R	R	R	R	R
Water, soft	R[43]	R	R	R	R	R	R	R	R	R			R	R	R	R	R	R	R	R	R				R[53]	R	R	R	R	R
Water, hard	R[43]	R	R	R	R	R	R	R	R	R	R		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Yeast	R	R	R		No data			No data		R	R		R	R	R	R	R	R	R	R	R		No data			No data		R	R	R
Zinc chloride				R	R	R													R			R[4]	R					R[20]	R	R

METALS

Nickel-Copper Alloys (e)			Ni Resist (High Ni Iron) (c)			Platinum			Silver			Stainless Steel 18/8 (f)			Molybdenum Stainless Steel 18/8 (f)			Austenitic Ferrior Stainless Steel (x)			Tantalum			Tin (g)			Titanium			Zirconium		
20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°	20°	60°	100°
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	ND	R	R	R
	No data		R	R	R	R	R	R				R	R		R	R		R	R		R	R	R				R	ND	R[10]	R	R	R
						R	R	R	R[48]	R	R								No data		R	R	R				R[15]	R[15]	R[15]	R[15]	R[15]	R[15]
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	ND	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R[64]	R	R	R	R	R	R	R	R	R	R	R	R	R	R		No data		R	R	R
R			R[50]			R	R	R	R	R	R	R[44]			R	R[37]		R	R		R	R	R									
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R					No data	
			R[38]	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		R	R	R	R	R	R
R	R		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		R	ND	R[24]	R	R	R
				No data		R	R	R		No data			No data			No data			No data		R	R	R					No data		R	R	R
R	R	R	R	R	R	R	R	R	R[11]	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
					ND	R	R	R	R	R	R	R			R	R		R	R		R	R	R				R	R	R	R	R	R
			R	ND	ND	R	R	R	R[11]	R	R				R[11]	R	R	R[11]	R[11]	R[11]	R	R	R									
R			R[50]			R	R	R	R	R	R				R[10]			R			R	R	R				R[49]	R	R	R	R	R
R			R			R	R	R	R	R	R							R			R	R	R				R[49]	R		R	R	R
						R	R	R				R			R			R	R		R	R	R									
						R	R	R				R	R[80]		R[80]	R		R	R													
R	R		R	R	R	R	R	R										R	R	R	R	R	R					No data				
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R[70]	R	R	R	R	R	R	R	R	R	R	R	R	R	R[20]	R	R	R	R	R[19]	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R[11]	R	R	R[11]	R	R	R	R	R	R	R	R	R[11]	R	R	R	R	R	R	R	R
R	R	R	R			R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R			R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R[84]	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R[84]	R	R	R	R	R	R	R	R	R[37]	R	R	R	R	R	R	R	R
	No data		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R				R	No data		R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R				R	R	R[32]	R	R	R

APPENDIX 16.

Subpart BB Compliance

Appendix 16

40 CFR 264/ 6 NYCRR 373-2.28 Subpart BB & MACT 40 CFR 61 Subpart V Compliance Requirements

Equipment/ Locations	Monitoring Procedure	Procedure When Potential Leak/ Leak Detected	Repair Procedures	Record In Inspection Log
40 CFR 264.1050 6 NYCRR 373-2.28(a) 40 CFR 61.242-1 Applicability	Each piece of equipment shall be marked in such a manner that it can be distinguished readily from other pieces of equipment. Equipment that is in vacuum service is excluded from these requirements	The unique ID# for the leaking equipment is used to identify and label the equipment in questions with a weatherproof tag to signify repair is needed	Repair as soon as practicable. First Attempt: Within 5 days of leak detected. Completed: Within 15 days of leak detected. Remove repair identification.	Norlite has established a set of drawings which indicates a unique ID # for each connector, flange, valve, pump, agitator, etc., which are regulated under the indicated regulations. Norlite will not maintain an individual tag system in the field for this equipment Norlite uses either green and yellow paint or a red plastic tag marked "Subpart BB/V" to readily distinguish regulated equipment from non-regulated equipment
40 CFR 264.1052 6 NYCRR 373-2.28(c) 40 CFR 61.242-2 Pumps in Light Liquid Service Double Mechanical Pumps: 100A, 100B, 200A, 200B, 3 Off-Loading Bay Pumps Single Seal Pump: 100C, 200C	Weekly: Visually inspect for liquid Dripping from pump seal, results can be found on weekly RCRA Inspection forms Monthly: Monitor for leaks using Method 21, result can be found in the weekly Fuel Farm VOC Readings report under Subpart CC Monthly: check of audible alarm for double mechanical seal system, results can be found attached to the weekly Fuel Farm VOC Readings report under Subpart CC	Leak detected at ≥10,000 ppm Leak detected if liquids dripping from pump seal The leak detection sensor system for the double mechanical system sounds an audible alarm, a leak has been detected Visibly mark the pump as out of service with a weatherproof repair identification (i.e. tag, color tape), with the date leak found.	Repair as soon as practicable. First Attempt: Within 5 days of leak detected. Completed: Within 15 days of leak detected. Remove repair identification.	IF Leak Occurs, following information will be recorded on a **Leak Detection Sheet** Monitor I.D. No. Operator identification. Equipment tag No. Date of evidence potential leak. Date leak was detected. Date each repair attempt was made and Method used. VOC reading after repair "Repair Delayed" and reason. Documentation to support delay of repair Signature of operator if unit must be shut down. Date expected of successful repair. Date of successful repair. Out of service pumps will also be documented on the Fuel Farm Pre-Shift records as well as the weekly RCRA Inspection report if witnessed during the time of the inspection
40 CFR 264.1053 6 NYCRR 373-2.28(d) 40 CFR 61.242-3 Compressors	Norlite does not have any compressors which are regulated by the listed regulations Monthly: check of audible alarm for barrier fluid system	The leak detection sensor system for the double mechanical system sounds an audible alarm, a leak has been detected Visibly mark the compressor as out of service with a weatherproof repair identification (i.e. tag, color tape), with the date leak found.	Repair as soon as practicable. First Attempt: Within 5 days of leak detected. Completed: Within 15 days of leak detected. Remove repair identification.	Same as Pumps should a compressor be installed which meets the requirements of the stated regulations

Monitoring shall comply with Method 21, 40 CFR Part 60 – Norlite uses a Photovac 2020 Pro Plus and complies with 40 CFR 264.1034. Note that Norlite uses a detection of 500 ppm or higher to trigger a repair event. Evidence of leak - visual, audible, olfactory, or any other detection method. If delay in repair is required, delay will be managed in accordance with 40 CFR 263.1059. First attempt at repair include, but not limited to: (1) Tightening of bonnet bolts (2) Replacement of bonnet bolts (3) Tightening of packing gland nuts (4) Injection of lubricant into lubricated packing.

Appendix 16

40 CFR 264/ 6 NYCRR 373-2.28 Subpart BB & MACT 40 CFR 61 Subpart V Compliance Requirements

Equipment/Location	Monitoring Procedure	Procedure When Leak/Defect Detected	Repair Procedure	Record In Inspection Log
40 CFR 264.1054 6 NYCRR 373-2.28(e) 40 CFR 61.242-4 Pressure Relief Devices in Gas/Vapor Service	Norlite maintains all storage tanks with a vent system which maintains a consistent pressure within the tank. The tank vent system is a closed vent system and therefore exempt from the condition of the stated regulations	The tank vent system is a closed vent system and therefore exempt from the condition of the stated regulations	The tank vent system is a closed vent system and therefore exempt from the condition of the stated regulations	The tank vent system is a closed vent system and therefore exempt from the condition of the stated regulations
40 CFR 264.1055 6 NYCRR 373-2.28(f) 40 CFR 61.242-5 Sampling Connection Systems	*In-situ* sampling systems and sampling systems without purges are exempt from the requirements of the listed regulations	*In-situ* sampling systems and sampling systems without purges are exempt from the requirements of the listed regulations	*In-situ* sampling systems and sampling systems without purges are exempt from the requirements of the listed regulations	*In-situ* sampling systems and sampling systems without purges are exempt from the requirements of the listed regulations
40 CFR 264.1056 6 NYCRR 373-2.28(g) 40 CFR 61.242-6 Open-ended valves or lines	Daily visual: Inspect each valve/line to be equipped with a cap/plug and sealed	Immediate notification to the Fuel Farm Manager for replacement	Missing caps and plugs are to be replaced upon discovery of their absence	Evidence of missing caps and plugs will be recorded in either the Fuel Farm Pre-shift inspection logs in the comments section or on the weekly RCRA inspection reports if witnessed during the time of the inspection
40 CFR 264.1057 6 NYCRR 373-2.28(h) 40 CFR 61.242-7 Valves in gas/vapor service or in light liquid service	Monthly: Monitor for leaks which are greater than 10,000 ppm. Quarterly: If have two consecutive months with no detected leaks, can start monitoring first month of each quarter If a leak is found, must start monthly monitoring again until there are two consecutive months with a detection Annual: Any valves designated as “unsafe-to-monitor” are required to be monitored at least annually Results for the quarterly and annual testing can be found in the Quarterly Subpart BB reports	Leak detected at ≥10,000 ppm Visibly mark the valve as out of service with a weatherproof repair identification (i.e. tag, color tape), with the date leak found	Repair as soon as practicable. First Attempt: Within 5 days of leak detected. Completed: Within 15 days of leak detected. Remove repair identification.	IF Leak Occurs, following information will be recorded on a **Leak Detection Sheet** Monitor I.D. No. Operator identification. Equipment tag No. Date of evidence potential leak. Date leak was detected. Date each repair attempt was made and Method used. VOC reading after repair "Repair Delayed" and reason. Documentation to support delay of repair Signature of operator if unit must be shut down. Date expected of successful repair. Date of successful repair Any valve found with a reading above background, will be documented in the quarterly Subpart BB Inspection reports

Monitoring shall comply with Method 21, 40 CFR Part 60 – Norlite uses a Photovac 2020 Pro Plus and complies with 40 CFR 264.1034. Note that Norlite uses a detection of 500 ppm or higher to trigger a repair event. Evidence of leak - visual, audible, olfactory, or any other detection method. If delay in repair is required, delay will be managed in accordance with 40 CFR 263.1059. First attempt at repair include, but not limited to: (1) Tightening of bonnet bolts (2) Replacement of bonnet bolts (3) Tightening of packing gland nuts (4) Injection of lubricant into lubricated packing.

40 CFR 264/ 6 NYCRR 373-2.28 Subpart BB & MACT 40 CFR 61 Subpart V Compliance Requirements

Equipment/Location	Monitoring Procedure	Procedure When Leak/Defect Detected	Repair Procedure	Record In Inspection Log
40 CFR 264.1058 6 NYCRR 373-2.28(i) 40 CFR 61.242-8 Pressure relief devices in light liquid service, and flanges and other connectors Tank Rupture Disk System	Monitored within 5 days if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method. Evidence of a potential leak will be recorded on the Fuel Farm pre-shift Inspection form in the comments section or on the Weekly RCRA Inspection report if witnessed during the time of the inspection	If an instrument reading of 10,000 ppm or greater is measured, a leak is detected As per 40 CFR 61.242-8 If evidence of a potential leak is found by visual, audible, olfactory, or any other detection method at pressure relief devices in liquid service and connectors, the owner or operator shall follow either one of the following procedure: (1) The owner or operator shall monitor the equipment within 5 days (2) The owner or operator shall eliminate the visual, audible, olfactory, or other indication of a potential leak.	Repair as soon as practicable. First Attempt: Within 5 days of leak detected. Completed: Within 15 days of leak detected. Remove repair identification.	IF Leak Occurs, following information will be recorded on a **Leak Detection Sheet:** Monitor I.D. No. Operator identification. Equipment tag No. Date of evidence potential leak. Date leak was detected. Date each repair attempt was made and Method used. VOC reading after repair "Repair Delayed" and reason. Documentation to support delay of repair Signature of operator if unit must be shut down. Date expected of successful repair. Date of successful repair If a rupture disk is found to be leaking during a quarterly Subpart BB Inspection, it will be detailed in that quarterly report
40 CFR 264.1059 6 NYCRR 373-2.28(j) 40 CFR 61.242-10 Delay of Repairs	Delay of repair of equipment for which leaks have been detected will be allowed if repair within 15 days is technically infeasible without a process unit shutdown. Delay of repair will be allowed for equipment that is isolated from the process and that does not remain in contact with hazardous waste or remain in VHAP service. As per 40 CFR 61.242-10 Delay of repair for pumps will be allowed if: (1) Repair requires the use of a dual mechanical seal system that includes a barrier fluid system. (2) Repair is completed as soon as practicable, but not later than 6 months after the leak was detected.			If a delay of repairs occurs, the reason will be detailed on the **Leak Detection Sheet** used for the detected leak. Delay of repairs for equipment found leaking during a quarterly Subpart BB Inspection will be detailed in the Inspection report as well as well as on the Weekly RCRA Inspection report

Monitoring shall comply with Method 21, 40 CFR Part 60 – Norlite uses a Photovac 2020 Pro Plus and complies with 40 CFR 264.1034. Note that Norlite uses a detection of 500 ppm or higher to trigger a repair event. Evidence of leak - visual, audible, olfactory, or any other detection method. If delay in repair is required, delay will be managed in accordance with 40 CFR 263.1059. First attempt at repair include, but not limited to: (1) Tightening of bonnet bolts (2) Replacement of bonnet bolts (3) Tightening of packing gland nuts (4) Injection of lubricant into lubricated packing.

40 CFR 264/ 6 NYCRR 373-2.28 Subpart BB & MACT 40 CFR 61 Subpart V Compliance Requirements

Equipment/Location	Monitoring Procedure	Procedure When Leak/Defect Detected	Repair Procedure	Record In Inspection Log
40 CFR 264.1060 6 NYCRR 373-2.28(k) 40 CFR 61. 242-11 Closed Vent Systems and Controls	Norlite utilizes two rotary kilns as control devices for the destruction of any VHAP from the Closed Vent System Enclosed combustion devices shall be designed and operated to reduce the VHAP emissions vented to them with an efficiency of 95 percent or greater If the closed vent system is constructed of hard-piping, the owner or operator shall comply with the following requirements: Annual: Conduct visual inspections for visible, audible, or olfactory indications of leaks Results of the visual inspection can be found in the 3rd quarter Subpart BB reports.	Leak detected at ≥500 ppm or by visual inspections If a vapor collection system or closed vent system is operated under a vacuum, it is exempt from the inspection requirements	Repair as soon as practicable. First Attempt: Within 5 days of leak detected. Completed: Within 15 days of leak detected. Remove repair identification.	Norlite maintains the kilns as per the regulations of 40 CFR 63 Subpart EEE which is a minimum DRE of 99.99%. A final report of any testing is submitted to the USEPA and NYSDEC If Leak Occurs, following information will be recorded on a **Leak Detection Sheet** Monitor I.D. No. Operator identification. Equipment tag No. Date of evidence potential leak. Date leak was detected. Date each repair attempt was made and Method used. VOC reading after repair "Repair Delayed" and reason. Documentation to support delay of repair Signature of operator if unit must be shut down. Date expected of successful repair. Date of successful repair
40 CFR 264.1061 6 NYCRR 373-2.28(l) 40 CFR 61.243-1 Alternative standards for valves in gas/vapor service or in light liquid service: percentage of valves allowed to leak	Can elect to have all valves within a process unit comply with an allowable percentage of valves leaking of equal to or less than 2.0 percent Must meet following requirements: Must notify the Administrator that the owner or operator has elected to have all valves within a process unit comply with the allowable percentage of valves leaking before implementing this alternative standard A performance test shall be conducted initially upon designation, annually, and at other times requested by the Administrator	Performance tests shall be conducted in the following manner: (1) All valves in VHAP service within the process unit shall be monitored within 1 week (2) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected (3) The leak percentage is determined by dividing the number of leaking valves by the number of total valves in VHAP service	Repair as soon as practicable. First Attempt: Within 5 days of leak detected. Completed: Within 15 days of leak detected.	Details of the performance test as well as the annual test will be recorded in the Quarterly/Annual Subpart BB Inspection report. Any leaks will also be documented on a **Leak Detection Sheet** Norlite may consider applying the alternative standards in the future due to the low number of leaks which are found
Monitoring shall comply with Method 21, 40 CFR Part 60 – Norlite uses a Photovac 2020 Pro Plus and complies with 40 CFR 264.1034. Note that Norlite uses a detection of 500 ppm or higher to trigger a repair event. Evidence of leak - visual, audible, olfactory, or any other detection method. If delay in repair is required, delay will be managed in accordance with 40 CFR 263.1059. First attempt at repair include, but not limited to: (1) Tightening of bonnet bolts (2) Replacement of bonnet bolts (3) Tightening of packing gland nuts (4) Injection of lubricant into lubricated packing.				

40 CFR 264/ 6 NYCRR 373-2.28 Subpart BB & MACT 40 CFR 61 Subpart V Compliance Requirements

Equipment/Location	Monitoring Procedure	Procedure When Leak/Defect Detected	Repair Procedure	Record In Inspection Log
40 CFR 264.1062 6 NYCRR 373-2.28(m) 40 CFR 61.243-2 Alternative standards for valves in VHAP service—skip period leak detection and repair	After 2 consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than 2.0, an owner or operator may begin to skip one of the quarterly leak detection periods for the valves in VHAP service After five consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than 2.0, an owner or operator may begin to skip three of the quarterly leak detection periods for the valves in VHAP service If the percentage of valves leaking is greater than 2.0, the owner or operator shall comply with the requirements as described in 40 CFR 264.1057, 6 NYCRR 373-2.28(h), 40 CFR 61.242-7, but may again elect to use this section	Leak detected at $\geq$10,000 ppm Visibly mark the pump as out of service with a weatherproof repair identification (i.e. tag, color tape), with the date leak found	Repair as soon as practicable. First Attempt: Within 5 days of leak detected. Completed: Within 15 days of leak detected	IF Leak Occurs, following information will be recorded on a **Leak Detection Sheet:** Monitor I.D. No. Operator identification. Equipment tag No. Date of evidence potential leak. Date leak was detected. Date each repair attempt was made and Method used. VOC reading after repair "Repair Delayed" and reason. Documentation to support delay of repair Signature of operator if unit must be shut down. Date expected of successful repair. Date of successful repair
Monitoring shall comply with Method 21, 40 CFR Part 60 – Norlite uses a Photovac 2020 Pro Plus and complies with 40 CFR 264.1034. Note that Norlite uses a detection of 500 ppm or higher to trigger a repair event. Evidence of leak - visual, audible, olfactory, or any other detection method. If delay in repair is required, delay will be managed in accordance with 40 CFR 263.1059. First attempt at repair include, but not limited to: (1) Tightening of bonnet bolts (2) Replacement of bonnet bolts (3) Tightening of packing gland nuts (4) Injection of lubricant into lubricated packing.				

40 CFR 264/ 6 NYCRR 373-2.28 Subpart BB & MACT 40 CFR 61 Subpart V Compliance Requirements

Equipment/Location	Reporting as per 40 CFR 264.1065 & 6 NYCRR 373-2.28(p)	Reporting as per 40 CFR 61.247	Record In Inspection Log
40 CFR 264.1065 6 NYCRR 373-2.28(p) 40 CFR 61.247 Reporting Requirements	A semiannual report shall be submitted to the Regional Administrator by dates specified by the Regional Administrator. The report shall include the following information: The EPA ID#, name, and address For each month during the semiannual reporting period: (i) The ID # of each leaking valve (ii) The ID # of each leaking pump (iii) The ID# of each compressor Dates of unit shutdowns that occurred within the semiannual reporting period. For each month during the semiannual reporting period, dates when the control device exceeded or operated outside of the design specifications and was not corrected within 24 hours, the duration and cause of each exceedance, and any corrective measures taken. If, during the semiannual reporting period, leaks from valves, pumps, and compressors are repaired as required, and the control device does not exceed or operate outside of the design specifications for more than 24 hours, a report to the Regional Administrator is not required	A report shall be submitted to the Administrator semiannually starting 6 months after the initial report that includes the following information: Process unit identification For each month during the semiannual reporting period: (i) Number of valves for which leaks were detected (ii) Number of valves for which leaks were not repaired (iii) Number of pumps for which leaks were detected (iv) Number of pumps for which leaks were not repaired (v) Number of compressors for which leaks were detected (vi) Number of compressors for which leaks were not repaired (vii) The facts that explain any delay of repairs and, where appropriate, why a process unit shutdown was technically infeasible. Dates of process unit shutdowns which occurred within the semiannual reporting period Revisions to items reported if changes have occurred since the initial report or subsequent revisions to the initial report The results of all performance tests and monitoring to determine compliance with no detectable emissions conducted within the semiannual reporting period In the first report submitted, the report shall include a reporting schedule stating the months that semiannual reports shall be submitted. Subsequent reports shall be submitted according to that schedule, unless a revised schedule has been submitted in a previous semiannual report.	As per 40 CFR 264.1065(4)(b) & 6 NYCRR 373-2.28(p)(2), there is no requirement for a semi-annual report due to any leaking equipment being repaired as required and the control device not operating outside of design specifications. Should a semi-annual report ever be required, the report would be a standalone document and filed as such. As per 40 CFR 61.247, Norlite does not submit a semi-annual report to the Administrator. Due to the extremely low number of leaks which exist, Norlite uses the quarterly Subpart BB reports to document the information required in the referenced regulation.

APPENDIX 17.

Subpart CC Compliance

Norlite Corporation Subpart CC Inspection Program

Background

Norlite Corporation (Norlite) operates six vertical above ground tanks, four horizontal covered aboveground tanks, and five other ancillary tanks for a total storage capacity of 155,579 gallons as per 6 NYCRR 373-2.29. These tanks are subject to routine and scheduled inspections as per 6 NYCRR 373-2.29(e)(7)(iii)(a): the fixed roof and its closure devices shall be visually inspected by the owner or operator to check for defects that could result in air pollutant emissions. The closure devices shall be designed to operate such that when the closure device is secured in the closed position there are no visible cracks, holes, gaps, or other open spaces in the closure device or between the perimeter of the cover opening and the closure device. For the purpose of this inspection, closure devices on the tanks are flanged and the inspection will focus on the flange connection. Overall defects to inspect for include, but are not limited to, visible cracks, holes, or gaps in the roof sections or between the roof and the tank wall; broken, cracked, or otherwise damaged gaskets; and broken or missing hatches, access covers, caps, or other closure devices. As per 6 NYCRR 373-2.29(i)(2): the owner or operator shall develop and implement a written plan and schedule to perform the inspections and monitoring required. The owner or operator shall incorporate this plan and schedule into the facility inspection plan required under subdivision 373-2.2(g) of this Subpart.

This document serves as a written plan and schedule to perform the required inspections and monitoring detailed in 6 NYCRR 373-2.29(e)(7)(iii)(a). As detailed in 6 NYCRR 373-2.29(e)(7)(iii)(c)(3): the owner or operator shall perform an initial inspection of the air emission control equipment and thereafter, the owner or operator shall perform the inspections at least once every year. Norlite will conduct an annual visual inspection for defects, cracks, holes, gaps, damaged gaskets or other defects which could result in air pollution emissions in conjunction with one of the quarterly Subpart BB inspections conducted by Norlite personnel. The results of the visual inspections will be kept on-site for three years and then stored off-site for the life of the facility.

Equipment to be Inspected

Norlite personnel will inspect the tanks listed in Module IV of the Part 373 Permit issued to Norlite on January 18, 2008. In short these tanks are Tanks 100A, 100B, 100C, 200A, 200B, 200C, 300, 400, 500, 600, 101A, 101B, 102A, 102B, and SP100. Specific drawings for these tanks and their associated equipment can be found in Attachment M of the Part 373 permit issued to Norlite on January 18, 2008. The specific drawing numbers are as follows: NY003-5010, NY003-1312, NY003-1314, NY003-1315, and NY003-1317. While 6 NYCRR 373-2.29(e)(7)(iii)(a) specifies a visual inspection of only the fixed roof and its closure devises, where accessible Norlite will visually inspect the entire outer tank surface plus any closure devices on the tank

surface. Any other ancillary equipment attached to the tank is covered under 6 NYCRR 373-2.28 and will not be included in this inspection.

Inspection Results

As per 6 NYCRR 373-2.29(j)(2), the owner or operator shall record: a. a tank identification number as selected by the owner or operator, b. the date of the inspection was conducted, and c. any defects found. For each defect found during the inspection, the following information will be recorded: the location of the defect, a description of the defect, the date of detection, and corrective action taken to repair the defect. If the repair of the defect is delayed in accordance with the provisions of subdivision 373-2.29(e)(11), the owner or operator shall also record the reason for the delay and the date that completion of repair of the defect is expected.

Requirements for Defect Repairs

As per 6 NYCRR 373-2.29(e)(11): the owner or operator shall repair each defect detected during an inspection as follows:

(i) The owner or operator shall make first efforts at repair of the defect no later than 5 calendar days after detection, and repair shall be completed as soon as possible but no later than 45 calendar days after detection.

(ii) Repair of a defect may be delayed beyond 45 calendar days if the owner or operator determines that repair of the defect requires emptying or temporary removal from service of the tank and no alternative tank capacity is available at the site to accept the hazardous waste normally managed in the tank. In this case, the owner or operator shall repair the defect the next time the process or unit that is generating the hazardous waste managed in the tank stops operation. Repair of the defect shall be completed before the process or unit resumes operation.

Requirements of 40 CFR 265.1084(d)

As per 40 CFR 265.1084(d)(1): the test shall be conducted in accordance with the procedures specified in Method 21 of 40 CFR part 60, appendix A. Each potential leak interface on the cover and associated closure devices shall be checked. Norlite currently conducts Method 21 testing on the agitators of all the tanks listed previously in this document. As per 40 CFR 265.1084(d)(9): for the seals around a rotating shaft that passes through a cover opening, the arithmetic difference between the maximum organic concentration indicated by the instrument and the background level shall be compared with the value of 10,000 ppm. If the difference is less than 10,000 ppm, then the potential leak interface is determined to operate with no

detectable organic emissions. Norlite uses a limit of 500 ppm as a determination of leak. Any readings over 500 ppm will trigger maintenance to be conducted on the agitator packing.

Inspection Form

See the attached form for an example of the form which will be used to conduct and document the annual inspection.

Norlite Subpart CC Annual Inspection

Visual Inspection

PURSUANT TO 6NYCRR 373-2.29

INSPECTION DATE: _____

INSPECTOR NAME: Thomas Van Vranken

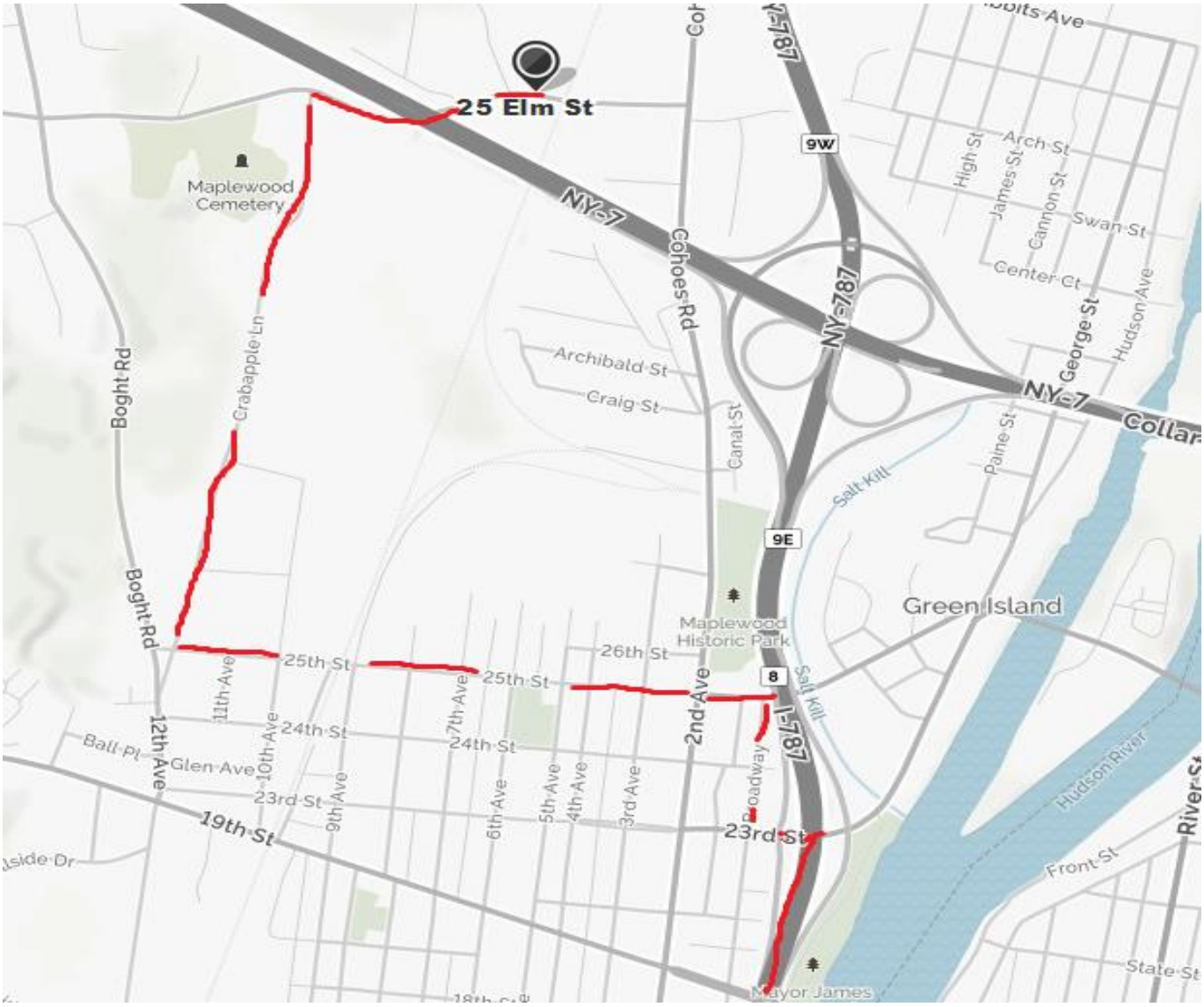
NORLITE CORPORATION
628 South Saratoga Street
Cohoes, NY 12047

TANK ID#	Drawing Reference	Defects Found (Yes or No)	Description of Defect Including Location, Date, and Corrective Action Taken, and Reason for Delay if One Exists
100A	Subpart CC/DD #1		
100B	Subpart CC/DD #1		
100C	Subpart CC/DD #1		
200A	Subpart CC/DD #1		
200B	Subpart CC/DD #1		
200C	Subpart CC/DD #1		
300	Subpart CC/DD #3		
400	Subpart CC/DD #3		
500	Subpart CC/DD #3		
600	Subpart CC/DD #3		
101A	Subpart CC/DD #2		
101B	Subpart CC/DD #2		
102A	Subpart CC/DD #2		
102B	Subpart CC/DD #2		
SP100	Subpart CC/DD #4		

INSPECTOR SIGNATURE: _____

FIGURES

NORLITE DESIGNATED TRUCK ROUTE



The directions are as follows:

From I-787, take Exit 8, 23rd Street (Watervliet). Off the Exit ramp, proceed 0.1 miles (West) on 23rd Street to Broadway.

Tum Right onto Broadway and proceed 0.2 miles (North) to 25th Street.

At 25th Street, turn left and proceed 0.5 miles (West) to Crabapple Street.

Turn Right onto Crabapple Street and proceed 0.8 miles (North) to Elm Street.

Tum Right onto Elm Street and proceed 0.2 miles (East) to Norlite Delivery Entrance on the left.

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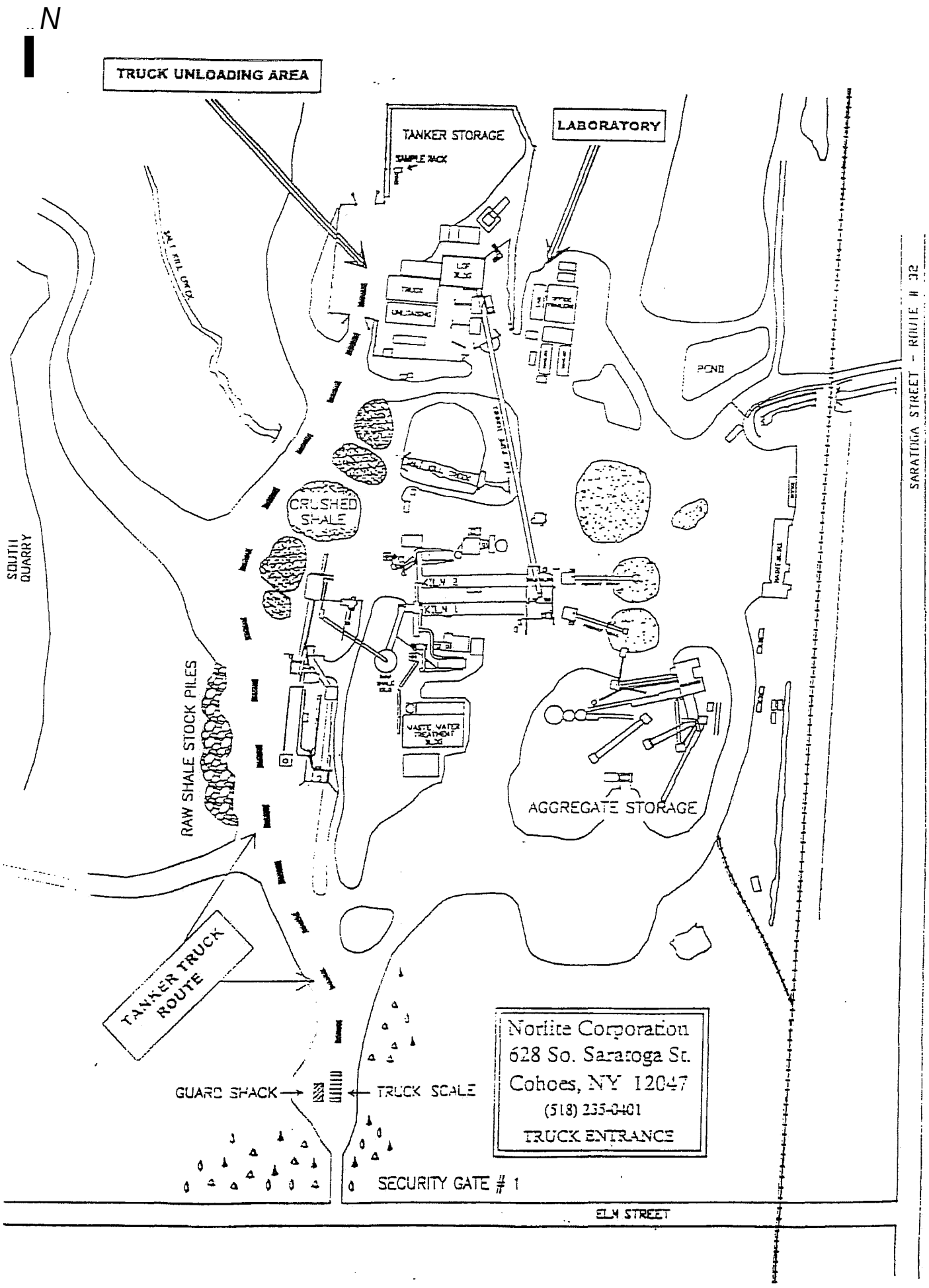
O Copyright 2000 by Geographic Data Technology, Inc. All rights reserved. O 2000 Navigation Technologies. All rights reserved. This data includes information taken with permission from Canadian authorities O Her Majesty the Queen in Right *at* Canada. O Copyright 2000 by Campusearch Micromarketing Data and Systems Ltd.


N
TRUCK UNLOADING AREA
TANKER STORAGE
LABORATORY
POND
SARATOGA STREET – ROUTE # 32
SOUTH QUARRY
CRUSHED SHALE
RAW SHALE STOCK PILES
AGGREGATE STORAGE
TANKER TRUCK ROUTE
GUARD SHACK
TRUCK SCALE
SECURITY GATE # 1
ELM STREET
Norlite Corporation
628 So. Saratoga St.
Cohoes, NY 12047
(518) 235-0401
TRUCK ENTRANCE

WASTE ANALYSIS PLAN

NORLITE LLC
COHOES, NEW YORK
NYD080469935

PREPARED FOR:

NORLITE LLC
628 SOUTH SARATOGA STREET
COHOES, NEW YORK 12047

PREPARED BY:

NORLITE LLC
628 SOUTH SARATOGA STREET
COHOES, NEW YORK 12047

June 2020

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WASTE ANALYSIS PLAN

The purpose of this Waste Analysis Plan is to provide descriptions of the waste analysis procedures utilized by Norlite LLC (Norlite) to ensure compliance with 6 NYCRR Part 373-2.2(e). Included in this document are descriptions of each hazardous waste stream generated at the facility including detailed waste characterizations, descriptions of the processes that generate the waste, and the waste analysis plan for each waste stream. Elements of the Waste Analysis Plan include the parameters to be analyzed for, the method for analyzing each parameter, the preservation method, and the holding time.

Unless otherwise noted, the methods for analyzing each parameter are derived from the document entitled, "Test Methods for Evaluating Solid Waste, United States Environmental Protection Agency (SW-846), Third Edition, First Update 1990" or latest approved revisions. The rationale for choosing the parameters to be analyzed is based on past laboratory analyses of the waste stream, knowledge of the constituents of the waste stream, and the processes that generate the waste stream. It should be noted that in the absence of USEPA or NYSDEC- approved methods listed in this Waste Analysis Plan, alternate analytical methods may be utilized as approved by NYSDEC.

This Waste Analysis Plan is incorporated by reference into the Part 373 Permit for the Norlite facility. In the event that changes are made to the facility that affect the content of this plan, this plan will be updated in accordance with the requirements of **Condition I** of Module 1.

1.0 FACILITY DESCRIPTION

1.1 Description of Facility Processes and Activities

Norlite's hazardous waste activity consists of the tank and container storage of hazardous waste and liquid low grade fuel (LLGF) from various industrial sources, as well as non-hazardous wastes. This low grade fuel is beneficially reused for energy recovery and/or incinerated for destruction by combustion in Norlite's aggregate kilns. Norlite also transships hazardous waste for proper management at other permitted TSDFs. Tank sludge, filter sludge, and ancillary

waste materials that are generated in this process are accumulated in drums or containers for proper disposal both onsite and offsite.

The transportation, storage, and burning of hazardous waste in industrial furnaces is regulated under 40 CFR Part 266 of the federal RCRA regulations. These processes are also fully regulated by New York State under the Hazardous Waste Regulations 6 NYCRR Part 370, et sequential, and the Air Pollution Regulations 6 NYCRR Part 200, et sequential.

Norlite receives Liquid Low Grade Fuel (LLGF) from generators and blenders. Blenders of LLGF for energy recovery at Norlite are regulated as specified in 40 CFR Subpart 261.6(c) as owners and operators of facilities that store recyclable materials under all applicable provisions of 40 CFR Parts 264 and§265. Therefore, the characteristics and identification of the source of the recycled material will be made and documented by the Blender. Norlite will verify that the Blender is properly permitted under RCRA for the management of LLGF (hazardous waste fuel) and that they are identifying and characterizing the material they collect from other generators.

1.2 Identification/EPA Classification and Quantities of Hazardous Wastes Generated

Norlite has developed a program to ensure the proper identification of waste with a proper chemical and physical analysis. A Waste Profile Sheet is submitted by each generator or blender. Appendix 1 shows a copy of the Generators Waste Profile Sheet. This form requires the Generator or Blender to identify itself and provide waste shipping information, waste description, waste source(s), waste analysis, and a list of any hazardous constituents as defined in 40 CFR Part 261 - Appendix VIII and/or 6 NYCRR Part 371 - Appendix 23. The Waste Profile Sheet also requires a verification by the Generator that the information is accurate and, that if any changes occur, the Generator will notify Norlite promptly, and that the LLGF is not regulated as a PCB waste under 40 CFR Part 761.

Norlite reviews the Waste Profile Sheet to assure that the material to be received can meet approved permit limits and compatibility requirements.

In addition to listed wastes which may be identified on the waste profile, characteristic

hazardous wastes may also be received. Characteristics which may require a material to be defined as hazardous waste include, ignitability, corrosivity, reactivity, and toxicity.

1.2.1 Characteristic Ignitable Waste – D001

Typical constituents in ignitable waste may include the following categories that are not otherwise included as a listed waste: Saturated Aliphatic Hydrocarbons, Amides, Unsaturated Aliphatic Hydrocarbons, Amines, Aromatic Hydrocarbons, Carbamates, Organic Nitro Compounds in organic solutions, Phenols or Cresols in organic solutions, Aldehydes, Ethers, Esters, Alcohols and Ketones. With this array of chemicals, there is only limited potential for reactivity. The absence of incompatibility is verified with a compatibility test as part of the incoming inspection (Section 4.3.3 and SPO 04-063).

1.2.2 Characteristic Corrosive and Reactive Waste – D002 and D003

In addition, certain corrosive D002 wastes may be contained in the LLGF received at Norlite. Examples may include such materials as amines like triethanolamine, acetic or propionic acid, formaldehyde, and certain amides. Norlite also receives D003 waste in LLGF blends, however, the waste, as received, must not exhibit the characteristic. Such wastes are not accepted. However, certain generator waste streams may still require the D003 waste number designation to ensure compliance with Land Disposal Restriction (LDR) and waste characterization requirements.

Any waste received at the facility that is determined to be reactive, D003 or otherwise, by SOP 04-063 will be rejected back to the generator or other alternate approved TSDF.

1.2.3 Toxicity Characteristic Waste

In addition, combustible waste that may have heavy metals content, which makes it characteristically hazardous, is acceptable if the metal content is controlled to not exceed the permitted maximum feed rate levels of the metal in the total hazardous waste fed to the kiln. These Waste Codes include the following:

D004	D005	D006	D007	D008	D009	D010	D011

Waste codes D004 through D011 are prohibited from combustion under the Land Disposal Restrictions (LDR) unless the waste, at the point of generation, meets one or more of the six (6) criteria listed in 6 NYCRR Part 376.1(c)(3). Norlite will ensure and document on the Waste Profile Sheet that waste streams with any of these codes are acceptable for combustion pursuant to the LDR regulation prior to accepting such waste for combustion.

The following toxicity characteristic organic wastes are accepted if they are within the specifications listed for LLGF in Schedule 1 of Module 1.

D018	D019	D021	D022	D023	D024	D025	D026
D027	D028	D029	D030	D032	D033	D034	D035
D036	D037	D038	D039	D040	D041	D042	D043

1.2.4 Listed Non-Specific Source Waste (F-Listed Waste)

Norlite will accept waste designated as listed non-specific source waste with the following codes. The definitions of these wastes are found at 40 CFR Part 261.31 and 6 NYCRR Part 371.4. These wastes include mixtures and wastes that are derived from the treatment of these wastes so long as they are amenable for treatment at Norlite as discussed in the waste analysis plan.

F001	F002	F003	F004	F005	F032	F034	F035
F037	F038	F039					

1.2.5 Listed Specific Source Waste (K-Listed Waste)

Norlite will accept waste from a variety of specific sources including the petroleum refining industry. These waste codes include the following:

K001	K002	K003	K004	K005	K006	K007	K008
K009	K010	K011	K013	K014	K015	K016	K017
K018	K019	K020	K022	K023	K024	K025	K026
K027	K028	K029	K030	K046	K048	K049	K050
K051	K052	K060	K061	K062	K083	K084	K085
K086	K087	K093	K094	K095	K100	K101	K102

K103	K104	K105	K111	K112	K113	K114	K115
K116	K117	K118	K136	K141	K142	K143	K144
K145	K147	K148	K149	K150	K151	K152	K156
K157	K158	K159	K161				

Metal feed rates from L LGF blends containing K codes with metals will not exceed permitted levels, due to the feed planning procedures followed by Norlite to comply with metal limits in the permit.

Waste codes K002 through K008, K061, and K100 are prohibited from combustion under the Land Disposal Restrictions (LDR) unless the waste, at the point of generation, meets one or more of the six (6) criteria listed in 6 NYCRR Part 376.1(c)(3). Norlite will ensure and document on the Waste Profile Sheet that waste streams with any of these codes are acceptable for combustion pursuant to the LDR regulation prior to accepting such waste for combustion.

1.2.6 Listed Hazardous Chemical Waste (P-Listed and U-Listed Waste)

Specified listed hazardous chemical product wastes are accepted on a case-by-case basis if the waste is hazardous because of Ignitability or Toxicity and is otherwise within the specification listed herein.

The following P-listed waste codes are accepted by Norlite provided that the waste received contains less than 5% of the listed chemical. Organo-metallic constituents are restricted based on the metal limits in the 6 NYCRR Part 373 permit for LLGF.

P002	P003	P005	P007	P010	P011	P012	P013
P014	P016	P017	P018	P021	P022	P023	P026
P027	P028	P029	P030	P034	P036	P038	P041
P042	P046	P048	P049	P054	P060	P062	P064
P067	P068	P069	P074	P077	P082	P084	P093
P099	P101	P103	P104	P105	P110	P113	P114
P116	P118	P119	P120	P121	P188	P190	P191
P204							

Waste codes P010, P011, P012, P013, P029, P074, P099, P104, P113, P114, P119, and P120 are prohibited from combustion under the Land Disposal Restrictions (LDR) unless the waste, at the point of generation, meets one or more of the six (6) criteria listed in 6

NYCRR Part 376.1(c)(3). Norlite will ensure and document on the Waste Profile Sheet that waste streams with any of these codes are acceptable for combustion pursuant to the LDR regulation prior to accepting such waste for combustion.

These listed non-acute categories (U designated wastes), are listed in 6 NYCRR Part 371.4(d)(6). The following hazardous wastes, as listed in 6 NYCRR Part 371.4(d)(6), will be accepted.

U001	U002	U003	U004	U005	U006	U007	U008
U009	U010	U012	U015	U016	U017	U018	U019
U020	U021	U022	U024	U025	U027	U028	U030
U031	U034	U035	U037	U039	U041	U042	U043
U044	U045	U046	U047	U048	U049	U050	U051
U052	U053	U055	U056	U057	U059	U063	U064
U068	U069	U070	U071	U072	U073	U074	U075
U076	U077	U078	U079	U080	U081	U082	U083
U085	U086	U087	U088	U089	U090	U091	U092
U093	U094	U095	U096	U097	U098	U099	U101
U102	U103	U105	U106	U107	U108	U109	U110
U111	U112	U113	U114	U115	U116	U117	U118
U119	U120	U121	U122	U123	U124	U125	U126
U127	U128	U131	U133	U134	U135	U137	U138
U140	U141	U143	U144	U146	U147	U149	U150
U152	U153	U154	U155	U156	U157	U158	U159
U160	U161	U162	U163	U164	U165	U166	U167
U168	U169	U170	U171	U172	U173	U174	U176
U177	U178	U179	U180	U181	U182	U183	U186
U187	U188	U190	U191	U193	U194	U196	U197
U201	U202	U203	U206	U207	U208	U209	U210
U211	U213	U214	U218	U219	U220	U221	U222
U223	U225	U226	U227	U228	U235	U236	U238
U239	U243	U244	U246	U328	U353	U359	U375
U376	U377	U378	U379	U381	U382	U383	U384
U385	U386	U387	U390	U391	U392	U393	U394
U395	U396	U400	U401	U402	U403	U404	U407
U410							

1.2.7 Specification of the Liquid Low Grade Fuel

LLGF usually has a flash point of 200°F or lower. The LLGF is not reactive.

However, LLGF may be a Toxic waste as defined in 6 NYCRR Part 371.3(e) because the heavy metal and organic compound concentration may exceed the limits set forth in that section. Also, LLGF may contain a characteristic corrosive waste.

Norlite stores the LLGF in its storage tanks or in a container storage area. The tanks and containers are located in a diked area. The design and operation for the tanks and containers are described in the Operations Plan. The LLGF, having been pre-screened, is non-corrosive to the glass-lined (Tanks 300-600) or carbon steel (Tanks 100 A,B,C and 200 A,B,C) storage tanks designed with suitable corrosion allowance. The necessary specification for the fuel has been provided to the suppliers, and has been confirmed with their Generators Waste Profile Sheet, and with the Norlite analysis provided prior to burning and unloading.

1.2.8 Waste Generated Onsite

Hazardous wastes are generated from the cleaning of the LLGF storage tanks; they also include filter sludge generated during the off-loading of the LLGF into the storage tank, and ancillary waste material such as absorbent pads, contaminated personnel protective equipment, glass sample jars, and laboratory pipets from sampling and analysis. The waste is generally contaminated with waste solvent and alcohol. The sludge is a hazardous waste because of Ignitability and Toxicity. The sludge is manifested, at a minimum, with the following waste classifications: D001, F001, F002, F003, and F005 due to its ignitable characteristic and the presence of solvent as well as being a "derived from" waste. Between tank cleanings, Norlite records all listed waste codes that are stored in each tank so that all applicable "derived from" waste codes are properly applied to the residuals.

The tank cleaning operation is conducted periodically based on estimates of sludge quantity in the storage tank. The sludge generated by the tank cleaning operation is removed from the tanks and placed in drums for disposal. Norlite contracts with an experienced environmental contractor for the tank cleaning operation. The cleaning of one storage tank generates approximately 20 to 80 drums. These drums are temporarily stored in the truck containment area while the contents are being analyzed and arrangements are being made for disposal. Generally, the drums are disposed of within three to six weeks from the date of generation. Tanks are usually cleaned, and the sludge removed, on a biennial basis.

If the tank bottom sludge contains free liquids, it can be characterized as LLGF as required in this Waste Analysis Plan and tested per the LLGF testing parameters and criteria and transferred to onsite tanks for burning in the kilns. If the tank bottom sludge does not contain free liquids, it will be shipped offsite for proper disposal.

The LLGF filters are the bell strainers that the trucks discharge through during the offloading process and prior to the LLGF tanks. They contain coarse metal baskets to remove debris that is large enough to damage the pumps or plug the piping. These filters are cleaned daily during delivery operations, generally after each load. The filters are opened, and the collected solids are scraped and shoveled out. The filter sludge is stored in the drum container storage area. If the filter sludge contains free liquids, it can be characterized as LLGF as required in this Waste Analysis Plan and tested per the LLGF testing parameters and criteria and transferred to onsite tanks for burning in the kilns. If the filter sludge does not contain free liquids, it will be shipped offsite for proper disposal. The drums will then be loaded and disposed of at a licensed TSD Facility.

The sludge and filter sludge (primarily waste solvent and alcohol) have proven to be compatible with the storage containers, which are constructed of low carbon steel that meets U.S. Department of Transportation specifications No. 17C. The drums are labeled and dated and are kept closed except during the loading/disposing of the waste material. The drums are spaced according to the plan set forth in the Operations Plan. The filter sludge and tank sludge are Ignitable with a flash point less than 140 degrees Fahrenheit. Norlite has found the filter sludge and tank sludge not to be corrosive or reactive. They are typically toxic because of heavy metal and organic compound concentrations that exceed the Toxicity Characteristic limits set forth in 6 NYCRR Part 371.3(c).

Water from all secondary containment systems is collected and pumped to the LLGF tanks to be managed as LLGF. This may include stormwater from the outside tanker staging area.

1.2.9 Used Oil Fuel and Waste Fuel A

Norlite is a generator and burner of used oil as defined under 6 NYCRR Part 374-2 and is subject to Parts 374-2.2, 374-2.4 and 374-2.5.

Norlite uses nonhazardous waste fuels that can be defined as used oil under 40 CFR 279 and 6 NYCRR Part 374-2, or Waste Fuel A as defined in 6 NYCRR Part 225-2 except PCB limits in this permit must be lower, as per Schedule 1 of Module 1. This fuel is used to supplement the hazardous waste LLGF in operating the lightweight aggregate kilns. Used oil is classified as either specification used oil fuel or off-specification used oil fuel. Specification used oil fuel is defined as used oil meeting the following criteria:

Used Oil Fuel Specification

Parameter	Limitation
Arsenic	< 5 ppm
Cadmium	< 2 ppm
Chromium	< 10 ppm
Lead	< 100 ppm
Flash Point	> 100°F
Total Halogens	< 4,000 ppm*
PCBs	< 2 ppm.

*any used oil containing greater than or equal to 1,000 ppm total halogens is considered a hazardous waste because it is presumed to be mixed with listed hazardous waste. This presumption may be rebutted by demonstrating that the used oil does not contain listed hazardous waste constituents pursuant to 40 CFR 279.10(b)(ii) and 6 NYCRR Part 374-2.2(a)(2)(i).

Used oil that does not meet this specification is considered off-specification used oil fuel.

Norlite uses specification used oil fuel for startup and shutdown of the kilns and any time the units are not operating under the Part 373 permit parameters (e.g. after an automatic waste feed cut off (AWFCO)). This fuel is considered equivalent to virgin fuel oils and may be used in place of virgin fuels as they are described in the permit.

Waste Fuel A is defined under 6 NYCRR Part 225-2.2 as any waste oil, fuel oil, or mixture of these to be burned which contains between 25 and 250 parts per million (by weight) lead and which meets the limitations of Table 2-1 of section 225-2.4 [reproduced below] and does not contain chemical waste.

Waste Fuel A Specification

Parameter	Limitation
Polychlorinated Biphenyls (PCB)	Less than 50 ppm(1)
Total Halogens	1,000 ppm(1) maximum
Sulfur	See Subpart 225-1 for fuel sulfur limitations
Lead	250 ppm(1) maximum
Gross Heat Content	125,000 (Btu/gal) minimum

(1) Parts per million (ppm) by weight (water free basis) of fuel

Off-specification used oil fuel and/or Waste Fuel A are not used during start up or shutdown of the kilns. They are used as the primary supplement to the hazardous waste LLGF when required by the operators. While being co-fired with the LLGF, Norlite ensures that the total metals and chlorine feed rates are not exceeded by the off-specification used oil fuel and/or Waste Fuel A. These fuels may also be used after an AWFCO provided the carbon monoxide hourly rolling average (HRA) is below 500 ppm.

These fuels are characterized upon receipt at the facility. In order for Norlite to accept specification used oil fuel, it must be demonstrated, prior to receipt, that it meets the specification listed above. This is primarily done by Norlite onsite analysis but may also be done by submission of analysis from the marketer of the used oil fuel. Similarly, Waste Fuel A loads must also be scrutinized to ensure that it meets the definition at 6 NYCRR Part 225-2.2 and this is performed by Norlite onsite analysis only. Off-specification used oil fuel is also sampled and analyzed prior to receipt.

Oil meeting the definition of specification used oil fuel may be used for start up or shut

down of the kiln, after AWFCOs, and after AWFCOs of Off-Specification Used Oil Fuel/Waste Fuel A due to carbon monoxide levels over 500 ppm.

1.2.10 Comparable Fuels

Pursuant to 6 NYCRR Part 371-4(i), a generator may choose to classify a hazardous waste as a comparable fuel provided the waste stream meets the benchmark established in the regulation. The regulation is based on #2 fuel oil and the waste stream may not have any significant concentrations of organic compounds or metals as defined in the regulation. Should a generator classify a waste stream as a comparable fuel and satisfy the regulatory requirements in 6 NYCRR Part 371-4(i), Norlite will accept the stream as a fuel and use it in lieu of or in addition to virgin fuels and specification used oil. Although Norlite will rely on the sampling and analysis plan required of the generator under 6 NYCRR Part 371-4(i), verification sampling and analysis of comparable fuels at the facility will occur as described in Table WAP-1.

Norlite will manage comparable fuels in used oil tanks as described in the Operations Plan of this application. Should Norlite manage a comparable fuel in the LLGF tanks, the comparable fuel will be managed only as LLGF and subject to this Waste Analysis Plan as such. Norlite will comply with all applicable requirements of 6 NYCRR Part 371-4(i).

1.2.11 Remedial Waste

Norlite shall not accept hazardous waste from remedial activities unless it is in pumpable liquid form and has a heat content of at least 5,000 BTUs per pound. This means that the only candidate waste streams from a remedial action are those streams that essentially meet the description of LLGF and have a minimum heat value. Any remedial waste accepted will be considered LLGF and handled as such. If the pumpability of the candidate waste stream is in question, its viscosity will be tested as indicated on Table WAP-1 for LLGF.

1.2.12 Waste Fuel B

Norlite routinely accepts Waste Fuel B waste streams with the exception of Waste Fuel B-2, PCB wastes, which is specifically prohibited from receipt and burning. Waste Fuel B

is characterized in Air Guide 17 as used motor oil with concentrations of lead over 250 ppm, "burnable chemical waste" contaminated with PCBs, and "burnable chemical waste" with low or high concentrations of chlorine. All the LLGF accepted and characterized by Norlite can also be considered Waste Fuel B. In addition to the hazardous waste, nonhazardous waste can also meet the definition of Waste Fuel B. Any nonhazardous waste streams, with the exception of used oil streams discussed elsewhere in this plan, will be managed in the same manner as the hazardous waste fuels routinely accepted. According to 6 NYCRR Part 200, compliance with 40 CFR Part 264 Subpart O and the Hazardous Waste Combustors MACT requirements ensures compliance with 6 NYCRR Part 225-2.4. All Waste Fuel B is handled in the exact same manner as LLGF from acceptance to burning.

1.3 Description of Hazardous Waste Management Units

Hazardous wastes are stored at Norlite's facility in four (4) covered tanks with a capacity of 98,020 gallons, one (1) 9,271-gallon aboveground storage tank, five (5) 8,613-gallon aboveground storage tanks, four (2) 1,174-gallon aboveground storage tanks, 55-gallon or smaller drum containers, and rolloffs. The hazardous wastes received are blended and used as fuel in two lightweight aggregate kilns. Full details on the hazardous waste management units is found in the Operations Plan.

1.3.1 Containers

Rolloff containers that contain hazardous waste in solid form are stored in the Tanker Staging Area. Such waste must not contain free liquids. The waste is tested for free liquids as described on Table WAP-1.

1.3.2 Miscellaneous Units

RESERVED

1.3.3 Air Emissions from Process Vents

RESERVED

1.3.4 Air Emissions from Equipment

The facility is designed and operated to manage hazardous waste with high organic content. Norlite performs no analysis to demonstrate that hazardous waste received at the plant is of low organic content so as to exempt the equipment from the requirements of RCRA Subpart BB.

1.3.5 Air Emissions Standards for Tanks, Surface Impoundments and Containers

The facility is designed and operated to manage hazardous waste with high organic content. Norlite performs no analysis to demonstrate that hazardous waste received at the plant is of low organic content so as to exempt the equipment from the requirements of RCRA Subpart CC. Tanks and containers are managed at the facility with Level 2 controls.

1.3.6 Containment Buildings

RESERVED

2.0 WASTE ANALYSIS PARAMETERS

The waste analysis parameters considered by Norlite are presented in Table WAP-1 as they relate to each hazardous waste, Waste Fuel B-1, Waste Fuel B-3, Waste Fuel B-4, off- specification used oil fuel, and Waste Fuel A managed at the facility. Table WAP-1 also addresses the parameters that are considered for the shale feed, comparable fuels, specification used oil fuel, natural gas, and fuel oils.

2.1 Criteria and Rationale for Parameter Selection

An accurate representation of a waste's physical and chemical properties is critical in determining its acceptability at Norlite. Accordingly, the waste analysis parameters must provide sufficient information to ensure:

- Compliance with applicable regulatory requirements (e.g., LDR regulations, newly identified or listed hazardous wastes)

- Conformance with permit conditions (i.e., ensure that wastes accepted for management fall within the scope of the facility permit, and process performance and air emission standards can be met)

- Safe and effective waste management operations (i.e., ensure that no wastes are accepted that are incompatible or inappropriate given the type of management practices used by the facility).

2.2 Special Parameter Selection Requirements

Norlite is subject to regulations promulgated at 40 CFR 266 Subpart H and 6 NYCRR Part 374-1.8 for boilers and industrial furnaces that burn hazardous wastes. These regulations establish control standards for emissions of toxic organic compounds, toxic metals, hydrogen chloride, chlorine gas, and particulate matter from the burning of hazardous wastes in boilers and industrial furnaces (BIFs). Therefore, analyses of these parameters are considered in this plan. Norlite has performed a comprehensive performance test (CPT) in which the facility's destruction removal efficiency (DRE) for organic wastes was demonstrated and its system removal efficiency (SRE) was derived for metals. The data from the CPT is used to determine

the allowable feed rate of metals and chlorine to the kilns. The DRE was demonstrated using principal organic hazardous constituents (POHCs) that are considered difficult to incinerate and are rated on the Thermal Stability Index.

As a result of the special nature of a combustion facility, the contributions of all feed streams, hazardous waste or otherwise, are considered. Therefore, the off-specification used oil fuel/Waste Fuel A that is co-fired with hazardous waste is characterized to account for its contribution of the key parameters as is the specification used oil fuel, comparable fuels, natural gas and virgin fuel oils. The shale raw material that becomes the lightweight aggregate is also characterized to account for its contribution of metals to emissions.

3.0 SAMPLING PROCEDURES

Sampling is performed using the procedures described in EPA SW-846, 3rd Edition, September 1986, Chapter 9. See Table WAP-4 for the list of sampling SOPs.

3.1 Sampling Strategies and Equipment

3.1.1 Incoming Loads, Bulk

Sampling of the LLGF, Waste Fuel B-1, Waste Fuel B-3, Waste Fuel B-4, off-specification used oil/Waste Fuel A, specification used oil fuel, comparable fuels, and virgin fuels from each tanker is accomplished using SOP #4-004 found in Appendix 1 of the Operations Plan.

After analysis, the remainder of the sample is stored in its glass jar with a lined cap. The jar is marked to indicate the following:

Date Received
Norlite Sample Number
Generator

Each sample will be stored in the flammable storage refrigerator at a temperature of 0-6°C for at least three months or until the material has been burned or until all questions are resolved regarding the received material, whichever is longer.

At the time of sampling, Norlite will compare the sample to the Waste Profile Sheet provided by the Generator. With the Waste Profile Sheet as a reference, each waste stream can be checked for proper name and identification and to ensure that the waste stream has not changed significantly.

3.1.2 Incoming Loads, Drums

The coliwasa sampler, hollow tube, or thief is employed to sample the drums of waste received from generators off-site. At least 100 ml is taken as a representative sample of each drum. Norlite performs 100% sampling of drums and each drum sample goes through the compatibility procedures as well as visual inspection.

A composite sample is also prepared for each unique waste stream by randomly selecting the samples from 10% of the drums for each unique waste stream. The composite samples will be made up of no more than five (5) individual drum samples. For example, if a waste stream is contained in eighty (80) drums, eight (8) samples will be selected to make two (2) composite samples to represent the waste stream. The composite samples are managed in the same manner as the incoming bulk samples with respect to labeling and storage. Further details on container management are provided in SOP #4-011, found in Appendix 1 of the Operations Plan.

3.1.3 Storage Tanks

Storage tanks are sampled for confirmatory analysis or to obtain waste material for compatibility determinations. This is performed on a grab basis for the agitated storage tanks by using the sampling port on the side of the tanks. For the covered tanks, the sample is drawn from the pump while the tank is being recirculated.

3.1.4 Shale

Norlite operates an active shale quarry onsite. As needed, shale is blasted and conveyed to the primary crushing plant for sizing prior to introduction to the kiln. Norlite must consider the contribution of metals and chlorine to the kiln from the shale. Raw shale samples are collected from the blasted shale after every blast. There are four (4) grab samples taken and composited for analysis. The samples are taken from four (4) different areas of the blast in order to obtain a representative sample. Grab samples are composited in a clean "ZIPLOCK" style plastic bag for delivery to the onsite laboratory.

This composite sample for the blast is prepared by randomly selecting a portion of the sample and crushing it so that it passes through a 100 mesh filter. The prepared sample is then analyzed for metals and total halogens.

3.1.5 Wastes Generated Onsite

The tank sludge is accumulated in the containers on the storage pad. Each container is labeled indicating when accumulation in the containers has occurred. The containers are

sampled if 80 or more containers have been accumulated, or when waste determination needs to be verified. A single sample from a single drum will be taken for every twenty (20) drums of tank sludge generated per tank cleaning. Taking one sample from any of the twenty drums should be representative of the waste in all twenty drums. The samples are not composited, and each sample is analyzed for the parameters required by the disposal vendor or for Norlite's 6NYCRR Part 373 incinerator parameters, if the sludge is incinerated on-site. If the waste is not uniform, more samples will be taken and composited to assure representativeness.

Filter cleaning wastes are sampled in the same manner as the tank sludge wastes although they may be composited.

A clean metal or glass coliwasa, hollow tube, or sample thief is used to sample since it is known that the waste is not corrosive to these materials. All samples are stored in glass quart containers with lined caps. The sampling device and containers are either decontaminated or disposed of as waste.

3.2 Sample Preservation and Storage

Samples are stored at 0-6°C if they cannot be analyzed within one hour of collection. Retained samples are stored at 0-6°C after analysis.

3.3 Sampling QA/QC Procedures

Sampling conducted for the purpose of characterizing or verifying wastes at Norlite will use appropriate QA/QC procedures as described in the SOPs, including chain-of-custody logs at the laboratory, and compatible storage containers. The sample containers and equipment will be cleaned before sampling. Additionally, Norlite personnel will perform sampling rather than outside transporters. For trucks with multiple compartments, the sample personnel will use multiple coliwasas or will decontaminate the coliwasa after each use before collecting another sample.

3.4 Health and Safety Protocols

Safety and health concerns are taken into consideration when conducting sampling at the facility. Employees who perform sampling activities are properly trained with respect to the hazards associated with waste materials as detailed in the Personnel Training Plan.

Employees are trained in the use and selection of proper protective clothing, respiratory protection, eye protection, splash control and equipment that must be used when performing sampling activities. Hazard identification involving hazardous materials is central to the facility's health and safety training. Employees are trained in routes of exposure. Protection is provided by requiring the use of air purifying respirators using organic vapor/acid gas cartridges, safety glasses and chemical resistant gloves and clothing. Spent personal protective equipment is collected and properly disposed offsite.

4.0 LABORATORY TESTING AND ANALYTICAL METHODS

4.1 Selected Laboratory

With the exceptions listed below, analyses required under this Waste Analysis Plan are performed by the onsite analytical laboratory. The Norlite Laboratory is certified under New York State ELAP and the national ELAP programs. A quality assurance/quality control ("QA/QC") program has been set up for the Norlite laboratory for the parameters analyzed onsite. Please refer to the QA manual for specific information on the QA/QC program.

The Norlite Laboratory does not perform the following analytical methods: 8141, 8151, 8290, 8260, 8270 and 9056. These are performed at an offsite ELAP certified laboratory.

Additionally, a QA/QC program has been established by a primary outside contract laboratory. This independent laboratory provides for the analysis of pesticides when required. The outside laboratory will also perform organic analysis listed in Table WAP-1 for organic constituents as may be required on an annual basis for Generators and Blenders as well as perform duplicate analysis of those parameters performed onsite as a quality control check. Other SW-846 organic analysis methods that are not listed in Table WAP-1 may be substituted if they are more clearly applicable. When a method is substituted for one of the Table WAP-1 listed methods, the Department will be notified of the substitution together with an explanation of the reason and with a description of the waste stream in the next monthly report. Additionally, for analysis submitted by a Generator or Blender, Norlite requires that the analysis be performed using the methods contained in this plan and that the analysis is performed by a laboratory that is certified under NYS ELAP. The results of all analyses will be kept on file at Norlite for each waste stream and will be included in the facility operating record.

4.2 Laboratory Quality Assurance/Quality Control Plan

Norlite has developed a quality assurance/quality control (QA) Manual that provides for the attainment of desired quality levels in its onsite laboratory. The QA Manual has

been designed to meet or exceed the guidance criteria of the United States Environmental Protection Agency (USEPA) and the New York State Department of Environmental Conservation (NYSDEC). The QA manual has been designed to assure that the analytical results provided by the laboratory are reliable and valid (including the qualities of accuracy, precision, completeness, representativeness, and comparability.) Norlite's QA manual and the list of methods for which the laboratory is certified has been submitted separately to the NYSDEC as a controlled document. As required by NELAP, this document will be reviewed and modified on a periodic basis. Any revisions will be forwarded to NYSDEC for review.

Norlite obtained state and national certification (NYS ELAP 11526 & NELAP NYS11526) to conduct analyses onsite. Norlite may use an independent lab for analysis if the facility's on-site laboratory is not able to analyze samples within the constraints of the QA/QC plan.

Modification or deviations of procedures, if necessary, will be documented with the data and reported in the monthly report to the Department.

4.3 Selecting Testing and Analytical Methods

In the event that the facility becomes subject to new regulatory requirements, additional testing methodologies shall be incorporated into the section above. The references to analytical methods reflect the most current version USEPA SW-846 Methods.

4.3.1 Specific Gravity

The specific gravity is measured as detailed in the SOP. See Table WAP -4 for the SOP number. If the result does not agree within 10% with the original waste approval, the generator will be contacted, and the shipments waste samples further evaluated. If it is determined that the shipment can be handled within compliance with Norlite's permit, based on further analysis and discussions with the generator, then the waste will be accepted.

4.3.2 Quantity Verification

Each tanker truck load of LLGF will be weighed before and after unloading, and the net weight determined. The quantity verifications are recorded on the scale ticket which is filed

with the hazardous waste manifest as part of the record of delivery. Quantity verification for shipments of containers will be by piece count and recorded on the receiving paperwork.

4.3.3 Compatibility

Compatibility determinations are performed as described in the SOP. See Table WAP - 4 for the SOP number. A temperature rise of 10°C indicates a reaction has occurred. Wastes that fail the compatibility test will be rejected or denied approval. If the temperature rise is between 5°C and 10°C, special handling consideration concerning the rate of blending will be made.

4.3.4 Heat of Combustion

Heat of combustion is measured pursuant to the methods listed in Table WAP-1.

4.3.5 Halogen Determination

The total halogen content in LLGF and shale are measured using methodology as described in Table WAP-1. At this time, using these methods for chlorine analysis will constitute the "total halogen" analysis since fluorine, bromine, and iodine contribute positive interference to the methods and chlorine is the predominant halogen in the waste received at Norlite. Should better speciation be necessary based upon information received from the generator, SW-846 Method 9056A, or latest revision, may be used. The concentrations of the individual halogens would then be summed to yield a value for "total halogens".

4.3.6 Viscosity

Pumpability of the material is required. The waste is fed through the inner stainless-steel pipe and the atomization air is provided through the outer pipe. Minimum atomization pressure is maintained as required by Norlite's Title V Permit.

The viscosity of the material will be determined in accordance with methods listed in Table WAP-1 at ambient temperature as needed. The viscosity is measured using a Brookfield Test to verify the pumpability of the waste. If the sample of the waste appears to be too viscous to be effectively pumped at the fuel farm, the laboratory will perform the Brookfield

Test.

4.3.7 Metals

Metals (including mercury) are analyzed to verify concentrations are below permit levels. See Table WAP-1 for applicable methods for metals and mercury analysis. Modification or deviations of procedures, if necessary, to achieve the reported detection limits will be documented with the data and reported in the monthly report to the Department.

4.3.8 PCBs

See table WAP-1 for PCB analysis methods. Method detection limits will not exceed two (2) parts per million for each Aroclor. All positive PCB results will be analyzed with a matrix spike or matrix spike duplicates.

LLGF samples, representative of no more than five (5) deliveries may be composited in equal proportions by volume for PCB analysis. LLGF samples and used oil/Waste Fuel A samples shall not be combined in composite samples for PCB analysis.

Should initial analysis indicate PCB concentrations in composite samples greater than the quotient of 25 ppm divided by the number of samples in the composite, samples representative of each delivery comprising the composite will be analyzed for PCBs. Only those deliveries indicating PCB concentrations of less than 25 ppm of total PCBs will be unloaded into the storage tanks and burned. For the purposes of this waste analysis plan, "25 ppm of total PCBs" is defined as the sum of Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260. Norlite will provide the Department notice of any LLGF, off-specification used oil fuel, or Waste Fuel A shipment received with a PCB concentration greater than 10 ppm of total PCBs within 24 hours of receipt of the analytical results. Norlite will not accept or incinerate wastes containing over 25 ppm of total PCBs.

4.3.9 Solids - Bottom Sediment

Norlite performs a centrifuge test described in Table WAP-1 to determine the sediment

in a sample. This test separates mixtures into their immiscible layers.

5.0 WASTE EVALUATION FREQUENCIES

Due to Norlite's status as a "commercial TSDF," it is important that the facility be particularly thorough in evaluating and re-evaluating wastes. In order to ensure compliance with the operating permit and ensure the safety of the personnel, the community and the environment, Norlite frequently evaluates all wastes to (1) confirm that the information provided by the Generator and/or Blender is correct, and (2) detect any changes in the waste properties while managing the waste.

5.1 Initial Characterization and Re-evaluation

Prior to any shipments of hazardous waste to Norlite, a waste stream is characterized and approved as specified in Section 6.1. On an annual basis and/or when evidence exists that it has changed, the approved waste stream will be re-evaluated under the characterization procedures described in Section 6.1. For the re-evaluation, the Generator or Blender may certify that the waste stream has not changed provided there has been no evidence that the waste stream has changed. Support documentation for the certification decision will be filed and will be available onsite for review by the Department.

5.2 Hazardous Waste and Used Oil/Waste Fuel A Receipts

As described in Section 6.2, all shipments of hazardous waste and used oil/Waste Fuel A are sampled and analyzed. Specification used oil fuel is sampled and analyzed for PCBs and total halogens, at a minimum. This occurs only after the supplier has provided analysis proving the used oil meets the used oil specification.

A random shipment from a Blender will be sampled and analyzed for pesticide and herbicide constituents. See Table WAP-1 for sampling frequency. The sample will be taken from a shipment that has been characterized as being absent of pesticide and herbicide constituents.

A random shipment from a Blender will be sampled and analyzed for PCDD/PCDF even though the characterization indicates these constituents to be absent. See Table WAP-1 for sampling frequency.

5.3 Onsite Generated Wastes

Wastes generated onsite are characterized at least annually. They will be characterized more frequently when generated if they are to be reintroduced to Norlite's LLGF process so as to account for their contribution. They may also be characterized more often when they are shipped offsite to an authorized treatment facility should the receiving facility require more information.

5.4 Storage Tanks Prior To Burning

On a weekly basis, at least one (1) tank of LLGF will be sampled and analyzed prior to burning. The purpose of this sampling will be to confirm the accuracy of the calculations used to certify tanks for burning since every shipment of hazardous waste is sampled and analyzed for the key permit parameters.

6.0 SPECIAL PROCEDURAL REQUIREMENTS

This section of the waste analysis plan describes the procedures used to apply the sampling and analytical procedures to the hazardous wastes and raw materials managed at the facility.

6.1 Procedures for Receiving Wastes from Off-Site Generators

A Generators Waste Profile Sheet (Appendix 1), or its equivalent, will be completed and signed by each Generator and Blender. This document will be reviewed and approved by Norlite prior to any shipment of hazardous waste to the facility. The Waste Profile Sheet will be reviewed and updated on an annual basis and when the described waste stream changes. The waste stream will be reviewed by having the Generator or Blender certify that the waste stream has not changed or having them fill out a new Waste Profile Sheet. Support documentation for the certification decision will be filed and will be available onsite for review by the Department. Each re-evaluation for waste streams from Blenders will include a new waste stream analysis as will waste streams from generators that are found to be variable or less consistent.

Norlite does not accept polychlorodibenzo-p-dioxin (PCDD) or polychlorodibenzo-p- furan (PCDF) containing wastes and hazardous wastes listed as F020, F021, F022, F023, F026, F027, and F028. Any waste stream presented for approval that contains PCDD or PCDF will be denied approval. Wastes containing PCBs are restricted to those containing less than 25 ppm total PCBs, as defined as the sum of the Aroclors A1016, A1221, A1232, A1242, A1248, A1254, and A1260. Additionally, Norlite will not accept waste containing PCBs that are regulated under 40 CFR Part 761 or are defined as PCB waste under 6 NYCRR Part 371, regardless of the PCB concentration. Norlite will notify the Department within 24 hours of receipt of the analytical results, if waste containing greater than 10 ppm of total PCBs is received.

6.1.1 Generator

In addition to the Waste Profile Sheet and as documentation for the information contained therein, a Generator, for the first time and at least annually, must provide the following

information:

(a) Analysis for BTU, Total Halogen, Ash, Norlite's 14 regulated metals and PCB content. Norlite's on-site lab may perform this analysis for the generator.

(b) The identity of any hazardous constituents identified in Appendix 23 to 6 NYCRR Part 371 known or suspected to be present in the waste stream must be disclosed.

Any analysis performed to identify such hazardous constituents must be performed in accordance with SW-846 methods for the target compounds. The analysis must achieve the method's detection limit, corrected for any dilution required for the extract of the sample's matrix. A generator need only conduct the test necessary to identify the hazardous constituents that are suspected of being present.

(c) For those wastes produced by a known process, all chemicals present in concentrations in excess of 5% must be identified accounting for 100% of the composition. The components listed should include volatile aromatic organics, volatile chlorinated organics, other volatile organics, semi-volatile organics, and nonvolatile organics. This information must be substantiated by analytical data or other documentation (such as material safety data sheets).

(d) For those wastes produced by a process which is less well characterized, the Generator must produce an analysis identifying all chemicals present in concentrations in excess of 5 percent and Appendix 23 to 6 NYCRR Part 371 constituents that have a substantial concentration (in excess of 100 ppm) accounting for approximately 100 percent of the composition. The analysis should include one or more of the analyses identified in Table WAP-1.

Waste produced by known processes are those where the hazardous constituents can be identified and documented without need for analysis and the concentration

limits can be estimated with sufficient accuracy to assure Norlite that the PERMIT LIMITS and Acceptance Limits in Schedule 1 of Module 1 will be met and the EPA criteria for acceptable knowledge (as defined in the EPA Document "Waste Analysis At Facilities That Generate, Treat, Store, And Dispose Of Hazardous Wastes, A Guidance Manual", EPA 530-R-12_001, April 2015, Sections 1.2 and 1.2.2) are met. Waste produced by processes that are less well characterized are waste streams not meeting the foregoing definition.

6.1.2 Blenders

Blenders are subject to the similar requirements as Generators. Prior to receiving a load for the first time from a Blender, the Blender must complete a Waste Profile Sheet and submit a copy of its waste analysis plan. Norlite will work with the Blender to assure that the Blender's fuel meets Norlite's PERMIT LIMITS and Acceptance Limits in Schedule 1 of Module 1. This objective can be achieved by the Blender providing information and analyses on the component waste streams or producing information and analyses on a representative sample of the blended fuel. The same criteria applicable to Generators apply to Blenders.

A Blender must provide the following information:

(a) Analysis for BTU, Total Halogen, Ash, Norlite's 14 regulated metals and PCB content. Norlite's on-site lab may perform this analysis for the blender.

(b) The identity of any hazardous constituents identified in Appendix 23 to 6 NYCRR Part 371 known or suspected to be present in the waste stream must be disclosed. Any analysis performed to identify such hazardous constituents must be performed in accordance with SW-846 methods for the target compounds. The analysis must achieve the method's detection limit, corrected for any dilution required for the extract of the sample's matrix. A Blender need only conduct the test necessary to identify the hazardous constituents that are suspected of being present. If testing is required, the test could either be done on a representative sample of the blended fuel or by doing

the requisite analysis on the component waste stream that cannot be adequately identified by other means.

(c) For those wastes produced by a known process, all chemicals present in concentrations in excess of 5% must be identified accounting for 100% of the composition. The components listed should include volatile aromatic organics, volatile chlorinated organics, other volatile organics, semi-volatile organics and nonvolatile organics. This information must be substantiated by analytical data or other documentation (such as material safety data sheets).

(d) For those wastes produced by a process which is less well characterized, the Blender must produce an analysis identifying all chemicals present in concentrations in excess of 5 percent and Appendix 23 to 6 NYCRR Part 371 constituents that have a substantial concentration (in excess of 100 ppm) accounting for approximately 100 percent of the composition. The analysis should include one or more of the analyses identified in Table WAP-1.

(e) Waste produced by known processes are those where the hazardous constituents can be identified and documented without need for analysis and the concentration limits can be estimated with sufficient accuracy to assure Norlite that the PERMIT LIMITS and Acceptance Limits in Schedule 1 of Module will be met and the EPA criteria for acceptable process knowledge (as defined in the EPA Document "Waste Analysis At Facilities That Generate, Treat, Store, And Dispose Of Hazardous Wastes, A Guidance Manual", EPA 530-R-12_001, April 2015, Sections 1.2 and 1.2.2) are met. Waste produced by processes that are less well characterized are waste streams not meeting the foregoing definition.

Blenders will not be required to identify the name and location of their Generators. Blenders will be required to identify the Standard Industrial Code(s) or the industrial group of their Generators. Norlite is attempting to maintain flexibility with its handling of Blenders, while, at the same time, ensuring that it will not accept any LLGF that would prevent it from meeting

its Permit Limits and Acceptance Limits in Schedule 1 of Module 1, adversely impairing plant operations, or is ineligible for thermal treatment by regulation.

Blenders are required under 6 NYCRR Part 73 and 40 C.F.R. Part 264 or 265 to have their own approved waste analysis plan. The flexible approach identified herein will avoid duplication of sampling effort and, at the same time, provide adequate safeguard that only acceptable LLGF will be received by Norlite. Norlite will inspect and ensure that each Blender's waste analysis plan adequately addresses waste characterization and critical LDR requirements with respect to combustion. If a Blender is permitted to manage hazardous wastes for which Norlite is not permitted, then Norlite will notify the Blender in writing of the discrepancy and subsequent prohibition.

6.1.3 Onsite Generated Wastes

Occasionally the storage tanks need to be cleaned out, generating a tank bottom material. The tank sludge will have an EPA waste designation number depending on the material collected for burning (e.g., F001, F002, F003, F005, and/or D001). The sludge from the tank bottom will be a semi-solid. This material may contain paint or ink solids or other solid or semi-solid polymeric materials.

The identification of the sludge is made by completing a waste profile sheet as required by the disposal vendor. Since the waste is a "derived from" hazardous waste, analysis is not required to perform a hazardous waste determination. The analyses that are performed are those required by the disposal vendor in order to assure the safe storage, transport and management by reuse for energy recovery or incineration of this material. Typical requirements for each shipment may include analysis for toxic metals. The characteristics of this waste typically contain 30%-50% organic constituents, including solvents and oil. The remaining is polymer and solids. The flashpoint is less than 140°F.

The filtered solids from the offloading pad are a similar waste stream to the tank bottom sludge and are managed in the same way.

The personal protective equipment that is contaminated with the waste is characterized using generator knowledge so no sampling and analysis take place. The waste is characterized as "derived from" waste based upon the waste stream with which it is contaminated.

Water from the secondary containment units is pumped to the LLGF tanks. Before the water is pumped to the tanks, a sample is taken and analyzed for the LLGF parameters listed in Table WAP-1. Alternatively, the receiving tank may be sampled after material is added to verify conformance with the WAP.

Stormwater that collects in the Tanker Truck & Onsite Rolloff Staging Area is shipped offsite for treatment. On an annual basis, a sample is taken and analyzed for Toxicity Characteristic metals and organic compounds to ensure that the water does not meet the definition of hazardous waste. Toxicity Characteristic pesticides and herbicides are not analyzed because the facility does not accept such wastes.

6.2 Hazardous Waste and Used Oil/Waste Fuel A Receipts

After a waste stream (which includes LLGF, Waste Fuel B-1, Waste Fuel B-3, Waste Fuel B-4, remedial waste, as defined above, and nonhazardous waste, including waste water) has been characterized as described above, the material may be scheduled for delivery to the facility. When the waste arrives, the manifest (or other shipping paper as for the used oil deliveries) is inspected and the load is sampled as described in Section 3. Each bulk or containerized delivery is analyzed for the parameters listed in Table WAP-1. A composite of not more than 5 LLGF or used oil samples is analyzed for PCBs. The LLGF samples are not combined with the used oil/Waste Fuel A samples for PCB compositing.

If a load is within the permit limits, it is accepted for unloading to the tanks. However, if a load exceeds the permit limits, the load is reviewed to see whether it can be blended to within the permit limits. "Permit limits" refers to the actual "as-fired" limits for the fuel in the kilns. If the material cannot be blended, the load is not unloaded and the truck is removed from the site as soon as possible. The reason for the rejection is noted in item 19 of the manifest

and a copy of the manifest returned to the Generator. Norlite will provide the Department written notification of a shipment rejection in accordance with 6 NYCRR Part 373-2.

Typically, Norlite will accept LLGF that is up to 25 times the permitted feed rate of a constituent. Any LLGF that is over this threshold warrants careful consideration regarding its acceptability. Norlite will accept up to 100 times the permitted feed rate of a constituent depending on the volume of the LLGF with the very high concentrations of metals or total halogens and the volume and characteristics of the LLGF on hand as well as the LLGF that is expected to be received in the near future. For example, an LLGF load with 100 times the concentration of copper may be acceptable if the volume is only 100 gallons and the remainder of the LLGF in the plant is very low in copper.

Norlite will not accept any LLGF or other waste streams that exceed the acceptance limits described above or specified in Schedule 1 of Module 1.

Off-specification used oil fuel/Waste Fuel A loads are sampled in the same way that hazardous waste LLGF loads are sampled, which is described in Section 3. They are analyzed for the same parameters as the hazardous waste LLGF since the fuel will be co-fired with the LLGF and Norlite must consider all feed streams to the kiln while burning hazardous waste. The analysis will be reviewed to ensure that the fuel meets the definition of Waste Fuel A found at 6 NYCRR Part 225-2. For used oil that is shipped to Norlite as specification used oil fuel and will be used at Norlite as specification used oil fuel, the load will be sampled and analyzed for the parameters necessary to demonstrate that it does indeed meet the specification. Norlite may use analysis provided by the marketer of the used oil fuel to make this demonstration but will analyze the load for PCBs and Total Halogens. If Norlite accepts specification used oil fuel and intends to co-fire it with the LLGF, as is done with Waste Fuel A, then the specification used oil fuel shall be analyzed for the same parameters as the LLGF since Norlite must consider all feed streams to the kiln while burning hazardous waste. Specification used oil that is accepted for burning at the pilot nozzle is also sampled and analyzed. The results for the pilot fuel specification used oil are averaged as discussed in Section 6.12.5 of this WAP.

Norlite will not accept any off-specification used oil fuel/Waste Fuel A that exceeds the acceptance limits described above or specified in Schedule 1 of Module 1.

When Norlite accepts comparable fuels, a sample is taken and analyzed for heat of combustion and total halogens. One load in each ten (10) loads of each comparable fuel waste stream will be analyzed for all parameters for LLGF deliveries. No comparable fuels will be accepted that fail to meet the requirements of 6 NYCRR Part 371.4(i).

Virgin fuels oils and natural gas are not sampled and analyzed.

6.3 Receipt of Hazardous Wastes Containing Pesticides and Herbicides

Norlite does not accept listed hazardous waste that is listed for containing pesticides and/or herbicides or characteristic hazardous waste for EPA Waste Numbers D012-D017, D020, and D031.

6.4 Receipt of Drums

The samples taken from drums received at the facility are composited and analyzed as described below:

- Compatibility: 100% of the drums are sampled and analyzed individually for compatibility as described in SOP #4-063. Tests for oxidizer, peroxide, and water are performed as necessary if there is any reason to suspect their presence.
- Heat Value, Halogens, Specific Gravity, PCBs, and Ash: Samples from 10% of the drums of each waste stream are composited and tested for these parameters. Each composite is made up of no more than five (5) individual samples. If a waste stream is contained in more than fifty (50) drums, more than one composite sample is made for the waste stream.
- Metals: Drums are emptied into Tank 200A and then the tank's contents are sampled and analyzed to determine the metals concentrations for blending purposes. Norlite reserves Tank 200A for the consolidation of drummed material. However, if Tank 200A is unavailable to receive drummed material due to a lack of capacity or if the material in the tank is still being analyzed, drums can be emptied into

another inside tank such as 100A, 100B, or 200B assuming those tanks have capacity. Even if the drummed material is consolidated into another tank, the tank's contents are sampled and analyzed to determine the metals concentrations for blending purposes.

6.5 Receipt of Specification Used Oil Fuel

When Norlite receives a load of specification used oil fuel, the facility ensures that the marketer has performed the requisite analysis to certify the used oil as specification. No oil will be accepted from a marketer as specification used oil if the marketer has not analyzed it. Process knowledge is not acceptable to certify or claim that used oil is specification. Norlite will sample the specification used oil and analyze it for all WAP parameters. The analysis will be performed by the onsite laboratory using the same procedures used to analyze the LLGF for metals content. These concentrations will be used to calculate the feedrate of the metals to the kiln. These contributions are documented on the WAP-2 Sheet.

NYSDEC has agreed that contributions of metals and total halogens from the specification used oil fuel as pilot fuel that do not exceed one percent of the maximum permitted total feedrate of each metal or total halogens need not be considered.

6.6 Receipt of Comparable Fuels

Comparable fuels will only be accepted at the facility after the generator has complied with 6 NYCRR Part 371-4(i) and Norlite has notified the generator of its intent to accept the comparable fuel stream. Each load will be sampled and analyzed for heat of combustion, bottom sediment, water, and PCBs. Viscosity will be tested only as necessary. The metal feedrates will be calculated based on the concentrations established by the generator's feed stream analysis plan. Norlite will analyze one load of every ten (10) loads of each comparable fuels stream for the full LLGF analysis described on Table WAP-1 to ensure the full quality and consistency of the comparable fuel. When necessary, these contributions will be documented on the WAP-2 Sheet.

NYSDEC has agreed that contributions of metals and total halogens from the comparable fuels used as pilot fuel that do not exceed one percent of the maximum permitted total feedrate

of each metal or total halogens need not be considered.

6.7 Blended LLGF for Burning

When preparing a tank of LLGF (which includes LLGF, Waste Fuel B-1, Waste Fuel B- 3, Waste Fuel B-4, remedial waste, as defined above, and nonhazardous waste, including waste water) for burning, Norlite determines the heat value of the fuel and the concentration of metals and total halogens in the fuel. This is accomplished by 1) calculation based upon the original analysis of the fuel that makes up the tank, or 2) sampling and analysis of the tank. Each load of LLGF is sampled and analyzed upon receipt as described in Section 5.2 of this WAP. A control procedure will prevent the burning of any waste until the BTU, Total Halogens, PCB, and metal parameters have been verified. An analysis form (WAP-2 Sheet) will be completed for each tank burned indicating the analyzed or calculated values for each permit parameter, the dates of analysis and/or calculation, and the date of authorization to burn the waste from the designated tank. The tank will be locked while being filled and will not be unlocked until the PCBs, Metal, Specific gravity, and Halogen content is completed, verified, and shown to be below permit limits. The tanks are locked with physical pad locks on the bottom and top valves and the recirculation valve. The volume of the tanks is measured using either ultrasonic or radar level gauges. These units do not require routine maintenance and are set based upon the vertical distance from the top of the tank to the bottom. They measure the distance from the top of the tank to the liquid level and calculate the percentage of the vessel that is filled with liquid. They are accurate while the agitators are in operation because the top of the liquid remains fairly level.

6.7.1 LLGF Kiln Feed by Calculation

The calculation for BTU, Halogen content, and PCB will be accomplished by using a weighted average of the results analyzed for the tank or for the received loads of LLGF that were placed in the tank:

$$\frac{(Vol_1)(X_1)+(Vol_2)(X_X)^{+\cdots}}{(Vol_{total})} = X_{total}$$

After a tank of LLGF has been burned, a reading of the level of the tank is taken and reported to the laboratory. The laboratory personnel will consider this residual volume the next time the tank is used to make a fuel blend. All transfers of LLGF within the tank farm are reported to the laboratory by telephone or other electronic means so that an accurate accounting of fuel analysis and transfer is kept and logged.

The results of the heat value, metals, and total halogens calculations of the LLGF tank are used to prepare a WAP-2 form documenting the heat value, metals, and total halogens feed to the kiln. These feed rates must be in compliance with the LLGF limits in the Part 373 Permit.

Norlite uses the same procedure for separately determining the contribution of heat value, metals, and total halogens from the Off-Specification Used Oil/Waste Fuel A feed, which is called "Kiln Oil" on the WAP-2 sheets. This is the feed that comes from Tank 9 and is co-fired through the main burner assembly with the LLGF.

6.7.2 LLGF Kiln Feed by Analysis

Due to the propagation of error that can potentially occur in the calculation method described above, Norlite randomly confirms the calculated values through sampling and analysis. On a weekly basis, a storage tank is sampled as described in Section 3.1.3 and analyzed. The subject tank will be one that has multiple waste transfers and has not been completely emptied over the previous week.

When a storage tank is tested for confirmation of the calculated results, it is tested for

total halogens, ash, and the ten regulated BIF metals (i.e., antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, silver, and thallium) and for four additional metals (copper, nickel, selenium and zinc) which are monitored as part of the permit. PCBs are not reanalyzed.

The results of the metals and total halogens analyses of the LLGF tank sample are used to prepare a WAP-2 form documenting the metals and total halogens feed to the kiln. The metals and total halogens feed rates from LLGF must be in compliance with the LLGF metals limits in the Part 373 Permit. When an analysis is performed to confirm the calculation, the analysis will be used to complete the WAP-2 form for the tank.

Norlite uses the same procedure for separately determining the contribution of heat value, metals, and total halogens from the Off-Specification Used Oil/Waste Fuel A feed, which is called "Kiln Oil" on the WAP-2 sheets. This is the feed that comes from Tank 9 and is co-fired through the main burner assembly with the LLGF.

Norlite LGF laboratory personnel will sign and date the WAP-2 form. An authorized Norlite supervisor will also review and sign the form prior to release of the tank.

The following Norlite personnel will be trained and are authorized to execute form WAP-2:

LGF LABORATORY PERSONNEL

Laboratory Technical Director

Q.C. Technicians

SUPERVISORY PERSONNEL

Plant Manager

Laboratory Technical Director

Fuel Certification Chemists

Kiln Supervisors

One copy of all written laboratory analysis reports and signed WAP-2 forms will be maintained in the operating record until closure of the facility in accordance with 6 NYCRR Part 373- 2.5 (c)(2)(iii).

Compliance with metals and total halogens limits is determined on a lbs/hr basis, consistent with standards in the BIF regulations under 40 CFR Part 266.102(e)(6), and the manner in which the Comprehensive Performance Test, Air Dispersion Modeling and Risk Assessment evaluations were performed by Norlite's consultants. Since the ultimate goal is to control emission rates to allowable levels, the important compliance objective is to control metals and total halogens feed rates on a lbs/hr basis. Concentration limits are not necessary since LLGF is fed from agitated tanks but are provided in the application for convenience.

Compliance with allowable halogen and thermal input feed rates is planned in accordance with the SOP attached to this Waste Analysis Plan.

6.7.3 Combustion Prohibition for Inorganic Waste

As part of the waste characterization process described in this plan, Norlite will ensure compliance with the dilution prohibition as a substitute for treatment requirements. Listed in Appendix 54 of 6 NYCRR Part 376 are hazardous wastes for which combustion is inappropriate and, therefore, prohibited. Norlite will not accept for combustion any wastes listed in this appendix unless, the waste, at the point of generation or after bona fide treatment (such as cyanide destruction prior to combustion), specifically meets one of the exceptions found in 6 NYCRR Part 376.1(c)(3)(i) through (vi).

6.8 Shale Analysis

The results for each blasted shale composite analysis are used in calculating and confirming allowable metal feed rates and total halogens feed rate for all raw shale to the kilns, as well as the total metal feed rate and total halogens feed rate to the kilns. The composite analysis is considered valid for the entire batch of blasted shales. The term of feed represented

by this composite sample shall be from the point of blast to the next blast.

The metal and total halogen feed rate limits for shale are calculated based upon the total feed rate limits shown in Schedule 1 of Module 1 minus the total feed rate limit for LLGF and off-specification used oil fuel/Waste Fuel A or the actual feed rate for LLGF and off-specification used oil fuel/Waste Fuel A. For example, the total feed rate for Lead is 6.3597 lb/hr. If the contribution of Lead from fuel is at the fuel limit of 4.0349 lb/hr, then the maximum contribution from shale can be no more than 2.3248 lb/hr. If the contribution from Lead is not at its maximum in the fuel, say 3.0349 lb/hr, then the maximum contribution from shale can be no more than 3.3248 lb/hr.

If the metals and total halogens in the shale are within these feed limits or concentration limits, then no reduced allowable shale feed rate is needed for the batch blast. If the concentration of any metal and total halogens feed rate results in an exceedance of the limits above, then the allowable shale feed rate must be reduced in proportion to the measured metal concentration until the batch of shale is processed or the concentration in the fuel is reduced. Form WAP-3 is used by the laboratory to calculate the allowable shale feed rate, up to the permitted maximum feed rate. The form is posted in each kiln control room until the next quarry blast analysis is completed.

6.9 Procedures for Ignitable, Reactive, and Incompatible Wastes

The LLGF blends are ignitable or combustible. Norlite has taken special precautions to meet all the requirements for the storage of ignitable wastes. The precautions are described in the Operations Plan of this permit. As described above, hazardous waste streams are tested for compatibility with the other wastes and materials (i.e. waste water, comparable fuels, remedial waste, nonhazardous waste, used oils, Waste Fuels B) with which they are being stored. Any waste stream which fails this compatibility test during the characterization and approval process will be denied approval. Any approved waste streams that fail the compatibility test when a shipment arrives onsite will be rejected or isolated to prevent comingling. When generating waste onsite, Norlite does not combine the wastes generated from different storage tank cleanings unless the compatibility test is performed and the materials are

deemed compatible.

6.10 Procedures to Ensure Compliance with LDR Requirements

Hazardous waste LLGF is received and burned as fuel for energy recovery at Norlite. However, pursuant to 6 NYCRR Part 374-1.3(a)(2), the clinker must meet the following criteria in order to be used as an unrestricted product if Norlite is incinerating hazardous waste for the purposes of destruction:

- The product must not exhibit a characteristic of a hazardous waste; and
- The product must meet the non-wastewater Universal Treatment Standards (UTS) found in 40 CFR 268.48.

Based on the thermal process, the clinker will not exhibit the characteristics of ignitability, corrosivity, or reactivity. The material should also not be expected to contain any organic compounds or leachable metals. However, due to varied feed and the possibility that some organic compounds might survive the temperature in the kiln, Norlite shall perform sampling and analysis of the clinker to ensure that it meets the UTS. Since the clinker does contain metals, sampling and analysis shall also be performed for metals using the TCLP to show that the clinker does not exhibit the toxicity characteristic for metals and also meets the UTS.

This sampling will be performed on a grab basis as required by the LDR. Norlite shall sample and analyze the clinker for metals on a monthly basis and the organics on an annual basis.

6.11 Bevill Exclusion Determinations for APC Wastes

Pursuant to NYCRR Part 374-1.8(m), a residue from a boiler or industrial furnace that burns hazardous waste may be excluded from the definition of a hazardous waste if it meets the requirements of the section. This section of the regulation allows the owner/operator the opportunity to compare the waste-derived residues from the unit with normal residues or compare the concentrations of constituents of concern from the waste-

derived residues with published health-based limits.

Norlite demonstrates that the concentrations of toxic constituents of concern (COCs) are below the health-based limits in 40 CFR Part 266 Appendix VII as referenced in 6 NYCRR Part 374 Appendix 47. This method is consistent with 6 NYCRR Part 374-1.8(m)(2)(ii).

6.11.1 Nonmetal Constituents

Through the sampling and analysis plans described below, the residues from the baghouse and the cyclone APC devices shall be analyzed for constituents of concern that are derived from 6 NYCRR Part 371 Appendix 23. The list of constituents contains most of the compounds listed in Appendix VII of 40 CFR Part 266 and all of the compounds listed in Appendix VIII of 40 CFR Part 266. In order for the residues to be excluded from the definition of hazardous waste under this part of the regulation, the concentrations shall be less than those listed in Appendix VII. For the nonmetallic constituents that are not listed in Appendix VII, the concentrations must be less than the level of detection of the analytical method (using analytical procedures prescribed in SW-846) or less than 0.002 µg/kg, whichever is higher. Should any of these constituents be found at concentrations that exceed the health risk-based standards listed in Appendix VII, the results will be compared to the standards for F039 nonwastewaters found in 6 NYCRR Part 376. Should the results exceed these F039 standards for these constituents, the residues will be considered hazardous waste and ineligible for the Bevill Exclusion.

Analysis for the nonmetal constituents will be performed at the frequency listed in Table WAP-1. The list of analytes for the Bevill Exclusion is found in Appendix 2.

6.11.2 Metal Constituents

As described in the sample and analysis plans for this protocol, the residues from the baghouse and cyclone APC devices shall be compared to the Toxicity Characteristic Leaching Procedure (TCLP) extract concentration limits found in Appendix VII of 40 CFR Part 266. In order for the residues to be excluded from the definition of hazardous waste

under this part of the regulation, the concentrations shall be less than those listed in Appendix VII. Based on the long history of compliance with the standards, the metals analysis will be performed at the frequency listed in Table WAP-1. The list of analytes for the Bevill Exclusion is found in Appendix 2.

6.11.3 Bevill Exclusion Sampling and Analysis Plan

The regulation requires that the waste-derived residue be sampled and analyzed as necessary to determine whether the residue generated during each 24-hour period has concentrations of toxic constituents that are higher than the health-based levels. Based upon the consistency of the operation and the inherent unlikelihood of organic constituents being found in the residues, Norlite will sample and analyze for organics on an annual basis and the metals on a monthly basis. Norlite shall sample the residue from the baghouse and the cyclone on the same kiln (i.e. Kiln #1 or Kiln #2). Over a 24-hour period, grab samples will be taken on a two-hour interval resulting in twelve (12) grab samples taken. These samples shall be composited to yield a 24-hour composite sample. As a contingency, the remainder of grab sample material shall be retained for control purposes. A sampling log shall be kept indicating the sampling time, location and sampler. Sample jars shall be labeled with the sample date, time, and location. The resulting composite samples shall be clearly labeled with the sample date, sample ID (material), time span and sample location.

The samples shall be submitted to a NYS ELAP-certified laboratory for analysis. Analysis shall include the TCLP extraction of the sample and analysis of the extract for the metals listed in Appendix VII of 40 CFR Part 266. For nonmetal constituents, samples shall be extracted and analyzed by the prescribed methods found in SW-846.

6.12 Determining Input Contributions From The Pilot Fuels & Cooling Water

In addition to the main burner assembly which feed LLGF and Off-Specification used oil fuel/Waste Fuel A (natural gas is fed from the main burner assembly in the absence of the two liquid fuels), the kilns maintain a pilot flame from one or two pilot nozzles at one time. One pilot runs on natural gas and the other pilot runs on virgin fuel oil, specification used oil

fuel, and comparable fuels. Norlite also feeds plant water, drawn from the quarry and treated, through the main nozzle to cool and shape the flame. Norlite considers the contributions of metals, total halogens, and heat of combustion to the kiln from the pilot and cooling water as described below.

6.12.1 Natural Gas as Pilot Fuel

Contributions of metals and total halogens from natural gas do not approach 1.0% of the feedrate limits for the fuel found in Schedule 1 of Module 1. Since the contributions of these constituents are negligible, they are not considered or entered on the WAP-2 Sheet.

There is a significant contribution of heat from the natural gas pilot. Under normal operation, the natural gas pilot contributes about 10 to 12 million BTU/hr to the process. The exact heat contribution from this feed is accounted for on each WAP-2 Sheet based on usage.

Norlite repeats the input calculations if the feedrate changes for the pilot.

6.12.2 Virgin Fuel Oil as Pilot Fuel

Contributions of metals and total halogens from virgin fuel oil do not approach 1.0% of the feedrate limits for the fuel found in Schedule 1 of Module 1. Since the contributions of these constituents are negligible, they are not considered or entered on the WAP-2 Sheet. For this determination, Norlite used the published emission rates found in AP-42 Table 1.3-11 and assumed no credit for system removal efficiency. The emission factors are based on No.6 fuel oil and are considered to be the worst case of all the virgin fuel oils (Diesel, Kerosene, No.2, No.4, and No.6) that can be employed at Norlite. These are found in Appendix 3.

There is a significant contribution of heat from the virgin fuel oil pilot. Under normal operation, the virgin fuel oil pilot contributes about 12 million BTU/hr to the process. The exact heat contribution from this feed is accounted for on each WAP-2 Sheet when it is used.

Norlite repeats the input calculations if the feedrate changes for the pilot.

6.12.3 Comparable Fuels as Pilot Fuel

Pursuant to 6 NYCRR Part 371-4(i), comparable fuels must meet the specification for No. 2 fuel oil as listed in the regulation. The generator of a comparable fuel must comply with the extensive analytical requirements and notification requirements for a hazardous waste to be excluded under this provision. Additionally, this Waste Analysis Plan requires Norlite to perform periodic analysis for metal and total halogens content and each load is analyzed for heat of combustion. Any comparable fuel not meeting the specification in 6 NYCRR Part 371-4(i) will be rejected or managed as LLGF.

Based on the specification in 6 NYCRR Part 371-4(i), comparable fuels can contribute a significant amount of metals or total halogens through the pilot nozzle. Since the contributions of these constituents are possible, they will be considered and entered on the WAP-2 Sheet if their contributions exceed 1.0% of the maximum allowable liquid feed rate.

There is a significant contribution of heat from the comparable fuel. The total heat input will be calculated based on the flowrate and heat content of the fuel. The heat contribution from this feed is accounted for on each WAP-2 Sheet based on usage.

Norlite repeats the input calculations if the feedrate or heat value of the comparable fuel changes for the pilot.

6.12.4 Cooling Water in Main Nozzle

Plant water is fed through the main nozzle to cool and shape the flame in order to optimize conditions for aggregate formation. The plant water is drawn from the pond in the quarry and treated by softening and filtration. The water has no heat value and does not contain significant concentrations of halogens or regulated metals. Since the contributions of these constituents are negligible, they are not considered or entered on the WAP-2 Sheet. An analysis of the cooling water is presented in Appendix 4.

6.12.5 Specification Used Oil Fuel as Pilot Fuel

Specification used oil fuel is the pilot fuel of choice. The oil meets the specification found in 6 NYCRR Part 374-2.2(b). An expanded analysis of it shows that the oil can contribute slightly more significant contributions of total halogens and certain metals. Typically, copper and zinc are present at concentrations that can contribute over 1.0% of the total mass feedrate to the kiln. The heat and total halogens can be significant as well. As a result, the contributions of these constituents are included on the WAP-2 Sheet and are set at a maximum feedrate.

The contributions from the specification used oil fuel as used as pilot fuel are calculated on an average basis. The values are entered into the WAP-2 Sheet and count towards the total mass feedrate of the constituent. A sample calculation is found in Appendix 5.

7.0 Recordkeeping and Reporting

Norlite maintains records of waste characterization forms, characterization analysis data received from the customer, shipping papers (manifests), land disposal restriction forms, receiving analyses, documentation of all waste stream sampling and analysis performed onsite on specific waste streams, and burn analyses at the facility. The laboratory also maintains their own QA/QC records pursuant to their QA Manual. The laboratory also maintains copies of the analytical reports received from outside laboratories.

Waste Profile Sheets are filed separately. They include MSDS/SDS if provided by the generator. The file may also contain the land disposal restriction form if the generator doesn't submit one with every load of the waste stream.

The manifests are filed with the land disposal restriction form (if provided), a copy of the weight ticket, and a copy of the laboratory analysis.

There is also a file for completed, signed copies of the WAP-2 and WAP-3 Sheets.

8.0 Glossary

Term	Definition
6 NYCRR	Title 6 of the New York Codes, Rules and Regulations
APC	Air Pollution Control
ASTM	American Society for Testing and Materials
AWFCO	Automatic Waste Feed Cutoff
BIF	Boiler/Industrial Furnace
BTU	British Thermal Unit
COC	Constituent of Concern
CPT	Comprehensive Performance Test
DRE	Destruction Removal Efficiency
ECL	(New York State) Environmental Conservation Law
ELAP	(NYSDOH) Environmental Laboratory Approval Program
HRA	Hourly Rolling Average
LDR	Land Disposal Restriction
LLGF	Liquid Low Grade Fuel
MACT	Maximum Achievable Control Technology
MSDS	Material Safety Data Sheet
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyl
PCDD	Polychlorinated Dibenzo-p-dioxin
PCDF	Polychlorinated Dibenzo-p-furan
POHC	Principal Organic Hazardous Constituent
PPE	Personal Protective Equipment
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
SOP	Standard Operating Procedure
TCLP	Toxicity Characteristic Leaching Procedure
TSDF	Treatment, Storage or Disposal Facility
USEPA	United States Environmental Protection Agency
UTS	Universal Treatment Standard
WAP	Waste Analysis Plan

Tables, Sheets, and Forms

TABLE WAP-1 WASTE ANALYSIS PLAN

STREAM[2]	PARAMETER	ANALYTICAL METHOD[1][3]	NORLITE SOP FOR ANALYTICAL METHOD	RATIONAL FOR PARAMETER	SAMPLING AND ANALYSIS FREQUENCY
LLGF, OSUOF, WFA	Specific Gravity	ASTM-1298-99	Norlite SOP#04-012	Waste Verification	each load
LLGF, OSUOF, WFA, CF	Viscosity	ASTM-D2983	n/a	pumpability 3000 SUS @80F	when material appears unpumpable
LLGF, OSUOF, WFA, CF, SUOF	Heat of Combustion BTU	ASTM-D240	Norlite SOP#04-064	Assess Burning Efficiency Requirements	each load[6]
LLGF, OSUOF, WFA, SUOF, CF	Total Halogens	EPA 9253	Norlite SOP#04-014	Halogen Content	each load[6] and one blended tank weekly
LLGF, CF	Bottom Sediment	ASTM D1796-97	Norlite SOP#04-049	Solids Determination	for blended tanks when necessary
Solid Haz Wastes	Free Liquids	EPA 9095B	n/a	Free Liquids for Solids Storage	as necessary
LLGF	Compatibility	Norlite SOP#4-063	Norlite SOP#04-063	Ensure Materials are compatible	each load
	Oxidzer	Norlite SOP#4-063	Norlite SOP#04-063	Verify compliance with permit limits	each load
	Peroxide	Norlite SOP#4-063	Norlite SOP#04-063	Verify Absence of a Peroxide	each load
LLGF, OSUOF, WFA, CF, SUOF	PCB	ASTM D6160-98	Norlite SOP#04-073 & 04-074	Compliance with permit limits	each load[6]
LLGF, OSUOF, WFA, SUOF, CF, SCW	Arsenic	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Beryllium	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Cadmium	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Chromium	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Copper	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Lead	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Barium	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Mercury	EPA 7471B	Norlite SOP#04-065 & 066	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Nickel	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Antimony	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Selenium	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Silver	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Thallium	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Zinc	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
LLGF	Pesticides	EPA 8081B/8141B/ 8151A	Analyzed by off site ELAP certified lab	Verify Absence	one load monthly
	Organic Hazardous Constituents	EPA 8260C/8270D	Analyzed by off site ELAP certified lab	Verify Absence or Presence	initially and whenever the stream changes significantly
	PCDD/PCDF	EPA 8290	Analyzed by off site ELAP certified lab	Verify Absence at EPA 8290 detection limits	one load quarterly

TABLE WAP-1 WASTE ANALYSIS PLAN, CONTINUED

STREAM[2]	PARAMETER	ANALYTICAL METHOD[1][3]	NORLITE SOP FOR ANALYTICAL METHOD	RATIONAL FOR PARAMETER	SAMPLING AND ANALYSIS FREQUENCY
Raw Shale	Arsenic	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each blast
	Beryllium	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each blast
	Cadmium	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each blast
	Chromium	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each blast
	Copper	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each blast
	Lead	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each blast
	Barium	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each blast
	Mercury	EPA7471B	Norlite SOP#04-065 & 066	Verify Metals Below Permit Levels	each blast
	Nickel	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each blast
	Antimony	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each blast
	Selenium	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each blast
	Silver	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each blast
	Thallium	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each blast
	Zinc	EPA3051A/6010C	Norlite SOP#04-071 & 070	Verify Metals Below Permit Levels	each blast
	Total Halogen	EPA5050/9056	Norlite SOP#04-032	Verify Total Halogens Below Permit Levels	each blast
Clinker	Metals[5]	EPA 1311 6010C/7471B	Norlite SOP#04-027	Verify that Clinker meets LDR	monthly, when applicable[4]
	Volatile Organics[5]	EPA5035A/8015B/ 8260C	Analyzed by off site ELAP certified lab	Verify that Clinker meets LDR	annually, when applicable[4]
	Semivolatile Organics[5]	EPA 3540C/8270D/8081A 8290/8082A	Analyzed by off site ELAP certified lab	Verify that Clinker meets LDR	annually, when applicable[4]
Multiclone Dust, Baghouse Dust, FilterCake	Metals[5]	EPA 1311/6010C/7471B		Ensure Eligibility for Bevill Exclusion	monthly
	Volatile Organics[5]	EPA 5035A/8015B/8260C	Analyzed by off site ELAP certified lab	Ensure Eligibility for Bevill Exclusion	annually
	Semivolatile Organics[5]	EPA 3540C/8270D/8081A 8290/8082A	Analyzed by off site ELAP certified lab	Ensure Eligibility for Bevill Exclusion	annually

(1)EPA in this table = EPA SW-846 Method

(2) LLGF = Liquid Low Grade Fuel; OSUOF = off-specification used oil fuel; SUOF = specification used oil fuel; WFA = Waste Fuel A; CF = Comparable Fuels; SCW = Secondary Containment Water

(3) The most updated official version of each method is used. Norlite Laboratory detection limits found in document 49B.

(4) Applicable when the process is burning for disposal per 6 NYCRR Part 374.3

(5) Please see WAP Appendix 2 for list of analytes

(6) 1 in 10 loads of Comparable Fuels are analyzed for metals and total halogens

WAP-2 – Metals and Halogens, LGF Tank Certification

Kiln: 1 & 2

Tank #: 100C
Total Gallons: 8001
Released: Thursday, May 07, 2020
LGF DCS: 56.27
Used Oil DCS: 154.43
Pilot Oil DCS: 19.4

WAP-2
Norlite, LLC
Metals and Halogens
LGF Tank Certification

LGF File: 30900
Used Oil File: 30893
Pilot Oil File: 30637

Kiln Operator Inputs
Metals & Halogens Feed Rates

MAX LGF (G/Min)	10.5
MAX Used Oil (G/Min)	10.0
MAX Pilot Oil (G/Min)	10.0
LGF (BTU/Gal)	**56512**
Used Oil (BTU/Gal)	**120106**
Pilot Oil (BTU/Gal)	**134685**
Operator DCS	**311303**

Data entry number must match DCS value shown on PLC

While Burning LGF
Maximum BTU/HR = 62,000,000

Lime Feed (Lbs/Hr) x2.8	229
Natural Gas BTU/Ft^3	1,010

Tank Contributions

Date	Source	CTRL#	Manifest	Gallons
5/7/2020	Tank: 400		None	801
5/7/2020	TA-09	s050720001	None	900
5/7/2020	TA-05	s050720005	None	2600
5/7/2020	TA-23	S050720002	None	1000
5/7/2020	Tank: 100A		None	2200
5/7/2020	Norlite, LLC	-	-	500

Analytical Information
All Values are Pounds per Hour (Lbs/Hr)

Parameter	LGF	Used Oil	Pilot Oil	Pilot Oil Limit @ 1% of Max Feed		Liquid Total	Shale Total	Total Feed	Maximum Feed Limits
Halogens	70.825	6.165	4.288	0.9260		81.278	0.531	81.809	92.600
Arsenic	0.0127	0.0111	0.0108	-		0.0238	0.4228	0.4466	-
Beryllium	0.0050	0.0044	0.0042	-		0.0094	0.0486	0.0580	-
Chromium	0.1431	0.0461	0.0106	-		0.1892	1.9975	2.1867	-
Total LVM	0.1608	0.0616	0.0256	0.0400	*	0.2224	2.4689	2.6913	4.000
Cadmium	0.0025	0.0022	0.0021	-		0.0047	0.1555	0.1602	-
Lead	0.0896	0.6009	0.0466	-		0.6905	0.6221	1.3126	-
Total SVM	0.0921	0.6031	0.0487	0.0579		0.6952	0.7776	1.4728	5.790
Mercury	0.0001	0.0001	0.0001	0.0001		0.0002	0.0008	0.0010	0.007

MTEC Compliance: Yes * Total Liquid LVM Limit: 7.000

Date: 5/7/2020 @ 3:20:25 PM

LGF Laboratory Authorization:

Supervisor Authorization:

Tank Usage Details

Date	Time	Action (Start / On / Off / Finish / Continue)	Notes	Burner

WAP-3 – Shale Feed Tank Certification

Batch: 2020-1
Date of Blast: 2/18/2020
Initial Release Date: 2/19/2020
Sample Id: S021920003

WAP-3
Norlite, LLC
Shale Feed Tank Certification

LGF File: 30900
Used Oil File: 30893
Pilot Oil File: 30637

Max Feed Rate (Ton/Hr)	24.3
Alarm Set Point (Ton/Hr)	22.0
WFCO Set Point (Ton/Hr)	24.0

Analytical Information		
Parameter	**Conc. (mg/kg)**	**Feed Rate (Lbs/Hr)**
Arsenic	8.7	0.4228
Beryllium	1.0	0.0486
Chromium	41.1	1.9975
Cadmium	3.2	0.1555
Lead	12.8	0.6221
Mercury	0.017	0.0008
Chlorine	10.93	0.5312
DCS	77.747	-

- Metals Digestion Completed By SW-846 3051A
- Total Halogen analysis completed by SW-846 9056 with preparation by SW-846 5050
- Mercury Digestion & Analysis completed by SW-846 7471B

TABLE WAP-4 - LIST OF LABORATORY SOPs

SOP#	Title	Rev #
04-004	Sample Collection of LGF Loads Received	1
04-007	Sample Collection of LGF From Storage Tanks	1
04-012	Determination of Density and Specific Gravity	8
04-014	Determination of Total Halogens in LGF by Titration	15
04-015	MDS 2000 Microwave Digestion for ICP Analysis	13
04-027	Toxicity Characteristic Leaching Procedure	13
04-032	Preparation of Shale for Chlorine Analysis by Ion Chromatography	7
04-043	Determination of Ash Content in Fuel	8
04-047	MARS Microwave Digestion for ICP Analysis (Method 3050B)	7
04-048	Automatic Flash Point Analysis	11
04-049	Determination of Bottom Sediment and Water	7
04-053	Sample Receipt and Handling	8
04-071	Mars Microwave 3051A Digestion for ICP Analysis	3
04-063	Compatibility	4
04-064	Determination of Heat of Combustion of LGF	7
04-065	Mercury Digestion of Liquid and Solid Waste by Method 7471B	6
04-066	Mercury Analysis of Liquid and Solid Waste by Method 7471B	6
04-070	Determination of Metals Content in Solid and Liquid Waste by Method 6010C	9
04-071	MARS Microwave 3051A Digestion for ICP Analysis	6
04-073	Extraction of Liquid Waste to Determine Levels of PCBs by ASTM D6160	8
04-074	Analysis to Determine Levels of PCBs by ASTM D6160	9
04-076	Determination of pH in Solid and Liquid Waste	3
04-080	Extraction of Soil Samples for Halogen Titration	1

WAP Appendix 1 - Generators Waste Profile Sheet

Tradebe

GENERATORS WASTE PROFILE SHEET Profile

Please indicate which Tradebe Facility(s) are being utilized for this Profile

____ TTR East Chicago, IN ____ TTR Millington, TN ____ United Oil Recovery, INC Meriden, CT ____ Zecco Northboro, MA

____ Bridgeport United Recycling Bridgeport, CT ____ ECC Stoughton, MA ____ United Oil Recovery, INC Newington, NH ____ Norlite Corp Cohoes, NY

PLEASE FAX COMPLETED FORM TO YOUR CUSTOMER SERVICE REPRESENTATIVE (203) 238-6744

A. GENERATOR INFORMATION:

Generator Name:_____
Facility Address: _____
City:_____State:_____ Zip:_____
Customer Name:_____
Customer Phone:_____
Customer Fax:_____
Generator USEPA/Federal ID # :_____

BILLING INFORMATION:

Billing Name: _____
Billing Address: _____
City:_____State:_____ Zip:_____
Billing Contact Name: _____
Billing Phone: _____
Billing Fax: _____
Sales Rep: _____

If no ID number is the Generator a "Conditionally Exempt Small Quantity Generator?" ____Yes ____No
Generator's S.I.C. Code(4 Digit):_____ Generator State ID # (If applicable): _____
Please check if generator has "No Canada Disposal" policy ____Yes ____No
Please check if generator has "No Landfill" policy ____Yes ____No

B. WASTE STREAM INFORMATION:

Name of the Waste: _____
Original Process Generating Waste: _____
Is this waste exempt from RCRA regulation? ____Yes ____No
If "yes" explain (example HHW, CESQG): _____
Is waste a combination package (examples: Drum with inner containers or skid with cases of consumer product ____Yes ____No
Current method of disposal: _____
Is this waste from a CERCLA cleanup site? ____Yes ____No
Is a representative sample provided? ____Yes ____No Is an MSDS attached? ____Yes ____No
Is there any Analytical attached? ____Yes ____No Other information? ____Yes ____No
Does the Waste have any of the following characteristics? ____Yes *(if yes check all that apply)* ____No

____ Oxidizer	____ Dioxin or Suspect	____ Water Reactive	____ Air Reactive	____ Inhalation Hazard: Zone ____
____ Hexachrome	____ Infectious Waste	____ Radioactive	____ Chelating Agent	____ Organic Peroxide
____ Explosive	____ Shock Sensitive	____ Polymerizer	____ Pyrophoric	____ Lachrymator

C. GENERAL CHARACTERISTICS:

Color: _____	**Physical state @ 70 F**		**Phases**	**Btu/lb**	**pH**	
Odor:	____ % liquid	____ aerosol	____ single layer	____ <3000	____ <2	____ 10.0-12.5
____ None	____ % solid	____ powder	____ double layer	____ 3,000-5,000	____ 2.0-4.0	____ >12.5
____ Mild	____ % sludge	____ other	____ >2 layers	____ 5,000-10,000	____ 4.0-10.0	
____ Strong	____ % debris		____ how many?	____ >10,000		

Liquid Flashpoint: ____ <73 F ____ 73 to 99 F ____ 100 to 139 F ____ 140 to 200 F ____ >200 F ____ None

Specific Gravity: _____ Total Halogens _____ **%** Total Organic Carbon (TOC) _____ %

D. CHEMICAL COMPOSITION: Total of Maximum concentration must be > or = to 100%.

Constituents	Min%	Max%	ppm	Constituents	Min%	Max%	ppm
_____	____	____	_____	_____	____	____	_____
_____	____	____	_____	_____	____	____	_____
_____	____	____	_____	_____	____	____	_____
_____	____	____	_____	_____	____	____	_____
_____	____	____	_____	_____	____	____	_____

Does the Waste contain any of the following?

Nitrocellulose ____ *Yes* ____ *No* *Metal Powder or Flake* ____ *Yes* ____ *No* *Sharps* ____ *Yes* ____ *No*

D. CHEMICAL COMPOSITION continued:

Phases: Oil_____% Water_____% Interface_____% Sediments_____% DNAPL_____%

Petroleum Phase	Suspected Level	Actual Level	Aqueous Phase	Suspected Level	Actual Level	Aqueous Phase	Suspected Level	Actual Level
PCB			Copper			Cobalt		
Halogens			Cadmium			Mercury		
Solvents			Chromium			Arsenic		
Arsenic			Lead			Barium		
Cadmium			Nickel			Sulfides		
Chromium			Silver			Cyanides		
Lead			Zinc			Phenols		

List Specific Solvents: _____

Does the waste contain Benzene? ___Yes___No

Do any of the following SIC codes cover the operations at your facility? If, "yes," check all that apply.

2812	2813	2816	2819	2821	2822	2823	2824	2833	2834	2835	2836	2841	2842	2843	2844	2851	2861
2865	2869	2873	2874	2875	2876	2879	2891	2892	2893	2896	2899	2911	2999	3312	4953	4959	9511

E. OTHER WASTE STREAM INFORMATION:

Is this waste a "USED OIL" per 40CFR PART 279? ___Yes___No

If "Yes", does the total halogen content exceed 1,000 ppm? ___Yes___No

If "Yes", can you identify the "Chlorinated Constituent" present in the oil? ___Yes___No

If "Yes", can you rebut the presumption that this material is a "Hazardous Waste"? ___Yes___No

Is the Waste subject to RCRA Subpart CC controls? (40 CFR 265 SUBPART CC) ___Yes___No

Does the waste contain organic UHCs above treatment standards levels? (40 CFR 368.48, 268.7) ___Yes___No

If 'yes' identify those chemicals in Appendix I - Underlying Hazardous Constituents

Does the Waste contain more than 500ppmw volatile organics(VO)? (40 CFR 265 SUBPART CC) Yes No Does

the Waste contain any Class I or Class II ozone-depleting substances? Yes No Does

waste contain EPCRA 313 chemicals identified in 40 CFR 372.65? Yes No

If 'yes' identify those chemicals in *Appendix II of this form.*

Does this waste contain any 'Chemicals of interest' listed in *6 CFR Part 27 Appendix A* (Department of Homeland Security)? *If 'yes' please list in Appendix II of this form.* ___Yes___No

F. R.C.R.A. CHARACTERIZATION:

Is this a USEPA "Hazardous Waste" as defined in 40 CFR §261.3? ___Yes___No

Is this a "Universal Waste" per 40CFR part 273? ___Yes___No

Please list any characteristic codes (D001-D043): _____

If waste carries characteristic code, please check all applicable Underlying Hazardous Constituents in Appendix I

Please list any applicable "F" or "K" codes: ___

Please list any applicable "U" or "P" codes: ___

Please list any state regulated codes: _____

G. SHIPPING INFORMATION:

___Bulk Liquid(> 500 Gallons) _____Bulk Solids(roll-off box, vacuum box, etc)

___Cubic Yard Boxes _____Totes (Please specify size) _____

___Drums (Specify size) 85 55 30 15 5 ___Metal Plastic ___Fiberboard _____

Shipping Frequency: Number of Units_____Per ___Month ___Quarter ___Year ___Other_____

H. DOT SHIPPING INFORMATION

Is this a U.S. Department of Transportation (USDOT) Hazardous Material? ___Yes___No

Proper Shipping Name per 49 CFR 172.101 Hazardous Materials Table: _____

Hazard Class or Division: _____ UN/NA # _____ Packing Group ___ I ___ II ___ III

Technical descriptors if required: _____ RQ if required: _____

I. GENERATOR CERTIFICATION:

I agree by assignment of my personal signature that I hereby certify that the above and attached description is complete and accurate and that no omissions of characteristics, composition or properties exist and that all known or suspected hazards have been disclosed. I also certify that each sample provided to PCI is representative of the waste material described above and give Tradebe permission and consent to make amendments and corrections and that I am an authorized agent of the Generator.

Name(print): _____ Title: _____

Signature: _____ Date: _____

TRADEBE™
Treatment and Recycling,LLC

Tradebe

Treatment and Recycling LLC

Waste Stream Profile _____

GENERATORS WASTE PROFILE CONTINUATION SHEET

PLEASE PRINT IN INK OR TYPE

Site Address (if different from generator address):

Site Name (if different from generator): _____

Pick-up Address: _____

Additional Location Identification: _____

City:_____ State:_____ Zip:_____

Contact Name: _____

_____ Contact Phone: _____

_____ Contact Fax: _____

Generator USEPA/Federal ID # (if different than generators) : _____

Facility Restrictions (if any): _____

__. CHEMICAL COMPOSITION CONTINUATION: Total of Maximum concentration must be > or = to 100%.

Constituents	Min%	Max%	ppm	Constituents	Min%	Max%	ppm

__. __. CHARACTERIZATION CONTINUATION:

Additional characteristic codes (D001-D043): _____

If waste carries characteristic code, please check all applicable Underlying Hazardous Constituents in Appendix I

List additional F or K codes: _____

List additional "U" or "P" codes: _____

Additional State codes if required: _____

WAP Appendix 2 Bevill/LDR Analytes

Bevill Determination for Norlite APC Wastes

Table 1

NONMETALLIC ANALYTE	CAS No.	METHOD SW-846
1,1,1,2-TETRACHLOROETHANE	630-20-6	8260
1,1,1-TRICHLOROETHANE	71-55-6	8260
1,1,2,2-TETRACHLOROETHANE	79-34-5	8260
1,1,2-TRICHLOROETHANE	79-00-5	8260
1,1-DICHLOROETHANE	75-34-3	8260
1,1-DICHLOROETHENE	75-35-4	8260
1,2,3-TRICHLOROPROPANE	96-18-4	8260
1,2,4,5-TETRACHLOROBENZENE	95-94-3	8270
1,2,4-TRICHLOROBENZENE	120-82-1	8260/8270
1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	8260/8270
1,2-DIBROMOETHANE	106-93-4	8260
1,2-DICHLOROBENZENE	95-50-1	8270
1,2-DICHLOROETHANE	107-06-2	8260
1,2-DICHLOROPROPANE	78-87-5	8260
1,2-DINITROBENZENE	528-29-0	8270
1,2-DIPHENYLHYDRAZINE	122-66-7	8270
1,3,5-TRINITROBENZENE	99-35-4	8270
1,3-DICHLOROBENZENE	541-73-1	8270
1,3-DINITROBENZENE	99-65-0	8270
1,4-DICHLOROBENZENE	106-46-7	8270
1,4-DINITROBENZENE	100-25-4	8270
1,4-DIOXANE	123-91-1	8260
1,4-NAPHTHOQUINONE	130-15-4	8270
1,4-PHENYLENEDIAMINE	106-50-3	8270
1-ACETYL-2-THIOUREA	591-08-2	8270
1-BUTANOL	71-36-3	8015
1-CHLORONAPHTHALE	90-13-1	8270
1-NAPHTHYLAMINE	134-32-7	8270
1-PROPANOL	71-23-8	8015
2 CHLOROETHYL VINYL ETHER	110-75-8	8260
2,3,4,6-TETRACHLOROPHENOL	58-90-2	8270
2,4,5-TRICHLOROPHENOL	95-95-4	8270
2,4,6-TRICHLOROPHENOL	88-06-2	8270
2,4-DICHLOROPHENOL	120-83-2	8270

2,4-DIMETHYL PHENOL	105-67-9	8270
2,4-DINITROPHENOL	51-28-5	8270
2,4-DINITROTOLUENE	121-14-2	8270
2,6-DICHLOROPHENOL	87-65-0	8270
2,6-DINITROTOLUENE	606-20-2	8270
2-ACETYLAMINOFLUORENE	53-96-3	8270
2-BUTANONE (MEK)	78-93-3	8260
2-CHLOROANILINE	101-14-4	8270
2-CHLOROETHANOL	107-07-3	8260
2-CHLORONAPHTHALE	91-58-7	8270
2-CHLOROPHENOL	95-57-8	8270
2-CYCLOHEXYL-4,6-DINITROPHENOL	131-89-5	8270
2-HEXANONE	591-78-6	8260
2-METHYLNAPHTHALE	91-57-6	8270
2-METHYLPHENOL	95-48-7	8270
2-NAPHTHYLAMINE	91-59-8	8270
2-NITROANILINE	88-74-4	8270
2-NITROPHENOL	88-75-5	8270
2-NITROPROPANE	79-46-9	8260
2-PENTANONE	107-87-9	8260
2-PICOLINE	109-06-8	8260/8270
3,3'-DICHLOROBENZIDINE	91-94-1	8270
3,3'-DIMETHOXYBENZIDINE	119-90-4	8270
3,3'-DIMETHYL BENZIDINE	119-93-7	8270
3-CHLOROPROPIONITRILE	542-76-7	8260
3-METHYLCHOLANTHRENE	56-49-5	8270
3-METHYLPHENOL	108-39-4	8270
3-NITROANILINE	99-09-2	8270
4,4'-DDD	72-54-8	8081
4,4'-DDE	72-55-9	8081
4,4'-DDT	50-29-3	8081
4,6-DINITRO-2-METHYLPHENOL	534-52-1	8270
4-AMINOBIPHENYL	92-67-1	8270
4-BROMOPHENYL PHENYL ETHER	101-55-3	8270
4-CHLORO-3-METHYLPHENOL	59-50-7	8270
4-CHLOROANILINE	106-47-8	8270
4-METHYL-2-PENTANONE (MIBK)	108-10-1	8260
4-METHYLPHENOL	106-44-5	8270
4-NITROANILINE	100-01-6	8270

4-NITROPHENOL	100-02-7	8270
5-NITRO-o-TOLUIDINE	99-55-8	8270
7,12-DIMETHYLBENZ(a)-ANTHRACENE	57-97-6	8270
a-BHC	319-84-6	8081
ACENAPHTHYLENE	208-96-8	8270
ACENAPTHENE	83-32-9	8270
ACETONE	67-64-1	8260
ACETONITRILE	75-05-8	8260
ACETOPHENONE	98-86-2	8270
ACROLEIN	107-02-8	8260
ACRYLONITRILE	107-13-1	8260
ALDRIN	309-00-2	8081
ALLYL ALCOHOL	107-18-6	8015
ALLYL CHLORIDE	107-05-1	8260
ANILINE	62-53-3	8270
ANTHRACENE	120-12-7	8270
ARAMITE	140-57-8	8270
b-BHC	319-85-7	8081
b-PROPIOLACTONE	57-57-8	8260
BENZ(a)ANTHRACENE	56-55-3	8270
BENZENE	71-43-2	8260
BENZIDINE	92-87-5	8270
BENZO(a)PYRENE	50-32-8	8270
BENZO(b)FLUORANTHENE	205-99-2	8270
BENZO(g,h,i)PERYLENE	191-24-2	8270
BENZO(k)FLUORANTHENE	207-08-9	8270
BENZYL CHLORIDE	100-44-7	8260
BIS(2-CHLOROETHOXY)METHANE	111-91-1	8270
BIS(2-CHLOROETHYL)ETHER	111-44-4	8270
BIS(2-CHLOROISOPROPYL)ETHER	108-60-1	8270
BIS(2-ETHYLHEXYL)PHTHALATE	117-81-7	8270
BROMOACETONE	598-31-2	8260
BROMOCHLOROMETHANE	74-97-5	8260
BROMODICHLOROMETHANE	75-27-4	8260
BROMOFORM	75-25-2	8260
BROMOMETHANE	74-83-9	8260
BUTYL BENZYL PHTHALATE	85-68-7	8270
CARBON DISULFIDE	75-15-0	8260
CARBON TETRACHLORIDE	56-23-5	8260

CHLORAL HYDRATE	302-17-0	8260
CHLORDANE	57-74-9	8081
CHLOROBENZENE	108-90-7	8260
CHLOROBENZILATE	510-15-6	8270/8081
CHLORODIBROMOMETHANE	124-48-1	8260
CHLOROETHANE	75-00-3	8260
CHLOROFORM	67-66-3	8260
CHLOROMETHANE	74-87-3	8260
CHLOROPRENE	126-99-8	8260
CHRYSENE	218-01-9	8270
CIS-1,3-DICHLOROPROPENE	10061-01-5	8260
CIS-1,4-DICHLORO-2-BUTENE	1476-11-5	8260
CROTON ALDEHYDE	4170-30-3	8260/8015
DI-N-BUTYL PHTHALATE	84-74-2	8270
DI-N-OCTYL PHTHALATE	117-84-0	8270
DIALLATE	2303-16-4	8270/8081
DIBENZ(a,h)ANTHRACENE	53-70-3	8270
DIBENZ(a,j)ACRIDINE	224-42-0	8270
DIBENZO(a,e)PYRENE	192-65-4	8270
DIBENZOFURAN	132-64-9	8270
DIBROMOMETHANE	74-95-3	8260
DICHLORODIFLUOROMETHANE	75-71-8	8260
DIELDRIN	60-57-1	8081
DIETHYL PHTHALATE	84-66-2	8270
DIETHYLSTILBESTROL	56-53-1	8270
DIHYDROSAFFROLE	56312-13-1	8270
DIMETHOATE	60-51-5	8270
DIMETHYL PHTHALATE	131-11-3	8270
DIMETHYLAMINOAZOBENZENE	60-11-7	8270
DIPHENYLAMINE	122-39-7	8270
DISULFOTON	298-04-4	8270
ENDOSULFAN I	959-98-8	8081
ENDOSULFAN II	33213-65-9	8081
ENDOSULFAN SULFATE	1031-07-8	8081
ENDRIN	72-20-8	8081
ENDRIN ALDEHYDE	7421-93-4	8081
EPICHLOROHYDRIN	106-89-8	8260
ETHANOL	64-17-5	8015
ETHYL ACETATE	141-78-6	8015

ETHYL METHACRYLATE	97-63-2	8260
ETHYLBENZENE	100-41-4	8260
ETHYLENE OXIDE	75-21-8	8260/8015
FLUORANTHENE	206-44-0	8270
FLUORENE	86-73-7	8270
HEPTACHLOR	76-44-8	8081
HEPTACHLOR EPOXIDE	1024-57-3	8081
HEPTACHLORODIBENZO-p-DIOXINS	NA	8290
HEPTACHLORODIBENZOFURANS	NA	8290
HEXACHLOROBENZENE	118-74-1	8270
HEXACHLOROBUTADIENE	87-68-3	8270
HEXACHLOROCYCLOPENTADIENE	77-47-4	8270
HEXACHLORODIBENZO-p-DIOXINS	NA	8290
HEXACHLORODIBENZOFURANS	NA	8290
HEXACHLOROETHANE	67-72-1	8260/8270
HEXACHLOROPHENE	70-30-4	8270
HEXACHLOROPROPENE	1888-71-7	8270
HYDROQUINONE	123-31-9	8270
INDENO(1,2,3-cd)PYRENE	193-39-5	8270
IODOMETHANE	74-88-4	8260
ISOBUTYL ALCOHOL	78-83-1	8015
ISODRIN	465-73-6	8270/8081
ISOPHORONE	78-59-1	8270
ISOPROPYL ALCOHOL	67-63-0	8015
ISOPROPYLBENZENE	98-82-8	8260
ISOSAFROLE	120-58-1	8270
KEPONE	143-50-0	8270
LINDANE	58-89-9	8081
m-XYLENE	108-38-3	8260
MALEIC ANHYDRIDE	108-31-6	8270
MALONONITRILE	109-77-3	8260
METHACRYLONITRILE	126-98-7	8260
METHANOL	67-56-1	8015
METHAPYRILENE	91-80-5	8270
METHOXYCHLOR	72-43-5	8081
METHYL METHACRYLATE	80-62-6	8260
METHYL METHANESULFONATE	66-27-3	8270
METHYL PARATHION	298-00-0	8270
METHYLENE CHLORIDE	75-09-2	8260

N,N-DIMETHYLANILINE	101-61-1	8270
N-NITROSODI-N-BUTYLAMINE	924-16-3	8270
N-NITROSODI-N-PROPYLAMINE	621-64-7	8270
N-NITROSODIETHYLAMINE	55-18-5	8270
N-NITROSODIMETHYLAMINE	62-75-9	8270
N-NITROSODIPHENYLAMINE	86-30-6	8270
N-NITROSOMETHYLETHYLAMINE	10595-95-6	8270
N-NITROSOMORPHOLINE	59-89-2	8270
N-NITROSOPIPERIDINE	100-75-4	8270
N-NITROSOPYRROLIDINE	930-55-2	8270
n-PROPYLAMINE	107-10-8	8260
NAPHTHALENE	91-20-3	8270
NICOTINE	54-11-5	8270
NITROBENZENE	98-95-3	8260/8270
NITROQUINOLINE-1-OXIDE	56-57-5	8270
O,O,O-TRIETHYL PHOSPHOROTHIOATE	126-68-1	8270
o-TOLUIDINE	95-53-4	8270
o-TOLUIDINE	95-53-4	8260
o-XYLENE	95-47-6	8260
OCTAMETHYL PYROPHOSPHORAMIDE	152-16-9	8270
p-BENZOQUINONE	106-51-4	8270
p-XYLENE	106-42-3	8260
PARALDEHYDE	123-63-7	8260/8015
PCB'S (1016-1260)	VARIOUS	8082
PCNB	82-68-8	8081
PENTACHLOROBENZENE	608-93-5	8270
PENTACHLORODIBENZO-p-DIOXINS	NA	8290
PENTACHLORODIBENZOFURANS	NA	8290
PENTACHLOROETHANE	76-01-7	8260
PENTACHLORONITROBENZENE	82-68-8	8270
PENTACHLOROPHENOL	87-86-5	8270
PHENACETIN	62-44-2	8270
PHENANTHRENE	85-01-8	8270
PHENOL	108-95-2	8270
PHORATE	298-02-2	8270
PHTHALIC ANHYDRIDE	85-44-9	8270
PRONAMIDE	23950-58-5	8270
PROPYLTHIOURACIL	51-52-5	8270

PYRENE	129-00-0	8270
PYRIDINE	110-86-1	8260/8270
RESORCINOL	108-46-3	8270
SAFROLE	94-59-7	8270
STRYCHNINE	57-24-9	8270
t-BUTYL ALCOHOL	75-65-0	8015
TETRACHLORODIBENZO-p-DIOXINS	NA	8290
TETRACHLORODIBENZOFURANS	NA	8290
TETRACHLOROETHENE	127-18-4	8260
TETRAETHYL DITHIOPYROPHOSPHATE	3689-24-5	8270
TOLUENE	108-88-3	8260
TOLUENE DIISOCYANATE	584-84-9	8270
TOXAPHENE	8001-35-2	8081
TRANS-1,2-DICHLOROETHENE	156-60-5	8260
TRANS-1,3-DICHLOROPROPENE	10061-02-6	8260
TRANS-1,4-DICHLORO-2-BUTENE	110-57-6	8260
TRICHLOROETHENE	79-01-6	8260
TRICHLOROFLUOROMETHANE	75-69-4	8260
TRIS(2,3-DIBROMOPROPYL) PHOSPHATE	126-72-7	8270
VINYL ACETATE	108-05-4	8260
VINYL CHLORIDE	75-01-4	8260

Bevill Determination for Norlite APC Wastes

Table 2

by TCLP - EPA Method 1311

METALLIC ANALYTE	Cas No.
Antimony	7440-36-0
Arsenic	7440-38-2
Barium	7440-39-3
Beryllium	7440-41-7
Cadmium	7440-43-9
Chromium	7440-47-3
Lead	7439-92-1
Mercury	7439-97-6
Nickel	7440-02-0
Selenium	7782-49-2
Silver	7440-22-4
Thallium	7440-28-0

Norlite Corporation Clinker Analysis

List of Organic Universal Treatment Standard Constituents

Table 1

		METHOD
Organic Constituent	CAS No.	SW-846
1,1,1,2-TETRACHLOROETHANE	630-20-6	8260
1,1,1-TRICHLOROETHANE	71-55-6	8260
1,1,2,2-TETRACHLOROETHANE	79-34-5	8260
1,1,2-TRICHLOROETHANE	79-00-5	8260
1,1-DICHLOROETHANE	75-34-3	8260
1,1-DICHLOROETHENE	75-35-4	8260
1,2,3-TRICHLOROPROPANE	96-18-4	8260
1,2,4,5-TETRACHLOROBENZENE	95-94-3	8270
1,2,4-TRICHLOROBENZENE	120-82-1	8260/8270
1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	8260/8270
1,2-DIBROMOETHANE	106-93-4	8260
1,2-DICHLOROBENZENE	95-50-1	8270
1,2-DICHLOROETHANE	107-06-2	8260
1,2-DICHLOROPROPANE	78-87-5	8260
1,2-DIPHENYLHYDRAZINE	122-66-7	8270
1,4-DICHLOROBENZENE	106-46-7	8270
1,4-DINITROBENZENE	100-25-4	8270
1,4-DIOXANE	123-91-1	8260
1-BUTANOL	71-36-3	8015
2 CHLOROETHYL VINYL ETHER	110-75-8	8260
2,3,4,6-TETRACHLOROPHENOL	58-90-2	8270
2,4,5-TRICHLOROPHENOL	95-95-4	8270
2,4,6-TRICHLOROPHENOL	88-06-2	8270
2,4-DICHLOROPHENOL	120-83-2	8270
2,4-DIMETHYL PHENOL	105-67-9	8270
2,4-DINITROPHENOL	51-28-5	8270
2,4-DINITROTOLUENE	121-14-2	8270
2,6-DICHLOROPHENOL	87-65-0	8270
2,6-DINITROTOLUENE	606-20-2	8270
2-ACETYLAMINOFLUORENE	53-96-3	8270
2-BUTANONE (MEK)	78-93-3	8260

2-CHLOROANILINE	101-14-4	8270
2-CHLORONAPHTHALE	91-58-7	8270
2-CHLOROPHENOL	95-57-8	8270
2-METHYLPHENOL	95-48-7	8270
2-NAPHTHYLAMINE	91-59-8	8270
2-NITROANILINE	88-74-4	8270
2-NITROPHENOL	88-75-5	8270
3-METHYLCHOLANTHRENE	56-49-5	8270
3-METHYLPHENOL	108-39-4	8270
4,4'-DDD	72-54-8	8081
4,4'-DDE	72-55-9	8081
4,4'-DDT	50-29-3	8081
4,6-DINITRO-2-METHYLPHENOL	534-52-1	8270
4-AMINOBIPHENYL	92-67-1	8270
4-BROMOPHENYL PHENYL ETHER	101-55-3	8270
4-CHLORO-3-METHYLPHENOL	59-50-7	8270
4-CHLOROANILINE	106-47-8	8270
4-METHYL-2-PENTANONE (MIBK)	108-10-1	8260
4-METHYLPHENOL	106-44-5	8270
4-NITROANILINE	100-01-6	8270
4-NITROPHENOL	100-02-7	8270
5-NITRO-o-TOLUIDINE	99-55-8	8270
a-BHC	319-84-6	8081
ACENAPHTHYLENE	208-96-8	8270
ACENAPTHENE	83-32-9	8270
ACETONE	67-64-1	8260
ACETONITRILE	75-05-8	8260
ACETOPHENONE	98-86-2	8270
ACROLEIN	107-02-8	8260
ACRYLONITRILE	107-13-1	8260
ALDRIN	309-00-2	8081
ANILINE	62-53-3	8270
ANTHRACENE	120-12-7	8270
ARAMITE	140-57-8	8270
b-BHC	319-85-7	8081
BENZ(a)ANTHRACENE	56-55-3	8270
BENZENE	71-43-2	8260
BENZO(a)PYRENE	50-32-8	8270
BENZO(b)FLUORANTHENE	205-99-2	8270

BENZO(g,h,i)PERYLENE	191-24-2	8270
BENZO(k)FLUORANTHENE	207-08-9	8270
BIS(2-CHLOROETHOXY)METHANE	111-91-1	8270
BIS(2-CHLOROETHYL)ETHER	111-44-4	8270
BIS(2-CHLOROISOPROPYL)ETHER	108-60-1	8270
BIS(2-ETHYLHEXYL)PHTHALATE	117-81-7	8270
BROMOCHLOROMETHANE	74-97-5	8260
BROMOFORM	75-25-2	8260
BROMOMETHANE	74-83-9	8260
BUTYL BENZYL PHTHALATE	85-68-7	8270
CARBON DISULFIDE	75-15-0	8260
CARBON TETRACHLORIDE	56-23-5	8260
CHLORDANE	57-74-9	8081
CHLOROBENZENE	108-90-7	8260
CHLOROBENZILATE	510-15-6	8270/8081
CHLORODIBROMOMETHANE	124-48-1	8260
CHLOROETHANE	75-00-3	8260
CHLOROFORM	67-66-3	8260
CHLOROMETHANE	74-87-3	8260
CHRYSENE	218-01-9	8270
CIS-1,3-DICHLOROPROPENE	10061-01-5	8260
DI-N-BUTYL PHTHALATE	84-74-2	8270
DI-N-OCTYL PHTHALATE	117-84-0	8270
DIBENZ(a,h)ANTHRACENE	53-70-3	8270
DIBENZO(a,e)PYRENE	192-65-4	8270
DIBROMOMETHANE	74-95-3	8260
DICHLORODIFLUOROMETHANE	75-71-8	8260
DIELDRIN	60-57-1	8081
DIETHYL PHTHALATE	84-66-2	8270
DIMETHYL PHTHALATE	131-11-3	8270
DIMETHYLAMINOAZOBENZENE	60-11-7	8270
DIPHENYLAMINE	122-39-7	8270
DISULFOTON	298-04-4	8270
ENDOSULFAN I	959-98-8	8081
ENDOSULFAN II	33213-65-9	8081
ENDOSULFAN SULFATE	1031-07-8	8081
ENDRIN	72-20-8	8081
ENDRIN ALDEHYDE	7421-93-4	8081
ETHYL ACETATE	141-78-6	8015

ETHYL METHACRYLATE	97-63-2	8260
ETHYLBENZENE	100-41-4	8260
ETHYLENE OXIDE	75-21-8	8260/8015
FLUORANTHENE	206-44-0	8270
FLUORENE	86-73-7	8270
HEPTACHLOR	76-44-8	8081
HEPTACHLOR EPOXIDE	1024-57-3	8081
HEXACHLOROBENZENE	118-74-1	8270
HEXACHLOROBUTADIENE	87-68-3	8270
HEXACHLOROCYCLOPENTADIENE	77-47-4	8270
HEXACHLORODIBENZO-p-DIOXINS	NA	8290
HEXACHLORODIBENZOFURANS	NA	8290
HEXACHLOROETHANE	67-72-1	8260/8270
HEXACHLOROPROPENE	1888-71-7	8270
INDENO(1,2,3-cd)PYRENE	193-39-5	8270
IODOMETHANE	74-88-4	8260
ISOBUTYL ALCOHOL	78-83-1	8015
ISODRIN	465-73-6	8270/8081
ISOSAFROLE	120-58-1	8270
KEPONE	143-50-0	8270
m-XYLENE	108-38-3	8260
METHACRYLONITRILE	126-98-7	8260
METHANOL	67-56-1	8015
METHAPYRILENE	91-80-5	8270
METHOXYCHLOR	72-43-5	8081
METHYL METHACRYLATE	80-62-6	8260
METHYL METHANESULFONATE	66-27-3	8270
METHYL PARATHION	298-00-0	8270
METHYLENE CHLORIDE	75-09-2	8260
N-NITROSODI-N-BUTYLAMINE	924-16-3	8270
N-NITROSODI-N-PROPYLAMINE	621-64-7	8270
N-NITROSODIETHYLAMINE	55-18-5	8270
N-NITROSODIMETHYLAMINE	62-75-9	8270
N-NITROSODIPHENYLAMINE	86-30-6	8270
N-NITROSOMETHYLETHYLAMINE	10595-95-6	8270
N-NITROSOMORPHOLINE	59-89-2	8270
N-NITROSOPIPERIDINE	100-75-4	8270
N-NITROSOPYRROLIDINE	930-55-2	8270
NAPHTHALENE	91-20-3	8270

NITROBENZENE	98-95-3	8260/8270
o-XYLENE	95-47-6	8260
p-XYLENE	106-42-3	8260
PCB'S (1016-1260)	VARIOUS	8082
PENTACHLOROBENZENE	608-93-5	8270
PENTACHLORODIBENZO-p-DIOXINS	NA	8290
PENTACHLORODIBENZOFURANS	NA	8290
PENTACHLOROETHANE	76-01-7	8260
PENTACHLORONITROBENZENE	82-68-8	8270
PENTACHLOROPHENOL	87-86-5	8270
PHENACETIN	62-44-2	8270
PHENANTHRENE	85-01-8	8270
PHENOL	108-95-2	8270
PHORATE	298-02-2	8270
PHTHALIC ANHYDRIDE	85-44-9	8270
PRONAMIDE	23950-58-5	8270
PYRENE	129-00-0	8270
PYRIDINE	110-86-1	8260/8270
SAFROLE	94-59-7	8270
TETRACHLORODIBENZO-p-DIOXINS	NA	8290
TETRACHLORODIBENZOFURANS	NA	8290
TETRACHLOROETHENE	127-18-4	8260
TOLUENE	108-88-3	8260
TOXAPHENE	8001-35-2	8081
TRANS-1,2-DICHLOROETHENE	156-60-5	8260
TRANS-1,3-DICHLOROPROPENE	10061-02-6	8260
TRICHLOROETHENE	79-01-6	8260
TRICHLOROFLUOROMETHANE	75-69-4	8260
TRIS(2,3-DIBROMOPROPYL) PHOSPHATE	126-72-7	8270
VINYL CHLORIDE	75-01-4	8260

Norlite Corporation Clinker Analysis

List of Metals to be Analyzed for Hazardous Waste Characteristic and LDR Compliance

Table 2

METALLIC ANALYTE	Cas No.
Antimony	7440-36-0
Arsenic	7440-38-2
Barium	7440-39-3
Beryllium	7440-41-7
Cadmium	7440-43-9
Chromium	7440-47-3
Lead	7439-92-1
Mercury	7439-97-6
Nickel	7440-02-0
Selenium	7782-49-2
Silver	7440-22-4
Thallium	7440-28-0
Vanadium	7440-62-2
Zinc	7440-66-6

WAP Appendix 3 Emission Factors for #6 Fuel Oil

Table 1.3-10. EMISSION FACTORS FOR TRACE ELEMENTS FROM DISTILLATE FUEL OIL COMBUSTION SOURCES[a]

EMISSION FACTOR RATING: E

Firing Configuration (SCC)	Emission Factor ($lb/10^{12}$ Btu)										
	As	Be	Cd	Cr	Cu	Pb	Hg	Mn	Ni	Se	Zn
Distillate oil fired (1-01-005-01, 1-02-005-01, 1-03-005-01)	4	3	3	3	6	9	3	6	3	15	4

[a] Data are for distillate oil fired boilers, SCC codes 1-01-005-01, 1-02-005-01, and 1-03-005-01. References 29-32, 40-44 and 83. To convert from $lb/10^{12}$ Btu to pg/J, multiply by 0.43.

Table 1.3-11. EMISSION FACTORS FOR METALS FROM UNCONTROLLED NO. 6 FUEL OIL COMBUSTION[a]

Metal	Average Emission Factor[b, d] ($lb/10^3$ Gal)	EMISSION FACTOR RATING
Antimony	5.25E-03[c]	E
Arsenic	1.32E-03	C
Barium	2.57E-03	D
Beryllium	2.78E-05	C
Cadmium	3.98E-04	C
Chloride	3.47E-01	D
Chromium	8.45E-04	C
Chromium VI	2.48E-04	C
Cobalt	6.02E-03	D
Copper	1.76E-03	C
Fluoride	3.73E-02	D
Lead	1.51E-03	C
Manganese	3.00E-03	C
Mercury	1.13E-04	C
Molybdenum	7.87E-04	D
Nickel	8.45E-02	C
Phosphorous	9.46E-03	D
Selenium	6.83E-04	C
Vanadium	3.18E-02	D
Zinc	2.91E-02	D

[a] Data are for residual oil fired boilers, Source Classification Codes (SCCs) 1-01-004-01/04.

[b] References 64-72. 18 of 19 sources were uncontrolled and 1 source was controlled with low efficiency ESP. To convert from $lb/10^3$ gal to $kg/10^3$ L, multiply by 0.12.

[c] References 29-32,40-44.

[d] For oil/water mixture, reduce factors in proportion to water content of the fuel (due to dilution). To adjust the listed values for water content, multiply the listed value by 1-decimal fraction of water (ex: For fuel with 9 percent water by volume, multiply by 1-0.9=.91).

WAP Appendix 4 - Sample Cooling Water Analysis

Norlite, LLC

628 SOUTH SARATOGA STREET
COHOES, NY 12047
(518) 235-0401

Client/Generator ID-Name:	UNITED - COHOES (NORLITE)	Sample#:	5041514002
Sample Identification:	003 METALS	Sample Type:	Customer Sample
Date Collected:	4/14/2014	Target:	INTERNAL
Time Collected:	9:30 AM	Profile#:	
Matrix:	Water	Sampled By:	TL
Composite/Grab:	GRAB	Condition:	Intact
Number of Containers:	1	Condition Comment:	pH<2 VERIFIED UPON RECIPT
Manifest #:		Temperature:	16.7 C
Job ID:		Rcvd within Holding time:	Yes
Special Handling:		Visual Inspection Memo:	CLEAR LIQUID
Receiving Plant:	628 SOUTH SARATOGA STREET COHOES,NY 12047		

Analytical Information

Parameter	Analytical Method	Flags	Result	Unit	Date Reference
Sulfur	EPA 200.7 *NON-NELAP		51.3	mg/L	4/15/2014
Arsenic	EPA 200.7		ND< 0.040	mg/L	4/15/2014
Beryllium	EPA 200.7		ND< 0.005	mg/L	4/15/2014
cadmium	EPA 200.7		ND< 0.002	mg/L	4/15/2014
chromium	EPA 200.7		ND< 0.005	mg/L	4/15/2014
Copper	EPA 200.7		ND< 0.010	mg/L	4/15/2014
Lead	EPA 200.7		ND< 0.020	mg/L	4/15/2014
Barium	EPA 200.7		0.061	mg/L	4/15/2014
Nickel	EPA 200.7		ND< 0.015	mg/L	4/15/2014
Antimony	EPA 200.7		ND< 0.050	mg/L	4/15/2014
Selenium	EPA 200.7		ND< 0.050	mg/L	4/15/2014
Silver	EPA 200.7		ND< 0.005	mg/L	4/15/2014
Thallium	EPA 200.7		ND< 0.050	mg/L	4/15/2014
Zinc	EPA 200.7		ND< 0.025	mg/L	4/15/2014
Metls Digetion	EPA 200.7		Complete		4/15/2014 7:49AM
Mercuty	EPA 245.1		ND< 0.200	ug/L	4/16/2014
Mercury Digestion	EPA 245.1		Complete		4/16/2014 8:43AM

WAP Appendix 5-Sample Calculation for Used Oil Fuel Contribution

NORLITE CORPORATION
PILOT FUEL CONTRIBUTION CALCULATIONS

	Liquid Feed Limits	Fuel Oil[1]	Spec Used Oil Fuel[2]	Quarry Plant Water3
Arsenic	0.2095	1.32E-04	3.34E-05	None Detected
Beryllium	0.0119	3.60E-05	1.34E-05	None Detected
Cadmium	0.3192	3.98E-04	9.36E-06	None Detected
Chromium	5.9849	8.45E-05	3.14E-04	None Detected
Copper	9.4838	1.76E-04	1.68E-02	None Detected
Lead	4.0349	1.5,1E-04	3.85E-03	None Detected
Barium	0.9731	2.57E-04	7.48E-03	3.0BE-04
Mercury	0.0064	3.60E-05	6.69E-05	None Detected
Nickel	6.164	8.45E-03	3.34E-05	None Detected
Antimony	0.2222	5.25E-04	2.61E-04	None Detected
Selenium	0.12	6.83E-04	2.68E-05	None Detected
Silver	0.1345	no data	4.88E-04	None Detected
Thallium	0.2626	no data	2.68E-05	None Detected
Zinc	10.3243	2.91E-03	4.85E-01	None Detected
Halogens	82.3	3.47E-02	3.34E-01	Not Tested

All units are pounds/hour

[1]Norlite burns less than 100 gallons per hour; the AP-42 data is presented at 1000 gallons per hour. This table presents Norlite's calculated emissions with no credit taken for the APC system. Also note that the data for Beryllium and Mercury are derived from the distillate fuel emission factors since they are higher than for No 6 oil.

[2]Typical analysis used for demonstration purposes only; detection limits are used instead of zero

[3] Quarry water is typically fed at a maximum rate of five (5) gallons/minute. The metal mass feed rate is calculated at this rate.

INTEGRATED CONTINGENCY PLAN

NORLITE LLC

COHOES, NEW YORK

NYD080469935

PREPARED BY:

NORLITE LLC
628 SOUTH SARATOGA STREET

COHOES, NEW YORK 12047

June 2020

INTEGRATED CONTINGENCY PLAN

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*Annex 10 details the protocol for an incident involving petroleum products. The plan is meant to be its own stand-alone document, as a requirement of the Spill Prevention Control and Countermeasures (SPCC) Plan.

INTEGRATED CONTINGENCY PLAN

This Integrated Contingency Plan (ICP or Plan) for the Norlite, LLC (Norlite) facility is organized into three main sections: 1) Plan Introduction Elements; 2) Core Plan Elements; and 3) Annexes. The elements contained in these sections are accepted emergency response activities that are currently addressed in various forms in existing contingency planning regulations. The goal is to provide a mechanism to consolidate existing concepts into a single functional plan structure. This approach should provide a consistent basis for addressing emergency response concerns.

This Integrated Contingency Plan is incorporated by reference into the Part 373 Permit for the Norlite LLC facility. In the event that changes are made to the facility that affects the content of this plan, this plan will be updated in accordance with the requirements of Condition D of Module 1.

SECTION I- PLAN INTRODUCTION ELEMENTS

The introduction section of this ICP is designed to provide facility response personnel, outside responders, and regulatory officials with basic information about the Plan and the entity it covers. It includes a statement of purpose and scope, information on the current revision date of the plan, general facility information, and the key contact(s) for plan development and maintenance.

1.1 Purpose and Scope of Plan Coverage

This Integrated Contingency Plan (ICP) has been prepared by Norlite located at 628 South Saratoga Street, Cohoes NY to fulfill the spill prevention and emergency response requirements of the various federal and state regulations to which Norlite, LLC is subject. A cross-reference matrix is provided for each of the applicable requirements. Specifically, the ICP is designed to comply with the following requirements:

Requirement	Acronym	Agency	Citation
Contingency Plan and Emergency Procedures	Contingency Plan (also HWCP)	New York State Department of Environmental Conservation	6 NYCRR Part 373-2.4
Emergency Action Plan	EAP	Occupational Safety and Health Administration	29 CFR 1910.38(a), 1910.119, 1910.120

Requirement	Acronym	Agency	Citation
Spill Prevention, Control and Countermeasure Plan	SPCC	United States Environmental Protection Agency	40 CFR Part 112

1.2 Current Revision Date

This ICP is maintained on-site and is available for review at all times. The following table provides a brief summary of the revisions made to this ICP.

Revision Number	Revision Date	Revision Description
1	*June 16, 2014*	*Creation of the Integrated Contingency Plan*
2	*October 17, 2016*	*Updates to the Emergency Coordinators/Responders*
3	*November 9, 2017*	*Addition of Annex 9; Oil Removal Contingency Plan*
4	*February 2019*	*General Updates & Emergency Coordinator Updates*
5	*June 2020*	*General Updates & 373 Permit Application*

1.3 General Facility Identification Information

a.	Facility name	Norlite, LLC
b.	Owner/operator/agent	Tradebe Environmental Services, LLC/Norlite LLC
c.	Physical address of the facility	628 South Saratoga Street, Cohoes NY 12047. Albany County. Located at 42.755332,-73.702791. Directions from Albany: Take Interstate 787 approximately 6.8 miles, Tum left onto Tibbits Ave, Take the 1st right onto NY-32 N. Norlite is located approximately 0.5 miles on the left across from a Speedway gas Station.
d.	Mailing address of the facility	David Maguffin 628 South Saratoga Street, Cohoes, NY 12047

e.	Other identifying information	EPA ID: NYD080469935 NAICS: 327992 SIC: 3299 TRI ID: 12047NRLTC628SO
f.	Key contact(s) for plan development and maintenance	Prince Knight - Laboratory, Environmental and Compliance Manager David Maguffin - Plant Manager
g.	Phone number(s) for key contact(s)	518-235-0401
h.	Facility phone number	518-235-0401
i.	Facility fax number	518-235-0233

Detailed information pertaining to the facility is provided in **Annex 1 - Facility and Locality Information** including:

- Description of facility operations:
  - Norlite is a lightweight aggregate facility which utilizes liquid hazardous and non-hazardous waste as a fuel source in two lightweight rotary kilns.
- Facility maps: Drawing NY003-3731.
- Facility drawings; refer to the following drawing which provide P&ID information of the fuel farm and kiln area, including emergency shut-off valve information.
  - NY003-1311
  - NY003-1311a
  - NY003-1312
  - NY003-1315
  - NY003-1317
  - VR-NG-19592-005
  - VR-OIL-19592-005

- Facility description/layout, including identification of facility hazards and vulnerable resources and populations on and off the facility which may be impacted by an incident. The layout of the facility, including the entrances and roads inside the facility, evacuation routes, emergency shut-off valves, response equipment, facility topography, nearby environmentally and economically sensitive areas (e.g. schools, nursing homes, hospitals, commercial district) and muster station is included in Facility Drawing NY003-3731, as well as the facility drawings.

SECTION II - CORE PLAN ELEMENTS

The Core Plan contains essential response guidance and procedures. Annexes contain more detailed supporting information on specific response functions. The Core Plan contains frequent references to the response critical Annexes to direct response personnel to parts of the ICP that contain more detailed information on the appropriate course of action for responders to take during various stages of a response.

2.1 Discovery

The discovery actions include those initial actions taken by personnel to recognize an incident, perform a basic assessment to mitigate circumstances if appropriate, and immediately notify the proper personnel to respond to the incident including necessary state or local agencies. All facility personnel are trained to recognize an incident based upon the categories defined in **Annex 2 - Notification.**

Once an incident is recognized, employees will perform a basic assessment as described in **Annex 2 - Notification** to determine subsequent actions including, but not limited to, internal notifications, information gathering, evacuations, and equipment shutdowns. The specific actions are detailed in the following sections of Annex 2 and Annex 3: A2.l, A3.2.1, and A3.4.1.

Spill prevention inspections are detailed in **Annex 7 - Prevention.** In the event of a release of hazardous materials or wastes resulting from a spill or leak from a container or tank, the procedures outlined in **Annex 3 – Response Management System** will be followed. In general, the following steps will be taken:

- Control the release. Stop the flow of material if it can be performed safely;
- Remove potential ignition sources and materials in the areas that could be affected by the releases;
- Contain the release;
- Clean up the release and all associated residues;
- Prevent incompatible waste from being treated, stored, or located in the affected areas until cleanup procedures are complete;
- Properly dispose or treat all collected released material; and
- Ensure that all emergency equipment listed in this ICP is cleaned and fit for its intended use before operations are resumed.

Specifically, if a leaking container is discovered, the emergency response procedures will be followed and may include placing the leaking container in an overpack container. Contaminated soil, if any, will be removed and placed in a properly labeled container. In the case of a leaking tank, the material will be contained in its containment dike. The standard emergency response procedures will be followed. If possible, the material will be recovered for reuse once the leak has been repaired. Absorbent materials will be utilized to soak up residual materials and then placed into properly labeled drums or containers. The diked area may be cleaned with water, which will then be transported off-site for proper disposal or processed through the facility's wastewater treatment plant.

In addition, other inspections are conducted by personnel in order to detect any discharges that may have taken place. These include:

- Kiln Field Operator's Shift LLGF Inspection Report: conducted every 4 hours during the night shift. The Fuel Farm area is inspected for leaks as well as tank levels are recorded to verify no changes to tank levels have occurred.
- Fuel Farm Operator's Daily LLGF Inspection Report: conducted daily by personnel at the Fuel Farm.
- Burner Operator's Shift Log: Conducted by the kiln burner operators through the shift. The LLGF portion of the rotary kiln is inspected with results of the inspection being recorded on the shift log.

The facility also utilizes automated discharge detection systems in conjunction with the above-listed inspections conducted by facility personnel. These systems include:

- Lower Explosive Limit (LEL) Sensors
- Oxygen Sensors

The LEL and O_2 sensors are located wherever hazardous wastes are stored or transported via piping. LEL and O_2 sensors are found in the LLGF tank storage building, the solids processing (drum) building, the tunnel, and the EQ building located between the two kilns.

2.2 Initial Response

This Section provides the initial response actions at the Norlite facility.

2.2.1 Initial Notifications

At all times, there will be at least one employee either on the facility premises or on call (i.e. available to respond to an emergency by reaching the facility within 15 minutes of a call) with overall responsibility for incident command and emergency response measures.

All Thermal Operation Managers are trained as Incident Commanders and therefore the on-site Thermal Operation Manager at the time must have the initial notification. The on-site Thermal Operation Manager can be reached on a shared cell phone at 518-587-5737.

The on-site Thermal Operation Manager must contact one of the following facility Incident Commanders:

Primary Incident Commander:

Plant Manager: David Maguffin

Office: 235-0401 Plant Ext.: 4014

Cell Phone: 518-852-3876

Alternate:

Environmental Manager: Prince Knight

Office: 235-0401 Plant Ext.: 4049

Cell Phone: 518-857-2969

Alternate:

Assistant Plant Manager: Ivan Nusimovich

Office: 235-0401 Plant Ext.: 4037

Cell Phone: 203-584-3767

Alternate:

Health & Safety Manager: Scott Lewis

Office: 235-0401 Plant Ext.: 4005

Cell Phone: 518-312-1188

Alternate:

Fuel Farm Manger: David Glover

Office: 235-0401 Plant Ext.: 4041 Fuel Farm Ext.: 4028

Cell Phone: 518-857-4606

Contact to outside organizations will be conducted by either the Incident Commander or a designated person other than the Incident Commander. The following outside organizations may be contacted:

- City of Cohoes Fire Department: (518) 237-1472
- Local Emergency Planning Committee: 911 or (518) 765-2351
- West Central Environmental: (518) 272-6891 (For spill control and assistance.)
- NYS 24 Hour Oil and Hazardous Materials Spill Hotline: (518) 457-7362
- Albany County Health Department: (518) 445-7835
- National Response Center (24 hours): (800) 424-8802 or (202) 426-2675
- US Coast Guard: (518) 472-6110 or (212) 264-4860 (Immediate notification as soon as there is knowledge of an oil release that violates water quality standard or causes a sheen on navigable waters.)
- D&H Railroad Operations Control Center: (518) 271-4414 (If situation involves or interferes with railroad activity.)
- US EPA Region II: (201) 548-8730
- Albany Memorial Hospital (518) 471-3221
- Mine Safety Health Administration: (518) 489-0573

2.2.2 Response Management System

Response to any emergency situation will follow the structure of Incident Command-Hazardous Sector Operations, under the regulations of 30CFR Subpart 1910.120.

2.2.2.1 *Preliminary Assessment and Initial Response Procedures.*

The procedures for preliminary assessment of the situation, including an identification of incident type, hazards involved, magnitude of the problem, and resources threatened. The criteria for implementation of the ICP for any potential emergency include:

- threat to human health or the environment;
- fires/explosions; or
- unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water.

The following procedures will be followed for preliminary assessment of the situation:

Step 1: Site Management

- The ultimate goal of site management is to protect employees and secure the area of the incident.
- Manage the physical layout of the incident.
- Approach releases from an uphill, upwind side.
- Ensure area is isolated and deny entry via barriers, tape, employee guarding.
- Monitor for breached containers, vapor clouds, unusual odors, or released spills.
- Determine if possible, if anyone is injured.

Step 2: Identification of Hazardous Materials

- Determine, if possible, without entering area or contacting material, what materials are involved and approximate amount.
- If entry into area is required to identify material, then this will only be done under the direction of the full incident command and Emergency Response Team. No further action can be done at this time except to maintain site control and

contact the Emergency Response Team.

- If a determination can be made as to the material and amount, or if the material is known, the Emergency Coordinator can make the determination for response actions or to contact the Incident Commander.
- For small spills (less than 55 gallons) with known materials, emergency response will be handled under the direction of the Emergency Coordinator.
- For large spills, or unknown materials, emergency response will be under the direction of the Incident Commander.
- Identification of unknown materials will be done with level A protection, under the buddy system, with back up response personnel in place. If, at this time, identification can be made, then appropriate procedures will be followed.
- If identification cannot be made, then outside resources will be contacted to handle the response.

Step 3: Hazard and Risk Assessment

- After specific identification of a material, hazards and risks must be determined. Labels, containers, shipping papers, Manifests, SDS, or HAZMAT response guides shall be utilized. This is necessary for determining potential risk from additional spills, fires or explosions, and a safety assessment for responders, employees, community and environment, and determining PPE and response equipment.
- Assess possible hazards, both direct and indirect, to human health and environment and determine control methods. These include:
  - fire
  - wind & direction
  - weather hazards such as precipitation or extreme temperatures
  - explosion
  - other hazardous materials
  - toxicity
  - ignition sources
- Determine if incident can be handled by company's capabilities or if external

resources are necessary.

- Assess the need for implementing the evacuation plan.
- Potential for off-site involvement.
- Actual or potential threat to human health and/or extent of injuries sustained.
- Establish "hot", "warm", and "cold" zones.
- Notify appropriate emergency service groups if there is threat to public health or the environment.

Step 4: Select PPE and Equipment

- PPE and equipment selection will be based on the material and hazards. If not already determined, this will be done by the Equipment Officer.

Step 5: Information and Resource Coordination

- A command post shall be established, close enough to view the site, far enough to prevent contamination, and be upwind.
- The command post shall be well marked.
- Representatives from other agencies should be available if needed at the command post.
- Identification of key officers is established at this time if not already done so, via vests or other identification measures.
- Checklists shall be handed out at this time (if not already done so) for each officer and their roles.

Step 6: Control and Containment

- Remove all hazards present, including flammable materials, if safe to do so.
- Spill control will be initiated before leak control measures are implemented.
- Controlling vapors and gasses is limited to shutting off the supply if safe to do so. Additional outside resources will be contacted for assistance.
- Liquids are controlled by diverting, diking, or retaining and absorption or contain

or direct to sumps.

- Leak control measures will be taken after spill control has been completed. This is controlling the leak at the source or container. This can be accomplished by:
    - Emptying or transferring material
    - Diverting flow
    - Patching or plugging

Step 7: Decontamination

- This process makes people, equipment, and supplies safe by eliminating harmful substances. This is done under the direction of the Equipment Officer.
- Processes uti1ized wil1 be dilution, absorption, or neutralization, or a combination of one or more process.
- All affected response personnel, equipment, and facilities will be decontaminated prior to entering the "cold zone."
- Arrange for proper disposal of all contaminated materials, including ensuring that incompatible wastes are not mixed with released materials.

2.3 Sustained Actions

Sustained actions which transition beyond the initial emergency stage will be handled by the Incident Commander in charge of incident. Sustained actions will most likely require assistance from outside sources such as the fire department, Local Emergency Planning Committee (LEPC), or contracted response services. An example of a sustained action is a release to a stream or significant fire.

2.4 Termination and Follow-Up Actions

Final Step: Termination

- Ensure situation is under control.
- All utilized safety equipment must be inspected to be sure it is cleaned and in a ready state.
- Investigation and documentation of the incident.
- Ensure health monitoring of response personnel if appropriate.

- Notification to proper authorities that activities have been completed.
- Determine when an "all-clear" can be given to resume normal activities.
- File report within 15 days of the emergency action.

Once any emergency is declared over, the following procedures describe how the orderly demobilization of response resources will occur.

- As part of the Contingency Plan activation notification letter due 15 days after an incident, the facility will conduct a root cause analysis to determine the cause of the incident. The final notification letter will be submitted to the Region 4 Regional Remediation Engineer.
- From the results of the root cause analysis, the company will institute corrective action measures which will help ensure a similar situation does not occur again.
- During the root cause analysis, the company will evaluate the response procedures followed during the incident and implement new procedures if deemed necessary to ensure public health and environmental protection.

In the event of an incident at the facility, the following information will be documented and submitted for review upon request:

a) incident history (time, date, location, etc.);

b) notifications made;

c) emergency response personnel involved (name of organizations and times on-site);

d) agency personnel on-site (names of agencies and times on-site);

e) description of response actions;

f) cause(s) of the incident;

g) types of chemical(s) released, and media impacted (e.g. soil, air, water);

h) quantity of chemicals released;

i) resources impacted (i.e. community, natural resources, etc.);

j) personnel/responder injuries; and

k) corrective actions and enforcement.

SECTION III -ANNEXES

Annex 1: Facility and Locality Information

Al.1 Facility Location and Layout

The layout of the facility, including the entrances and roads inside the facility, evacuation routes, emergency shut-off valves, response equipment, facility topography, nearby environmentally and economically sensitive areas (e.g. schools, nursing homes, hospitals, commercial district) and muster station are included in the following figures:

a. *Facility Map:* Drawing NY003-3731. This drawing identifies each building on the facility, has topography information, wind rose information, location of the nearest neighbors, environmental receptors, and facility entrances which are to be used as rally points dependent upon wind direction.

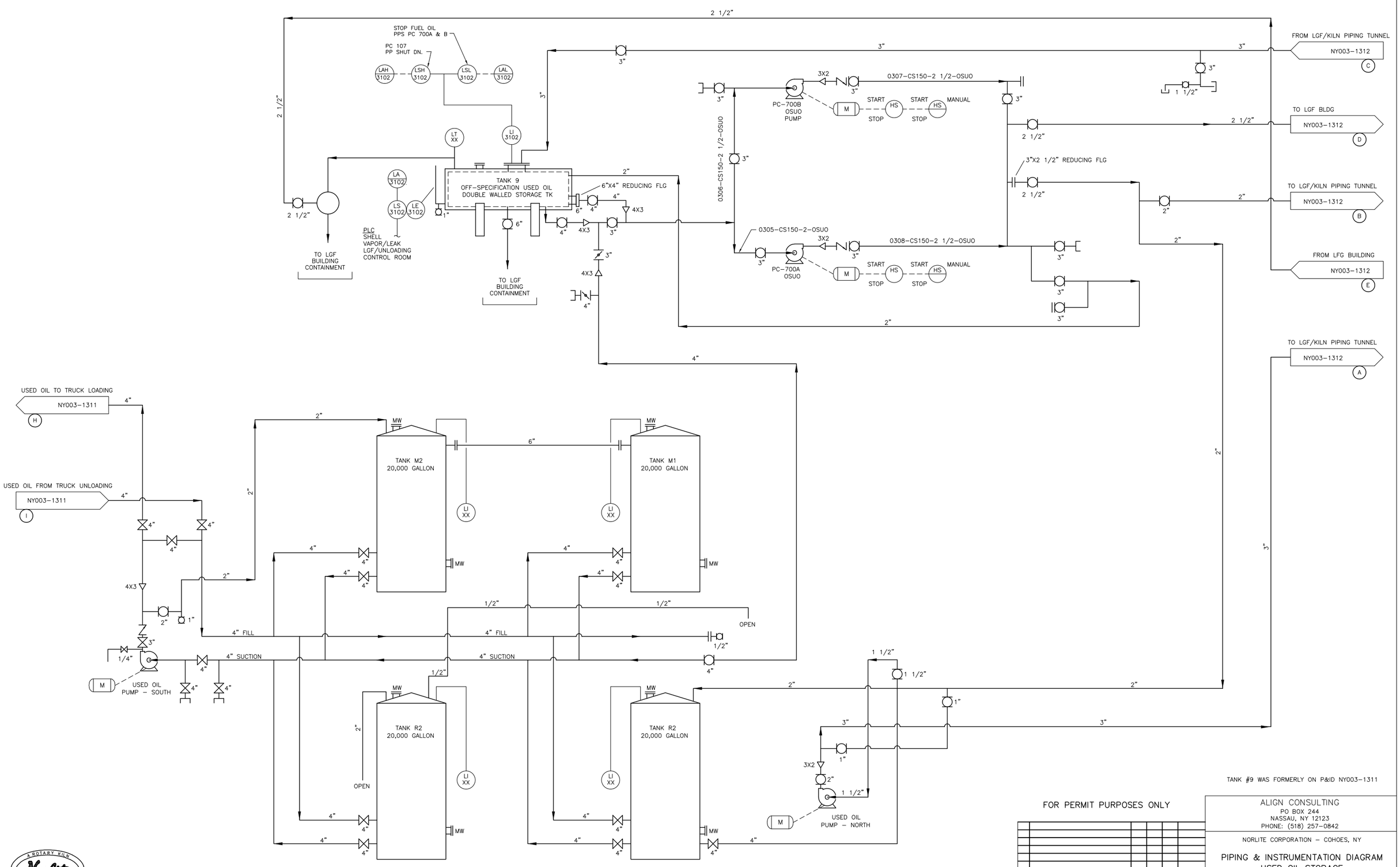
b. *Facility Drawings:* refer to the following drawings which provide P&ID information of the fuel farm and kiln area, including emergency shut-off valve information.

- NY003-1311
- NY003-1311a
- NY003-1312
- NY003-1315
- NY003-1317

NOTE Full size copies of maps and drawings are available at the facility. Copies are maintained at Security Gates #1 and #2 as well as the main office.

The layout will be made available to police, fire departments, State/local emergency response teams, response contractors and equipment suppliers, and any other responders. Arrangements have been made to familiarize emergency responders with the facility layout and properties of the hazardous waste managed at the facility. Any change(s) in the facility layout will be

communicated to the same parties in a timely manner and documentation of such communication will be maintained on-site.



TANK #9 WAS FORMERLY ON P&ID NY003-1311

FOR PERMIT PURPOSES ONLY

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
0	CREATED FOR RCRA PERMIT RENEWAL	ARW			6/16/20

INFORMATION PRESENTED ON THIS DRAWING HAS BEEN COMPILED FROM CURRENT FIELD DATA AND ORIGINAL DESIGN DRAWINGS PREPARED BY ENSR CONSULTING & ENGINEERING & HARVEY KING.

ALIGN CONSULTING
PO BOX 244
NASSAU, NY 12123
PHONE: (518) 257-0842

NORLITE CORPORATION – COHOES, NY

PIPING & INSTRUMENTATION DIAGRAM USED OIL STORAGE

DRAWN BY: ARW	DATE: 06/14/20	DRAWING/FILE REF:	NY003-1311A
ENGINEER: ALIGN CONSUL	FILE NAME: NY003-1311A	DRAWING NO.	NY003-1311A

FROM USED OIL STORAGE TANK FARM
NY003-1311A
H

0320-CS150-4"-SUO
4"

TO USED OIL STORAGE TK FARM
NY003-1311A
I

4"
4"

TO N/E CORNER OF LGF BLDG
NY003-1312
G

0302-CS150-2 1/2-OSUO
0302-CS150-2 1/2-OSUO
2 1/2"

START
OPERATOR'S STATION SWITCH
HS
STOP

N2

FROM N/E CORNER OF LGF BLDG
NY003-1312
F

2 1/2"
2 1/2"

WASTE TRANSFER PUMPS & EQUIPMENT (UNLOADING AREA 1)

4"
0320-CS150-4"-SUO

N2

2 1/2"

NY003-1312
A1

START
HS
M
STOP

SP
1"
2 1/2"
2 1/2"
4 x 2 1/2

2 1/2"

CS150-2 1/2-SUO
4"

LGF TANK 300/400/500/600
3"
NY003-1317

4"
2 1/2"

PC-107
WASTE OIL
TRANSFER PUMP

4"

LGF STORAGE BUILDING
3"
200 SIDE - LGF TANKS
NY003-1312

4"

F-101C
LGF UNLOADING
STRAINER
(NORTH)

N2

2 1/2"
N2

0320-CS-150
-2 1/2-SUO

3"
3"
3"
3"

0316-CS150-3-LGF

LGF STORAGE BUILDING
3"
100 SIDE - LGF TANKS
NY003-1312

4"
6x4

F-101A
LGF UNLOADING
STRAINER
(SOUTH)

0315-CS150-
4"-LGF
4x3

PC-104A
LGF
UNLOADING
PUMP

SP
1"

3"
3"

3" LGF

TU-008-3"
LGF TANK 300/400/500/600
3"
NY003-1317

START
HS
M
STOP

NY003-1312
A3

WASTE TRANSFER PUMPS & EQUIPMENT (UNLOADING AREA 2)

2 1/2" SUO

N2

N2
LGF STORAGE BUILDING
0319-CS150-2-N2
NY003-1312

1" SP
1/2" SP
CS150-3"-LGF
4"
4x3

F-102C
LGF UNLOADING
STRAINER
(NORTH)

PC-110B

3"
1" SP

TO TANKS 300, 400, 500, 600
TO TANKS 300, 400, 500, 600
TO TANKS 200A, B, C
TO TANKS 100A, B, C

START
HS
M
STOP

START
HS
STOP

TO TANK 300
TO TANK 400
TO TANK 500
TO TANK 600

2"

1" SP
1/2" SP
4"

CS150-4"-LGF

F-102A
LGF UNLOADING
STRAINER
(SOUTH)

PC-110A

3"

TO TANKS 300, 400, 500, 600
TO TANKS 300, 400, 500, 600
TO TANKS 200A, B, C
TO TANKS 100A, B, C

START
HS
M
STOP

START
HS
STOP

2"

N_2 STORAGE

USED OIL TANK #9 INFORMATION MOVED TO P&ID NY003-1311A

FOR PERMIT PURPOSES ONLY

CLIENT APPROVAL: _____ DATE: _____

A ROTARY KILN
Norlite
EXPANDED SHALE AGGREGATE

OSUO = OFF-SPECIFICATION USED OIL
SUO = SPECIFICATION USED OIL

INFORMATION PRESENTED ON THIS DRAWING HAS BEEN COMPILED FROM CURRENT FIELD DATA AND ORIGINAL DESIGN DRAWINGS PREPARED BY ENSR CONSULTING & ENGINEERING.

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
7	2020 RCRA UPDATES	ARW			06/16/20
6	UPDATED CONFIGURATION	T.V.B.			03/07/17
5	UPDATED CONFIGURATION	T.V.B.			02/08/14
4	UPDATED CONFIGURATION	T.V.B.			06/25/04
3	UPDATED CONFIGURATION	T.V.B.			06/08/04
2	UPDATED CONFIGURATION	T.V.B.			7/17/02
1	ADDED LGF SOLIDS GRINDER	A.P.	A.P.		1/15/96
0	RELEASE KOR NYSDEC SUBMITTAL	M.L.			1/15/92

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HARVEY M. KING, P.E.
ENVIRONMENTAL ENGINEERS & SCIENTISTS
4 STONY BROOK DRIVE, REXFORD, NEW YORK 12148-1608

NORLITE CORPORATION - COHOES, NY

PIPING & INSTRUMENTATION DIAGRAM FUEL UNLOADING AND OFF-SPECIFICATION USED OIL STORAGE

DRAWN BY: T.V.B.	DATE: 04/29/02	DRAWING/FILE REF:	NY003-E1311
ENGINEER: H.M.K.	FILE NAME: NY003-1311	DRAWING NO.	NY003-1311

NOTES:

1. VALVES "XCV" SHALL BE AUTOMATICALLY OPERATED COMPLETE WITH ACTUATOR, PILOT OPERATOR AND FULLY OPEN/CLOSED LIMIT SWITCHES–TYPICAL PER THE FOLLOWING DIAGRAM. ALL SUCH VALVES (UNLESS INDICATED OTHERWISE) SHALL BE NORMALLY CLOSED, AIR TO OPEN. (SEE DIAGRAM)
2. VALVES "YCV" SHALL BE AUTOMATICALLY OPERATED COMPLETE WITH ACTUATOR, PILOT OPERATOR – TYPICAL PER THE FOLLOWING DIAGRAM. ALL SUCH VALVES (UNLESS INDICATED OTHERWISE) SHALL BE NORMALLY CLOSED, AIR TO OPEN. (SEE DIAGRAM)

YCV DIAGRAM — XCV DIAGRAM

3. VALVES DESIGNATED "XV" SHALL BE MANUALLY OPERATED WITH FULLY CLOSED LIMIT SWITCHES ONLY.
4. VALVE WITH NEITHER DESIGNATION AND DENOTED WITH TAG PREFIX "V" SHALL BE MANUALLY OPERATED WITHOUT ANY AUTOMATION HARDWARE OR LIMIT SWITCHES.

LOC. LEGEND: 1A: LOCATED ON PANEL IN LGF BUILDING. 1B: LOCATED ON PANEL IN EQUALIZATION BUILDING. 2 ; LOCATED IN MCC ROOM.

5. VESSEL EMERGENCY RELIEF VALVES ARE MANIFOLD TOGETHER (100 SERIES AND 200 SERIES) AND ARE VENTED THROUGH THE ROOF WITH SEALED DRAINS INSIDE THE BUILDING.

FOR PERMIT PURPOSES ONLY

CLIENT APPROVAL: _____ DATE: _____

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
12	2020 RCRA UPDATES	ARW	–		06/16/20
11	UPDATED CONFIGURATION	T.B.	HMK		02/08/14
10	UPDATED CONFIGURATION	T.B.	HMK		02/22/11
9	UPDATED CONFIGURATION	T.B.	HMK		07/15/05
8	UPDATED CONFIGURATION	T.B.	HMK		03/28/05
7	UPDATED CONFIGURATION	T.B.	HMK		06/08/04
6	UPDATED CONFIGURATION	T.B.	HMK		07/17/02
5	VR1, VR2 (VACUUM RELIEF) ADDED	T.B.	HMK		10/06/98
4	VACUUM LINES ADDED	T.B.	HMK		06/23/98
3	REVISED PER ENG'R REVIEW	D.C.	J.E.	J.R.	12/4/92
2	REVISED PER ENG'R REVIEW	D.C.	J.E.	J.R.	10/17/92
1	REVISED AS INDICATED	E.B.	JE	JE	8/17/92
0	FOR CONSTRUCTION	MAC	JE	JE	7/24/92

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HARVEY M. KING, P.E.
ENVIRONMENTAL ENGINEERS & SCIENTISTS
4 STONY BROOK DRIVE, RENFORD, NEW YORK 12148-1608

NORLITE CORPORATION – COHOES, NY

PIPING & INSTRUMENTATION DIAGRAM LGF STORAGE AND TRANSFER

DRAWN BY:	DATE:	DRAWING/FILE REF:
T.V.B.	04/29/02	NY003–E1312
ENGINEER:	FILE NAME:	DRAWING NO.
H.M.K.	NY003–1312	NY003–1312

INFORMATION PRESENTED ON THIS DRAWING HAS BEEN COMPILED FROM CURRENT FIELD DATA AND ORIGINAL DESIGN DRAWINGS PREPARED BY ENSR CONSULTING & ENGINEERING.

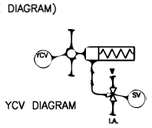
A ROTARY KILN Norlite EXPANDED SHALE AGGREGATE

N_2 LOW PRESSURE
NY003-1312
1119-150CS1-2-N2
N_2 HIGH PRESSURE
NY003-1312
VALVE ACTUATION
2"X1"
2"X1"
V-102A12
V-102B12
1513-150CS1-1-N2
1514-150CS1-1-N2
VENT FROM LGF TANKS
NY003-1312
1240-150CS1-4-VX
OFF SPECIFICATION USED OIL
NY003-1312
1110-150CS1-2 1/2-OSUO
1511-150CS1-2-VX
1510-150CS1-4-VX
V-102A14
V-102A10
V-102B10
V-102A13
V-102B13
1240-150CS1-4-VX
1511-150CS1-2-VX
1510-150CS1-4-VX
100C 200C
LINE 1
NY003-1312
1407-250CSX1-3-LGF
TANK 102A DISCONNECTED
CAP
1411-250CSX1-3-LGF
100C 200C
LINE 2
NY003-1312
1403-250CSX1-3-LGF
1511-150CS1-2-VX
1509-150CS1-2-FO
YCV 3509B
YCV 3510A
PI XX
PT 3509
PSH/L 3509
PI 3509 1B
PT 3510
PSH/L 3510
PI 3510 1B
1508-150CS1-2-FO
1506-250CSX1-2-LGF
FLOOR ABOVE
V-102A1
V-102A3
V-102A2
START HS STOP
HS STOP
BURST INDICATOR NOT CONNECTED
LSH LI LAH 3502D
LIT 3502D 1B
PSE 3509 YI 3509
XCV 102A5
ATM
LSH LI LAH 3504D
V-102B9
LIT 3504D 1B
PSE 3510 YI 3510
XCV 102B5
ATM
BURST INDICATOR NOT CONNECTED
XCV XX
XCV 102A7
M
LE 3502D
SEE NOTE 2
XCV 102A4
4"X3"
4"X3"
XCV 102A6
XCV 102B6
XCV XX
XCV 102B4
LE 3504D
2" 4" 2" 3" 3" 2" 4" 3" 4" 1.5"
CAP
3" 2" 3" 2" 4" 3" 3"
3/4" 3/4"
PI XX
LSL LE 3502A
LSLL LE 3502B
CAP 1.5"
CAP 1.5"
AB-102A AGITATOR
1.5"
1.5"
1.5"
102B VENT COLLECTION TANK
1" EQUALIZATION TANK REPORTED AS OUT OF SERVICE 2020
2.5"
2.5"
V-102A5
SAMPLE
V-102A4
V-102B5
SAMPLE
V-102B4
PSL 106A
LSL 106A
1501-250CSX1-3"-LGF
1503-250CSX1-3"-LGF
1504-250CSX1-2-LGF
YS START STOP SEE NOTE 1
HS STOP
1505-250CSX1-3"-LGF
PT 3507
1502-250CSX1-2-LGF
V-102A8
XV-102A7
PC-106A LGF RECIRCULATION PUMP
XV-102A6
XV-102B7
PC-106B LGF RECIRCULATION PUMP
PI 3508
V-102B8
XSE 3502
XSE 3501
FLAME ARRESTOR
TO KILN #2 HOOD
NY003-1903
TO KILN #1 HOOD
NY003-1903
NY003-1903

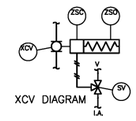
LOWER PORTION OF PIPING/PUMP AREA
WAS FLOODED AND COULD NOT BE REVIEWED
AS PART OF 2020 RCRA PERMIT RENEWAL

NOTES:

1. VALVES "XCV" SHALL BE AUTOMATICALLY OPERATED COMPLETE WITH ACTUATOR, PILOT OPERATOR AND FULLY OPEN/CLOSED LIMIT SWITCHES–TYPICAL PER THE FOLLOWING DIAGRAM. ALL SUCH VALVES (UNLESS INDICATED OTHERWISE) SHALL BE NORMALLY CLOSED, AIR TO OPEN. (SEE DIAGRAM)
2. VALVES "YCV" SHALL BE AUTOMATICALLY OPERATED COMPLETE WITH ACTUATOR, PILOT OPERATOR – TYPICAL PER THE FOLLOWING DIAGRAM. ALL SUCH VALVES (UNLESS INDICATED OTHERWISE) SHALL BE NORMALLY CLOSED, AIR TO OPEN. (SEE DIAGRAM)



YCV DIAGRAM



XCV DIAGRAM

3. VALVES DESIGNATED "XV" SHALL BE MANUALLY OPERATED WITH FULLY CLOSED LIMIT SWITCHES ONLY.
4. VALVE WITH NEITHER DESIGNATION AND DENOTED WITH TAG PREFIX "V" SHALL BE MANUALLY OPERATED WITHOUT ANY AUTOMATION HARDWARE OR LIMIT SWITCHES.

NOTE:
1 – START / STOP OF PUMPS PC-105A/B ARE INTERLOCKED TO THE SUCTION AND DISCHARGE VALVE POSITIONS.
2 – VALVE TO BE LOCATED AT HIGH POINT. F.O. INLET TO BE AS CLOSE TO VALVE OUTLET AS POSSIBLE.

LOCATION LEGEND
1A = PANEL IN LGF BUILDING
1B = PANEL IN EQUALIZATION BUILDING

FOR PERMIT PURPOSES ONLY

INFORMATION PRESENTED ON THIS DRAWING HAS BEEN COMPILED FROM CURRENT FIELD DATA AND ORIGINAL DESIGN DRAWINGS PREPARED BY ENSR CONSULTING & ENGINEERING.

REV.	DESCRIPTION	DRN	ENG.	CHK	DATE
9	2020 RCRA UPDATES	ARW			06/08/20
8	UPDATED CONFIGURATION	T.V.B.			02/20/14
7	UPDATED CONFIGURATION	T.V.B.			06/25/04
6	UPDATED CONFIGURATION	T.V.B.			06/08/04
5	UPDATED CONFIGURATION	T.V.B.			7/17/02
4	REV AS INDICATED (9514-023)	PMW	JE	JE	8-11-93
3	REV AS INDICATED	RJS	JE	JE	12-4-92
2	REVISED PER ENG'R REVIEW	DC	J.E.	J.R.	10/17/92
1	REV AS INDICATED	EB	JE	JE	8/17/92
0	FOR CONSTRUCTION	MAC	JE	JE	7/27/92

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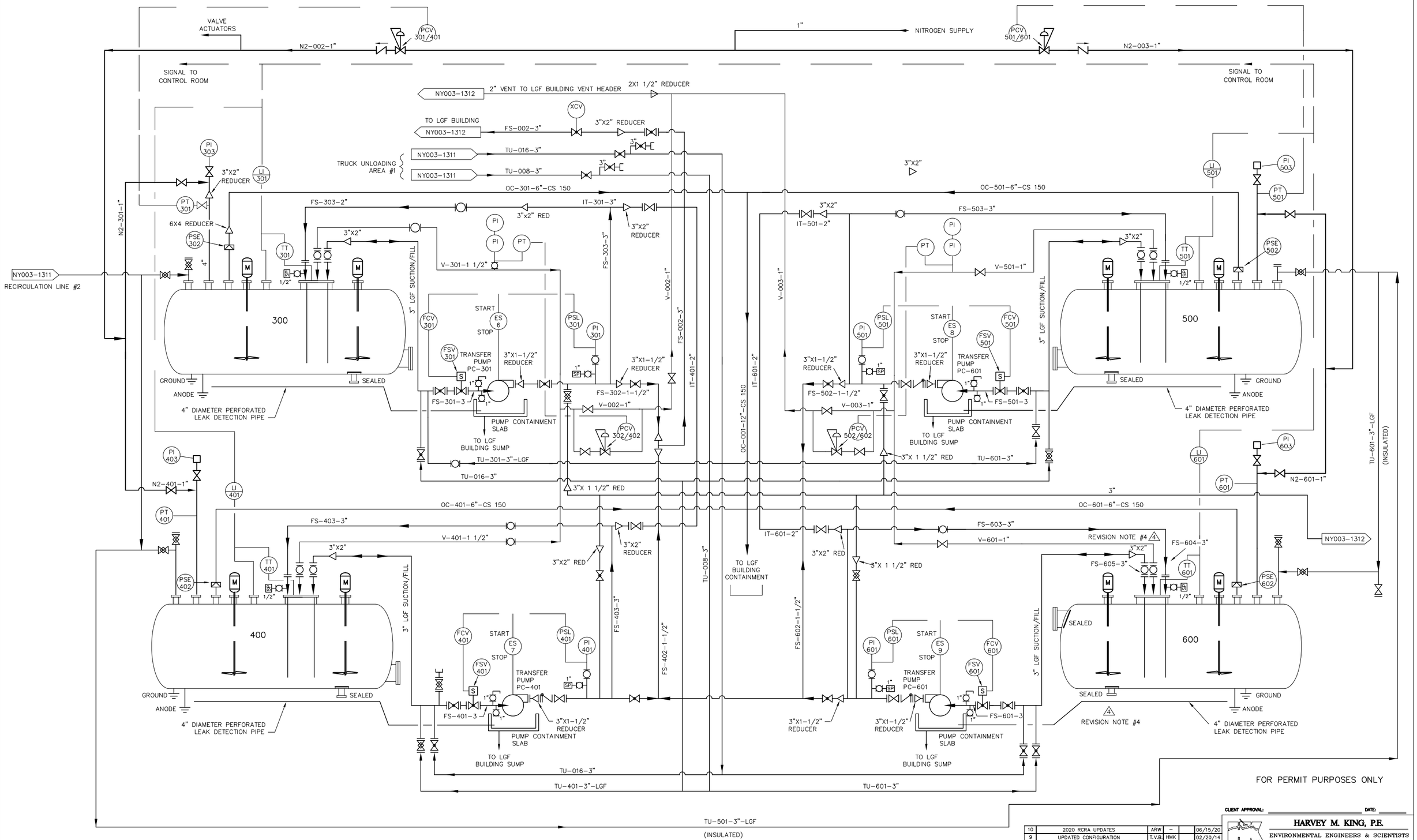
CLIENT APPROVAL: _____ DATE: _____

HARVEY M. KING, P.E.
ENVIRONMENTAL ENGINEERS & SCIENTISTS
4 STONY BROOK DRIVE, REXFORD, NEW YORK 12148-1608

NORLITE CORPORATION – COHOES, NY
PIPING & INSTRUMENTATION DIAGRAM
LGF EQUALIZATION AND FEED
(TANKS 102A, 102B)

DRAWN BY:	DATE:	DRAWING/FILE REF:
T.V.B.	04/29/02	NY003-E1315
ENGINEER:	FILE NAME:	DRAWING NO.
H.M.K.	NY003-1315	NY003-1315

A ROTARY KILN
Norlite
EXPANDED SHALE AGGREGATE



FOR PERMIT PURPOSES ONLY

CLIENT APPROVAL: _____ DATE: _____

REV.	DESCRIPTION	DRN	ENG.	CHK	DATE
10	2020 RCRA UPDATES	ARW	–		06/15/20
9	UPDATED CONFIGURATION	T.V.B.	HMK		02/20/14
8	UPDATED CONFIGURATION	T.V.B.	HMK		03/31/05
7	UPDATED CONFIGURATION	T.V.B.	HMK		06/08/04
6	NOZZLES H & I ADDITIONS CONFIGURATION	TVB	HMK		05/07/04
5	UPDATED TANK 600 CONFIGURATION	TVB	HMK		05/03/04
4	PIPING MODIFICATIONS TO TANK 600	TVB	HMK		12/12/03
3	UPDATED CONFIGURATION	TVB	HMK		7/17/02
2	OPERATING CAPACITY REVISED	TVB	HMK		11/05/01
1	OPERATING CAPACITY REVISED	TVB	HMK		03/11/00

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HARVEY M. KING, P.E.
ENVIRONMENTAL ENGINEERS & SCIENTISTS
4 STONY BROOK DRIVE, RENFORD, NEW YORK 12148-1608

NORLITE CORPORATION – COHOES, NY

PIPING & INSTRUMENTATION DIAGRAM EXTERIOR LGF TANK SYSTEM

DRAWN BY:	DATE:	DRAWING/FILE REF:
T.V.B.	04/29/02	DRAWING #4
ENGINEER:	FILE NAME	DRAWING NO.
H.M.K.	NY003-1317-HI	NY003-1317

DRAWING REFERENCE:

DRAWING #4 "LGF (LOW GRADE FUEL) SYSTEM, TANK FARM FLOW DIAGRAM". PREPARED BY STETSON2-DALE, PC FOR NORLITE CORPORATION. DATED 02/24/84.

A ROTARY KILN Norlite EXPANDED SHALE AGGREGATE

Al.2 Facility Description and Process Operations

Norlite, LLC is located in both the Town of Colonie and on the southern boundary of the City of Cohoes, New York. All mining activities are located within the Town of Colonie while all Hazardous Waste Handling operations are located in the City of Cohoes. Tradebe Environmental Services, LLC is the owner of Norlite, LLC with Norlite, LLC being the operator of the facility. The facility consists of a production operation, a quarry for shale, and a Fuel Farm which houses hazardous and non-hazardous wastes for fuel in the production operation.

The overall production portion of the facility resides on approximately 40 acres located in the center of the facility east of the quarry. The two kilns are approximately in the center of this 40 acre section. The office area is directly north of the kilns and the Fuel Farm is northwest of the kilns and directly west of the office area. The finishing operation resides to the east/southeast of the kilns. The quarry itself is located on the western portion of the property in the Town of Colonie.

The Fuel Farm is located upgradient of but some distance away from the Salt Kill, a NYS Class D stream which runs through the center of the facility. The Fuel Farm is where all the hazardous and non-hazardous wastes are stored and therefore has the greatest facility hazards due to the possibility of fire. The entire Fuel Farm has a fully automated fire suppression system with Oxygen, LEL, heat and infra-red monitors located throughout the entire fuel system to detect and alert employees to a potential problem in these work areas. Should the automated fire suppression system activate, an automated phone line contacts a local security service who then dispatches the Cohoes Fire Department as well as contacts one of the Incident Coordinators for the facility. A release of liquid waste would be contained inside the containment system for the storage tanks. The tank vent system is a closed system with the tank vapors going to the kilns for incinerations. The hazardous waste tanks do contain an emergency pressure relief system should pressures in the tank build faster than the vent system can handle. This relief system will not activate until pressures in the tank reach 18.8 pounds per square inch (psi). When this system activates, the vapors from the tank are released directly to the atmosphere via a one-foot stack.

The production operation consists of two dry rotary lightweight aggregate kilns, a crushing and screening finishing building, and a crushing and screening primary plant. The kiln area, which is located southeast of the Fuel Farm, is where the liquid wastes are used as fuel to make the lightweight aggregate product. Raw materials are quarried in the on-site shale quarry and transported to the primary plant where the shot rock is crushed to a specified size and screened. The crushed screened rock is transported to the kilns via a conveyor system. Kiln No. 1, manufactured by Taylor, is 175 feet long, whereas Kiln No. 2, manufactured by Allis-

Chalmers, is 180 feet long. Both kilns have an outside diameter of 11 feet and consist of a steel shell lined with 6-inch refractory brick, for an effective inside diameter of 10 feet. The production operation is a mineral beneficiation process and is used in the production of lightweight building materials and construction products.

The kilns operate at approximately 2500°F near the burner zone and approximately 1000°F at the backend where the shale is introduced into the kiln. Due to the temperature of the kilns, there is an obvious risk of burns should the shell be contacted. Both kilns have identical emission control systems which consist of semi-dry emission control devices for the collection and removal of particulate matter, hydrogen chloride (HCl), metals, and other gaseous species. The primary hazard for the kiln area is on the burner floor. The burner floor is where control of the liquid wastes occurs before entering the burner nozzle with air pressure to atomize the liquid into fine liquid waste droplets. As the fine liquid waste droplets exit the burner nozzle, they are ignited into a main burner flame which stretches ten to fifteen feet into the kiln. A "fire eye" sensor is present to detect that a flame is present in the kiln. All the possible fuel feed systems (LLGF, off-specification used oil, specification used oil, and natural gas) have automated valves connected to a Programmable Logic Controller (PLC) which can be closed should the "fire eye" lose signal or the flame go out. This safety feature prevents liquid waste from being fed into the kiln without a flame to combust it. The kiln area is manned 24 hours a day, 7 days a week, 365 days a year.

The material that exits the kilns is called clinker. The clinker is transported to the finish plant operation via conveyors and frontend loaders. Once at the finish plant operation, the clinker is crushed and screened into the various product sizes which are sold to customers.

Norlite uses a mix of energy sources including industrial organic wastes (hazardous waste), specification and off-specification used oil, fuel oil, comparable fuels, and natural gas for its two kilns. These materials are Liquid Low Grade Fuel (LLGF) and are fed to the kiln at the hot end of the kiln. All of the fuels, except for natural gas, are stored at the Fuel Farm which is located north of the kilns and east of the quarry. The various LLGF are transported to Norlite via either tanker truck or box truck carrying drums. All wastes are sampled and analyzed as per Norlite's Waste Analysis Plan (WAP) before being accepted by Norlite. Once accepted, bulk trucks are offloaded via pumps into one of nine (9) hazardous waste storage tanks. If the material being offloaded is off-specification or specification used oil, these materials will be off- loaded into one of two (2) specification used oil tanks or one of three (3) off-specification used oil tanks. Norlite uses computer modeling and laboratory analysis to blend the different hazardous wastes into a mixture which will meet the requirements of the Norlite WAP for use at the kilns as a fuel. The used oils are used as a supplemental heat source when the kiln operators need it.

A list of hazardous waste and chemicals managed and utilized at this facility along with their properties can be found in the Operations Plan and Waste Analysis Plan. Norlite maintains profiles for all the incoming wastes which are received. Each profile calls out the major constituents of the waste. During an incident, this information would be provided to the Incident Commander to identify what chemicals are involved. Pertinent information on extinguishing fires associated with these chemicals (especially water-reactive chemicals), such as a material's Safety Data Sheet (SDS) or the Chemical Hazard Response Information System (CHRIS) manual, will also be made available to facility personnel and responders.

Response procedures will differ markedly and are driven by the type and severity of the incident. A copy of this response procedure is available in ANNEX 3 Response Management System. All chemicals will be treated with the highest regard for safety and assumed to be worse case until identified. Once identified, Safety Data Sheets and the Chemical Hazard Response Information System will be used to determine a response plan. Norlite accepts a wide range of chemicals at the facility which makes creating a specific response plan for each scenario impossible to predict.

Property surrounding the facility is zoned as follows: residential to the north and east, light commercial directly to the south, with vacant land to the south and west of the facility. The buffer zone from the site's property lines to the operational areas varies from 500 feet to 1 mile. The population is estimated to be 5,000 within a one (1) mile radius of the facility. Within a three (3) mile radius is the city of Cohoes, with an approximate population of 18,000. The prevailing wind directions are from the west-northwest (WNW) and south-southeast (SSE).

The nearest rivers and/or streams include the Salt Kill Creek and the Mohawk and Hudson Rivers. The Salt Kill enters Norlite's property on the northern boundary, traverses the property in a northwestwardly to southeastwardly direction and exits at the mid-point of the eastern property line. The portion of the Salt Kill, which flows through the active part of the plant, was channelized in 1981 by use of culvert tiles. The culvert is comprised of two concrete pipes, each four (4) foot diameter by 200 feet long. The Hudson and Mohawk Rivers are 1-mile due east of the property and 3/4-mile northeast of the property, respectively.

ANNEX 2: NOTIFICATION

Annex 2: Notification

This annex details the process of making facility personnel, emergency responders, and regulators aware of an incident (i.e., who to call, when the call must be made, and what information/data must be provided on the incident).

A2.1 Internal Notifications

MASTER TELEPHONE LIST

The Norlite LLC designated Emergency Coordinators:

Name	Title	Address and Telephone Number
NA	On-Site Thermal Operation Manager	Cell Phone: 518-587-5737
David Maguffin	Plant Manager	284 Old Best Rd., West Sand lake, NY 12196 Office: 518-235-0401 Ext. 4014 Cell Phone: 518-491-7900
Prince Knight	Environmental & Regulatory Compliance Manager	1646 Cotton Hill Rd Berne, NY 12023 Office: 518-235-0401 Ext. 4049 Cell Phone: 518-857-2969
Ivan Nusimovich	Assistant Plant Manager	56 Laura Drive Latham NY 12110 Office: 518-235-0401 Ext. 4037 Cell Phone: 203-584-3767
Scott Lewis	Health and Safety Manager	28 Brian Court Troy, NY 12182 Office: 518-235-0401 Ext. 4005 Cell Phone: 518-312-1188
David Glover	Fuel Farm Manager	1 Winnie PI, Glenmont, NY 12077 Office: 518-235-0401 Ext. 4041, 4028 Cell Phone: 518-857-4606

There will be at least one Emergency Coordinator at the site or available on-call at all times. Emergency Coordinators are thoroughly familiar with all aspects of the facility's Integrated Contingency Plan (ICP) and have been authorized to commit the necessary resources to implement the ICP.

A2.2 Community Notifications

EMERGENCY SERVICES

Emergency Service	Address	Telephone Number
Cohoes Fire Department	25 Central Ave. Cohoes, NY 12047	911
Cohoes Police Department	97 Mohawk St. Cohoes, NY 12047	911
Empire Ambulance	3 White St. Cohoes, NY 12047	911
Albany Memorial Hospital	600 Northern Blvd, Albany, NY 12204	(518) 471-3221
Poison Control Center	National	(800) 222-1222
Chemical Emergency Advice	2900 Fairview Park Dr. Falls Church, VA 22042	(800) 424-9300 (CHEMTREC)

In the case of having more than one fire department or police department responding to an emergency, the primary emergency authority shall be the Cohoes Fire Department. Other authorities will provide secondary support to the primary emergency authority. This information is available in the Core Plan Section 2.2.1.

Norlite, LLC has familiarized the local hospitals with the properties of the hazardous waste managed at the facility, and the types of injuries or illness that could arise from fires, explosions, or releases from the facility. Norlite, LLC has also established coordination agreements with local police and fire departments, hospitals, response contractors, and state and local emergency response teams to familiarize them with the facility and actions needed in case of an emergency. A copy of the ICP has been submitted to these organizations along with all revisions.

Documentation of these coordination efforts are maintained on-site at the facility. The refusal of any authorities in receiving the above information has been noted in the facility records.

A2.3 Federal, State and Local Agency Notifications

Federal/State/Local Agency	Telephone Number
NYSDEC Spill Hotline Telephone Number	518-457-7362
Albany County Dept. of Health	518-445-7835
New York State Dept. of Health – Albany	518-474-2011

The Permittee must include all agencies that must be notified of an incident in accordance with the applicable regulations.

ANNEX 3 - RESPONSE MANAGEMENT PLAN

Annex 3: Response Management System

The following sections provide a description of the Norlite Response Management System including specific information necessary to guide and support the actions of a response management function during a response.

A3.1 General

Norlite, LLC follows the National Interagency Incident Management System (NIIMS) Incident Command System (ICS). Norlite has approximately 20 individuals who have all received the specific training to be an Incident Commander. Typically, the role of Incident Commander is delegated to the Plant Manager or Health and Safety Manager.

Levels of Command, Response and Structure

1. Incident Commander - has total responsibility for all activities conducted during an emergency response event. His top priorities are the health and safety of 1-employees, 2-public, 3-environment. Specific responsibilities include:

    a. Identification of materials and conditions

    b. Implement appropriate actions

    c. Assure a safety officer is appointed and all areas are evaluated, safe, and appropriate PPE is determined

    d. Assure a Team Leader is assigned to direct activities

    e. Assure a Risk Assessment Officer is assigned to determine hazards

    f. Assure an Equipment Officer is assigned to coordinate equipment use and decontamination

    g. Limit the number of personnel at the site

    h. Establish and maintain site control

    1. Termination activities as appropriate

    J. Acts as a liaison between outside agencies and internal activities

    k. Usually remains in the "cold zone" or command post

2. Health & Safety Officer - responsible for the health and safety of response personnel and coordinating care of victims in an emergency response event. Specific responsibilities include:

    a. Knowledge of the conditions, materials, and hazards.
    b. Determines and monitors emergency conditions and can halt operations if unsafe or imminent danger.
    c. Performs last check of any entry PPE.
    d. Identifies and monitors signs and symptoms of contamination, exposures, and heat stress.
    e. Coordinates medical response.
    f. Is found at the access control point and is in constant sight of entry operations.

3. Team Leader - responsible for coordination of all operations at the emergency response and provides exclusive direction for response measures. Specific responsibilities include:

    a. Assures all eight steps of hazardous materials mitigation are met and maintained in conjunction with other officers.

        1. Site management
        2. Identification of materials involved
        3. Hazard and risk assessment
        4. Select protective clothing and equipment
        5. Resource and information
        6. Control hazardous material releases
        7. Decontamination activities
        8. Termination activities

b. Develops answers to IC's problems

c. Provides direct supervision for all activities in the hazard sector, working in the "hot zone".

4. Risk Assessment Officer - responsible for determining risk assessment by assembling data about materials involved to determine hazards. Specifics include:

a. Determine chemical, physical and health hazards of materials.

b. Determine PPE, equipment, and materials necessary.

c. Determine evacuation distances and necessity.

d. Reports information to other officers as appropriate.

e. Monitors for additional hazards, weather conditions, wind directions, runoff, evaluates control procedures and risk of contamination spread.

f. Works within the "warm zone", assisting the safety officer, Team Leader and Incident commander. Does not enter the "hot zone."

5. Equipment Officer - responsible for coordinating all supplies and equipment necessary for response and decontamination, and monitors activities at the access control point to ensure proper decontamination of all that leave this zone. Specifics include:

a. Maintains tools and equipment.

b. Identifies and segregates used/contaminated equipment.

c. Determines DECON equipment and methods.

d. Maintains "clean" and "dirty" sides.

e. Monitors DECON of response personnel and equipment.

f. Oversees decontamination of equipment before restoring to use, and ensuring appropriate supplies are replenished.

g. Works with Risk Assessment Officer and Safety Officer in the "warm zone."

6. Emergency Coordinator - responsible for initial assessment of emergency conditions.

He will make the determination for initial response, and the determination for additional measures. Specific responsibilities include:

a. Determining type and magnitude of the situation.

b. Securing area.

c. Directing initial containment measures.

d. Reporting to Incident Commander.

e. Determining if additional steps must be taken.

f. Works with Team Leader in controlling hazard.

7. HAZMAT Technician - trained to aggressively approach the point of a release in order to patch, plug, or otherwise stop the release of hazardous substances. Employees, spread through all shifts, are trained in this capacity.

8. 1st Responder Technician - trained to defensively contain releases and prevent spreading. Employees, spread through all shifts, are trained in this capacity.

9. 1st Responder - trained to properly identify and report emergency or potential emergency situations. All plant employees are trained at the 1st Responder Awareness level.

The personnel designated to fulfill positions as Incident Commander, Health & Safety Officer, Equipment Officer, Team Leader, and Risk Assessment Officer have been trained and can fulfill more than one officer capacity, if the situation warrants, to effectively manage emergency response operations. These positions may also be combined if the situation warrants.

The Incident Commander's name and address along with alternative Incident Commanders and officers may be found in Core Plan Section 2.2.1 Initial Notification.

If an Incident Commander is not on-site, the Thermal Operation Manager will take charge as the Emergency Coordinator until relieved by the Incident Commander. There are

four Thermal Operation Managers, providing coverage 24 hours a day, seven days a week.

A3.2 Command

The following is a list of Emergency Coordinators for the facility:

Dustin Hagstrom: Thermal Operation Manager Shift A

James Abasiama: Thermal Operation Manager Shift B

Derek Emrie: Thermal Operation Manager Shift C

Robert Taylor: Thermal Operation Manager Shift D

The Emergency Coordinator's duties are as follows: responsible for initial assessment of emergency conditions. He will make the determination for initial response, and the determination for additional measures. Specific responsibilities include:

a. Determining type and magnitude of the situation

b. Securing area

c. Directing initial containment measures

d. Reporting to Incident Commander

e. Determining if additional steps must be taken

f. Works with Team Leader in controlling hazard

Norlite will follow the NIIMS ICS system when responding to situations. Command posts will be determined by situations such as prevailing winds, location of incident, and material involved in the incident. When possible, command posts will be located in the office area where there is access to phones, computer systems, internet, informational databases, and historical data. When the office area is not suitable as a command post, an alternate location will be selected based on the criteria listed above.

Information will be disseminated internally using the central phone and/or radio systems which are distributed throughout the facility. Norlite will also employ the use of cell phones with walkie-talkie capabilities to speak to entire groups at once. This option allows for communication should the command post be required to be offsite.

Information will be disseminated officially through the Cohoes Mayor's Office. Norlite

has established a direct communication to the Cohoes Mayor's office for instances when an incident has occurred which could threaten public safety. Norlite will also disseminate information directly to the professional first responders, such as fire and police, when first arriving onsite. Public notification and evacuation will be handled through the Cohoes Mayor's Office in combination with the local Fire and Police Departments.

Press Releases will be handled in conjunction with PR firm which is on retainer.

A3.2.1 Safety

The Health & Safety Officer is responsible for the health and safety of response personnel and coordinating care of victims in an emergency response event. Specific responsibilities include:

a. Knowledge of the conditions, materials, and hazards

b. Determines and monitors emergency conditions, and can halt operations if unsafe or imminent danger

c. Performs last check of any entry PPE

d. Identifies and monitors signs and symptoms of contamination, exposures, and heat stress

e. Coordinates medical response

f. Is found at the access control point and is in constant sight of entry operations

All Norlite personnel trained for incident response have had 40 HAZWOPER training and MSHA 24-Hour training at a minimum.

The Emergency Coordinator will, as circumstances may require, evacuate personnel from the specific plant areas. The Emergency Coordinator will account for all area personnel evacuated.

The following chart generally shows the personnel location and the number of personnel typically at each location:

Quarry	3-6
Primary	3
Burner Room (each)	1
Kiln area	4
LGF area	3
Main Office area/Lab	20
Security gate	1
I & E	5
Safety	1
Garage	5
Finish Plant	3

At any given moment, however, the actual personnel location may vary from the locations shown on the chart. These numbers reflect weekday operations and designate assigned work areas.

In the event of an uncontrolled release, fire, or explosion, the Incident Commander will call for a total evacuation of the facility. Total plant evacuation is initiated only by the Incident Commander.

The facility has a warning system with a specific alarm signal consisting of a loud horn to initiate evacuation of all plant areas. The evacuation signal will be a continuous three (3) minute blast. In addition to the alarm, the internal telephone system, as well as company cell phones, will be used to notify plant personnel as to the emergency's nature and recommended action plan.

Upon signal for a site evacuation, all employees have been instructed as to necessary equipment shut down and will follow those procedures, providing it is safe to do so. All individuals on site will proceed to one of the two security gates, traveling in a crosswind direction. Employees working in the kiln area; which includes the kiln control room, the EQ Tank (102A, 102B) area, and half of the LGF tunnel closest to the kiln, will either travel

east along the main plant road to Gate #2 or south along the plant road to Gate #1 depending on the wind direction. Employees working at the Fuel Farm; which includes the LGF storage building, drums processing building and half of the LGF tunnel closest to the fuel farm, will likewise travel east along the main plant road to Gate #2 or south along the plant road to Gate # 1 depending on the wind direction. All visitors will stay under the direction of their escorts. Each of the security gates is at opposite sides of the facility, allowing for distinct evacuation sites.

All individuals on the property are accounted for by either: automated card access, security officer's log, or sign in book. Therefore, all individuals will be accounted for. Vehicles are not permitted at the security gates during a site evacuation to minimize congestion.

Should an evacuation of the nearby residence need to occur, this will be communicated and coordinated with the City of Cohoes Mayor's office and/or Cohoes Fire Department.

A3.2.2 Liaison - Staff Mobilization

All onsite communication will go to the Team Leader to keep the Incident Commander from becoming overloaded with information. The Team Leader will compress information and provide it to the Incident Commander who will be working with the outside agencies to protect the general public. Should the situation be a fire or explosion, external emergency response such as the Cohoes Fire Department or LEPC will assume command of the situation with Norlite personnel acting as a support role. All incidents in which the Integrated Contingency Plan is activated will result in an immediate communication to the Cohoes Mayor's office to inform them of the situation. As the situation progresses, communication will be made directly to either the Cohoes Mayor or Fire Department Chief by the Team Leader or Incident Commander.

A3.3 Operations

Norlite accepts many different chemicals at the facility which are usually in a mixture. All materials which are received at the facility are first profiled to determine health, environmental, handling, and reactivity concerns. Due to the varying degree of mixtures and types of chemicals present at the facility at any one time, Norlite assumes the worse-case scenario for each incident until an identification of the materials involved has been made.

The Contingency Plan **will** be implemented in the following situations:

1. Spill or Material Release
   (a) The spill could result in release of significant quantities of flammable liquids or vapors.

(b) The spill or release of significant quantities of hazardous liquids or toxic fumes which could threaten human health or the environment.

(c) The spill can be contained on-site, but potential exists for ground water contamination.

(d) The spill cannot be contained on-site, resulting in an off-site soil contamination and/or ground or surface water contamination.

2. Fire and/or Explosions

(a) A fire which could threaten health or the environment.

(b) Contamination could result from the use of the water, or water and chemical fire suppressants.

(c) An imminent danger exists such that an explosion could occur.

(d) An explosion has occurred.

3. Floods, Storms or Natural Disasters - If flooding, wind, electrical discharge or other damage occurs due to natural causes which causes an event listed above.

Situations may arise that may not initially fall into the criteria for Contingency Plan implementation but could develop into these categories. Therefore, emergency response procedures will be followed, and Contingency Plan implementation will be integrated into our emergency response procedures. Any of the above criteria will result in contacting the Incident Commander and following all procedures.

Spill/Discharge or Material Release Response Procedures [6 NYCRR Part 373- 2.4(c)(l) and Part 373-2.4(g) and Part 373-2.10(d)(3)]

A. Spill Prevention

1. Spill prevention is the ultimate goal of the facility. All activities are performed to minimize the potential for spills of any hazardous materials onto the ground or into waterways. Releases should, by plant design, be contained within secondary containment areas.

2. Other spill prevention measures are accomplished by:

a. Established traffic patterns and traffic control, both on and off site.

b. Primary, secondary, and tertiary containment within our fuel systems.

c. Specific procedures for handling hazardous and LGF materials.

d. Training for all employees handling hazardous materials.

B. While preventing a spill or discharge is essential to the protection of human health and the environment, spill and discharge control is the necessary and logical response expected in the event of a release whether on land, in water, or in the air.

1. Release Detection

a. Our primary release detection is visual inspections on a scheduled basis. This includes per shift, daily, and weekly visual observations with remediation as necessary.

b. An additional release detection system involves the tell-tale pipes from the secondary containment system for the outside tanks.

c. Alarms within the Low Grade Fuel system consist of oxygen sensors and LEL sensors. These monitor air quality emissions within the fuel system.

2. Release Response

a. For any release of LGF or other hazardous materials, the Emergency Coordinator and/or the Incident Commander will be notified. Specific steps, outlined in Attachment #2, will be followed.

b. Any alarm (fire suppression system, air monitoring, etc.) within the LGF system requires immediate evacuation of all personnel in the area of the alarm.

c. Release to the air involves a highly specialized area of expertise which is considered to be outside the realm of in-plant response personnel. In cases where major air releases or carbon releases have occurred, which could impact on human health and/or the environment, require immediate response for evacuation and assistance from outside personnel.

d. Small releases (less than 55 gallons) will be handled by the appropriate area personnel under the direction of their supervisor or Emergency Coordinator.

e. Large releases (greater than 55 gallons) will be relayed to the Incident Commander by the Emergency Coordinator.

The Emergency Coordinator or Incident Commander, according to availability, will immediately be contacted to assess the situation and determine appropriate response procedures to be implemented, up to and including implementing the Contingency Plan.

C. Emergency Response Determination

The Emergency Coordinator and/or the Incident Commander will follow the appropriate steps outlined in Attachment 2, to determine the nature of the situation, and evaluate for all or potential hazards that could threaten the health and safety of employees, surrounding community, or the environment. At the first

available time after the Emergency Coordinator has put in motion emergency actions to provide for employee and public safety, and to stop and contain the spill, telephone notices shall be made as may be applicable by the Incident Commander or another responsible person as directed by the Incident Commander. The quantity of material spilled/discharged, where spilled/discharged, and the material discharged, dictates the reporting requirements.

D. Agency Notifications

See **Core Plan Section 2.2.1 Initial Notifications** for a list of Agency notifications to be made.

E. LGF/Discharge Control/Clean-up Procedures

1. The Incident Commander, with the assistance of the Team Leader and Emergency Coordinator, must determine if the release can be handled by the company's capabilities or if appropriate external resources must be contacted.

2. Releases that do not extend outside the facility property or pose a significant health and safety risk will be handled by site employees. The following are considered typically to be within this category: Leaks from containers in the storage area; spills during container transfer or loading; spills during tank truck unloading; spills or leakage from piping systems; and/or spills and leakage from pump seals, valves or other equipment. In these cases, the Incident Commander will follow procedures in **Annex 3 Attachment 1** and will respond appropriately using trained personnel and spill response equipment under the direction of the appropriate Officers or approved procedures.

F. External Control/Cleanup Resources

In the event of a release to the air, soil, or water, which could impact human health and/or the environment outside of the facility, external resources will be immediately

contacted for assistance. Entry for firefighting, spill control personnel, rescue, or other response activities is prohibited unless specifically authorized by the Incident Commander or Team Leader and approved by the Safety Officer.

G. Petroleum Releases

1. Upon notification of a release detection of petroleum products, the Emergency Coordinator's response is the same as for other releases and will follow procedures in **Annex 3 Attachment 1** as well as **Annex 10- Oil Removal Contingency Plan.**

2. Reporting

(a) Petroleum releases must be reported to the DEC within 2 hours of discovery unless they meet all of the following criteria:

(1) The release is known to be less than 5 gallons;

(2) The release is contained and under control;

(3) The release has not reached the state's water or any land; and

(4) The release is cleaned up within 2 hours of discovery.

(b) File appropriate reports.

(c) For Petroleum releases which are not reportable, they will be handled appropriately under the Emergency Coordinator following the procedures in **Annex 10 - Oil Removal Contingency Plan.**

H. Chemical Releases

Upon notification of a release of hazardous chemicals, the Emergency Coordinator's response is the same for other releases and will follow procedures in **Annex 3 Attachment 1.**

Fire/Explosion Procedures [6 NYCRR Subpart 373-2.4(c)(l) and 373-2.4(g) and 373-2.10(d)(3)]

A. Controlling fires and/or explosions

Controlling fires is first prevented by minimizing exposures of fuels to oxygen and ignition sources. This is accomplished by proper handling and procedures, good housekeeping, nitrogen blanketing of all fuel tanks and lines, and strict procedures for controlling ignition sources in any areas where fuel is present.

B. Fire/Explosion Detection

1. Oxygen, LEL, heat, and infra-red monitors are located throughout the entire fuel system to detect and alert employees to a potential problem in these work areas. The Safety Manager, Emergency Coordinator, or Incident Commander, according to availability, will be immediately contacted to assess the situation and determine the appropriate response procedures to be implemented, up to and including the Contingency Plan.

2. Detection is also accomplished by routine inspections of all work areas.
3. Whenever a fire/explosion is detected, the employee's supervisor will be notified, and he/she will contact the Emergency Coordinator or the Incident Commander. Appropriate measures will be followed in **Annex 3 Attachment 1.**

C. Fire/Explosion Control Procedures

1. Upon the discovery of a small, manageable fire, employees are instructed and trained in the use of handheld portable fire extinguishers. These will be used providing the employee is in a safe position to do so.

2. Our entire fuel system is protected by an automatic AFFF fire suppression system with manual activation, which is designed to handle fires in these areas. It is also designed for the fire department to hook up to, as

necessary, if additional fire protection is needed.

3. When a fire could endanger personnel and/or property in a given process area, or throughout the surrounding operations, the local fire department will be contacted for controlling the fire.

A3.4 Planning

A3.4.1 Hazard Assessment

Norlite has a database containing profile information for all the wastes received at the facility. The profiles contain information such as major chemical constituents, physical characteristics, physical chemistries, compatibilities, and any special handling notes such as human health concerns, handling concerns, or environmental concerns. Included with the profile will be SDS sheets for major constituents which are of safety concern. Coupled with the profile information is the tank offloading sheet which identifies how much of a particular wastestream was placed into a certain tank. This allows a relatively easy calculation to determine an approximate amount of a particular chemical or compound of interest during an incident.

Should an emergency arise, the first piece of information which will be used to determine the materials involved will be the tank blend sheet which will show how much of each profile was added to a certain tank. The same information would be obtained should a release occur, and identification of the material released be needed. Once the identification of the materials involved has been made, SDS sheets, and Emergency Response Guide Books can be used to determine potential hazards to the environment and public health.

Annex 3 Attachment 1 provides specific procedures to be followed for specific events such as *fires, releases, and explosions.*

A3.4.2 Protection

Norlite's primary goal is to protect the surrounding environment, public health, and its employees. As stated previously, during a fire or explosion type event, the Cohoes Fire Department will assume control of the situation with Norlite acting in a supporting role. Spills and other releases will be handled as per the outline detailed in **Annex 3 Attachment 1**.

A3.4.3 Coordination with Natural Resource Trustees

Not Applicable

A3.4.4 Waste management

Waste management will be handled by Norlite or its parent company Tradebe Environmental Services, LLC. Norlite and Tradebe specialize in waste management with respect to handling, disposal outlets, and having available equipment to handle the waste management. Tradebe employs specialized response crews trained and capable of remediating areas after an incident has occurred.

A3.4.5 Logistics

A. Medical needs of responders

Minor medical needs up to simple first aid will be managed onsite by the Health & Safety Officer. Any medical needs above minor first aid will be handled by contacting 911 for medical assistance.

B. Site security

The facility is 85% fenced with the other 15% guarded by the banks of the quarry. All entrances will be manned to control the flow of traffic entering and leaving the facility.

C. Communications (internal and external resources)

Internal and external communications had been covered in **Annex 3.2.**

D. Transportation (air, land, water)

Transportation will occur over land by entering through manned entrances. Transportation by air will be carried out by outside assistance. Norlite does not have the capabilities for air or water transportation.

E. Personnel support (e.g., meals, housing, equipment)

The Incident Commander will limit the number of personnel onsite during an incident. Should meals, housing, or other personnel support be needed, the Incident Commander will assign the Equipment Officer the responsibility of setting up a system to ensure these needs are met. In most cases, the use of cots and ordered food will cover the needs of the personnel onsite during the incident.

F. Equipment maintenance and support

Norlite's parent company, Tradebe Environmental Services, LLC, has emergency response equipment, remediation equipment, and resources to ensure all needed equipment is maintained and available. As stated previously, there is a high likelihood that the Cohoes Fire Department or LEPC will assume command of the incident in which case Norlite cannot attest to their equipment or support.

A3.4.6 Finance/procurement/administration

It is assumed that the Cohoes Fire Department or LEPC will assume command of the incident. Norlite maintains a basic level of response equipment such as fire extinguishers, spill kits, spill pads, booms, Tyvek suits, full and half face filter cartridge masks, and earth moving equipment. The Equipment Officer will be responsible for obtaining any specialized equipment which may be needed during an incident. In most cases the needed equipment can be obtained from Norlite's parent company (Tradebe).

Annex3-Attachment 1

Emergency Response Procedures

Attachment A -Emergency Response Procedures

STEPS TAKEN TO IMPLEMENT EMERGENCY RESPONSE PROCEDURES AND CONTINGENCY PLAN

1. SPILL PROCEDURES

The following steps shall be taken if a situation arises relating to spills or hazardous materials release. INITIAL RESPONSE GOALS ARE TO PROTECT HUMAN HEALTH, SAFETY AND THE ENVIRONMENT!

Discovery of event by an individual

- Note location of the event and the problem.
- Cease work in affected areas and shut down equipment.
- Secure area to prevent unauthorized personnel from entry.
- Notify Emergency Coordinator.

STEP 1: Site Management

- Manage the physical layout of the incident.
- Approach releases from an uphill, upwind side.
- Ensure area is isolated and deny entry via barriers, tape, or employee guarding.
- Monitor for breached containers, vapor clouds, unusual odors, or released spills.
- o Determine, if possible,if anyone is injured.

STEP 2: Identification of Hazardous Materials

- Determine if possible, without entering area or contacting material, what materials are involved and approximate amount.
- If entry into area is required to identify material, then this will only be done under the direction of the full incident command and emergency response team. No further action can be done at this time except to maintain site control and contact the Incident Commander.
- If a determination can be made as to the material and amount, or if the material is known, the Emergency Coordinator can make the determination for response actions or to contact the Incident Commander.
- For small spills (less than 55 gallons) with known materials, emergency response will be handled under the direction of the Emergency Coordinator. For large spills, or unknown materials, emergency response will be under the direction of the Incident Commander.
- Identification of unknown materials will be done with level A protection, under the buddy system, with back up response personnel in place. If at this time identification can be made, then appropriate procedures will be followed. If identification cannot be made, then outside resources will be contacted to handle the response.

STEP 3: Hazard and Risk Assessment

- After specific identification of a material, hazards and risks must be determined. Labels, containers, shipping papers, Manifests, SDS, or HAZMAT response guides shall be utilized. This is necessary for determining potential risk from additional spills, fires or explosions, and a safety assessment for responders, employees, community and environment, and determining PPE and response equipment.
- Assess possible hazards, both direct and indirect, to human health and environment and determine control methods. These include:

- fire
- wind & direction
- explosion
- other hazardous materials
- weather conditions such as wind and precipitation
- toxicity
- ignition source

- Determine if incident can be handled by the company's capabilities or if external resources are necessary.
- Assess the need for implementing the evacuation plan.

STEP 4: Select PPE and Equipment

PPE and equipment selection will be based on the material and hazards. If not already determined, this will be done by Equipment Officer.

STEP 5: Information and Resource Coordination

- A command post shall be established, close enough to view the site, far enough to prevent contamination, and be upwind.
- The command post shall be well marked.
- Representatives from other agencies should be available if needed at the command post.
- Identification of key officers is established at this time if not already done so, via vests or other identification measures.
- Checklists shall be handed out at this time (if not already done so) for each officer and their roles.

STEP 6: Control and Containment

- Remove all hazards present, including flammable materials, if safe to do so.
- Spill control will be initiated before leak control measures are implemented.

- Controlling vapors and gasses is limited to shutting off the supply if safe to do so. Additional outside resources will be contacted for assistance.
- Liquids are controlled by diverting, diking, or retaining and absorption or contain or direct to sumps.
    - Leak control measures will be taken after spill control has been completed. This is controlling the leak at the source or container. This can be accomplished by:
        - Emptying or transferring material
        - Diverting flow
        - Patching or plugging

STEP 7: DECONTAMINATION

- This process makes people, equipment and supplies safe by eliminating harmful substances. This is done under the direction of the Equipment Officer.
- Processes utilized will be dilution, absorption, neutralization, or a combination of.
- All affected response personnel, equipment and facilities will be deconned prior to entering the "cold zone".
- Arrange for proper disposal of all contaminated materials, including ensuring that incompatible wastes are not mixed with released materials.

STEP 8: Termination

- Ensure situation is under control.
- All utilized safety equipment must be inspected to be sure it is cleaned and in a ready state.
- Investigation and documentation of the incident.
- Ensure health monitoring of response personnel if appropriate.

- Notification to proper authorities that activities have been completed.
- Determine when an "all-clear" can be given to resume normal activities.
- o File report within 15 days of the emergency action.

2. FIRE OR EXPLOSION

Discovery of fire by the individual

- Cease work in affected areas and shut down equipment.
- If safely able to do so, use a portable fire extinguisher to attempt to extinguish fire or manually activate fire suppression system if not already in operation.
- Secure area to prevent unauthorized personnel from entry.
- If one extinguisher does not extinguish fire, or the employee is unable to safely use a fire extinguisher, then the employee must immediately contact his supervisor, and notify the emergency coordinator.

STEP 1: Site Management

- Manage the physical layout of the fire.
- o Approach from an uphill, upwind side.
- Ensure area is isolated and deny entry via barriers, tape, or employee guarding.
- Determine approximate size and location of fire.
- Determine, if possible, if anyone is injured.
- If applicable, shut down the supply of gas/oil and/or low-grade fuel (LGF).
- If applicable, any tank unloading operations will be stopped and all trucks

within the affected area moved to a safe, unaffected area, providing it is safe to do so.

STEP 2: Identification of materials involved

- Determine if possible, **without entering area,** what materials are involved and approximate amount.
- Entry into a fire area will only be done by the fire department.

STEP 3: Hazard and Risk Assessment

- After specific identification of materials, hazards and risks must be determined. Labels, containers, shipping papers, manifests, SDS or HAZMAT response guides shall be utilized. This is necessary for determining the risk for potential additional spills, fires/explosions and safety assessment for responders, employees, community and environment.
- Determine if other hazardous/flammable materials are in the area.
- Establish "hot", "warm", and "cold" zones.
- Assess the need for implementing the evacuation plan.
- Notify fire department and other appropriate emergency service groups if necessary. Based on materials involved, additional HAZMAT resources may be needed.

STEP 4: Select PPE and Equipment

- Since firefighting is a specialized activity, Norlite employees will not participate in actual firefighting procedures. They may, however, need to respond for clean-up after the fire is fully extinguished, and the area is determined "safe" by the Fire Chief and the Safety Officer. PPE selection

will be done under the Risk Assessment Officer.

STEP 5: Information and Resource Coordination

- A command post shall be established, close enough to view the site, far enough and upwind for safety.
    - The command post shall be well marked.
    - Representatives from other agencies shall be available if needed at the command post.
    - Identification of key officers is established at this time, if not already done so, via vests or other identification measures.
    - Checklists shall be handed out at this time, if not already done so, for each officer and their roles.

STEP 6: Control and Containment

- Control and containment of fires and/or explosions will be handled by the fire department, be completed, and determined "safe" by the Fire Chief and the Safety Officer prior to additional HAZMAT response personnel entering area.
- If off-site HAZMAT response personnel are involved, they will primarily handle spill control and containment measures. Norlite employees will assist as needed, or when activities are within their capabilities.

STEP 7: Decontamination

- If activities are performed in a "hot zone" all response personnel will be decontaminated under the direction of the Equipment Officer.
- Processes utilized will be dilution, absorption, neutralization, or a

combination of.

- Protect clean up personnel.
- Arrange for proper disposal of all contaminated materials, including ensuring that incompatible wastes are not mixed with released materials.

STEP 8: Termination

- Ensure situation is under control.
- All utilized safety equipment is inspected, cleaned, and restored to a ready state.

    - Investigation and documentation of the incident.
    - Ensure health monitoring of response personnel, if appropriate.
    - Determine when an "all-clear" can be given to resume normal activities. o Notification to proper authorities that activities have been completed.
    - File a report within 15 days of the emergency action.

ANNEX 4 - INCIDENT DOCUMENTATION

Annex 4. Incident Documentation

This annex provides Norlite's procedures for conducting a follow-up investigation of the cause of the incident, including coordination with federal, state and local officials.

A4.1 Post-Incident Investigation

Norlite has recorded information such as temperature data, pressure data, and operational records in which tank levels are recorded, and electronic operational data which can be used during the post-incident investigation to determine a root cause. After termination of an incident has occurred, the Norlite management team will meet to create a timeline with any known facts from the incident. The Incident Coordinator will then conduct a root cause investigation/evaluation with the management team to determine the ultimate cause of the incident. From the root cause analysis, specific corrective actions will be established to address the causes which were identified.

A4.2 Incident History

The incident history is summarized as follows in Table 1 below:

Date	Incident	Details
July 31, 2013	Release to the atmosphere	A tank containing high concentrations of methyl methacrylate reacted which ultimately resulted in approximately 158 pounds of methyl methacrylate being released to the atmosphere. The release caused a strong odor to persist over the Cohoes area for approximately an hour which generated over one hundred 911 calls. No known direct injuries were reported from the incident. Norlite has notified the generator of this waste stream that it will no longer be accepted at the facility to ensure this type of event does not occur again.

Date	Incident	Details
February 1, 2020	Fire	Incident occurred when hot clinker was discharged onto the belt. The cause of the abnormally hot clinker was material not being cooked properly through the kiln. The kiln was being commissioned at the time and was firing only natural Gas and Spec Oil. This caused abundant heat on front end of the kiln and not enough heat for the shale to convert fully to light weight aggregate. Fully cooked material is much easier to cool to appropriate temperatures as it does not retain heat the way a sold piece of shale will. Therefore, the cooler was unable to cool the uncooked shale to a lower temperature causing high temperature stone to discharge to rubber belt. The fire was confined to the belt and did not threaten other areas of the Plant.

ANNEX 5 - TRAINING AND EXERCISE DRILLS

Annex 5. Training/Exercises/Drills and Records

This section describes how the facility complies with the USEPA and NYSDEC training and exercise/drills as required by:

1. All employees working within the plant will undergo initial, specialized, specific and annual training programs, depending upon their job positions. This will be accomplished via classroom, hands-on, and specific on-the-job training, to ensure compliance with 373-2.2 (h) (1) (i), as it is relevant to their positions. Supervisors and managers will attend training sessions on proper handling and management of hazardous waste materials. A qualified instructor, as per 373-2.2 (h) (1) (ii) will conduct all training programs. Training sessions are designed to cover safety, compliance and health procedures related to activities and procedures at this facility, and follow the requirements of 29CFR, 30CFR, 40CFR, 49CFR, and 373-2.2 (h) (1) (iii), as they apply to the Norlite facility.

2. All plant employees, supervisors, and managers will attend 24-Hour Initial Training within 6 months of their hire date as per 373-2.2 (h) (2). Until training is completed, the employee will not work unsupervised. All plant employees will participate in annual 8-hour refresher training. This is updated annually to cover new regulations, procedures, and other relevant information and to provide new ways to present materials in accordance with 373-2.2 (h) (3).

3. Each department will conduct job specific training for each employee. Each employee will go through job specific training

under direction of their supervisor and/or an experienced employee. This is documented on individual training outlines, meeting the requirements of 373-2.2 (h) (4) (iv).

Norlite's training outline and description in accordance with 373-2.2 (h) (4) (iii) is included. Records that training has been completed will be maintained on file in the training records for at least three years after termination of the employee, in accordance with 373-2.2 (h) (5).

The facility has training logs and files to monitor and retain each employee's training record. This system is used to maintain the name of each employee assigned to an area along with his/her job title and the types of training received. Upon completion of each training course, the employee receives a certification of training indicating the course name and date of completion. Copies of these course completion forms are maintained on-site in the training files. Retention of these records will be maintained until the facility is closed or for three years following termination of the employee's service.

To comply with the hazardous waste regulations, the facility maintains the following documents and records at the facility:

Records, including job title, name, position, job description, education, qualifications, and duties will be maintained at the facility.

CURRENT TRAINING CURRICULUM

DESCRIPTION OF TRAINING

Orientation	A 20-minute video overview of basic plant operations and safety regulations. Completed during the first day of employment. A requirement for all individuals working at the facility.
24-Hour	Initial classroom and practical training covering safety and regulatory

requirements for working within a mining and a TSD/RCRA facility. This is conducted prior to working without direct supervision and is a conducted only upon initial employment.

Initial

Supervisory Classroom and practical training to be given after 24-hour initial training. It is designed for supervisory personnel to ensure compliance with RCRA regulations, including compliance, emergency response, and review of the contingency plan.

Emergency Response Classroom and practical training designed to prepare individuals to properly report and handle releases of hazardous materials. A refresher is completed annually.

Standard Operating Procedures Classroom and practical training covering standard operating procedures (SOPs) relevant to the job titles and duties. This is conducted during initial training and will be updated as needed.

CPR/First- Aid Classroom and practical training covering CPR and first aid for personnel responding to a medical emergency. Refresher training is conducted every two years or as required.

8-Hour Refresher 8-hour classroom and practical training serving as a "refresher" to 24-hour initial training. Basic safety procedures are reviewed in addition to covering any new regulations or procedures. This is completed annually.

DOT Classroom training covering proper labeling, handling, shipping, and transportation of hazardous materials. Refresher training is given annually.

JOB TITLES AND DUTIES

The job descriptions and related information as outlined below pertain only to the use and handling of LLGF. Each position requires the performance of additional duties not related to the use and handling of LLGF. These additional duties are not covered in the following job descriptions.

Records of the requisite skill, education, and qualifications of the person(s) filling the position are maintained at Norlite's office.

I. Plant Manager

A. Job Description

1. Responsible for all of Norlite's Operations
2. Supervises the development and technical support of the LLGF Program
3. Supervises Section Managers
4. Interacts with regulatory agencies and technical consultants
5. Member of Safety and BMP Committees
6. Keep abreast of regulatory changes
7. Emergency Coordinator

B. Training Requirements: Orientation, 24-Hour Initial, Initial Supervisory, Emergency Response, SOPs, CPR/First-Aid, Refresher Training, DOT, On-the-job training.

II. Plant Engineer (Assistant Plant Manager)

A. Job Description

1. Supervises or performs professional engineering for the LLGF Program
2. Researches and provides specifications for replacement and new facility equipment
3. Writes and/or reviews technical engineering reports
4. Interprets and applies federal, state, and local laws when

applying professional engineering principles and practices.

5. Emergency Coordinator

B. Training Requirements: Orientation, 24-Hour Initial, Initial Supervisory, Emergency Response, SOPs, CPR/First-Aid, Refresher, DOT, On-the-job training.

III. Environmental Manager

A. Job Description

1. Coordinate all environmental compliance activities
2. Keep abreast of regulatory changes
3. Member of Safety and BMP Committees
4. Interacts with regulatory agencies and technical consultants
5. Assists with safety and regulatory training
6. Emergency Coordinator

B. Training Requirements: Orientation, 24-Hour Initial, Initial Supervisory, Emergency Response, SOPs, CPR/First-Aid, DOT, On-the-job training.

IV. Safety Manager

A. Job Description

1. Coordinates and maintains overall facility safety programs
2. Coordinates training of all personnel with regards to hazardous waste operations
3. Maintains personnel training records
4. Coordinates medical surveillance program
5. Member of Safety and BMP Committees
6. Emergency Coordinator

B. Training Requirements: Orientation, 24-Hour Initial,

Initial Supervisory, Emergency Response, SOPs, CPR/First-Aid, Refresher, DOT, On-the-job training.

V. Operations Manager

A. Job Description

1. Communicate and coordinate Fuel and Aggregate production
2. Organize plant activities based on production goals, maintenance activities and EH&S objectives
3. Supervise Kiln Field Operators

B. Training Requirements: Orientation, 24-Hour Initial, Initial Supervisory, Emergency Response, SOPs, CPR/First-Aid, Refresher, DOT, On-the-job training.

VI. Maintenance Manager

A. Job Description

1. Develop and implement a preventative maintenance plan
2. Planning, organizing, and directing plant maintenance and repair work
3. Supervise plant technicians
4. Inspects and evaluates mechanical and electrical components of facility

B. Training Requirements: Orientation, 24-Hour Initial, Initial Supervisory, Emergency Response, SOPs, CPR/First-Aid, Refresher, On-the-job training.

VII. Thermal Operation Manager

A. Job Description

1. Supervise Kiln Field Operators, Burner Operators, Wastewater Treatment Plant Operator, and Mechanics

2. Member of Safety and BMP Committees

3. Conducts daily inspections of Fuel Farm and Kiln areas

4. Completes security checks of facility

5. Designated Emergency Contact

B. Training Requirements: Orientation, 24-Hour Initial, Initial Supervisory, Emergency Response, SOPs, CPR/First-Aid, Refresher, DOT, On-the-job training.

VIII. Lab Manager

A. Job Description

1. Responsible for all laboratory operations

2. Communicates with all departments within the facility and scheduling of laboratory responsibilities

3. Supervises Lab Technicians

4. Member of Safety and BMP Committees

B. Training Requirements: Orientation, 24-Hour Initial, Initial Supervisory, Emergency Response, SOPs, CPR/First-Aid, Refresher, DOT, On-the-job training.

IX Lab Technician

A. Job Description

1. Provides all analytical support for the lab

2. Daily maintenance and cleaning of lab instrumentation

B. Training Requirements: Orientation, 24-Hour Initial, Emergency response, SOPs, Refresher, DOT, On-the-job training.

X Fuel Farm Manager

A. Job Description

1. Supervises LLGF unloading/transfer operations

2. Coordinates drum processing activities

3. Responsible for overall housekeeping activities in Fuel Farm area

B. Training Requirements: Orientation, 24-Hour Initial, Initial Supervisory, Emergency Response, SOPs, CPR/First-Aid, Refresher, On-the-job training.

XI. Fuel Farm Technician

A. Job Description

1. Responsible for collecting samples of LLGF for lab analysis

2. Conducts LLGF unloading and transfer operations

B. Training Requirements: Orientation, 24-Hour Initial, Emergency Response, SOPs, Refresher, DOT, On-the-job training.

XII. Kiln Field Operator

A. Job Description

1. Assist Burner Operator with kiln operations

2. Daily maintenance of kiln equipment

B. Training Requirements: Orientation, 24-Hour Initial, Emergency Response, SOPs, Refresher, DOT, On-the-job training.

XIII. Burner Operator

A. Job Description

1. Responsible for kiln operating within all parameters of Automatic Waste Feed Cut Off System (AWFCO)

2. Responsible for production of lightweight aggregate

B. Training Requirements: Orientation, 24-Hour Initial, Emergency

response, SOPs, Refresher, DOT, On-the-job training.

XIV. Mechanic

A. Job Description

1. Maintain, repair, and overhaul facility equipment

B. Training Requirements: Orientation, 24-Hour Initial, Emergency Response, SOPs, Refresher, On-the-job training.

Annex 6: Response Critique, Plan Review, and Modification Process

The ICP may be modified under four general mechanisms:

- Upon agency (NYSDEC, US EPA) request
- As indicated by an incident response critique or plan review
- As a result of facility changes
- As a result of significant release

The plan will be reviewed on an annual basis to identify any changes which are needed. Any identified changes will be made in the plan and implemented in the facility.

In addition, the plan will be reviewed and immediately revised, if necessary, whenever:

1. The plan fails in an emergency;
2. Changes in facility design, construction, operation, maintenance or other circumstances which materially increase the potential for fires, explosions or releases of hazardous waste or hazardous waste constituents or cause changes in necessary emergency response;
3. The list of Emergency Coordinators changes;
4. The list of emergency equipment changes; or
5. Applicable regulations are revised.

Date	Actions Identified	Review Frequency	Revision Due Within
Previous	Electronic Records		
03-27-2019	Contact Info & Misc. updates	Annual	03-26-2020
06-30-2020	Contact Info, Drawings and Event update	Annual	06-29-2021

ANNEX 7 – PREVENTION

Annex 7. Prevention

Any recommended corrective actions generated as a result of an inspection will be implemented immediately if risk of environmental impacts to surface water, groundwater, or soil is evident. If not immediately corrected (and not an imminent threat to surface water, groundwater or soil), a maintenance work order will be issued for repair.

Some of the inspections carried out by facility personnel and a brief description of the inspection, such as inspection frequency, inspection details and contingency actions, are summarized in the table below and include but are not limited to:

a) Tank/Container/Containment Inspection
b) Piping Inspection
c) Secondary Containment Storm Water Inspection
d) Emergency Response Equipment Inspection
e) Leak Detection and Repair Inspection

Procedure	Description/Applicability	Frequency	Location of	Record Retention
Burner Shift Safety Inspection	Safety inspection of Kiln burner control room and burner floor and safety devices.	Twice per day	Data Storage room	3 years on-site, life of facility off-site
Fuel Farm Operator's Pre-Shift & Daily Inspection Report	Visual inspection of Fuel Farm area including tanks, safety devices, containment areas, pumps, and signs of leaks or malfunctioning equipment.	1 per day during normal Fuel Farm operating hours	Data Storage Room	3 years on-site, life of facility off-site

Procedure	Description/Applicability	Frequency	Location of	Record Retention
Fuel Farm Shift Report	Visual inspection of tanks and recording of tank levels.	Once every 4 hours per kiln shift during non-Fuel Farm operating hours	Data Storage Room	3 years on-site, life of facility off-site
Kiln Dust Level Inspection Log	Kiln Baghouse systems, rotary valves, drums in EQ building.	Once per kiln shift	Data Storage Room	3 years on-site, life of facility off-site
Kiln Field Operators Shift Report	Visual inspection of kiln area and kiln components including air pollution control systems.	Once per kiln shift	Data Storage Room	3 years on-site, life of facility off-site
Weekly RCRA Inspection Report	Visual inspection of entire facility for all regulatory programs. Tanks, pumps, APC systems, kiln operations, primary crushing operations, finish plant operations, storm water runoff, etc. are inspected and noted.	Once per week	Data Storage Room	3 years on-site, life of facility off-site

Physical Prevention Methods (PPMs) are employed to prevent any significant discharge of pollutants to the environment. These methods are listed and defined in the table below:

Item	Prevention Method(s)
Underground Storage Tanks	There are no Underground Storage Tanks (UST) at Norlite. The last USTs were removed in the early 1990s.

Item	Prevention Method(s)
Aboveground Storage Tanks	All Aboveground Storage Tanks (AST) are in containment that have excess of 110% capacity of the largest tanks and are sufficiently impervious to contain spilled material.
Liquid Low Grade Storage Tanks	All tanks which hold hazardous waste are equipped with a closed vent system which sends vapors to the kilns for incineration. All hazardous waste tanks are equipped with rupture disks to prevent failure of the tank. Also, all hazardous waste storage tanks have a nitrogen blanket. The six vertical hazardous waste tanks are equipped with tank high level shutoffs, temperature probes, and vent pressure readings. The four horizontal hazardous waste tanks are equipped with tank high level shutoffs.
Off-Specification Used Oil tanks	This tank is double walled with a leak detection monitor in the interstitial space to detect leaks.
Kiln Rear Chamber System	This system is a double seal system with a vacated interstitial space to capture an emission which could escape the back of the kiln during combustion chamber pressure upset. Any captured vapors are fed back into the front of the kiln as makeup air for the burner.
Flood Plain	None of the kiln operation or waste handling activities resides in a 100-year flood plain. Norlite has installed stormwater handling features capable of handling up to a 100-year storm event without runoff occurring.

ANNEX 8 – REGULATORY COMPLIANCE

Annex 8. Regulatory Compliance and Cross-Reference Matrices

Signature of the permit will convey acceptance of this Integrated Contingency Plan. Any updates which occur after this main document will be signed off on at the time of revision.

Annex 9. Norlite, LLC Emergency Communication Reference Sheet

EMERGENCY RESPONSE CONTACT LIST

To be posted near every phone

Attachment 1

INCIDENT COORDINATOR	Mobile Phone	HOME	PLANT
David Maguffin (Plant Manager) (Primary) 284 Old Best Road, West Sand Lake, NY 12196	(518) 491-7900		x4014
Scott Lewis (Health & Safety Coordinator) 28 Brian Court, Troy, NY 2182 (Alternate)	(518) 312-1188		x4005
Ken O'Brien (Aggregate Manager) (Alternate) 30 Squire Road, Schenectady, NY 12304	(518) 376-8634	(518) 395-3344	x4021
David Glover (Operations Manager) (Alternate) 1 Winnie Place, Glenmont, NY 12077	(518) 857-4606	(518)488-3112	x4041
Prince Knight (Env & Comp Manager) (Alternate) 1646 Cotton Hill Road, Berne, NY 12023	(518) 857-2969	(518) 857-2969	x4049
Security Gate (Elm Street)			518-703-1266

PLANT MANAGERS	Mobile Phone	HOME	PLANT
David Maguffin (Plant Manager)	(518) 491-7900		x4014
Ivan Nusimovich (Assistant Plant Manager)	(203) 584-3767		x4037
Anthony Maguffin (Maintenance Manager)	(518) 514-8795		x4018
Chance Wilk (Fuel Manager)	(203) 213-9276		x4012
Kiln Supervisors	(518) 857-5737		x4073

FOR PLANT EMERGENCIES - FIRE - POLICE - EMS DIAL 911

LOCAL FIRES	PHONE NUMBER
Cohoes	Emergency: (518) 765-2352, Other: 237-1241
Colonie*	783-2744

LOCAL POLICE	PHONE NUMBER
Cohoes	Emergency: (518) 765-2352, Other: 237-5333
Colonie*	783-2744

SPILL RESPONSE	PHONE NUMBER
West Central Environmental	272-6891
CHEMTREC	(800) 424-9300
NYSDEC Spill Hotline	457-7362
LOCAL EMERGENCY PLANNING COMMITTEE	765-2351
EPA NATIONAL RESPONSE CENTER	(800) 424-8802

INJURY TRIAGE CONTACT	PHONE NUMBER
ONE SOURCE - PRIMARY LINE	866-622-7348

MISCELLANEOUS	PHONE NUMBER
Alarm & Suppression	518-399-5110
MSHA	1-800-746-1553
National Grid	518-356-6471

*West of the power lines

3/24/2020

NORLITE, 628 SOUTH SARATOGA STREET, COHOES, NEW YORK 12047 518-235-0401

Norlite, LLC Emergency Communication Reference Sheet
Updated August 2018

The lists below indicate the most prominent and potential hazards located at the Norlite, LLC facility located at 628 South Saratoga Street Cohoes, New York 12047. This list is not meant as all-inclusive and specific chemical information should be considered on a case per case basis.

Bulk Virgin Products	**Additional description/Info**
Gasoline	Flammable
Diesel Fuel	Combustible
Fuel Oil	Combustible
Sodium Hypochlorite (Bleach)	Oxidizer, Irritant
Hydrochloric Acid	Corrosive
Sodium Hydroxide	Corrosive
Ferric Chloride	Corrosive
Sodium Carbonate (Soda Ash)	Irritant
Lime (Calcium Oxide)	Irritant
Waste Materials	
Used Oil	Combustible
Flammable Liquids*	See Below
Ignitable Liquids*	See Below
Corrosive Liquids*	See Below
Toxic Liquids*	See Below
Poisonous Liquid*	See Below

Other Hazard Types

Dust, rocks, heavy equipment and machinery, laboratory chemicals and instrumentation, high temperatures (kilns), compressed gas cylinders, waste water, storm water collection areas, crushers, confined spaces and high voltage.

*Alternative waste fuel used at Norlite may consist of any combination of these materials. Fuel is a mixture of solvents, alcohols, organic wastes and alcohols used for energy recovery. Please contact the facility for a description of the most prevalent component of the fuel at the time of exposure/incident.

Norlite, LLC (518) 235-0401 **24-hour Emergency Contact 844-873-8723**

Main Office & Conference Room
Safety Trailer
Gate #2
Gate #1
Key
Fire Hydrant
Spill Station
Fire Blanket
Wind Sock (or Other)
Fire Extinguisher
Safety Shower

Annex 10. OILREMOVAL CONTINGENCY PLAN

OIL REMOVAL CONTINGENCY PLAN

Prepared For:
Norlite LLC

Original Prepared By:

Continental Placer Inc.

September 27, 2017
Revision 1 by Norlite, LLC

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1.0 INTRODUCTION

1.1 Purpose and Scope

This Oil Removal Contingency Plan ("Contingency Plan") follows the content and organization requirements of 40 CFR Part 109, which codifies criteria for state, local and regional Oil Removal Contingency Plans. The plan is organized into three main parts: I) Plan Introduction Elements; II) Spill Discovery and Response; and III) Response Resources and Preparedness Activities. These parts describe the distribution of responsibilities and basic procedures for responding to an oil discharge and performing cleanup operations.

The purpose of this oil removal contingency plan is to insure timely, efficient, coordinated and effective action to minimize damage resulting from oil discharges, with specific attention to inland navigable waters of the United States, by Norlite LLC ("Norlite") at its facility located at 628 South Saratoga Street, Cohoes New York. Procedures described in this contingency plan exist to protect the public, Norlite personnel, and other responders during discharges. Additionally, this plan is intended to minimize damages to the environment, natural resources, and facility installations due to discharges of oil. The Oil Removal Contingency Plan compliments the Spill Prevention, Control, and Countermeasures (SPCC) Plan by addressing areas of the facility that have inadequate secondary containment, as well as the Integrated Contingency Plan, by including an analysis of the potential oil discharges resulting from sources without secondary containment The specific resources consist of one section of aboveground pipeline between Buildings 2 and 3 (See Facility Diagram, Appendix A) and four ground mounted transformers. Providing secondary containment for the piping is impractical. The four ground-mounted transformers are qualified oil-filled operational equipment, therefore, Norlite is providing this Oil Removal Contingency Plan consistent with the requirements under 40 CFR 112.7(k) containment relief-burden provisions for applicable oil-filled operational equipment.

1.2 Resources at Risk

Norlite LLC is located in both the Town of Colonie and on the southern boundary of the City of Cohoes, New York. Tradebe Environmental Services, LLC is the owner of Norlite LLC with Norlite LLC being the operator of the facility. The facility consists of a production operation, a quarry for shale, and a Fuel Farm which houses hazardous and non-hazardous wastes used to fuel the production operation.

The overall production portion of the facility resides on approximately 40 acres located in the center of the facility east of the quarry. The two kilns are approximately in the center of this 40 acre section. The office area is directly north of the kilns and the Fuel Farm is northwest of the kiln and directly west of the office area. The finishing operation resides to the east/southeast of the kilns. The quarry itself is located on the western portion of the property in the Town of Colonie.

Property surrounding the facility is zoned as follows: residential to the north and east, light commercial directly to the south, with vacant land to the south and west of the facility. The buffer zone from the site's property lines to the operational areas varies from 500 feet to 1 mile. The population is estimated to be 5,000 within a one (1) mile radius of the facility. Within a three

(3) mile radius is the city of Cohoes, with an approximate population of 18,000. The prevailing wind directions are from the west-northwest (WNW) and south-southeast (SSE).

The nearest rivers and/or streams include the Salt Kill Creek and the Mohawk and Hudson Rivers. The Salt Kill enters Norlite's property on the northern boundary, traverses the property in a northwestwardly to southeastwardly direction and exits at the mid-point of the eastern property line. The portion of the Salt Kill that flows through the active part of the plant was channelized in 1981 by use of culvert tiles. The culvert is comprised of two concrete pipes, each four (4) foot diameter by 200 feet long. The Hudson and Mohawk Rivers are respectively 1-mile due east of the property, and 3/4-mile northeast of the property.

The resource at risk, based on the uncontained piping and equipment, is limited to the Salt Kill.

The Fuel Farm is located upgradient of the Salt Kill, a NYS Class D stream which runs through the center of the facility. The uncontained piping ("M&R Piping" and "Tank 9 piping") is between Buildings 2 and 3. Table 1 below gives distances and directions from uncontained piping and/or equipment to the nearest aboveground segment of the Salt Kill. The uncontained transformers are located at varying distances from the Salk Kill.

Table 1. Uncontained Piping and Equipment

Uncontained Piping/Equipment	Maximum Discharge Potential (gallons)	Distance & Direction to Nearest Daylighted Point of Salt Kill
M&R Tanks and Tank 9 Piping	495	350 feet S
Main Transformer (Gate 3)	1,500	263 feet NW
Transformer (Kiln Feed)	400	245 feet NE
Transformer (Kiln 2)	405	81 feet N
Finish Plant Transformer	263	408 feet N

1.3 Risk Assessment

Minimal lengths of piping in one location lack secondary containment due to impracticability (see discussion on impracticability of secondary containment in the facility's SPCC Plan, Section 3.13.1). The length of piping (15 feet) from the M and R tank containment (Building #1, Off-Spec Used Oil Tanks) area and Tank 9 (Building #1) is located outside the diked containment areas for the tanks and Building #2. It is impractical to install a concrete curb between the tank containment and the building (Building #2 Utilities Building) as it presents a physical hazard to foot traffic in a high traffic area. The area underneath the piping is paved with asphalt and is located within the drainage area for the Tanker Truck Staging Area. The Tanker Truck Staging Area has a HDPE liner and provides 161,568 gallons of secondary containment.

The maximum discharge potential for the piping assumes a maximum pump rate of 141 gallons per minute in one line. The estimated maximum time to discover a leak is 3 minutes and it takes 30 seconds to engage the emergency stop on the pump. The maximum discharge potential for the piping is 495 gallons. Calculations are provided in Appendix B. As described above, the piping is within the Tanker Truck Staging Area. This area provides 161,568 gallons of containment which is substantially greater that the maximum discharge potential, therefore a discharge from the

uncontained piping would not reach the Salt Kill or onsite stormwater drainage and management structures.

All four transformers meet the criteria for qualified oil-filled operational equipment. As such, the transformers, which lack secondary containment, have oil capacities as detailed in Table 1 above. Transformer locations are shown on the Facility Diagram. The maximum discharge potential for each transformer is the total oil capacity of that specific transformer (Table 1). A discharge from any one of the transformers could potentially reach the Salt Kill.

- A discharge from the Main Transformer (Gate 3) would stay in the aggregate area around the transformer pad and then flow to the west towards the Salt Kill.
- A discharge from the Kiln Feed Transformer would flow east downhill; it is unlikely that a spill from this transformer would reach the Salt Kill where it daylights north of the kilns because of site topography.
- A discharge from the Kiln 2 Transformer would flow east; it is unlikely that a spill from this transformer would reach the Salt Kill where it daylights north of the kilns because of site topography.
- A discharge from the Finish Plant transformer would flow east into the Lower Stormwater Basin. The discharge from the Lower Stormwater Basin is pump controlled. The water in the Basin is visually examined before it is pumped out. If a spill were to reach the Basin, it would be contained therein.

1.4 Response Strategy

Norlite LLC follows the National Interagency Incident Management System (NIIMS) Incident Command System (ICS). Norlite has approximately 20 individuals who have all received the specific training to be an Incident Commander. Typically, the role of Incident Commander is delegated to the Plant Manager or Health and Safety Manager. Other roles and levels of command include the Health and Safety Officer, Team Leader, Risk Assessment Officer, and Equipment Officer. The personnel designated to fulfill positions as Incident Commander, Health & Safety Officer, Equipment Officer, Team Leader, and Risk Assessment Officer have been trained and can fulfill more than one officer capacity, if the situation warrants, to effectively manage emergency response operations. These positions may also be combined if the situation warrants.

In general, spill prevention is the ultimate goal of the facility. However, if a spill does occur Norlite personnel will follow the procedures outlined in the following section. If a fire or explosion occurs, local fire departments and police forces will assume command of the situation with Norlite personnel acting in a supporting role.

2.0 SPILL DISCOVERY AND RESPONSE

2.1 Discovery

A spill could be discovered during a routine facility inspection or by an employee who notices the spill while going about his/her daily work activities. All Norlite employees are trained to be aware of their surroundings and to recognize spills and potential spills.

The M&R Tank and Tank 9 piping is inspected daily as part of the "Fuel Farm Operator's Pre-Shift & Daily Inspection Report," weekly as part of the "Weekly Environmental (RCRA) Inspection Report," and monthly as part of the "Aboveground Petroleum Storage Tank Monthly Inspection." The transformers are inspected monthly as part of the "Aboveground Petroleum Storage Tank Monthly Inspection."

2.2 Roles and Distribution of Responsibilities

The following sections provide a description of the Norlite Response Management System including specific information necessary to guide and support the actions of a response management function during a response.

1. Incident Commander - has total responsibility for all activities conducted during an emergency response event. His top priorities are the health and safety of: 1-employees, 2-public, 3-environment.

   Specific responsibilities include:

   a. Identification of materials and conditions
   b. Implement appropriate actions
   c. Assure a safety officer is appointed and all areas are evaluated, safe, and appropriate PPE is determined
   d. Assure a Team Leader is assigned to direct activities
   e. Assure an Equipment Officer is assigned to coordinate equipment use and decontamination
   f. Assure a Risk Assessment Officer is assigned to determine hazards
   g. Limit the number of personnel at the site
   h. Establish and maintain site control
   i. Termination activities are appropriate
   j. Acts as a liaison between outside agencies and internal activities
   k. Usually remains in the "cold zone" or command post

2. Health & Safety Officer - responsible for the health and safety of response personnel and coordinating care of victims in an emergency response event. Specific responsibilities include:

a. Knowledge of the conditions, materials, and hazards
b. Determines and monitors emergency conditions, and can halt operations if unsafe or imminent danger
c. Performs last check of any entry PPE
d. Identifies and monitors signs and symptoms of contamination, exposures, heat stress
e. Coordinates medical response
f. Is found at the access control point and is in constant sight of entry operations

3. Team Leader - responsible for coordination of all operations at the emergency response site and provides exclusive direction for response measures. Specific responsibilities include:

a. Assures all eight steps of hazardous materials mitigation's are met and maintained in conjunction with other officers.

1. Site management

2. Identification of materials involved

3. Hazard and risk assessment

4. Select protective clothing and equipment

5. Resource and information

6. Control hazardous material releases

7. Decontamination activities

8. Termination activities

b. Develops answers to Incident Commander's problems

c. Provides direct supervision for all activities in the hazard sector, working in the “hot zone”

4. Risk Assessment Officer - responsible for determining risk assessment by assembling data about materials involved to determine hazards. Specifics include:

a. Determine chemical, physical and health hazards of materials
b. Determine PPE, equipment and materials necessary
c. Determine evacuation distances and necessity
d. Reports information to other officers as appropriate.
e. Monitors for additional hazards, weather conditions, wind directions, runoff, evaluates control procedures and risk of contamination spread.

f. Works within the "warm zone", assisting the safety officer, Team Leader and Incident commander. Does not enter the "hot zone".

5. Equipment Officer - responsible for coordinating all supplies and equipment necessary for response, decontamination and monitors activities at the access control point to ensure proper decontamination of all that leave this zone. Specifics include:

   a. Maintains tools and equipment
   b. Identifies and segregates used / contaminated equipment
   c. Determines DECON equipment and methods
   d. Maintains "clean" and "dirty" sides
   e. Monitors DECON of response personnel and equipment
   f. Oversees decontamination of equipment before restoring to use, and ensuring appropriate supplies are replenished
   g. Works with Risk Assessment Officer and Safety Officer

6. Emergency Coordinator - responsible for initial assessment of emergency conditions. He will make the determination for initial response, and the determination for additional measures. Specific responsibilities include:

   a. Determining type and magnitude of the situation
   b. Securing area
   c. Directing initial containment measures
   d. Reporting to Incident Commander
   e. Determining if additional steps must be taken
   f. Works with Team Leader in controlling hazard

7. HAZMAT Technician - trained to aggressively approach the point of a release in order to patch plug or otherwise stop the release of hazardous substances. Employees, spread through all shifts, are trained in this capacity.

8. 1st Responder Technician - trained to defensively contain releases and prevent spreading. Employees, spread through all shifts, are trained in this capacity.

9. 1st Responder - trained to properly identify and report of emergency or potentially emergency situations. All plant employees are trained at the 1st Responder Awareness level.

The Incident Commander's name and address along with alternative Incident Commanders and officers may be found in the table below.

Designation	Name	Phone Number
Primary Incident Commander	David Maguffin	Office: 235-0401 Plant Ext.: 4014 Cell Phone: 518-491-7900
Alternate	Scott Lewis	Office: 235-0401 Plant Ext.: 4005 Cell Phone: 518-312-1188
Alternate	Prince Knight	Office: 235-0401 Plant Ext.: 4049 Cell Phone: 518-857-2969
Alternate	David Glover	Office: 235-0401 Plant Ext.: 4028 Cell Phone: 518-857-4606

If an Incident Commander is not on-site, the Thermal Operations Manager will take charge as the Emergency Coordinator until relieved by the Incident Commander. There are four Thermal Operations Managers, providing coverage 24 hours a day, seven days a week.

The following is a list of Emergency Coordinators for the facility:

Dustin Hagstrom: Thermal Operations Manager Shift A
James Abasiama: Thermal Operations Manager Shift B
Derek Emrie: Thermal Operations Manager Shift C
Robert Taylor: Thermal Operations Manager Shift D

The Emergency Coordinator's duties are as follows: responsible for initial assessment of emergency conditions. He will make the determination for initial response, and the determination for additional measures. Specific responsibilities include:

a. Determining type and magnitude of the situation
b. Securing area
c. Directing initial containment measures
d. Reporting to Incident Commander
e. Determining if additional steps must be taken
f. Works with Team Leader in controlling hazard.

2.3 Response Activities

The Facility has organized procedures that can be used when a discharge occurs so that they are readily available in an emergency:

Prompt response to a spill is the best means of minimizing any impact to the environment and in particular, preventing a discharge from reaching the waters of the United States. In the event of a spill of a petroleum product, the employee who first is aware of the spill will assume the role of Temporary Emergency Coordinator until he/she can notify the Primary Emergency Coordinator. If the Temporary Emergency Coordinator is unable to notify either the Primary Emergency Coordinator or any of the Alternate Emergency Coordinators, as identified in Sections 1.0 and 3.8 of this Plan, then he/she will assume the responsibility of implementing the emergency spill

response procedures that follow, provided that he/she has been trained in the appropriate health and safety procedures and in the implementation of this contingency plan. If the Emergency Coordinator has not been properly trained in the appropriate health and safety procedures and in the implementation of this Contingency Plan, and cannot notify the Primary Emergency Coordinator or one of the Alternate Emergency Coordinators, he/she shall immediately contact a spill response contractor (Tradebe Environmental Services, LLC 518-235-0401).

The following spill response procedures are to be followed at Norlite LLC:

Assessment of Hazard

1. Upon notification of a petroleum-related spill, the Emergency Coordinator will determine the hazard potential of a spill response by determining at least the following factors:

a. The substance spilled and its hazard potential;
b. The amount of the spill and the extent of spreading; and
c. The source of the leakage/spill.

2. Where appropriate, the Emergency Coordinator shall consult with the facility Safety Manager to determine the potential hazard to employees and to the surrounding public from the substance spilled.

3. If a spill is determined to be of such a magnitude that it cannot be safely and effectively controlled by facility personnel, then the coordinator shall promptly notify outside emergency response agencies to implement control and clean-up.

Secure Spill Response and Personal Protective Equipment

1. Upon determining the hazard potential for the planned response action, the Emergency Coordinator shall direct those who will respond to the spill to obtain the appropriate response equipment and personal protective equipment. A list of the spill response and personal protective equipment available at this facility is provided in Section 3.1 of this document.

2. Employees will not be issued spill response equipment or personal protective equipment (PPE) without having been trained on its proper use and limitations.

Containment and Eliminating Spill Source

1. Upon obtaining the proper spill response tools and PPE, the spill responder(s) shall first attempt to contain the spill so as to prevent its entry into a storm sewer, a ditch or any conveyance that eventually discharges to the waters of the United States. Examples of equipment and media that can be used to contain spills include sand, cat litter, straw bales, and sorbent pillows.

2. At the same time as containment is being performed, or as soon as possible after containment, the spill responder(s) shall attempt to seal or otherwise stop the source of the spill. Common methods of eliminating a spill source include closing valves, leak-stopping compound for pinhole leaks, drum overpacks, deactivating pumps, and diverting flow to another pathway. As long as this pathway does not allow the spill to enter navigable waters of the United States or adjoining shorelines.

Spill Clean-Up and Mitigation of Environmental Impacts

1. Once the spill is contained and the source eliminated, the spill responders shall collect the spilled material by the appropriate manner and place the material into secure containers.

2. The area or surface in contact with the spilled material shall be decontaminated by an appropriate method that is permissible under local, state, and federal laws. The specific method used will depend upon the substance, the availability of permitted sewer discharge to a POTW, regulatory standards applicable to hazardous wastes, and other factors. The SPCC Spill Coordinator will select the appropriate decontamination method after determining the applicable facts and by conferring either with the regulators or an expert in the subject of spill response.

3. All spill material and debris will be managed in a manner that fully complies with applicable local, state, and federal laws regarding recycling or disposal of wastes. The preferred method is to recycle or reclaim materials from spills in an effort to minimize waste generation. Where this is not feasible or allowed, then disposal in accordance with applicable local, state, or federal rules will be done.

Spill Documentation

Once the Emergency Coordinator has been notified of a spill or release, the individual will begin documenting the incident. Documentation will be maintained along with the routine inspection sheets for the affected area. Appendix D provides a spill report form used at the facility for documentation of spill incidents.

2.4 Discharge Notification

This section details the process of making facility personnel, emergency responders and regulators aware of an incident (i.e., who to call, when the call must be made, and what information/data must be provided on the incident).

Internal Notifications

MASTER TELEPHONE LIST

Norlite LLC designated Emergency Coordinators:

Name	Title	Telephone Number
Dustin Hagstrom: Thermal Operations Manager Shift A James Abasiama: Thermal Operations Manager Shift B Derek Emrie: Thermal Operations Manager Shift C Robert Taylor: Thermal Operations Manager Shift D	On-Site Thermal Operations Manager	Cell Phone: 518-587-5737
Scott Lewis	Health and Safety Manager	Office: 518-235-0401 Ext. 4005 Cell Phone: 518-312-1188
David Maguffin	Plant Manager	Office: 518-235-0030 Ext. Cell Phone: 518-491-7900
Prince Knight	Environmental Manager	Office: 518-235-0401 Ext. 4049 Cell Phone: 518-857-2969
David Glover	Fuel Farm Manager	Office: 518-235-0401 Ext. 4028 Cell Phone: 518-857-4606

There will be at least one Emergency Coordinator at the site or available on-call at all times. Emergency Coordinators are thoroughly familiar with all aspects of the facility's Contingency Plan and have been authorized to commit the necessary resources to implement the plan.

Community Notifications

Emergency Services

Emergency Service	Telephone Number
Fire Department	911
Police Department	911
Ambulance	911
Hospital/Emergency Care Facility	518-268-5697
Poison Control Center	(800) 222-1222
Chemical Emergency Advice	(800) 424-9300 (CHEMTREC)

In the case of having more than one fire department or police department responding to an emergency, the primary emergency authority shall be the Cohoes Fire Department. Other authorities will provide secondary support to the primary emergency authority.

Norlite LLC has familiarized the local hospitals with the properties of the hazardous waste managed at the facility, and the types of injuries or illness that could arise from fires, explosions or releases from the facility. Norlite LLC has also established coordination agreements with local police and

fire departments, hospitals, response contractors and state and local emergency response teams to familiarize them with the facility and actions needed in case of an emergency. A copy of the contingency plan has been submitted to these organizations along with all revisions. Documentation of these coordination efforts are maintained on-site at the facility. The refusal of any authorities in receiving the above information has been noted in the facility records.

Federal, State and Local Agency Notifications

Federal/State/Local Agency	Telephone Number
NYSDEC Spill Hotline Telephone Number	518-457-7362
Albany County Dept. of Health	518-445-7835
New York State Dept. of Health - Albany	518-474-2011

The Permittee must include all agencies that must be notified of an incident in accordance with the applicable regulations.

3.0 RESPONSE RESOURCES AND PREPAREDNESS ACTIVITIES

3.1 Equipment, Supplies, Services, and Manpower

Equipment and Supplies

Norlite LLC maintains spill equipment and personal protective equipment (PPE) onsite in order to respond effectively to any incidents that may occur. The list included below outlines spill equipment and supplies stored at the facility, their uses, and their locations.

Item	Location	Description and Use
~100 Fire Extinguishers	Throughout facility & Mobile Equipment (See Map)	Type ABC (dry) combustible material, flammable liquid, electrical
Fire Hydrant #1	South of Salt Kill _ North of Kiln #2 (See Map)	For use by fire department for foam application, etc.
Fire Hydrant #2	South of Salt Kill _ North of Kiln #2 (See Map)	For use by fire department for foam application, etc.
Absorbent booms	Spill stations (4) See Map	To contain and absorb spilled materials
Absorbents	Spill stations (4) See Map	Absorb spilled materials
Lightweight clinker	Clinker storage piles	Place across stream to contain and absorb spilled materials
Portable Pump	LGF unloading area	Transfer spill materials into tanks

Item	Location	Description and Use
Clay Soil	Overburden storage area	Construct dikes to contain spilled material
Front Loaders (3)	Quarry, loading area	Construct dams and dikes to contain spills
Shovels (non-spark producing)	Spill stations (4) See Map	To build dikes to contain spilled materials, remove contaminated soil
First Aid supplies	Safety Trailer and throughout plan	Bandages, compresses, etc.
Emergency Communication System; including horn and internal horn system	Office phones, Security gate #1	Used for external and internal plant communication
Wind socks or stack plumes	On top of the LGF bldg., Finish Plant and WWTP	Used to identify wind direction in order to determine best evacuation route

The equipment, materials, and supplies detailed above are sufficient to contain and clean-up after the maximum discharge potential of 1,500 gallons. In addition, Norlite has heavy equipment and sand available for containment and spill absorption. If needed, Tradebe Environmental Services, LLC Inc. and West Central Environmental Inc. can provide additional spill containment and clean-up materials.

Services

Norlite has contracted with Tradebe Environmental Services, LLC and West Central Environmental Inc. to provide spill clean-up services for spills that exceed the capacity and training of Norlite personnel.

Manpower

Norlite typically has a minimum of three people working at the facility overnight and on the weekends. If a spill were to be discovered during the night shift or on the weekend, in addition to contact the Spill Response/Emergency Coordinator, additional Norlite employees would be mobilized to provide spill response services.

During the weekday, Norlite has upwards of 20 people working at the facility. This is sufficient manpower to respond to a spill from the M&R piping or any one of the four transformers.

3.2 Access to Receiving Waterbody

Salt Kill Creek is the nearest waterbody that has potential to receive a spill. Since the creek runs across the site in a northwestwardly to southeastwardly direction, Norlite has multiple access points to the waterbody. The Salt Kill eventually flows into the Hudson River south of the facility. Preventing oil from reaching this creek is a primary objective of the response strategy.

3.3 Communications and Control

Norlite will follow the NIIMS ICS system when responding to situations. Command posts will be determined by situations such as prevailing winds, location of incident, and material involved in the incident. When possible, command posts will be located in the office area where there is access to phones, computer systems, internet, informational databases, and historical data. When the office area is not suitable as a command post, an alternate location will be selected based on the criteria listed above.

Information and Resource Coordination

- A command post shall be established, close enough to view the site, far enough and upwind for safety.
- The command post shall be well marked.
- Representatives from other agencies shall be available if needed at the command post.
- Identification of key officers is established at this time, if not already done so, via vests or other identification measures.
- Checklists shall be handed out at this time, if not already done so, for each officer and their roles.

Information will be disseminated internally using the central phone and/or radio systems which are distributed throughout the facility. Norlite will also implement the use of cell phones with walkie talkie capabilities to speak to entire groups at once. This option allows for communication should the command post be required to be offsite.

Contact to outside organizations will either by conducted by the Incident Commander or a designated person other than the Incident Commander. The following outside organizations may

be contacted:

• City of Cohoes Fire Department: 518-237-1472

• Local Emergency Planning Committee: 911 or 765-2351

• West Central Environmental (518) 272-6891 (For spill control and assistance.)

• NYS 24 Hour Oil and Hazardous Materials Spill Hotline: (518) 457-7362

• Albany County Health Department: (518) 445-7835

• National Response Center (24 hours): (800) 424-8802 or (202) 426-2675

• US Coast Guard: 472-6110 or (212) 264-4860 (Immediate notification as soon as there is knowledge of an oil release that violates water quality standard or causes a sheen on navigable waters.)

• D&H Railroad Operations Control Center: 271-4414 (If situation involves or interferes with railroad activity.)

• US EPA Region II: (201) 548-8730

• Albany Memorial: (518) 471-3221

• Mine Safety Health Administration: 489-0573

Information will be disseminated through the Cohoes Mayor's Office. Norlite has established a direct communication to the Cohoes Mayor's office for instances when an incident has occurred which could threaten public safety. Norlite will also disseminate information directly to the professional first responders, such as fire and police, when first arriving onsite. Public notification and evacuation will be handled through the Cohoes Mayor's Office in combination with the local Fire and Police Departments. Should an evacuation of the nearby residences need to occur, this will be communicated and coordinated with the City of Cohoes Mayor's office and/or Cohoes Fire Department. Press Releases will be handled in conjunction with PR firm which is on retainer.

Command

The Emergency Coordinator's duties are as follows: responsible for initial assessment of emergency conditions. He will make the determination for initial response, and the determination for additional measures. Specific responsibilities include:

a. Determining type and magnitude of the situation
b. Securing area
c. Directing initial containment measures
d. Reporting to Incident Commander
e. Determining if additional steps must be taken
f. Works with Team Leader in controlling hazard

The following is a list of Emergency Coordinators for the facility:

Dustin Hagstrom: Thermal Operations Manager Shift A
James Abasiama: Thermal Operations Manager Shift B

Derek Emrie: Thermal Operations Manager Shift C
Robert Taylor: Thermal Operations Manager Shift D

3.4 Training Exercises and Updating Procedures

All applicable employees are trained in the areas of inspection procedures and emergency spill response procedures annually at a minimum. Personnel are informed of the components and goals of this Oil Removal Contingency Plan, SPCC Plan, SPR, Part 373 documentation, BMP Plan and Construction SWPPP, and other governing documents. Training tools for Norlite employees also include the employee handbook, Norlite's Orientation, the Annual RCRA/MACT/Mining/SPDES/Spill/Waste Handling Refresher Training, Part 373 Personnel Training Plan (June 2014), and routine employee meetings.

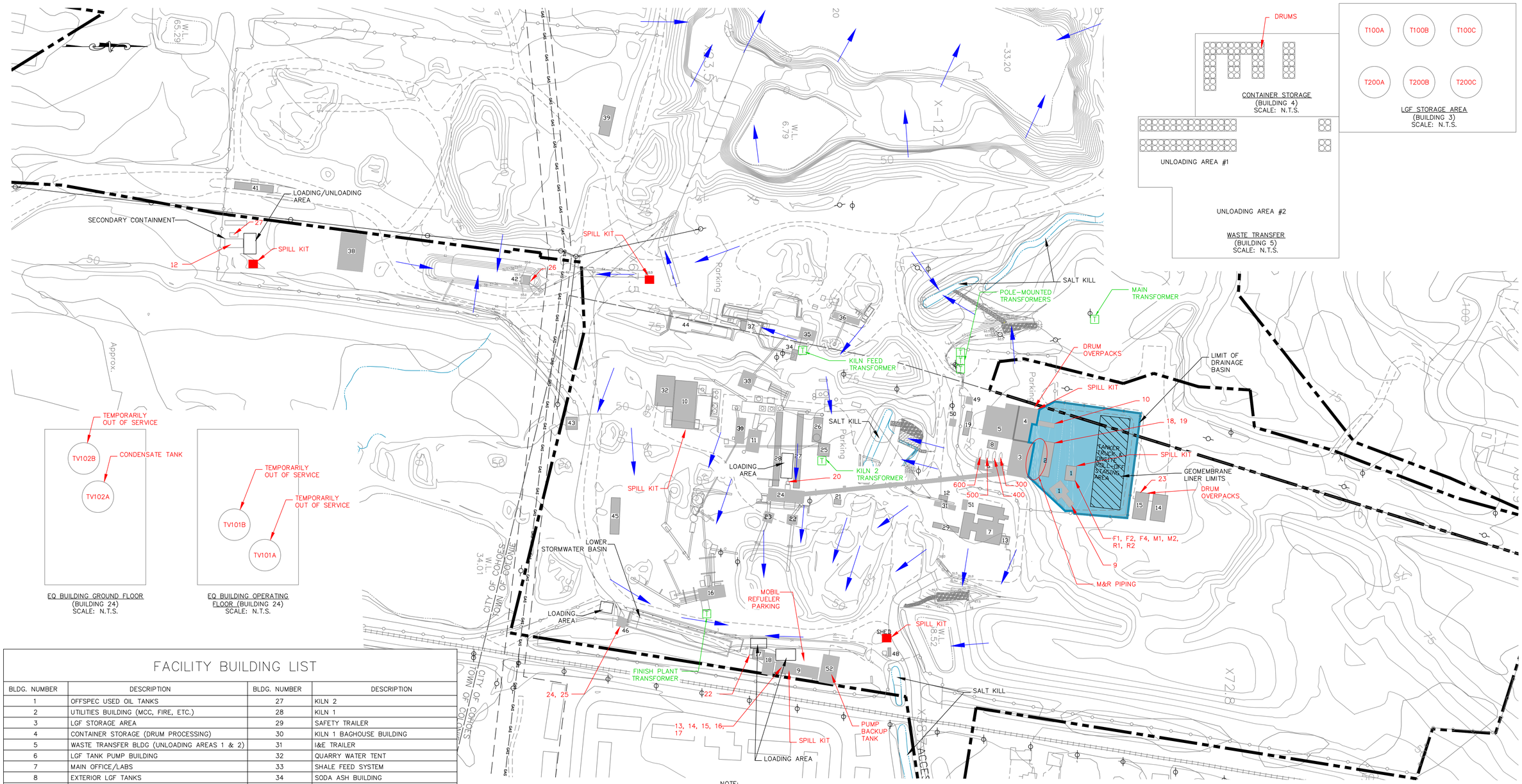
This plan will be reviewed annually with the Spill Prevention Control and Countermeasures Plan to identify any changes which are needed. Identified changes will be made in the plan and implemented at the facility.

In addition, the plan will be reviewed, and immediately revised, if necessary, whenever:

1. The plan fails in an emergency;
2. Changes in facility design, construction, operation, maintenance or other circumstances which materially increase the potential for fires, explosions or releases of hazardous waste or hazardous waste constituents or cause changes in necessary emergency response;
3. The list of Emergency Coordinators changes;
4. The list of emergency equipment changes; or
5. Applicable regulations are revised.

APPENDIX

APPENDIX A
FACILITY DIAGRAM



FACILITY BUILDING LIST

BLDG. NUMBER	DESCRIPTION	BLDG. NUMBER	DESCRIPTION
1	OFFSPEC USED OIL TANKS	27	KILN 2
2	UTILITIES BUILDING (MCC, FIRE, ETC.)	28	KILN 1
3	LGF STORAGE AREA	29	SAFETY TRAILER
4	CONTAINER STORAGE (DRUM PROCESSING)	30	KILN 1 BAGHOUSE BUILDING
5	WASTE TRANSFER BLDG (UNLOADING AREAS 1 & 2)	31	I&E TRAILER
6	LGF TANK PUMP BUILDING	32	QUARRY WATER TENT
7	MAIN OFFICE/LABS	33	SHALE FEED SYSTEM
8	EXTERIOR LGF TANKS	34	SODA ASH BUILDING
9	LUBE ROOM/ CENTRAL INVENTORY/ LOCKER ROOM	35	OLD PRIMARY PLANT
10	WASTEWATER TREATMENT BUILDING	36	NEW PRIMARY PLANT
11	TRUNNION BREAK ROOM	37	PRIMARY OPERATIONS BREAK ROOM
12	DEC TRAILER	38	AGGREGATE FINES STORAGE TENT
13	STORAGE TRAILERS	39	STORAGE
14	UNITED GARAGE	40	POLE BARN
15	UNITED GARAGE	41	SCALE & SCALE HOUSE
16	FINISH PLANT	42	PUMP HOUSE
17	PUMP ROOM	43	NATURAL GAS HOUSE
18	GARAGE	44	CANAL AREA
19	FUEL FARM BREAK ROOM/LOCKER ROOM	45	STORAGE PAD
20	ELEVATED PIPE TUNNEL	46	PUMP HOUSE
21	KILN STORAGE BUILDING	47	LOWER PAD
22	KILN 2 CLINKER COOLER STACK	48	GATE 2 SECURITY TRAILER
23	KILN 1 CLINKER COOLER STACK	49	STORAGE
24	EQ BUILDING	50	ELECTRICAL ENCLOSURE
25	KILN 2 BAGHOUSE BUILDING	51	AGGREGRATE TESTING LAB
26	CEM BUILDING	52	LARGE EQUIPMENT STORAGE BUILDING

NOTE:
LIMIT OF DRAINAGE BASIN AND HDPE GEOMEMBRANE LINER LIMITS ARE TAKEN FROM DRAWING NO. NY003-2007-03 "LGF TANKER STAGING AREA CONTAINMENT," DRAWN BY ENVIRONMENTAL ENGINEERS & SCIENTISTS FOR NORLITE CORPORATION, DATED 3/1/2016, SIGNED AND STAMPED BY HARVEY M. KING, P.E. (NY LICENSE NO. 58739).

LEGEND

- PROPERTY LINE
- 75 — CONTOUR LINES
- 13, 14 — TANK ID
- SPILL KIT LOCATION
- FLOW DIRECTION
- T — TRANSFORMER
- CHAIN LINK FENCE

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.
SCALABLE ONLY ON ARCH "D" SIZE PRINTS

REV #	DATE	DESCRIPTION	BY
–	–	–	–
–	–	–	–
–	–	–	–
–	–	–	–
–	–	–	–
–	–	–	–
–	–	–	–

CONTINGENCY PLAN FACILITY DIAGRAM
NORLITE, LLC
CITY OF COHOES
TOWN OF COLONIE ALBANY CO., NY

SHEET #: 1	PROJECT #: 415A-08-17-5123	
DATE: SEPTEMBER 21, 2017	DRAWING #: 5123SPCC002	MANAGER: MMA
SCALE: 1"= 100'	PREPARER: KAD DRAFTER: KAD	CHECKER: MMA

TRADEBE

A ROTARY KILN Norlite EXPANDED SHALE AGGREGATE

CONTINENTAL PLACER INC.
GEOLOGIC AND ENVIRONMENTAL SERVICES
11 WINNERS CIRCLE ALBANY, NY 12205
PH: 518-458-9203 FAX: 518-458-9206

APPENDIX B
MAXIMUM DISCHARGE POTENTIAL CALCULATIONS

CONTINENTAL PLACER INC.
GEOLOGIC AND ENVIRONMENTAL SERVICES
2 Winners Circle Albany, NY 12205
(518) 458-9203

JOB Oil Spill Contingency Plan- Maximum Discharge Potential
SHEET NO. 1 OF 1
CALCULATED BY MMA DATE 9/11/2017
CHECKED BY _____ DATE _____
SCALE N/A

Maximum Discharge Potential Calculations:

Applicable: From Fuel Farm Unloading Area to M and R tanks - a portion of the piping is outside of a building and outside of secondary containment.

Maximum pumping rate:

6,500 gallons / 45 minutes = 141 gallons per minute

Emergency stop on pump: 30 seconds to shutdown product transfer
Time to discover leak: 3 minutes

Total time to discover and stop product flow: 3.5 minutes

Total discharge:

141 gallons/minute × 3.5 minutes = 495 gallons

Surface discharged onto: asphalt
Product discharge: spec-oil and off-spec oil
Drainage area: Drainage basin of the Tanker Truck Staging Area with HDPE liner. Provides 161,568 gallons of containment.

APPENDIX C
FUEL FARM OPERATOR'S PRE-SHIFT & DAILY INSPECTION REPORT
WEEKLY ENVIRONMENTAL (RCRA) INSPECTION REPORT
ABOVEGROUND PETROLEUM STORAGE TANK MONTHLY INSPECTION

FUEL FARM OPERATOR'S WORKPLACE EXAM INSPECTION REPORT

DATE & TIME: _____ ***INSPECTED BY:*** _____

ITEM	OK / YES	NO	CORRECTIVE ACTION	DATE CORRECTED
LOWER PAD				
Pump 3				
Pump 4				
Pump 5				
Pump 6				
Tank 3 Circulators				
Tank 4 Circulators				
Tank 5 Circulators				
Tank 6 Circulators				
Pipe, Valves, Fittings				
Drip Pans				
Fire Extinguisher (2)				
Housekeeping				
Tank Pressure-300				
Tank Pressure-400				
Tank Pressure-500				
Tank Pressure-600				
Lights				
Containment Condition				
Other Remarks:				
LGF STORAGE BUILDING				
Pump 100A				
Pump 100B				
Pump 100C				
Pump 200A			OPERATIONALLY	OUT OF SERVICE
Pump 200B				
Pump 200C				
Pipe, Valves, Fittings				
Sump Level				
Fire Extinguisher (2)-Upper Level				
Eye/Body Wash-Upper Level				
Fire blanket (1)-Upper Level				
Fire Extinguishers (2)-Lower Level				
Eye/Body Wash-Lower Level				
Containment Condition				

FUEL FARM OPERATOR'S WORKPLACE EXAM INSPECTION REPORT

DATE: _____ ***INSPECTED BY:*** _____

ITEM	OK / YES	NO	CORRECTIVE ACTION	DATE CORRECTED
LGF STORAGE BUILDING				
TANK Pressure 100A				
TANK Pressure 100B				
TANK Pressure 100C				
TANK Pressure 200A				
TANK Pressure 200B				
TANK Pressure 200C				
HouseKeeping				
Aisleways Clear				
Lights				
Containment Condition				
Other Remarks:				
GROUNDS				
Fence and Gates				
Signs Maintained				
Trash Cans Empty				
Spill Station				
Travelways Clear				
Lights				
Other Remarks:				
BREAK ROOM				
Housekeeping				
Free of LGF Hazards				
Other Remarks:				
TANKER STAGING AREA				
Storm Water Removed				
Level On Gauge				
Free of Contamination Leaks				
Other Remarks:				

FUEL FARM OPERATOR'S WORKPLACE EXAM INSPECTION REPORT

DATE: _____ ***INSPECTED BY:*** _____

ITEM	OK / YES	NO	CORRECTIVE ACTION	DATE CORRECTED
OFFLOADING PAD				
Pump 104				
Pump 204				
Fuel Oil Pump 107				
Muffin Monsters				
Offloading Filters				
Hoses				
Housekeeping				
Hazard Drums (# of)				
Non Hazardous Drums (# of)				
Fire Extinguisher				
Lights				
Containment Condition				
Other Remarks:				
DRUM STORAGE BLDG.				
Housekeeping				
Hazard Drums (# of)				
Non Hazardous Drums (# of)				
Fire Extinguisher (3)				
Fire Blanket (1)				
Eye/Body Wash				
Proper Aisle Space				
Proper Stacking				
Proper Labeling				
Lights				
Containment Condition				
Other Remarks:				
FUEL OIL TANK AREA				
Housekeeping				
East Pump				
West Pump				
Pipe, Valves, Fittings				
Fire Extinguisher (1)				
Lights				
Other Remarks:				

FUEL FARM OPERATOR'S WORKPLACE EXAM INSPECTION REPORT

DATE: _____ ***INSPECTED BY:*** _____

ITEM	OK / YES	NO	CORRECTIVE ACTION	DATE CORRECTED
UTILITY BUILDING OUTSIDE				
Fire Extinguisher (2)				
Lights				
UTILITY BUILDING-BOILER ROOM				
Housekeeping				
Boilers				
Pressure Washer				
Other Remarks:				
UTILITY BUILDING - MCC ROOM				
Housekeeping				
All Electrical Covers Closed				
Fire System Panel				
Fuel Oil Leak Detector				
Tank Oxygen Monitor				
02/LEL System				
Other Remarks:				
UTILITY BUILDING-FIRE SYSTEM ROOM				
Housekeeping				
Other Remarks:				
OTHER				
Other Remarks:				

WEEKLY ENVIRONMENTAL (RCRA) INSPECTION REPORT

Date & Time: _____ **Inspector(s):** _____

Area: Fuel Farm **Supervisor(s):** _____

Attention Supervisor- You are required to review and correct this list. Completed form must be returned to the Compliance Dept. for filing (Permit Required).

ITEM	ACCEPTABLE[1] YES	ACCEPTABLE[1] NO	STATUS (or OBSERVATION)[2]	DATE & EXPLANATION OF ACTION TAKEN
A. PUMP PAD - TANKS 3 & 4				
A1. Secondary Containment				
A2. Drip Pans				
A3. Housekeeping				
A4. Pumps				
A5. Valves				
A6. Piping / Fittings				
A7. Fire Extinguisher (1)				
B. PUMP PAD - TANKS 5 & 6				
B1. Secondary Containment				
B2. Drip Pans				
B3. Housekeeping				
B4. Pumps				
B5. Valves				
B6. Piping / Fittings				
B7. Fire Extinguisher (1)				
C. TANKS 3-6 GROUND COVER				
C1. Vegetation				
C2. Erosion				
C3. Housekeeping				
D. SECURITY				
D1. Fencing				
D2. Signs and Locks				
E. CONTAINER STORAGE AREA			Unloading Pad / Drum Room / IN USE	
E1. # of Non-haz drums				
E2. # of Haz Drums				
E3. (Max. 267 haz drums)				
E4. Corrosion/Leakage				
E5. Drainage				
E6. Container Pad				
E7. Housekeeping				
E8. Signs / Labeling				
E9. Fire Extinguishers (3)				
F. TANKER UNLOADING AREA #1 (north)				
F1. Concrete Pad				
F2. Pumps				
F3. Piping / Fittings				
F4. Valves				
F5. Safety Shower (1)				
F6. Housekeeping				
Fa. TANKER UNLOADING AREA #2				
Fa1. Concrete Pad				
Fa2. Pumps				
Fa3. Piping / Fittings				
Fa4. Valves				
Fa5. Housekeeping				
G. TANKER STAGING AREA				
G1. Spills/Stains on Ground				
G2. Condition of Contained Water				
G3. Housekeeping				

[1] Note: If both YES and NO are checked, the item is considered to be marginally acceptable.

[2] If an item is acceptable (only YES checked) an entered observation does not imply a need for corrective action.

WEEKLY ENVIRONMENTAL (RCRA) INSPECTION REPORT

Date & Time: _____ **Inspector(s):** _____

Area: **Fuel Farm** **Supervisor(s):** _____

Attention Supervisor- You are required to review and correct this list. Completed form must be returned to the Compliance Dept. for filing (Permit Required).

ITEM	ACCEPTABLE[1] YES	ACCEPTABLE[1] NO	STATUS (or OBSERVATION)[2]	DATE & EXPLANATION OF ACTION TAKEN
H. ROLL-OFF CONTAINERS				
H1. Condition of Containers				
H2. Absence of Spills				
H3. Covered				
H4. Labels				
H5. Haz. Quantity (Max 160 cu yds.)				
I. LGF STORAGE BUILDING				
I1. Tank 100A				
I2. Tank 100B				
I3. Tank 100C				
I4. Tank 200A				
I5. Tank 200B				
I6. Tank 200C				
I7. Pump 100A				
I8. Pump 100B				
I9. Pump 100C				
I10. Pump 200A				
I11. Pump 200B				
I12. Pump 200C				
I13. Grated Trench & Sump				
I14. Secondary Containment				
I15. Housekeeping				
I16. Pipes, Valves, & Fittings				
I17. Fire Extinguishers (5)				
I18. Safety Shower (outside bldg.)				
J. LGF PIPE BRIDGE & TUNNEL				
J1. Piping / Fittings				
J2. Fire Extinguishers (3)				
J3. Safety Showers (2)				
J4. Housekeeping				
K. FUEL OIL STORAGE TANK AREA				
K1. Physical Condition of Tank				
K2. Cracks, Corrosion, Thinning?				
K3. Pipes, Valves, & Pumps				
K4. Housing & Foundation Integrity				
K5. Housekeeping				
K6. Leak detection devices (located in utility building)				
K7. Fire Extinguishers (2)				
Ka. F, M, R TANKS				
Ka1. Condition of Tanks				
Ka2. Cracks, Corrosion, Thinning?				
Ka3. Pipes, Valves, & Pumps				
Ka4. Containment Condition				
Ka5. Housekeeping				
COMMENTS:				
*** (NVL) - No Visible Leaking**				

[1] Note: If both YES and NO are checked, the item is considered to be marginally acceptable.

[2] If an item is acceptable (only YES checked) an entered observation does not imply a need for corrective action.

WEEKLY ENVIRONMENTAL (RCRA) INSPECTION REPORT

Date & Time: _____ **Inspector(s):** _____

Area: Kiln Area **Supervisor(s):** _____

Attention Supervisor(s)- You form must be returned to the Compliance Dept. for filing. (Permit Required)

ITEM	ACCEPTABLE[1] YES		NO		STATUS (or OBSERVATION)[2]	DATE & EXPLANATION OF ACTION TAKEN
L. BAGHOUSE	**K1**	**K2**	**K1**	**K2**		
L1. Structure Integrity						
L2. Piping/Fittings						
L3. Housekeeping						
M. SCRUBBER BUILDING	**K1**	**K2**	**K1**	**K2**		
M1. Containment Area						
M2. Pumps						
M3. Piping/Fittings						
M4. Valves						
M5. Housekeeping						
M6. **SWMU 12** (asphalt cap)						
N. KILN	**K1**	**K2**	**K1**	**K2**		
N1. Backend Seal						
N2. No Dust or Emissions?						
N3. Trunnions						
N4. Not Leaking Oil on Ground?						
N5. Drip Pans in use? (if needed)						
N6. Shell						
O. BURNER FLOOR AREA	**K1**	**K2**	**K1**	**K2**		
O1. Piping, Fittings, & Valves						
O2. Pumps						
O3. Fire Extinguishers (1 ea. area)						
O4. Safety Shower (removed)						
O5. Housekeeping						
P. EXTRUDER ROOM						
P1. Housekeeping						
P2. Piping/Fittings						
P3. Drums						
P4. Number of Haz. Drums	**n/a**					
P5. Number of Non-Haz Drums	**n/a**					
Q. EQUALIZATION TANKS						
Q1. Tank 101A						
Q2. Tank 101B						
Q3. Tank 102A						
Q4. Tank 102B						
COMMENTS:						

[1] Note: If both YES and NO are checked, the item is considered to be marginally acceptable.

[2] If an item is acceptable (only YES checked) an entered observation does not imply a need for corrective action.

WEEKLY ENVIRONMENTAL (RCRA) INSPECTION REPORT

Date & Time: _____ **Inspector(s):** _____

Area: Kiln Area **Supervisor(s):** _____

Attention Supervisor(s)- You are required to review and correct this list. Completed form must be returned to the Compliance Dept. for filing. (Permit Required)

ITEM	ACCEPTABLE[1] YES	ACCEPTABLE[1] NO	STATUS (or OBSERVATION)[2]	DATE & EXPLANATION OF ACTION TAKEN
R. EQUALIZATION AREA				
R1. Sump in Basement				
R2. Secondary Containment				
R3. Pumps & Valves				
R4. Safety Shower (1)				
R5. Piping/Fittings				
R6. Fire Extinguishers (4)				
R7. Housekeeping				
R8. Drum Storage Area (<55 gals.)				
S. TUNNEL FIRE/LEL/O2 MONITOR AND CONTROL SYSTEM (located in k1 control room)				
S1. Fire Protection Device				
S2. Smoke Detector				
S3. Oxygen and LEL Monitors				
S4. Automated AFFF System				
S5. Latest Calibration (Quarterly):				
T. KILN #1 GAS ROOM				
T1. Piping/Fittings				
T2. Housekeeping				
T3. Containment Pad				
U.				
V. DUST STORAGE SILOS				
V1. External Condition				
V2. Absence of Spills				
V3. Pipings/Fittings				
V4. Bag Vent Functional				
COMMENTS:				

Date & Time: _____ **Inspector(s):** _____

Area: Laboratory **Supervisor(s):**

ITEM	ACCEPTABLE[1] YES	ACCEPTABLE[1] NO	STATUS (or OBSERVATION)[2]	ACTION
W. LABORATORY				
W1. Condition of Containers				
W2. Condition of Labels				
W3. Absence of Spills / Leaks				

Date & Time: _____ **Inspector(s):** _____

Area:

ITEM	ACCEPTABLE[1] YES	ACCEPTABLE[1] NO	STATUS (or OBSERVATION)[2]	ACTION
X. UNIVERSAL WASTE STORAGE				
X1. Containers Labeled / Dated				
X2. Containers Closed				

[1] Note: If both YES and NO are checked, the item is considered to be marginally acceptable.

[2] If an item is acceptable (only YES checked) an entered observation does not imply a need for corrective action.

Production Manager _____ Laboratory Manager _____

Plant Manager _____ Fuel Farm Manager _____

Inspector _____

ABOVEGROUND PETROLEUM STORAGE TANK
MONTHLY INSPECTION
PURSUANT TO 6NYCRR 613.6
(Refer to reverse side for inspection requirements)

INSPECTION DATE:
STORAGE ID #: **4-052574**
RENEWAL DATE: **12/2/2021**

PERFORMED BY:
NORLITE CORPORATION
628 South Saratoga Street
Cohoes, NY 12047

		(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*
TANK #	**PRODUCT**	**TANK SHELL**	**TANK LEVEL GAUGE**	**TANK LEVEL**	**LABELS**	**CONDITION OF: PIPING, VALVES, FITTINGS**	**LEAK DETECTION**	**STRUCTURAL INTEGRITY**	**EVIDENCE OF: CRACKS, WEAR, CORROSION, OR THINNING?**	**CONDITION OF SECONDARY CONTAINMENT**	**MAINTENANCE AND OPERATING PRACTICES**
F - 1	Off-Road Diesel										
F - 2	Off-Road Diesel										
F - 4	#2 Fuel Oil										
M - 1	Specification Used Oil										
M - 2	Specification Used Oil										
R - 1	Specification Used Oil										
R - 2	Specification Used Oil										
9	Kiln Oil										
10	On-Road Diesel										
11	Off-Road Diesel										
12	Gasoline										
13	Garage Lubricating Oil (15W40)										
14	Garage Oil (SAE 30)										
15	Garage Hydraulic Oil										
16	Garage Transmission Fluid										
17	Garage Engine Oil (10W30)										
18	Fire Suppression Room #2 Fuel Oil										
19	Fuel Farm Utility Room #2 Fuel Oil										
20	Kiln Pony Motor Diesel Fuel										
22	Used Filter Oil										
23	Used Filter Oil										

COMMENTS: _____

INSPECTOR NAME: _____

INSPECTOR SIGNATURE: _____

MANAGER SIGNATURE: _____

ABOVEGROUND PETROLEUM STORAGE TANK
MONTHLY INSPECTION
PURSUANT TO 6NYCRR 613.6
(Refer to reverse side for inspection requirements)

INSPECTION DATE:
STORAGE ID #: 4-052574
RENEWAL DATE: 12/2/2021

PERFORMED BY:
NORLITE CORPORATION
628 South Saratoga Street
Cohoes, NY 12047

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
TANK #	PRODUCT	TANK SHELL	TANK LEVEL GAUGE	TANK LEVEL	LABELS	CONDITION OF: PIPING, VALVES, FITTINGS	LEAK DETECTION	STRUCTURAL INTEGRITY	EVIDENCE OF: CRACKS, WEAR, CORROSION, OR THINNING?	CONDITION OF SECONDARY CONTAINMENT	MAINTENANCE AND OPERATING PRACTICES
24	Storm water Diesel Fuel										
25	Storm water Diesel Fuel										
26	Storm water Diesel Fuel										
27	Off Road Diesel										
28 (Mobil Fuel Tank)	Diesel Fuel										
MG-01	Diesel Fuel										
MG-02	Diesel Fuel										
Transformer#	PRODUCT	TANK SHELL	TANK LEVEL GAUGE	TANK LEVEL	LABELS	CONDITION OF: PIPING, VALVES, FITTINGS	LEAK DETECTION	STRUCTURAL INTEGRITY	EVIDENCE OF: CRACKS, WEAR, CORROSION, OR THINNING?	CONDITION OF SECONDARY CONTAINMENT	MAINTENANCE AND OPERATING PRACTICES
Main	Transformer Oil										
Kiln 1	Transformer Oil										
Finish Plant	Transformer Oil										

COMMENTS: _____

INSPECTOR NAME: _____

INSPECTOR SIGNATURE: _____

MANAGER SIGNATURE: _____

TANK INSPECTION REQUIREMENTS

("S" : Satisfactory, "UN" : Unsatisfactory)

(1) TANK SHELL

Inspect exterior surfaces of tank for rust, chipped paint, corrosion, signs of degradation, etc.

(2) TANK LEVEL GAUGE

Ensure the tank level gauge is in place and operational.

(3) TANK LEVEL

Tank # 11: 1 hour = 1 foot (5 mins. = 1 inch)

Record level of product in the tank at time of inspection.

(4) LABELS

Ensure labels are present and accurate (including: tank ID#, design capacity, working capacity, contents, associated hazards)

(5) CONDITION OF: PIPING, VALVES, FITTINGS

Check for leaks, wear, damage, labeling, etc.

(6) LEAK DETECTION DEVICE

With the exception of Tank # 9's underground double-walled fiberglass piping, all tank systems are entirely aboveground and leak detection is visually monitored.

The underground double-walled fiberglass piping on Tank # 9 is electronically monitored via the "PetAlert" system.

(NVL : No Visible Leaks, LD : Leak Detected)

The interstitial space between Tank # 9's double wall containment is to be monitored by opening the 1" valve on the northern side.

The map # being monitored at the time of inspection shall be noted.

(7) STRUCTURAL INTEGRITY

etc.

Inspect tank supports and tanks for evidence of settling, foundation weaknesses,

(8) EVIDENCE OF: CRACKS, WEAR, CORROSION, AND THINNING

Inspect tank systems for cracks, areas of wear, corrosion, and thinning

(9) CONDITION OF SECONDARY CONTAINMENT

Inspect containment areas for wear, corrosion, cracking, blistering, debris or precipitation accumulation, joint condition, etc.

(10) MAINTENANCE AND OPERATING PRACTICES

None Identified)

Identify any poor maintenance or operating practices ("NI" :

Tank #	Working Capacity	NFPA CODES			CAS #	In Svc. Date
		Health	Flam.	React.		
F1	6,700	1	2	0	68334-30-5	08/01/99
F2	6,700	1	2	0	68334-30-5	08/01/99
F4	1,800	1	2	0	68476-30-2	08/01/99
M1	19,200	1	3	0	N/A	08/01/98
M2	19,200	1	3	0	N/A	08/01/98
R1	19,200	1	3	0	N/A	08/01/98
R2	19,200	1	3	0	N/A	08/01/98
9	24,500	1	3	0	N/A	02/01/93
10	7,500	1	2	0	68334-30-5	circa 1996
11	**	**	**	**	**	out of service
12	490	1	3	0	8006-61-9	circa 1996
13	260	1	1	0		prior to 12/95
14	260	1	1	0		prior to 12/95
15	260	1	1	0	64742-54-7	prior to 12/95
16	160	1	1	0		prior to 12/95
17	160	1	1	0		prior to 12/95
18	110	1	2	0	68476-30-2	prior to 12/95
19	380	1	2	0	68476-30-2	prior to 12/95
20	45	1	2	0	68334-30-5	prior to 12/95
22	1000	1	1	0	70514-12-4	circa 1996
23	275	1	1	0	70514-12-4	11/01/07
24	225	1	2	0	68334-30-5	11/15/13
25	55	1	2	0	68334-30-5	11/15/13
26	55	1	2	0	68334-30-5	11/15/13
27	2900	1	2	0	68334-30-5	07/31/15
28	140	1	2	0	68334-30-5	07/30/15
MG-01	100	1	2	0	68334-30-5	
MG-02	126	1	2	0	68334-30-5	

PETROLEUM BULK STORAGE ITEMS

Date: _____

TANK #	*ITEMS*	*ITEM / DATE CORRECTED*

COMMENTS:

modified 11/09

MONTHLY FIRE EXTINGUIHSER INSPECTION

DATE:		SITE NAME: NORLITE						
ADDRESS:								
TAG	SERIAL	MANUFACTURER	SIZE	TYPE	ZONE	LOCATION	VISUALLY INSPECTED?	DATE
1	VT-673869	Kidde	5#	ABC	1	Front gate security shack		
2	A-97735030	Amerex	20#	ABC	1	Garage large vehicle storage		
3	KN-685362	General	10#	ABC	1	Garage large vehicle storage		
4	BP-907992	Amerex	5#	ABC	Vehicles	Fuel truck		
5	YK-696865	Amerex	5#	ABC	Vehicles	Water truck 112		
6	SF-556727	Badger	5#	ABC	1	Garage storage area		
7	B-81275727	Ansul	20#	ABC	1	Lube room		
8	SH-650185	Badger	20#	ABC	1	Maintenance Garage		
9	R-546223	Amerex	20#	ABC	1	Maintenance Garage		
10	KT-43255	Amerex	20#	ABC	1	Maintenance Garage		
11	CD-154089	Amerex	20#	ABC	1	Exterior maintenance garage		
12	E-83110034	Ansul	2.5#	ABC	Vehicles	Lull 7		
13	WY-621829	Amerex	5#	ABC	Vehicles	Front loader 988B		
14	B-71493936	Ansul	2.5#	ABC	Vehicles	Front loader 988F		
15	C-93554031	Ansul	5#	ABC	Vehicles	100 welding truck		
16	C-84942977	Ansul	5#	ABC	Vehicles	Lincoln welding Truck		
17	D-58709803	Amerex	20#	ABC	1	Finish plant MCC Room		
18	D-59709805	Amerex	20#	ABC	1	Finish plant QC		
19	KT-433184	Amerex	20#	ABC	1	Finish plant 1st floor		
20	KT-436554	Amerex	20#	ABC	1	Finish plant upper level		
21	YL-106916	Amerex	10#	ABC	1	Finish plant control room		
22	ZJ-76860	Amerex	20#	ABC	1	Finish plant 1 tunnel up		
23	A-32680362	Amerex	20#	ABC	1	Shipping tunnel up		
24	RS-209650	Kidde	20#	ABC	1	Shipping tunnel low		
25	MS-694943	Badger	20#	ABC	1	Kiln 1 clinker belt		
26	B-71493940	Ansul	2.5#	ABC	Vehicles	Backhoe 310		
27	ZP-847676	Amerex	20#	ABC	1	Kiln 2 clinker belt		
28	A-97735025	Amerex	20#	ABC	1	Kiln 2 cooler		
29	E-61975685	Ansul	20#	ABC	1	Burner room		
30	C-785842	Ansul	20#	ABC	1	Kiln EQ Lower		
31	KT-432854	Amerex	20#	ABC	1	Kiln EQ Upper		
32	YF-857989	Amerex	20#	ABC	1	Kiln EQ Bottom		
33	L-537993	Amerex	20#	ABC	1	Kiln 1 burner floor		
34	ZJ-76861	Amerex	20#	ABC	1	Kiln 1 control room		
35	ND-220188	Amerex	20#	ABC	1	Kiln 1 cooler		
36	D-58709807	Amerex	20#	ABC	1	Primary Air room		
37	MG-282760	Amerex	20#	ABC	1	EQ main		
38	E-61975684	Ansul	20#	ABC	1	Kiln trunion Room		
39	CD-154082	Amerex	20#	ABC	1	Kiln 1 MCC room		
40	YZ-744970	Amerex	2.5#	ABC	Vehicles	101 bobcat		
41	E-11756790	Amerex	2.5#	ABC	Vehicles	Skid steer cat236D		
42	E-83121996	Ansul	20#	ABC	1	Kiln 2 MCC		
43	CF-269649	Amerex	20#	ABC	1	Kiln 2 outside		
44	E-83110031	Ansul	2.5#	ABC	Vehicles	Genie SB6512		
45	X-758200	Ansul	5#	ABC	Vehicles	Bulldozer		
46		Ansul	20#	ABC	1	Feed Silo lower		
47	SF-372593	Amerex	20#	ABC	1	Silo upper		
48	KH-188790	Amerex	20#	ABC	1	Kiln 1 bag house		
49	E-61975681	Ansul	20#	ABC	1	Kiln 1 waste water		
50	E-83121999	Ansul	20#	ABC	1	Kiln 1 waste water outside door		
51	A-3697472	Amerex	20#	ABC	1	Kiln 2 Bag house		
52	Z744191	Amerex	10#	ABC	1	Read screen		
53		Amerex	10#	ABC	1	980c loader		
54	Sy 789844	Amerex	10#	ABC	1	Guard shack		
55		Amerex	20#	ABC	1	Off road diesel		
56	Cf 269651	Amerex	20#	ABC	1	Cedarapids screen		
57	ZM-680276	Amerex	5#	ABC	Vehicles	Sample truck		
58	E-11694197	Amerex	20#	ABC	1	Lower pump house		

TAG	SERIAL	MANUFACTURER	SIZE	TYPE	ZONE	LOCATION	VISUALLY INSPECTED?	DATE
59	Br 787924	Amerex	2.5#	ABC	1	I&E work van		
60	Yv 104910	Amerex	20#	ABC	1	I&E trailer		
61	E 11451485	Amerex	10#	ABC	1	Double wide 1		
62		Amerex	10#	ABC	1	Double wide 1		
63	Zig 137657	Amerex	10#	ABC	1	Double wide main trailer entrance		
64	E 1145t880	Amerex	10#	ABC	1	Main trailer kitchen		
65	E 11454898	Amerex	10#	ABC	1	Main trailer back entrance		
66	E 11454896	Amerex	10#	ABC	1	Environmental trailer		
67	Zg 143598	Amerex	10#	ABC	1	Environmental trailer		
68	B 65074821	Ansul	20#	ABC	1	Outside lab cooler		
69	AT 325879	Amerex	20#	ABC	1	Lab trailer		
70	YV 104908	Amerex	20#	ABC	1	Lab		
71	W389452	Amerex	20#	Co2	1	Lab		
72	E9568817y	Ansul	5#	ABC	1	Lab		
73	D 58860031	Amerex	5#	ABC	1	Aggregate lab		
74	20mb 3H	Amerex	20#	ABC	1	Lower pump pad		
75	A 97735016	Amerex	20#	ABC	1	Lower my pad		
76	Sh 656207	Badger	20#	ABC	1	Lgf lower		
77	B 71534853	Ansul	20#	ABC	1	Lfg lower		
78	Yp 338419	Amerex	20#	ABC	1	Lgf mid level		
79	D58709795	Amerex	20#	ABC	1	Lgf upper		
80	D 58709806	Amerex	20#	ABC	1	Lgf upper		
81	B 71540130	Ansul	20#	ABC	1	Lgf tunnel		
82	C 93557291	Ansul	20#	ABC	1	Lfg tunnel		
83	C 93557306	Ansul	20#	ABC	1	Lgf tunnel		
84	Yv 104909	Amerex	20#	ABC	1	Lgf Control		
85	Bg 201650	Amerex	20#	ABC	1	Lgf Control		
86		Amerex	2.5#	ABC	1	Lgf drum storage forklift		
87	Yv 104898	Amerex	20#	ABC	1	Lgf drum storage		
88	Yp 23175	Amerex	20#	ABC	1	Lgf drum storage		
89	D 58709784	Amerex	20#	ABC	1	Mcc bldg east wall		
90	Kt 432424	Amerex	20#	ABC	1	Fuel farm oil 9		
91	Br 546225	Amerex	20#	ABC	1	Fuel farm solvent dock		
92	20mb 6h	Badger	20#	ABC	1	On road diesel tank		
93	Wx 579322	Amerex	20#	ABC	1	Mcc west wall		
94		Amerex	20#	ABC	1	Lgf drum storage		
95		Badger	2.5#	ABC	1	Truck #108		
96		Badger	2.5#	ABC	1	Truck v23		
97		Badger	5#	ABC	1	C7 welding truck		
98	E93266228	Kidde	20#	ABC	1	Fuel farm maintenance tent 1		
99	D58709804	Amerex	20#	ABC	1	Fuel farm maintenance tent 2		
100	Bp 904500	Amerex	5#	ABC	1	Chevy plow truck fuel farm		
101	B71493930	Amerex	2.5#	ABC	1	V1 vac truck		
102	E11455879	Amerex	10#	ABC	1	Lgf break room trailer		
103	Sp 744273	Badger	10#	ABC	1	Dec trailer		
104	V801631	Badger	10#	ABC	1	#9 Euclid		
105	We714199	Badger	2.5#	ABC	1	Water truck		
106	Sf 562867	Badger	2.5#	ABC	1	Grader		
107	B71493919	Ansul	2.5#	ABC	1	Cat dump truck 773		
108		Amerex	2.5#	ABC	1	Loader		
109		Amerex	2.5#	ABC	1	#6 water truck		
110	71493939	Ansul	2.5#	ABC	1	Welding trailer at primary		
111	B65074320	Ansul	20#	ABC	1	Primary control		
112				ABC	1	Primary crusher		
113		Badger	10#	ABC	1	Teamsters break rm		
114		Badger	20#	ABC	1	Pump house upper		
115		Badger	20#	ABC	1	Cylinder storage		
116	76864917	Amerex	20#	ABC	1	Quarry Water Barge MCC		
117	76864905	Amerex	20#	ABC	1	QuarryWater Barge Valve Shed		
118	97292382	Amerex	20#	ABC	1	Lower MCC room - Coolers		
119	97292383	Amerex	20#	ABC	1	Center platform Lime Silos		
120	97292385	Amerex	20#	ABC	1	APC MCC room north entrance		

TAG	SERIAL	MANUFACTURER	SIZE	TYPE	ZONE	LOCATION	VISUALLY INSPECTED?	DATE
121	97292384	Amerex	20#	ABC	1	APC MCC room south entrance		
122	97294126	Amerex	20#	ABC	1	Outside North door compressor room		
123	97292393	Amerex	20#	ABC	1	Inside compressor room		
124	97292392	Amerex	20#	ABC	1	Outside South door compressor room		
125	97294118	Amerex	20#	ABC	1	Shale silo - kiln feed belts		
126	97294129	Amerex	20#	ABC	1	Shale silo - weigh feeders		
127	97292379	Amerex	20#	ABC	1	331 & 332 fans		
128	97292380	Amerex	20#	ABC	1	BC60& Transfer belt pad		
129	97292376	Amerex	20#	ABC	1	BC60& Transfer belt upper platform		
130	99893246	Amerex	5#	ABC	1	DDOP analyzer room		
131	97294130	Amerex	20#	ABC	1	APC Tower level 1		
132	97294110	Amerex	20#	ABC	1	Tower level 1 North side		
133	97294127	Amerex	20#	ABC	1	APC Tower level 2		
134	G00034003	Amerex	20#	ABC	1	Tower level 2 West end		
135	97294128	Amerex	20#	ABC	1	APC Tower level 3		
136	97294134	Amerex	20#	ABC	1	Tower level 3 West end		
137	99893243	Amerex	5#	ABC	1	Level 3 CEM analyzer room		
138	97294135	Amerex	20#	ABC	1	Tower level 3 East end		
139	G00034013	Amerex	20#	ABC	1	APC Tower level 4		
140	97294133	Amerex	20#	ABC	1	Tower level 4 North end		
141	97294124	Amerex	20#	ABC	1	Tower level 4 West end		
142	G00034002	Amerex	20#	ABC	1	APC Tower level 5		
143	G00034001	Amerex	20#	ABC	1	Tower level 5 North end		
144	G00033998	Amerex	20#	ABC	1	Tower level 5 Northwest end		
145	97294134	Amerex	20#	ABC	1	Tower level 5 Southwest end		
146	97294125	Amerex	20#	ABC	1	APC Tower level 6		
147	97294122	Amerex	20#	ABC	1	APC Tower level 7		
148	97294123	Amerex	20#	ABC	1	Tower level 7 East end		
149	97294121	Amerex	20#	ABC	1	Tower level 7 North end		
150	G00034008	Amerex	20#	ABC	1	Tower level 7 West end baghouse		
151	97294132	Amerex	20#	ABC	1	Tower level 7 BC60 head platform		

SECURITY AND INSPECTION PLAN

NORLITE LLC

COHOES, NEW YORK

NYD080469935

PREPARED BY:

NORLITE LLC

628 SOUTH SARATOGA STREET

COHOES, NEW YORK 12047

June 2020

SECURITY AND INSPECTION PLAN

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1.0 INTRODUCTION

This Security and Inspection Plan (SIP) was developed by Norlite LLC for the Norlite facility hereafter referred to as the "Facility." This Plan provides a description of the equipment and procedures in place to prevent unknowing or unauthorized entry of persons or livestock onto active portions of the hazardous waste management areas along with inspection procedures to identify and prevent system malfunction, equipment deterioration, and human error.

When changes in the facility, operations, or equipment occur, the Operations Manager or designee will revise the inspection schedules and/or criteria contained in this plan. The requirements for making changes and/or revisions to this document are provided in Condition D of Module I.

2.0 SECURITY PROCEDURES AN EQUIPMENT

To comply with 6 NYCRR Part 373-2.2(f)(1), Norlite employs personnel who provide security coverage Monday through Friday from 6AM to 10PM at the main plant entrance (Elm Street). The main entrance is closed on Saturdays, Sundays, and holidays. Access to the second plant entrance, at Saratoga Street, is controlled by a Key Card activated security gate. Norlite personnel monitor the active portion of the facility and its operating conditions 24- hours per day, 365 days per year.

Norlite LLC complies with the security provisions of 6 NYCRR 373-2.2(f) as outlined below.

The following paragraphs describe applicable aspects of the plant security system.

2.1 24-Hour Surveillance System

Norlite operates its facility 24-hours per day, 365 days per year. During periods of normal kiln operation, at least three employees are on duty at the site at all times. Ample lighting is provided throughout Norlite's facility except for the quarry area which does not contain hazardous waste, and which does not operate at night. In addition, most plant areas are connected to an internal telephone system which is also used for communications outside the plant. During periods the kilns are not operated, at least one employee is on duty at the site at all times. Norlite employees conduct periodic inspections of the active portion of the facility.

2.2 Barrier and Means to Control Entry

Due to the large area of the site (200 acres), a facility security fence is not practical. However, Norlite has installed a security fence to control entry to the hazardous waste storage area which includes the drum storage, bulk storage, and loading/unloading areas. Norlite has installed a fence on the south end of the facility from the south gate to the quarry. The security fence is a six foot high chain link fence with 2" mesh size and a barbed wire topper. The chain link is buried.

The kiln area will not be provided with a security fence. However, this area is continuously monitored by Norlite personnel, to prevent unauthorized access.

Fenced areas will remain locked at all times except during periods of loading and unloading. During these times, Norlite personnel will be in attendance.

Employees are provided with key cards to gain access to the facility from South Saratoga Street. Guests who arrive from South Saratoga Street must contact the office from outside the gate using the intercom system that is provided. The gate is monitored by closed circuit video so the office personnel can visually observe the traffic. Employees and Guests may enter on the south side of the facility by way of Elm Street. This gate is secured by a manned guard shack and controlled access is possible 24-hours per day.

2.3 Warning Signs

Signs which are legible from a distance of 25 feet are posted at the entrance of the active portion of the Norlite facility, as well as the Liquid Low Grade Fuel (LLGF) storage tank area, drum storage area, unloading area, and the kiln area. These signs are visible from all angles of approach, and bear the legend **"DANGER - UNAUTHORIZED PERSONNEL KEEP OUT'** and **"No Smoking".**

2.4 Waiver

The provisions of 6 NYCRR Part 373-2.2(f)(1) authorize a waiver from the security provisions of 6 NYCRR Part 373-2.2(f)(2) and (3) if a facility can demonstrate that unknowing or unauthorized persons or livestock would not injure themselves or cause a RCRA violation upon entering the active portion of the facility. Norlite does not request a waiver at this time.

3.0 INSPECTION

Norlite has developed and follows the inspection schedule in accordance with 6 NYCRR Part 373-2.2(g) and as detailed in Section 3.1.

3.1 Inspection Schedule

AREA/EQUIPMENT	SPECIFIC ITEM	TYPES OF PROBLEMS	INSPECTION FREQUENCY
Security Devices	Signs and locks	Removed, Dirty and Knocked Down	Weekly
	Fence and gates	Fallen over, cut, gates functional	Daily
Operating and Structural Equipment	Dikes	Erosion, Cracks, Deterioration	Weekly
	Tank Cover (shale)	Erosion	Weekly
	Ramps	Erosion, Uneven Settlement, Wet Spots	Weekly
	Circulating Pumps	Leaks, Loss of metal thickness, Corrosion	Weekly
	Valves & Piping	Leaks, Packing, Deterioration, Corrosion	Weekly
	Concrete Pads, Holding Area	Cracks, Corrosion, Deterioration	Weekly
	Structural Supports	Corrosion, Looseness	Daily
	Macerating Pump	Leaks, Corrosion	Daily
Container Storage Area	Container Placement & Stacking	Aisle Space and Stacking	Daily
	Sealing of Open Containers	Open Lids or Bungs	Weekly
	Labeling of Container	Improper Identification, Data Missing	Weekly
	Containers	Corrosion, Leaking, Material Defects	Weekly
	Container Pad	Spills, Cracks, Uneven Settling, Wet Spots	Daily
	Dikes	Erosion, Wet Spots, Cracks, Deterioration	Weekly
	Debris & Refuse	Aesthetics, Poor Housekeeping	Weekly
	Warning Signs	Damaged, Missing	Weekly
Loading/Unloading Area	Pad	Spills, Cracks, Uneven Settling, Wet Spots	Daily
	Sealing of Open Containers	Open Lids or Bungs	Daily
	Debris and Refuse	Aesthetics, Poor Housekeeping	Daily
	Labeling of Containers	Improper Identification, Data Missing	Daily
LLGF Storage Building Tanks 100 A, B, C & 200 A, B, C	Concrete Containment	Spills, Cracks, Uneven Settling, Wet Spots, Leaks	Daily
	Piping and Fittings	Corrosion, Leaks, Deterioration	Daily
	Valves	Leaks, Packing, Deterioration	Daily
EQ Tanks 102 A, B	Concrete Containment	Spills, Cracks, Uneven Settling, Wet Spots, Leaks	Daily
	Piping and Fittings	Corrosion, Leaks, Deterioration	Daily
	Valves	Leaks, Packing, Deterioration	Daily

AREA/EQUIPMENT	SPECIFIC ITEM	TYPES OF PROBLEMS	INSPECTION FREQUENCY
Tank Storage and Ancillary Equipment (Tanks 300, 400, 500, 600)	Containment Area	Liquid Build up Due to Tank or Pipe Break	Daily
	Shale Cover	Erosion, Wet Spots, Settling	Daily
	Piping and Fittings	Corrosion, Leaks, Deterioration	Daily
	Valves	Leaks, Packing, Deterioration	Daily
	Debris and Refuse	Aesthetics, Poor Housekeeping	Daily
	Vegetation	Growth	Daily
External Tank	Tank Shell	Integrity Testing	Annual
Interior Tank	Tank Shell	Corrosion, Welds, Leaks, Bulges, Buckles	Annual
Drum Processing Area	Concrete Containment	Spills, Cracks, Uneven Settling, Wet Spots, Leaks	Daily
	Piping and Fittings	Corrosion, Leaks, Deterioration	Daily
	Valves	Leaks, Packing, Deterioration	Daily
Process Monitoring Equipment	LGF Flow Meter	Reading Malfunction	Daily
	Atomization Air Pressure	Reading Malfunction, Compressor	Daily
	Fuel System Panel	Reading Malfunction, Alarm	Daily
	Fuel Oil Leak Detection	Reading Malfunction, Alarm	Daily
	Tank Oxygen Monitor	Reading Malfunction, Alarm	Daily
	O_2/LEL System	Reading Malfunction, Alarm	Daily

3.2 General Inspection Requirements

Permittee complies with 373-2.2 (g) and follows the general inspections outlined below.

This inspection plan is intended to provide a mechanism to identify and prevent system malfunctions, equipment deterioration, and human errors which, if allowed to continue without correction or preventive action may lead to a release of hazardous waste constituents to the environment or create a threat to human health. The performance of periodic and effective inspection is essential if such events are to be prevented. To this end, Norlite has developed procedures for performing inspections so that substandard conditions and practices are identified, and appropriate actions are taken in a timely manner.

The inspection program is implemented by qualified individuals assigned the responsibility to detect any unsafe conditions at the facility and prevent adverse consequences. The designated individuals have the training and authority to: (1) implement the required inspections, (2) perform necessary evaluations and hazard assessments, and (3) recommend appropriate response actions.

Inspections are performed according to pre-determined schedules based on engineering knowledge and operational experience with the systems and processes involved. Each inspection

item has the content and frequency necessary to alert facility personnel prior to development of a serious problem. A trained inspector assesses each item noting any potential malfunction/deterioration of equipment or operator error through regular observation of the processes and procedures. The level of response and its timing is determined by the nature and seriousness of the problem identified – with protection of personnel and the prevention of adverse environmental impact being of paramount concern.

Permittee will remedy any deterioration or malfunction discovered by an inspection as required by 6 NYCRR Part 373-2.2(g)(3). Records of inspections are kept as required by 6 NYCRR Part 373- 2.2(g)(4). Specific inspection schedules for the landfill, container storage areas, tanks, and incinerators are presented in each unit's specific section.

Any deterioration or malfunction of equipment or structures detected during inspection at the facility is remedied on schedule (immediately if necessary) to ensure that the problem does not lead to environmental or human health hazards. Specifically, any leaking container discovered is immediately lifted into an oversized recovery drum and sealed, and any leaked or spilled material is immediately absorbed by vermiculite and/or speedy-dry or managed in another manner acceptable to the Department. The facility's Inspection Log contains appropriate space for recording the date and nature of any repairs or other remedial actions taken in response to problems identified during facility inspections. Refer to the Integrated Contingency Plan (ICP) for description of responses to spills and emergency situations.

The inspection schedules for the facility and its hazardous waste management units are utilized to detect and correct malfunctions and deteriorations, operator errors, and discharges which may cause or may lead to the following:

- Release of hazardous waste constituents to the environment or,
- A threat to human health.

3.3 Types of Problems

The schedules identify the specific types of problems to look for during the inspection (e.g., leaks, deterioration, readings out of specified range, missing items or materials, inoperative equipment, etc.).

3.4 Frequency of Inspection

The schedules include inspection frequency that is based on the rate of possible deterioration of equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or operator error goes undetected between inspections. Areas subject to spills, such as loading and unloading areas, are to be inspected daily when in use.

3.5 Specific Process Inspection Requirements

Inspections of hazardous waste management facilities are the responsibility of the following Norlite personnel (in no order of priority):

1. Compliance Personnel
2. Kiln Field Operator
3. Safety Manager
4. Environmental Manager
5. Fuel Farm Operator
6. Burner Operator

Each person is responsible for regular inspections of various portions of the hazardous waste management facilities and initiation of corrective action if deficiencies are noted. These reports are submitted each day to the Safety Manager, Environmental Manager, Plant Manager, and all facility/supervisors. The Plant Manager has overall responsibility for prevention of hazards.

3.5.1 Kiln Field Operator's Shift LLGF Inspection Report

Three times each night shift, the Kiln Field Operator on duty is required to inspect the LLGF storage area and to record results of each inspection on the "Kiln Field Operator's Shift LLGF Inspection Report" form. Information required on the inspection report includes the Kiln Field Operator's name, date and time of inspection, item of inspection, problems encountered, and observations. A copy of the "Kiln Field Operator's Shift LLGF Inspection Report" is attached to this part as Figure F-1. A file of "Kiln Field Operator's Shift LLGF Inspection Reports" is maintained at the facility and are part of the inspection log.

3.5.2 Fuel Farm Operator's Daily LLGF Inspection Report

Daily, the fuel farm operator on duty is required to inspect the LLGF storage area including containers and LLGF pumps and lines and to record results of each inspection on the "Fuel Farm Operator's Daily LLGF Inspection Report" forms. Information required on the inspection report includes the fuel farm operator's name, date and time of inspection, item of inspection, problems encountered and observations. A copy of the "Fuel Farm Operator's Daily LLGF Inspection Report" is attached to this part as Figure F-2. A file of "Fuel Farm Operator's Daily LLGF Inspection Reports" is maintained at the facility and is part of the inspection log.

3.5.3 Burner Operator's Shift Log

The burner operator on duty is required to inspect the LLGF portion of the rotary kiln operation and to record results of these inspections on the "Burner Shift Log" form. Due to the nature of the burner position and the need to continuously monitor fuel usage, burning zone, temperatures, and overall operation of the rotary kiln (incinerator/energy recovery unit) to produce acceptable lightweight aggregate, the inspections are ongoing with operation of the kiln. Any potential problem will immediately be seen, and corrective action initiated. Information required on the report includes the burner operator's name, date, day, item of inspection, type of problem encountered and observations. A copy of the previous "Burner Operator's Shift Log" is attached to this part as Figure F-3. A file of current "Burner Operator's Shift Logs" is maintained at the facility and is a part of the inspection log.

3.5.4 Weekly Environmental (RCRA) Inspection Report

Weekly, the Compliance Section is required to make a comprehensive inspection of the LLGF storage area including containers, the LLGF pump area, the LLGF building, pipe tunnel, and the kiln burner area. The results of each inspection are recorded on the "Weekly Environmental and LLGF Inspection Report" form. Information required on the inspection report includes the Compliance Representative's name, date and time of inspection, item of inspection, problems encountered and observations. A copy of the "Weekly Environmental and LLGF Inspection Report is attached to the part as Figure F-4. Weekly Environmental and LLGF Inspection Reports are maintained at the facility and are part of the inspection log.

3.5.5 LLGF Tank Inspection Report

Bi-annually, based upon the schedule for tank cleaning, each shale covered bulk LLGF storage tank (i.e. tanks no. 300, 400, 500 and 600) is inspected and tested as described below:

1. Following the removal of tank sludges, each tank is visually inspected for structural integrity particularly noting evidence or signs of potential leaks, buckles, bulges or excessive corrosion.
2. Exposed tank appurtenances such as access ports, nozzles, joints, valves, and piping are inspected for signs of excessive corrosion, plugging, or leaks.
3. If a tank has not undergone integrity testing during the previous 24 months by an independent inspector utilizing the NFPA Publication Number 329 criteria, that tank will be pressure tested in accordance with the protocols outlined in Operations Plan.
4. Each tank shell is tested for thickness determination as described in the Operations Plan.
5. The results of the inspection programs are documented in an inspection report maintained on file at the facility.

On a bi-annual basis, each vertical inside tank is integrity tested utilizing the NFPA Publication Number 329 criteria. The six above ground tanks (i.e. tanks no. 100A, 100B, 100C, 200A, 200B and 200C) and the two equalization tanks (T102A and T102B) will undergo integrity testing once every five years by an independent inspector since they will be visually inspected on a daily basis for leaks. The results of the tests are maintained at the facility and are part of the operating record.

In addition to the RCRA Subpart BB monitoring, an integrity assessment is conducted on the transfer lines from the pumps to the kilns on an annual basis. The results of the tests are maintained at the facility and are part of the operating record.

Also, on an annual basis, the cathodic protection system on the four tanks (Tanks 300, 400, 500, and 600) is confirmed. The results of the tests are maintained at the facility and are part of the operating record.

On a bimonthly basis (i.e., every two months), the sources of impressed current to the cathodic protection system are tested and recorded. The results of the tests are maintained at the facility.

3.5.6 Tanks and Tank Storage Areas

The high-level switches, the level indicators, and the pressure gauges on the tanks are visually inspected daily and measurements are recorded in the Kiln Field Operator's Daily LLGF Inspection Report form. In addition, the secondary containment area surrounding the tank is inspected daily to detect obvious signs of leakage such as wet spots. The results are recorded in the Kiln Field Operator's Daily LLGF Inspection Report form. Also, the aboveground portions of the tanks including the piping, pipe fittings, and valves are inspected daily for deterioration, corrosion, and leakage and the results are recorded in the Kiln Field Operator's Daily LLGF Inspection Report.

3.5.7 Tank Storage and Secondary Containment

In addition to the secondary containment provided by the liners under the outside tanks (300, 400, 500, and 600), the LLGF building used for Tanks 100A, B, C and 200A, B, C, also serves as a tertiary containment system for the outside tanks. In the event that the secondary containment system fills, liquid will overflow through a pipe to the LLGF storage building. The containment volume of this LLGF building is 33,940 gallons. This volume is sufficient to hold the entire contents of any LLGF tank that should fail.

Inspection of secondary containment facilities will be conducted as follows:

Weekly - Containment areas are inspected weekly by the Compliance Section for the items listed in Section 3.1. Details of inspection items are recorded on the "Weekly Environmental (RCRA) Inspection Report" (Figure F-4).

Daily - The secondary containment for loading/unloading areas, container sampling areas and drums stored in the unloading areas will be inspected for any spills.

3.5.8 Container and Container Storage Area

Daily, the containers and container storage area are inspected to ensure proper aisle space, stacking, and closed lids. Weekly, the containers are inspected for proper labeling, leaking, deterioration and corrosion, and the secondary containment system is inspected for various signs of erosion, deterioration, cracks or leakage. Drums stored in the truck unloading area are sorted on pallets to facilitate inspection for leaks. The results are recorded in the "Weekly Environmental (RCRA) Inspection Report."

3.6 Remedial Action

If inspections reveal that non-emergency maintenance is needed, this will be completed as soon as possible to preclude further damage and reduce the need for emergency repairs. If a hazard is imminent or has already occurred, remedial action will be taken immediately. Norlite personnel will notify the appropriate authorities in accordance with the Integrated Contingency Plan and initiate remedial actions. In the event of an emergency involving the release of hazardous constituents to the environment, efforts will be directed towards containing the hazard, removing it, and subsequently decontaminating the affected area.

3.7 Inspection Log

The Permittee records and maintains an Inspection Log containing Daily, Weekly, and Monthly Inspection Log Sheets. Each log sheet includes spaces for identifying the inspector's name and title, and inspection date and time.

All inspection log forms must contain the following information:

a. the inspector's name and title;
b. date and time of the inspection;
c. items inspected;
d. inspection parameters;
e. procedures, structures, and/or equipment inspected;
f. notation of any observations and/or problems;
g. notation of any remedial or corrective actions taken or the schedule for corrective action if cannot be corrected before the next inspection; and
h. date on which the corrective action was completed.

3.8 Records Retention

In accordance with the requirements of 6 NYCRR Parts 373-2.2(g)(4) and 373-2.5(c)(2)(v), inspection records for the Hazardous Waste Management Units (HWMUs) are maintained in the operating record. The inspection logs contain a list of inspection parameters as well as an inspection frequency. On each log sheet, the inspector must note the following information, at a minimum:

- Inspection Date
- Inspection Time
- Inspector
- Deficiencies
- Corrective Actions Taken and Date

The inspection records are retained on site for a minimum period of three years from their last entry.

4.0 GLOSSARY

Term	Definition
6 NYCRR	Title 6 of the New York Codes, Rules and Regulations
40 CFR	Title 40 of the Code of Federal Regulations
A.C.T.	Assess, Correct, Train
EMSI	Environmental Monitoring System Inspection
EWO	Environmental Work Order
HWMU	Hazardous Waste Management Unit
ICP	Integrated Contingency Plan
NACE	National Association of Corrosion Engineers
NFPA	National Fire Protection Act
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OSHA	Occupational Safety and Health Administration
PPE	Personal Protective Equipment
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
SIP	Security and Inspection Plan
SWCI	Surface Water Control Inspection
WCM	Warning Coordination Meteorologist

FIGURES

Figure F-1

KILN FIELD OPERATORS SHIFT REPORT

NAME_____ DATE_____ SHIFT_____

SUPERVISORS SIGNATURE:_____

KILN 1	OIL LEVEL OK	AMOUNT ADDED	SEAL OK
PIER 1 NE			
PIER 1 SE			
PIER 1 NW			
PIER 1 SW			
PIER 2 NE			
PIER 2 SE			
PIER 2 NW			
PIER 2 SW			

NOTE PIER 1 IS DISCHARGE PIER

KILN 2	OIL LEVEL OK	AMOUNT ADDED	SEAL OK
PIER 1 NE			
PIER 1 SE			
PIER 1 NW			
PIER 1 SW			
PIER 2 NE			
PIER 2 SE			
PIER 2 NW			
PIER 2 SW			
PIER 3 NE			
PIER 3 SE			
PIER 3 NW			
PIER 3 SW			

	PIER 1	PIER 2	PIER 3
DO OIL DRUMS NEED TO BE EMPTIED AT KILN 2?			
KILN 1 PIERS CLEAN			
KILN 2 PIERS CLEAN			
KILN 1 TRUNNION DRIP TRAYS CLEAN			
KILN 2 TRUNNION DRIP TRAYS CLEAN			

NAME:_____ DATE:_____ SHIFT:_____

BULL GEAR, PINNION GEAR AND DUST SEAL INSPECTIONS

	KILN 1	KILN 2	
KILN 1 BULL GEAR GREASED AND KILN 2 OIL LEVEL KILN 2 OIL LEVEL CHECKED			WAS OIL ADDED TO KILN2 GEAR
PINION BEARINGS (EAST AND WEST) GREASED			
# OF FEED SEALS MISSING			
# OF DISCHARGE SEALS MISSING			
KILN 1 ANY MAINTENANCE REQUIRED IN THIS AREA			
KILN 2 ANY MAINTENANCE REQUIRED IN THIS AREA			

RAW SHALE BELTS INSPECTION

	KILN 1 FEED	KILN 2 FEED			
SHALE BELTS AND SPLICES IN WORKING CONDITION	YES NO	YES NO			
ROLLERS AND RETURNS IN WORKING CONTITION	YES NO	YES NO			
WIPERS IN PLACE AND IN GOOD CONDITION	YES NO	YES NO			
HEAD PULLEYS AND TAIL PULLEYS GREASED	YES NO	YES NO			
KILN 1 ALL CONVEYOR COVERS AND GUARDS IN PLACE	YES NO	YES NO			
KILN 2 ALL CONVEYOR COVERS AND GUARDS IN PLACE					
ROTARY VALVE- SHALE FEED FOR KILN 1 REPORT CONDITION			ARE GUARDS IN PLACE	YES	NO
ROTARY VALVE- SHALE FEED FOR KILN 2 REPORT CONDITION			ARE GUARDS IN PLACE	YES	NO
ACCURATE FEEDER FOR KILN 1 REPORT CONDITION			ARE GUARDS IN PLACE	YES	NO
ACCDURATE FEEDER FOR KILN 2 REPORT CONDITION			ARE GUARDS IN PLACE	YES	NO
KILN 1 SHALE FEED- IS ANY MAINTENANCE REQUIRED IN THIS AREA					
KILN 2 SHALE FEED- IS ANY MAINTENANCE REQUIRED IN THIS AREA					

NAME:_____ DATE:_____ SHIFT:_____

CLINKER BELTS AND TUNNEL INSPECTION

`

	KILN 1	KILN 2
BELTS AND SPLICES IN GOOD CONDITION	YES NO	YES NO
HEAD PULLEYS AND TAIL PULLEYS GREASED AND GUARDED	YES NO	YES NO
ROLLERS AND RETURN IN GOOD CONDITION AND GUARDED	YES NO	YES NO
WIPERS IN PLACE AND IN GOOD CONDITION	YES NO	YES NO
PUMP IN TUNNEL IN GOOD CONDITION	YES NO	YES NO
WAS PUMP CHANGED OUT ON YOUR SHIFT	YES NO	YES NO
CLINKER BELT WATER SPRAYS	ON OFF	ON OFF
CLINKER BELT HEAD BOX WATER SPRAYS	ON OFF	ON OFF
TUNNEL CLEAN AT START OF SHIFT	YES NO	YES NO
TUNNEL CLEAN AT END OF SHIFT	YES NO	YES NO
ALL CONVEYOR COVERS IN PLACE	YES NO	YES NO
KILN 1 – ANY MAINTENANCE REQUIRED IN THIS AREA		
KILN 2- ANY MAINTENANCE REQUIRED IN THIS AREA		

APC BLOWERS FILTER CHECK

	GCT DUST BIN BLOWER 331.BL580	DUST BIN ARERATION BLOWER 331.BL705	DUST BIN BLOWER SILOS 331.BL715	BAGHOUSE TO GSA BLOWER 331.BL330 K1	BAGHOUSE TO GSA BLOWER 332.BL330
FILTER CHANGED					
FILTER CLEANED OFF					
AREA SWEPT AND FREE OF MATERIAL					

ANY MAITENANCE REQUIRED IN THIS AREA

NAME:_____ DATE:_____ SHIFT:_____

KILN 1 GCT WATER NOZZLES

GCT WATER NOZZLES	NOZZLE 1	NOZZLE 2	NOZZLE 3	NOZZLE 4
WAS NOZZLE CHECKED				
WAS NOZZLE CHANGED				
MAKE SURE AIR AND WATER VALVE ARE WORKING PROPERLY				
ANY MAITENANCE REQUIRED IN THIS AREA				

*MAKE SURE YOU ARE WEARING THE PROPER PPE

KILN 2 GCT WATER NOZZLES

GCT WATER NOZZLES	NOZZLE 1	NOZZLE 2	NOZZLE 3	NOZZLE 4
WAS NOZZLE CHECKED				
WAS NOZZLE CHANGED				
MAKE SURE AIR AND WATER VALVE ARE WORKING PROPERLY				
ANY MAITENANCE REQUIRED IN THIS AREA				

*MAKE SURE YOU ARE WEARING THE PROPER PPE

*HAVE THE CONTROL ROOM OPERATOR OPEN AND CLOSE BOTH VALVES BEFORE CHECKING THE NOZZLES

TRADEBE ROAD TO ZERO		**SUBJECT:** Routine Cooler in-operation Inspection	**CHECKLIST #:** INSPCHK#CLR-001
IN-OPERATION INSPECTION CHECKLIST **COOLER**		**AUTHOR:**	**Page 1 of** 4
		REVISION LEVEL & DATE 1, 03/17/2020	**ORIGINATION DATE:** 03/17/2020
APPROVAL:			
TITLE:			

1. REQUIRED MATERIAL OR EQUIPMENT:

a) Hard hat

b) Safety glasses

c) Gloves

d) Flashlight

2. RESPONSIBILITY

Execution	Kiln Group
Approval	CR Operator

3. FREQUENCY

Once every 24 hours. During the day shift.

4. PROCEDURES:

GREASE SYSTEM			
Task #	*Description*	*OK/NOK?*	*Comment*
1	Cycle grease system (press button on controller) and observe **all** injector pins going up or going down (depending on cycle). **Two employees needed (one to force the cycle and one to observe the injectors)**		
2	Check pressure on reversing valve and record. Target value is 1,500PSI. Pump should build pressure in less than 20 seconds. If pump does not build pressure or it takes longer than 20 seconds, the system will require a more thorough inspection → Contact supervisor		

3	Inspect system for grease leaks / broken lines		
4	Check grease drum level and record. Refill needed?		
5	Confirm settings on grease system are 1 pulse every 60 minutes		
6	Grease crankshaft split bearings (once a shift)		
7	Check grease overflow barrel. If the grease is not contaminated with dust/water/oil transfer it back into the pump grease drum		

UNDER GRATE			
Task #	*Description*	*OK/NOK?*	*Comment*
1	Inspect Compartment 1 and 2 for any excessive fall through or large clinker (1/2" round or larger), flat pieces thinner than 1/4" will fall through normally.		
2	Open disc gates to drain any excessive fall through. It is important to not lock them open. It is always good to have some material in front of the gates to keep the air seal.		
3	Insure that all disc gates to the screws are closed completely and sealing properly.		
4	Look for any hot spots on grates or excessive fall-through		

5	Check for any air leaks in the cooler housing.		
6	Check all screw doors to insure they are sealed.		
7	Listen to screws. Excessive noise can indicate a worn hanger bearing or broken shaft.		

FRONT (PRODUCT) BELT			
Task #	*Description*	*OK/NOK?*	*Comment*
1	Request CCR to open the product belt water spray solenoid valve. Check water spray operation. Set water flow by adjusting manual valve upstream of the solenoid valve		
2	Piezometers → Check air supply to piezometer housing. Drain water from pressure regulator, pressure should be between 2-4 psi on the gauge. Measure temperature of the clinker with a temperature gun and confirm with CCR that reading is correct (+/- 15% is acceptable)		
3	WINTER → Inspect water discharge hose downstream of the solenoid valve. Hose MUST be discharging water at all times to prevent lines from freezing. Adjust manual valve as needed to keep a minimum flow through the pipes		

5. SIGNATURES

Cooler inspected	**Inspected by:**	**Approved by:**
K1		
K2	**Date:**	**Date:**

6. REVISIONS:

Figure F-2

FUEL FARM OPERATOR'S WORKPLACE EXAM INSPECTION REPORT

DATE & TIME: _____ ***INSPECTED BY:*** _____

ITEM	OK / YES	NO	CORRECTIVE ACTION	DATE CORRECTED
LOWER PAD				
Pump 3				
Pump 4				
Pump 5				
Pump 6				
Tank 3 Circulators				
Tank 4 Circulators				
Tank 5 Circulators				
Tank 6 Circulators				
Pipe, Valves, Fittings				
Drip Pans				
Fire Extinguisher (2)				
Housekeeping				
Tank Pressure-300				
Tank Pressure-400				
Tank Pressure-500				
Tank Pressure-600				
Lights				
Containment Condition				
Other Remarks:				
LGF STORAGE BUILDING				
Pump 100A				
Pump 100B				
Pump 100C				
Pump 200A			OPERATIONALLY	OUT OF SERVICE
Pump 200B				
Pump 200C				
Pipe, Valves, Fittings				
Sump Level				
Fire Extinguisher (2)-Upper Level				
Eye/Body Wash-Upper Level				
Fire blanket (1)-Upper Level				
Fire Extinguishers (2)-Lower Level				
Eye/Body Wash-Lower Level				
Containment Condition				

FUEL FARM OPERATOR'S WORKPLACE EXAM INSPECTION REPORT

DATE: _____ ***INSPECTED BY:*** _____

ITEM	OK / YES	NO	CORRECTIVE ACTION	DATE CORRECTED
LGF STORAGE BUILDING				
TANK Pressure 100A				
TANK Pressure 100B				
TANK Pressure 100C				
TANK Pressure 200A				
TANK Pressure 200B				
TANK Pressure 200C				
HouseKeeping				
Aisleways Clear				
Lights				
Containment Condition				
Other Remarks:				
GROUNDS				
Fence and Gates				
Signs Maintained				
Trash Cans Empty				
Spill Station				
Travelways Clear				
Lights				
Other Remarks:				
BREAK ROOM				
Housekeeping				
Free of LGF Hazards				
Other Remarks:				
TANKER STAGING AREA				
Storm Water Removed				
Level On Gauge				
Free of Contamination Leaks				
Other Remarks:				

FUEL FARM OPERATOR'S WORKPLACE EXAM INSPECTION REPORT

DATE: _____ ***INSPECTED BY:*** _____

ITEM	OK / YES	NO	CORRECTIVE ACTION	DATE CORRECTED
OFFLOADING PAD				
Pump 104				
Pump 204				
Fuel Oil Pump 107				
Muffin Monsters				
Offloading Filters				
Hoses				
Housekeeping				
Hazard Drums (# of)				
Non Hazardous Drums (# of)				
Fire Extinguisher				
Lights				
Containment Condition				
Other Remarks:				
DRUM STORAGE BLDG.				
Housekeeping				
Hazard Drums (# of)				
Non Hazardous Drums (# of)				
Fire Extinguisher (3)				
Fire Blanket (1)				
Eye/Body Wash				
Proper Aisle Space				
Proper Stacking				
Proper Labeling				
Lights				
Containment Condition				
Other Remarks:				
FUEL OIL TANK AREA				
Housekeeping				
East Pump				
West Pump				
Pipe, Valves, Fittings				
Fire Extinguisher (1)				
Lights				
Other Remarks:				

FUEL FARM OPERATOR'S WORKPLACE EXAM INSPECTION REPORT

DATE: _____ ***INSPECTED BY:*** _____

ITEM	OK / YES	NO	CORRECTIVE ACTION	DATE CORRECTED
UTILITY BUILDING OUTSIDE				
Fire Extinguisher (2)				
Lights				
UTILITY BUILDING-BOILER ROOM				
Housekeeping				
Boilers				
Pressure Washer				
Other Remarks:				
UTILITY BUILDING - MCC ROOM				
Housekeeping				
All Electrical Covers Closed				
Fire System Panel				
Fuel Oil Leak Detector				
Tank Oxygen Monitor				
02/LEL System				
Other Remarks:				
UTILITY BUILDING-FIRE SYSTEM ROOM				
Housekeeping				
Other Remarks:				
OTHER				
Other Remarks:				

Figure F-3

BURNER OPERATORS LOG

KILN _____ *BURNER* _____ *SHIFT* A B C D *DATE* ____/____/____

	KILN											COOLER				
TIME	CLINKER WT	FEEDER SETTING	STONE TEMP 0 F	FLAME TEMP F	BACKEND TEMP 0 F	KILN HOOD PRESSURE "WC	LGF GPM	WASTE OIL GPM	NATURAL GAS	SPEC OIL GPM	ATOM AIR PSI	COOLER SPEED	EAST COOLER FAN	WEST COOLER FAN	FRONT BARRON SPEED	
19:00	LBS	TPH														
20:00																
21:00																
22:00																
23:00																
0:00																
1:00																
2:00																
3:00																
4:00																
5:00																
6:00																

	SCRUBBER									BAGHOUSE/HEAT EXCHANGER						
TIME	QUENCH TEMP 0 F	pH	RECYCLE FLOW GPM	VENTURI D.P. "WC"	DUCON D.P. "WC"	I.D.FAN AMPS	I.D.FAN SPEED	BLOWDOWN FLOW (gpm)	OPTICAL FLOW SENSOR (scfm)	INLET TEMP ° F	DIFF PSI "WC"	OXYGEN %	CO CNT PPM	LIME FEED ON/OFF	HX EXIT TEMP ° F	DILUTION DAMPER %
19:00																
20:00																
21:00																
22:00																
23:00																
0:00																
1:00																
2:00																
3:00																
4:00																
5:00																
6:00																

KILN RAW SHALE	END		FRONT BELT SCALE	END		**AVERAGE WEIGHT**	**REMARKS**
	START			START			
	TOTAL			TOTAL			

DRAFT

Figure F-4

WEEKLY ENVIRONMENTAL (RCRA) INSPECTION REPORT

Date & Time: _____ **Inspector(s):** _____

Area: Fuel Farm **Supervisor(s):** _____

Attention Supervisor- You are required to review and correct this list. Completed form must be returned to the Compliance Dept. for filing (Permit Required).

ITEM	ACCEPTABLE[1] YES	ACCEPTABLE[1] NO	STATUS (or OBSERVATION)[2]	DATE & EXPLANATION OF ACTION TAKEN
A. PUMP PAD - TANKS 3 & 4				
A1. Secondary Containment				
A2. Drip Pans				
A3. Housekeeping				
A4. Pumps				
A5. Valves				
A6. Piping / Fittings				
A7. Fire Extinguisher (1)				
B. PUMP PAD - TANKS 5 & 6				
B1. Secondary Containment				
B2. Drip Pans				
B3. Housekeeping				
B4. Pumps				
B5. Valves				
B6. Piping / Fittings				
B7. Fire Extinguisher (1)				
C. TANKS 3-6 GROUND COVER				
C1. Vegetation				
C2. Erosion				
C3. Housekeeping				
D. SECURITY				
D1. Fencing				
D2. Signs and Locks				
E. CONTAINER STORAGE AREA			Unloading Pad / Drum Room / IN USE	
E1. # of Non-haz drums				
E2. # of Haz Drums				
E3. (Max. 267 haz drums)				
E4. Corrosion/Leakage				
E5. Drainage				
E6. Container Pad				
E7. Housekeeping				
E8. Signs / Labeling				
E9. Fire Extinguishers (3)				
F. TANKER UNLOADING AREA #1 (north)				
F1. Concrete Pad				
F2. Pumps				
F3. Piping / Fittings				
F4. Valves				
F5. Safety Shower (1)				
F6. Housekeeping				
Fa. TANKER UNLOADING AREA #2				
Fa1. Concrete Pad				
Fa2. Pumps				
Fa3. Piping / Fittings				
Fa4. Valves				
Fa5. Housekeeping				
G. TANKER STAGING AREA				
G1. Spills/Stains on Ground				
G2. Condition of Contained Water				
G3. Housekeeping				

[1] Note: If both YES and NO are checked, the item is considered to be marginally acceptable.

[2] If an item is acceptable (only YES checked) an entered observation does not imply a need for corrective action.

WEEKLY ENVIRONMENTAL (RCRA) INSPECTION REPORT

Date & Time: _____ **Inspector(s):** _____

Area: **Fuel Farm** **Supervisor(s):** _____

Attention Supervisor- You are required to review and correct this list. Completed form must be returned to the Compliance Dept. for filing (Permit Required).

ITEM	ACCEPTABLE[1] YES	ACCEPTABLE[1] NO	STATUS (or OBSERVATION)[2]	DATE & EXPLANATION OF ACTION TAKEN
H. ROLL-OFF CONTAINERS				
H1. Condition of Containers				
H2. Absence of Spills				
H3. Covered				
H4. Labels				
H5. Haz. Quantity (Max 160 cu yds.)				
I. LGF STORAGE BUILDING				
I1. Tank 100A				
I2. Tank 100B				
I3. Tank 100C				
I4. Tank 200A				
I5. Tank 200B				
I6. Tank 200C				
I7. Pump 100A				
I8. Pump 100B				
I9. Pump 100C				
I10. Pump 200A				
I11. Pump 200B				
I12. Pump 200C				
I13. Grated Trench & Sump				
I14. Secondary Containment				
I15. Housekeeping				
I16. Pipes, Valves, & Fittings				
I17. Fire Extinguishers (5)				
I18. Safety Shower (outside bldg.)				
J. LGF PIPE BRIDGE & TUNNEL				
J1. Piping / Fittings				
J2. Fire Extinguishers (3)				
J3. Safety Showers (2)				
J4. Housekeeping				
K. FUEL OIL STORAGE TANK AREA				
K1. Physical Condition of Tank				
K2. Cracks, Corrosion, Thinning?				
K3. Pipes, Valves, & Pumps				
K4. Housing & Foundation Integrity				
K5. Housekeeping				
K6. Leak detection devices (located in utility building)				
K7. Fire Extinguishers (2)				
Ka. F, M, R TANKS				
Ka1. Condition of Tanks				
Ka2. Cracks, Corrosion, Thinning?				
Ka3. Pipes, Valves, & Pumps				
Ka4. Containment Condition				
Ka5. Housekeeping				
COMMENTS:				
*** (NVL) - No Visible Leaking**				

[1] Note: If both YES and NO are checked, the item is considered to be marginally acceptable.

[2] If an item is acceptable (only YES checked) an entered observation does not imply a need for corrective action.

WEEKLY ENVIRONMENTAL (RCRA) INSPECTION REPORT

Date & Time: _____ **Inspector(s):** _____

Area: Kiln Area **Supervisor(s):** _____

Attention Supervisor(s)- You form must be returned to the Compliance Dept. for filing. (Permit Required)

ITEM	ACCEPTABLE[1] YES		NO		STATUS (or OBSERVATION)[2]	DATE & EXPLANATION OF ACTION TAKEN
L. BAGHOUSE	**K1**	**K2**	**K1**	**K2**		
L1. Structure Integrity						
L2. Piping/Fittings						
L3. Housekeeping						
M. SCRUBBER BUILDING	**K1**	**K2**	**K1**	**K2**		
M1. Containment Area						
M2. Pumps						
M3. Piping/Fittings						
M4. Valves						
M5. Housekeeping						
M6. **SWMU 12** (asphalt cap)						
N. KILN	**K1**	**K2**	**K1**	**K2**		
N1. Backend Seal						
N2. No Dust or Emissions?						
N3. Trunnions						
N4. Not Leaking Oil on Ground?						
N5. Drip Pans in use? (if needed)						
N6. Shell						
O. BURNER FLOOR AREA	**K1**	**K2**	**K1**	**K2**		
O1. Piping, Fittings, & Valves						
O2. Pumps						
O3. Fire Extinguishers (1 ea. area)						
O4. Safety Shower (removed)						
O5. Housekeeping						
P. EXTRUDER ROOM						
P1. Housekeeping						
P2. Piping/Fittings						
P3. Drums						
P4. Number of Haz. Drums	**n/a**					
P5. Number of Non-Haz Drums	**n/a**					
Q. EQUALIZATION TANKS						
Q1. Tank 101A						
Q2. Tank 101B						
Q3. Tank 102A						
Q4. Tank 102B						
COMMENTS:						

[1] Note: If both YES and NO are checked, the item is considered to be marginally acceptable.

[2] If an item is acceptable (only YES checked) an entered observation does not imply a need for corrective action.

WEEKLY ENVIRONMENTAL (RCRA) INSPECTION REPORT

Date & Time: _____ **Inspector(s):** _____

Area: Kiln Area **Supervisor(s):** _____

Attention Supervisor(s)- You are required to review and correct this list. Completed form must be returned to the Compliance Dept. for filing. (Permit Required)

ITEM	ACCEPTABLE[1] YES	ACCEPTABLE[1] NO	STATUS (or OBSERVATION)[2]	DATE & EXPLANATION OF ACTION TAKEN
R. EQUALIZATION AREA				
R1. Sump in Basement				
R2. Secondary Containment				
R3. Pumps & Valves				
R4. Safety Shower (1)				
R5. Piping/Fittings				
R6. Fire Extinguishers (4)				
R7. Housekeeping				
R8. Drum Storage Area (<55 gals.)				
S. TUNNEL FIRE/LEL/O2 MONITOR AND CONTROL SYSTEM (located in k1 control room)				
S1. Fire Protection Device				
S2. Smoke Detector				
S3. Oxygen and LEL Monitors				
S4. Automated AFFF System				
S5. Latest Calibration (Quarterly):				
T. KILN #1 GAS ROOM				
T1. Piping/Fittings				
T2. Housekeeping				
T3. Containment Pad				
U.				
V. DUST STORAGE SILOS				
V1. External Condition				
V2. Absence of Spills				
V3. Pipings/Fittings				
V4. Bag Vent Functional				
COMMENTS:				

Date & Time: _____ **Inspector(s):** _____

Area: Laboratory **Supervisor(s):**

ITEM	ACCEPTABLE[1] YES	ACCEPTABLE[1] NO	STATUS (or OBSERVATION)[2]	ACTION
W. LABORATORY				
W1. Condition of Containers				
W2. Condition of Labels				
W3. Absence of Spills / Leaks				

Date & Time: _____ **Inspector(s):** _____

Area:

ITEM	ACCEPTABLE[1] YES	ACCEPTABLE[1] NO	STATUS (or OBSERVATION)[2]	ACTION
X. UNIVERSAL WASTE STORAGE				
X1. Containers Labeled / Dated				
X2. Containers Closed				

[1] Note: If both YES and NO are checked, the item is considered to be marginally acceptable.

[2] If an item is acceptable (only YES checked) an entered observation does not imply a need for corrective action.

Production Manager _____ Laboratory Manager _____

Plant Manager _____ Fuel Farm Manager _____

Inspector _____

PERSONNEL TRAINING PLAN

NORLITE LLC
COHOES, NEW YORK
NYD080469935

PREPARED FOR:

NORLITE LLC
628 SOUTH SARATOGA STREET
COHOES, NEW YORK 12047

PREPARED BY:

NORLITE LLC
628 SOUTH SARATOGA STREET
COHOES, NEW YORK 12047

June 2020

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PERSONNEL TRAINING PLAN

1.0 OUTLINE OF TRAINING PROGRAM

The purpose of this Personnel Training Plan is to describe the facility's training program for all personnel whose job responsibilities include hazardous waste management to ensure compliance with the requirements of 6 NYCRR Part 373-2.2(h). This Personnel Training Plan is incorporated by reference into the Part 373 Permit for the Norlite LLC facility. In the event that changes are made to the facility that affect the content of this plan, this plan will be updated in accordance with the requirements of Condition D of Module 1.

1.1 Job Titles and Duties

The following positions at the facility are related to hazardous waste management:

Job Title	Duties/Description
Plant Manager	Responsible for all Norlite's Operations Supervises the development and technical support of the LLGF Program Supervises Section Managers Interact with regulatory agencies and technical consultants Member of Safety and BMP Committees Keep abreast of regulatory changes Emergency Coordinator
Plant Engineer	Supervises or performs professional engineering for the LLGF Program Researches and provides specifications for replacement and new facility equipment Writes and/or reviews technical engineering reports Interprets and applies federal, state, and local laws when applying professional engineering principles and practices. Emergency Coordinator

Environmental Manager	Coordinate all environmental compliance activities Keep abreast of regulatory changes Member of Safety and BMP Committees Interacts with regulatory agencies and technical consultants Assists with safety and regulatory training Emergency Coordinator
Safety Manager	Coordinates and maintains overall facility safety programs Coordinates training of all personnel with regards to hazardous waste operations Maintains personnel training records Coordinates medical surveillance program Member of Safety and BMP Committees Emergency Coordinator
Maintenance Manager	Develop and implement a preventative maintenance plan Planning, organizing, and directing plant maintenance and repair work Supervise plant technicians Inspects and evaluates mechanical and electrical components of facility
Thermal Operator	Supervise Kiln Field Operators, Burner Operators, Wastewater Treatment Plant Operator, and Mechanics Member of Safety and BMP Committees Conducts daily inspections of Fuel Farm and Kiln areas Completes security checks of facility Designated Emergency Contact
Lab Manager	Responsible for all laboratory operations Communicates with all departments within the facility and scheduling of laboratory responsibilities Supervises Lab Technicians Member of Safety and BMP Committees
Lab Technician	Provides all analytical support for the lab Daily maintenance and cleaning of lab instrumentation
Fuel Farm Manager	Supervises LLGF unloading/transfer operations Coordinates drum processing activities Responsible for overall housekeeping activities in Fuel Farm area
Kiln Field Operator	Assist Burner Operator with kiln operations Daily maintenance of kiln equipment
Burner Operator	Responsible for kiln operating within all parameters of Automatic Waste Feed Cut Off System (AWFCO) Responsible for production of lightweight aggregate
Mechanic	Maintain, repair, and overhaul facility equipment.

*Please note that actual HR titles may differ slightly than listed below, however the job description and responsibilities will be covered. Furthermore, more than one position can be covered by the same individual.

Personnel will complete introductory training relevant to their job title/position within six months of their employment or assignment to a new position. Employees will not work in unsupervised positions until they have completed the training required for their respective position.

Personnel take part in continuing education (refresher) training annually relevant to their job title/position.

1.2 Relevance of Training to Job Position

All employees working within regulated areas of the plant will undergo initial, specialized, specific and periodic training programs, depending upon their job positions. This will be accomplished through a combination of classroom, hands-on, and specific on-the-job training and qualifications, to ensure compliance with 6 NYCRR Part 373-2.2(h)(1)(i), as it is relevant to their positions. Supervisors and managers will attend training sessions on proper handling and management of hazardous waste materials. A qualified instructor, as per 6 NYCRR Part 373-2.2(h)(1)(ii) will conduct all training programs. Training sessions are designed to cover safety, compliance and health procedures related to activities and procedures at this facility, and follow the requirements of 29 CFR, 30 CFR, 40 CFR, 49 CFR, and 6 NYCRR Part 373-2.2(h)(1)(iii), as they apply to the Norlite facility.

Training occurs both on and off-site. Programs may be completed in a classroom or be internet-based. The general topics included are:

Orientation	A 20-minute video overview of basic plant operations and safety regulations. Completed during the first day of employment. A requirement for all individuals working at the facility.
Initial Health & Safety	Classroom and practical training covering safety and regulatory requirements for working within a mining and a TSD/RCRA facility. This is conducted prior to working without direct supervision and is a conducted only upon initial employment.
Initial Supervisory	Classroom and practical training to be given after initial health & Safety training. It is designed for supervisory personnel to ensure compliance with RCRA regulations, including compliance, emergency response, and review of the contingency plan.
Emergency Response	Classroom and practical training designed to prepare individuals to properly report and handle releases of hazardous materials and other emergencies. A refresher is completed annually.
Standard Operating Procedures	Classroom and practical training covering standard operating procedures (SOP's) relevant to the job titles and duties. This is conducted during initial training and will be updated as needed.
CPR/First Aid	Classroom and practical training covering CPR and first aid for personnel responding to a medical emergency. Refresher training is conducted every two years or as required.
Health & Safety Refresher	Classroom and practical training serving as a "refresher" to initial health & safety training. Basic safety procedures are reviewed in addition to covering any new regulations or procedures. This is

completed annually.

DOT — Classroom training covering proper labeling, handling, shipping, and transportation of hazardous materials. Refresher training is given annually.

1.3 Training Content, Frequency, and Techniques

The facility's training programs consist of a combination initial, annual, and biennial, and recurrent training programs for personnel relevant to their job title/position as outlined in the regulatory training matrix. The training programs consist of a combination of classroom instruction, on-the-job training and qualifications including instruction on hazardous waste management procedures to enable employees to responsibly perform their job-specific duties. In addition, the training programs are designed to ensure that facility personnel are familiar with the implementation of the facility's Integrated Contingency Plan and are able to respond effectively to emergencies.

Facility personnel successfully complete the training required for their job-specific position within six months after the date of their employment or assignment to the facility. Employees are not allowed to work in unsupervised positions until they have completed the training required for their position. Facility personnel take part in an annual review of the initial training relevant to their position.

An outline of the training programs is provided in Exhibit A of this Personnel Training Plan.

1.4 Training for Emergency Response

At least twenty (20) plant employees will be trained in response to spills in order to mitigate groundwater contamination. These individuals will only respond after training is completed. Each will be trained at the appropriate level of response and will participate in refresher training. Emergency response training is described in the Training Outline in Exhibit A.

1.5 Training Manager

The National Training Manager is responsible for overseeing the design and implementation of the training program. At the completion of initial training and each annual course, an authorized delegate of the National Training Manager certifies that each employee has successfully completed the program. Training may also be conducted by other internal EH&S Representatives, qualified training staff and reputable outside firms experienced in the appropriate training courses (HAZWOPER, DOT, etc).

2.0 IMPLEMENTATION OF TRAINING PROGRAM

All current employees of the facility have been fully trained. All future employees will complete their training within 6 months of their employment or assignment to any hazardous waste emergency response function or hazardous waste management activity. New employees are not permitted to work unsupervised until they have completed the training program.

The Training Manager maintains required training records and shall make them available to the Department upon request. These files identify the employee name, job title, and years of service and include copies of certificates documenting successful completion of training courses.

Norlite LLC will maintain the following records at the facility for each position related to hazardous waste management:

- Job titles and names of employees filling each job position;
- Written job descriptions;
- Written description of type and amount of training given to each position;
- Documentation that training has been given to and completed by facility personnel, both for initial training and the subsequent refreshers; and
- Records that document that the training has been given to, and completed by, facility personnel.

Training records will be maintained for current personnel until closure of the facility. Training records for former personnel will be kept for a minimum of three years after the last date of employment.

3.0 GLOSSARY

Term	Definition
6 NYCRR	Title 6 of the New York Codes, Rules and Regulations
DOT	United States Department of Transportation
HAZCOM	**HAZ**ard **COM**munication
HazMat	Hazardous Materials
HAZWOPER	**HAZ**ardous Waste **OP**erations and Emergency Response
ICP	Integrated Contingency Plan
LDR	Land Disposal Restriction
LP	Liquid Propane
MSDS	Material Safety Data Sheets
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OSHA	Occupational Safety and Health Administration
PPE	Personal Protective Equipment
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
TSCA	Toxic Substances Control Act

Exhibit A

Outline for Introductory Training Program

- **a. Occupational Safety and Health Administration (OSHA) HAZardous Waste OPerations and Emergency Response (HAZWOPER)**
  - i. Worker protection regulations (OSHA 1910.120)
  - ii. Safety Considerations/Principles
  - iii. Hazard Recognition and Evaluation
  - iv. Chemical Hazards
  - v. Terminology
  - vi. Toxicology
  - vii. Hazard Communication
  - viii. Personal Protection Equipment
    - 1. Levels of protection
    - 2. Respiratory protection
    - 3. Protective clothing
  - ix. Drum Handling Procedure
  - x. Emergency Response
- **b. Resource Conservation and Recovery Act (RCRA)**
  - i. Regulatory History
  - ii. Laws and Regulations Governing Hazardous Waste Management
  - iii. Hazardous Waste Identification
    - 1. Listings
    - 2. Characteristic codes
    - 3. State codes
  - iv. Paperwork Requirements
- **c. Manifest Training**
  - i. History and Purpose
  - ii. Manifest Fields
  - iii. Discrepancies and Rejections
  - iv. Distribution Summary
  - v. Profile Sheets (Lab Pack and Containerized Waste)
  - vi. Packing Slips
  - vii. Land Disposal Restrictions (LDRs)
  - viii. Exception Reporting
  - ix. Recordkeeping
- **d. United States Department of Transportation (DOT) Hazardous Materials (HazMat) General Awareness**
  - i. Training Requirements
    - 1. Hazmat Employees
    - 2. Training Frequency
  - ii. Hazard Class Definitions
  - iii. Shipping Names
  - iv. Packaging
  - v. Marking/Labeling
  - vi. Shipping Papers
  - vii. Placarding
  - viii. Loading/Segregation

1. Segregation chart
2. Exemptions
3. Handling, loading, unloading, securing and storing hazardous materials

ix. Operating a HazMat vehicle
    1.Reporting issues
    2.Contingency plan

e. Hazardous Materials Security General Awareness

f. DOT HazMat Security Plan-In-Depth

i. Regulatory Requirements
ii. Vulnerability Assessment
iii. Risks
    1.Theft
    2.Hijacking
    3.Materials stored at the facility
iv. Personnel Security
v. Unauthorized Access
vi. En Route Security
vii. Sensitive Communications

g. Facility Orientation

i. Facility History and Permits
    1.History of the facility
    2.Part 373 Permit
    3.Toxic Substances Control Act (TSCA) authorization
ii. Waste Acceptance Procedures
    1.Work sheets
    2.Paperwork approval
    3.Quality Assurance/Quality Control (QA/QC) of waste
    4.Resolution of Discrepancies
iii. Storage of Materials within the Facility
    1.Rack storage
    2.Vault storage for ignitable and reactive wastes
    3.Segregation of incompatible wastes
    4.Liquid propane (LP) storage

h. Safety Orientation

i. Safety Orientation
    1.Introduction
    2.Facility rules
    3.Emergency Action and Fire Prevention Plan
    4.Fire extinguisher awareness
    5.Incident/injury investigation and reporting
ii. Personnel Protective Equipment (PPE)
    1.Eye and face protection
    2.Head protection
    3.Foot protection
    4.Hand protection
    5.Hearing protection
    6.Personal protection levels

iii. Respiratory Protection
iv. Blood borne Pathogens
v. HAZard COMmunication Program (HAZCOM)
    1. Purpose of HAZCOM
    2. Material Safety Data Sheets (MSDSs)
    3. Vendor safety
    4. Labeling
    5. Review of chemicals at facility
vi. Back Safety
vii. Contingency Plan
    1. Emergency and evacuation procedures
    2. Response to fires or explosions
    3. Response to groundwater contamination incidents
    4. Shutdown of operations
    5. Key parameters for automatic waste feed cutoff systems
    6. Location of emergency equipment and PPE
    7. Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment
    8. Emergency Coordinators and notification numbers

B. Outline for Continuing Education Program

a. OSHA 8-Hour Refresher (this course is required annually)

i. Regulatory Update
ii. Hazard Recognition and Evaluation
iii. Review of Levels of Personal Protection
    1. Chemical protective clothing
    2. Respiratory protection
    3. Selection and use

b. Facility Refresher (this course is required annually)

i. Waste Characterization and Identification, Waste Acceptance Procedures,
ii. Commingling Wastes, Segregation of Incompatible Wastes
iii. Emergency Response Procedures / Integrated Contingency Plan Review
iv. Mock Emergency Drill

c. RCRA (this course is required annually)

i. Regulatory Updates
    1. Laws and regulations governing hazardous waste management and disposal
ii. Hazardous Waste Identification
    1. Listings
    2. Characteristic codes
    3. State codes
iii. Paperwork Requirements

Exhibit B

Training Matrix (Norlite)

		Frequency	111021 Plant Manager	111021 Assistant Plant Manager	172111 Health and Safety Coordinator	172111 Health and Safety Manager	111021 Aggregate Production Mgr	111021 Electrical Manager	111021 Environmental Compliance Mgr	111021 Fuel Manager	111021 Lab Env & Compliance Supv	111021 Lab Manager	111021 Maintenance Manager	111021 Ops Mgr -Waste Services	111021 Processing - Engineering	111021 Thermal Operations Manager	173025 Environmental Comp Specialist	173025 Instrument & Electrical Tech	173025 Quality Assurance Officer	192031 Lab Chemist - Entry Level	192031 Sr Instrumentation Chemist III	193021 Instrumentation Chemist - L2	459071 Fuel Farm Mechanic	459071 Mechanic 1	518099 Fuel Farm Laborer	459071 Truck Mechanic	518099 Laborer	518099 Mobil Equipment Operator	518099 Shift Laborer -Kiln	518099 Teamster	518099 Weightmaster	519051 Kiln A Burner	519051 Kiln A Burner - Lead	519051 Trunnions
Regulatory - Environmental	(31) Regulatory - EPA Hazardous Waste Facility	Annual	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
	(32) Regulatory - EPA Hazardous Waste Generator	Annual	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	(33) Regulatory - EPA Universal Waste Handler	One-Time	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	(34) Regulatory - EPA SPCC	Annual	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
	(35) Regulatory - EPA SWPP	Annual	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
Regulatory - General Health & Safety	(100) Regulatory - Asbestos Housekeeping (Awareness)	Annual	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
	(105) Regulatory - Lead Awareness	Annual	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
	(109) Regulatory - Benzene Awareness	One-Time	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	(111) Regulatory - Blood Borne Pathogens	Annual	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
	(118) Regulatory - Methylene Chloride Worker	One-Time	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	(120) Regulatory - Hazard Communication	One-Time	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	(214) Regulatory - Powered Industrial Trucks (Operator Safety Training)	One-Time	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
	(60) Regulatory - Walking-Working Surfaces / Fall Hazards	One-Time	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	(61) Regulatory - Equipment Hazards	One-Time	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	(62) Regulatory - Evacuation & Emergency Action Plan	One-Time	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	(66) Regulatory - Hearing Protectors	One-Time	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	(67) Regulatory - Hearing Conservation Program	Annual																					X		X								
	(68) Regulatory - Process Safety Management	Triennial	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	(71) Regulatory - HAZWOPER Initial - TSDF	One-Time	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
	(78) Regulatory - HAZWOPER Refresher - TSDF	Annual	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
	(84) Regulatory - PPE	One-Time	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	(85) Regulatory - Respiratory Protection	Annual	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	(86) Regulatory - Permit Required Confined Space Entry (Entrant/Attendant)	One-Time	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
	(88) Regulatory - Permit Required Confined Space Entry First Aid/CPR	Biennial	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
	(89) Regulatory - Permit Required Confined Space Entry Simulated Rescue	Annual	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
	(90) Regulatory - LOTO Authorized	One-Time	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
	(91) Regulatory - LOTO Affected	One-Time	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	(92) Regulatory - LOTO Other	One-Time	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	(93) Regulatory - Fire Extinguishers	Annual	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	(94) Regulatory - Powered Industrial Trucks (Operator Evaluation)	Triennial	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
	(95) Regulatory - Powered Industrial Trucks (Trainer)	One-Time	X	X	X	X	X	X	X				X	X	X	X								X									
	(96) Regulatory - Arc Welding Operator	One-Time						X					X					X						X	X		X						
	(97) Regulatory - Electrical Safety	One-Time	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X		X	X	X	X	X	X	X	X	X	X
	(98) Regulatory - Electrical Qualified	One-Time						X					X					X						X	X								
Regulatory - Transportation	(45) Regulatory - DOT Hazmat Employee	Triennial	X	X	X	X	X		X	X	X	X		X	X	X	X		X	X	X	X				X		X	X	X	X	X	X
	(46) Regulatory - DOT Highway	Triennial	X	X	X	X	X		X	X	X	X		X	X	X	X		X	X	X	X				X		X	X	X	X	X	X

CLOSURE PLAN

NORLITE, LLC
COHOES, NEW YORK
NYD080469935

PREPARED FOR:

NORLITE, LLC

628 SOUTH SARATOGA STREET

COHOES, NEW YORK 12047

PREPARED BY:

NORLITE, LLC

628 SOUTH SARATOGA STREETSW

COHOES, NEW YORK 12047

June 2020

CLOSURE PLAN

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Figure 5. Solid Waste Management Units

Attachment 1 Closure Cost Estimate Calculation

Attachment 2 Insurance Certificate

1.0 INTRODUCTION

This Closure Plan was developed by Norlite, LLC for the closure of the Norlite, LLC Facility hereafter referred to as the "Facility." This plan provides a blueprint for the closure of the hazardous waste units subject to closure requirements and ensures the proper disposal of hazardous waste, which could be harmful to human health or the environment if not properly disposed of as a result of Facility closure. The procedures presented in this plan will provide the means for implementing proper Facility closure while minimizing the risk of possible release(s) of hazardous waste or hazardous waste constituents to the environment during and after Facility closure. This Closure Plan is applicable to the closure of the entire Facility, closure of one or more hazardous waste management units (partial closure) and any ancillary equipment associated with the Air Pollution Control (APC) system.

This Closure Plan is Attachment C of the Norlite, LLC Part 373 Permit. In the event that changes are made to the Facility that affect the content of this Plan, this Plan will be updated in accordance with the requirements of Condition D of Module I of the Facility's Part 373 Permit.

As described in the Operations Plan, the Facility consists of the two (2) lightweight aggregate kilns (LWAKs) and associated air pollution control equipment, tank farm for the storage of liquid low grade fuel (LLGF) and container storage area.

The final volume of hazardous waste from each of the hazardous waste management unit(s) (HWMU) can be processed and managed in the same manner in which wastes were processed and managed during the active life of the Facility. The wastes in inventory can be blended and disposed or shipped off-site to an alternate approved facility.

The HWMUs will be appropriately decontaminated, and decontamination fluids and wastewater residues, if possible, will be processed and managed on-site. If this is not possible, the material will be treated/disposed off-site at an approved authorized landfill or alternate approved facility.

Closure by third-party contractors would become necessary if the Facility could not process the wastes in inventory on-site and could not perform Facility decontamination measures. Closure cost estimates have been developed to reflect third-party, off-site processing, treatment, and/or disposal of all waste inventories and all waste generated during closure.

Final volumes of waste inventory will be removed from storage/treatment tanks and from container storage areas by qualified personnel. These wastes will be transported to third-party waste management facilities or recyclers. Storage/treatment tanks will be decontaminated by flushing with an appropriate decontamination fluid, which will be collected. This rinsate can be analyzed, sampled, or characterized by using previous knowledge of the waste for purposes of off-site reuse or disposal. HWMUs will be inspected to determine whether any releases have occurred.

The standard operating procedures utilized at the Facility are designed to minimize the possibility of spills resulting from the storage and management of hazardous waste. Personnel involved in the operation of these areas have received appropriate training to familiarize themselves with the dangers inherent in improper handling of the materials being stored and to instruct them in the proper procedures for containment and cleanup in the unlikely event that a spill should occur.

If closure of the hazardous waste energy recovery operations occurs in accordance with the procedures outlined, Norlite may continue to operate the kilns using non-waste fuel. Thus, dismantling or demolition of the aggregate kilns and their ancillary equipment (i.e., APC equipment, etc.) would not be included in the final closure procedures; however, for the Closure Plan, closure costs include a worst-case scenario as described in 5.3.3.2.

2.0 CLOSURE PERFORMANCE STANDARD

The Facility generates and temporarily stores hazardous waste. This Closure Plan, developed for the Facility, includes:

- Cessation of associated hazardous waste flow
- Disposal of remaining hazardous waste
- Decontamination of Facility equipment
- Disposal of Facility equipment if needed (considered for partial closure)

These procedures meet the Closure Performance Standard which requires that closure:

- minimizes the need for further maintenance;
- controls, minimizes or eliminates releases, to the extent necessary to protect human health and the environment, post-closure escape of hazardous wastes, hazardous waste constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the groundwater, surface water, or to the atmosphere; and
- complies with the closure requirements of 6 NYCRR Subpart 372-2, including but not limited to the requirements of 373-2.9(i), 373-2.1 O(h), 373-2.11(t), 373-2.12(h), 373-2.13(h), 373-2.14(g), 373-2.1 S(h), 373-2.24(b), (c) and (d), and 373-2.30(c).

3.0 CONTENT OF PLAN

Currently, there are no definite plans to close the Facility (or any portion thereof) in the near future. Partial closure procedures may need to be followed during any decommissioning of ancillary equipment and will follow procedures outlined in section 3.3 and section 5 of this Closure Plan. Since the Facility is a commercial hazardous waste treatment facility, hazardous wastes are constantly brought to the site for treatment as fuel.

During closure or partial closure, inventories will be stored and/or processed on-site or at an off-site facility by methods discussed in subsequent sections.

Based on future use (i.e. sold, salvaged), the treatment/storage unit(s) can be cleaned/decontaminated. If it is required, the unit(s) may be disconnected and/or dismantled once inventory has been removed from them.

Upon closure, if any changes to the Closure Plan are necessary, the Facility will submit a written request for a permit modification to authorize a change in the approved Closure Plan in accordance with 6 NYCRR Part 373-2.7(c)(3).

3.1 Waste Inventory at Closure

The potential maximum inventory of waste contained in Table A is assumed to be the amount in storage at the time of closure. Assumed maximum waste inventory at the time of closure is based strictly on the permitted capacity of the hazardous waste storage units.

TABLE A

STORAGE UNIT NAME	**MAXIMUM INVENTORY – Worst Case**
LLGF Processing Building	10,450 gallons in 190 55-gallon drum equivalents (see 5.3.1 for sizes)
Truck Unloading Area #1	4,785 gallons in 87 55-gallon drum equivalents (see 5.3.1 for sizes)
LLGF Tank Farm	155,579 gallons in 15 Tanks
Tanker Truck & Onsite Roll-off Staging Area	104,000 gallons in 13 8,000-gallon tanker trucks
Kiln 1 and Kiln 2	none
APC Units	300 cubic yards (If not able to be used under Hazardous Waste Beneficial Use Determination [BUD])
Dust Silos	2,000 cubic yards (If not able to be used under Hazardous Waste BUD)

3.2 Notification of Closure

Norlite, LLC shall notify the Commissioner of the New York State Department of Environmental Conservation (NYSDEC) at least 45 days prior to the date that closure of any permitted hazardous waste storage unit is anticipated to initiate.

3.3 Verification of Decontamination

Upon completion of the decontamination activities as described under 5.3 Decontamination Procedures, the effectiveness of the decontamination procedure will be determined by collecting a final rinse that will provide confirmation that cleanup levels have been met. Samples of the final rinsate from each unit undergoing closure will be analyzed for those hazardous constituents identified in the stored wastes. Rinsate samples to be analyzed for metals will be filtered to remove solid particles prior to preserving the samples. Decontamination procedures will be repeated until the cleanup levels are met. (NYSDEC will be contacted if cleanup levels are not met after decontamination procedures are conducted. Further guidance will be requested at that time). The samples will be placed in the appropriate container, labeled and analyzed for the applicable parameters of all wastes previously stored within the respective unit during the unit's entire operational history, (i.e. VOCs, SVOCs, and total RCRA metals [arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver]) and/or in accordance with the Waste Analysis Plan and Quality Assurance/ Quality Control Plan which are incorporated by reference to the Permit Application as separate, stand-alone documents. Sample handling, storage, and chain-of-custody procedures will also be followed as outlined in the permit.

Additional verification of decontamination may be coordinated with the NYSDEC upon written request. Alternate means of verification may be used when the disposal requirements for the discarded material are not as stringent as those required for HWMUs (e.g., ancillary equipment, ducting and APC equipment). Alternate methods may include visual verification, professional engineer (PE) certification or additional analytical as agreed upon with NYSDEC.

3.4 Amendment of Closure Plan

Norlite, LLC will amend this Closure Plan whenever significant changes occur in the operations conducted at the Facility, a modification to the design of the Facility affects the implementation of the Closure Plan, or in conducting partial or final closure activities an unexpected event requires modification(s)of the approved Closure Plan. Also, as required pursuant to 6 NYCRR Part 373-2.7(c)(3), the Closure Plan will be amended when there is a change in the anticipated year of closure.

4.0 TIME ALLOWED FOR CLOSURE

Currently, there are no plans to close the Facility (or any potion thereof) in the near future. However, when the decision to close the Facility is made, the following schedule will be utilized for the closure of the Facility or any individual waste storage unit specified in this Closure Plan:

- Within 90 days of receipt of the final volume of waste, all hazardous waste will be removed from any hazardous waste storage unit designated for closure and transported off-site for proper disposal in accordance with all applicable federal, state and local regulations.
- Within 180 days of receiving the final volume of hazardous waste or following approval of the Closure Plan, if that date is later, all closure activities will be completed.
- Specific to a waste management unit, within 180 days of receiving the final volume of hazardous waste or following approval of the Closure Plan, if that date is later, all closure activities related to hazardous waste storage units will be completed. Waste management units and/or ancillary equipment which has followed the Closure Plan and verified as decontaminated may remain in place until such time as deemed necessary for disposal.

4.1 Extensions for Closure Time

At the time of closure, if an extension is necessary, all applicable procedures will be followed in requesting such an extension within the specified time frames.

5.0 GENERAL CLOSURE ACTIVITIES

Many tasks that will be performed during closure of the Facility are common to different waste management units on-site. This section of the plan will summarize general activities and requirements.

5.1 Inventory

Prior to any closure activities, an inventory of all waste at the Facility will be conducted. The inventory will be performed in order to:

1. Verify that the actual inventory is consistent with the records of reported waste identity and quantities;

    a. Acute Hazardous Waste: Although the Facility is permitted for certain acute hazardous waste, historically, there is little to no acute hazardous waste in inventory at any given time. More commonly, acute hazardous waste codes are present in incoming waste streams by mixture. Norlite, LLC can demonstrate average waste inventory by producing a three-year average inventory report. Therefore, inventory verification will also address any acute hazardous waste present and volumes for disposal consideration.

2. Confirm the integrity of all containers in preparation for inventory removal; and

3. Identify, by visual observation, any potentially contaminated areas.

    a. Any identification of possible contaminated soils or surfaces will result in further evaluation as indicated in section 5.4.

Any potentially contaminated areas will be noted so that additional sampling can be performed in those areas, if warranted.

5.2 Health and Safety

Appropriate precautions will be taken to ensure that closure activities are performed safely and using good industrial hygiene practices. As a result, personnel performing closure are required to have the appropriate Occupational Safety and Health Administration (OSHA) 1910.120 training.

Task appropriate personal protective equipment (PPE) will be provided. If closure activities are performed by Facility personnel, the level of PPE required will be determined by the Site Safety Manager. Contractors are required to determine activity-specific PPE requirements.

Appropriate personnel decontamination procedures will be followed. PPE cleaning solutions associated with closure activities related to specific waste management units will be disposed of appropriately with the decontamination fluids generated from the decontamination of the same unit.

5.3 Decontamination Procedures

Decontamination procedures for the Facility will consist of the following:

General

- All employees are required to wear appropriate PPE while performing the decontamination of the Facility.
- Inspect slab area ancillary process equipment, liquid transfer lines for evidence of leaks, cracks, or other evidence of potential release of contaminants to the environment and document the findings. The exterior and interior surfaces of equipment will be cleaned.
- Before decontamination, all permitted units (i.e., paved areas, concrete pads, containment systems, structures, and sumps) will be visually inspected to identify any cracks, gaps, spills, stains, or damaged areas which may be present. This visual inspection will be documented in the Closure Certification with notations of any identified problems. Any cracks, gaps, or damaged areas will be repaired by grouting or sealing by other means before decontamination is performed.
- As part of the decontamination procedures, the Facility will review the history of reported releases in or around the potentially affected area. Additional decontamination steps may be identified at that time.

Decontamination of paved areas, containment systems, and sumps will include the following steps:

- removing the waste;
- mechanical cleaning (scraping or sweeping);
- visual inspection;
- repair of damaged or unsealed areas;
- low volume, high pressure washing (may include steam or detergent for

more effective cleaning); and

- sampling and analysis of the final rinse for confirmation.

- Waste cleaning solutions/solvent, and decontamination and rinse water generated during any of the closure activities identified above will be collected and pumped into tank trucks or drums characterized for proper management in accordance with the Facility's Waste Analysis Plan.

- Where it is more economical to dispose of the equipment off-site rather than decontaminate on-site, the equipment will be disassembled and shipped for off-site disposal. Sample handling, storage, and chain-of-custody procedures will be followed as outlined in the Facility's Waste Analysis Plan.

5.3.1 Containers

- All hazardous waste in any size of permitted containers (i.e., 5, 15, 30, 55, 85 or 275 gallon container) will be removed from the Facility for proper disposal by a licensed waste hauler in accordance with all applicable federal, state and local regulations or, if the kilns are still burning LLGF, will be managed onsite through the fuel delivery system.

Average Breakdown of Container Sizes on-site

Size (gallons)	% of Total
5	<1
15	<1
30	5
55	85
85	5
275	5

- Any container storage equipment (e.g., forklifts or drum trucks) will be thoroughly cleaned utilizing an appropriate cleaning agent to remove residual solvent. Subsequently, the equipment will be thoroughly washed utilizing a steam cleaner or pressure spray equipment.

- Following removal of the containers/units from the LLGF Processing Building and Truck Unloading Area # 1, the concrete floors and sumps will be carefully inspected for any significant damage or deterioration (such as cracks). Cracks which penetrate the entire depth of the concrete will be marked on a diagram of the area. Sample boring locations will be selectively determined to investigate suspected contamination. Any cracks identified will be caulked or sealed prior to commencing with decontamination. These areas will be thoroughly cleaned utilizing an appropriate cleaning agent to remove residual solvent. Temporary berms will be installed to prevent wash water from discharging from

each area. The concrete pad in each area will be thoroughly washed utilizing a steam cleaner or pressure spray equipment.

Visual inspection and, where applicable, rinsate analytical will determine if equipment used for container operations, interior surfaces of the buildings, the concrete floors and sumps have been properly cleaned to ensure removal of hazardous waste residue. Where applicable, concrete chips will also be collected to verify decontamination.

The containment decontamination confirmation and sampling are described under that section 3.3 Verification of Decontamination.

5.3.2 Tanks

- All hazardous waste will be removed from the Facility for proper disposal by a licensed waste hauler in accordance with all applicable federal, state and local regulations or, if the kilns are still burning LLGF, will be managed onsite through the fuel delivery system.
- The integrity of secondary containment areas will be evaluated by inspecting the area for any cracks. Since the Tank Farm is equipped with competent secondary containment, there will be no runoff of hazardous waste or rinse water contaminated with hazardous waste or hazardous waste constituents contaminating the surrounding soils.
- Tank manways will be opened. Non-pumpable residues will be removed mechanically or manually and appropriately containerized. The actual means of residue removal will depend on the physical properties of the residues remaining in the storage/treatment tank. Removal may take place by use of sludge pumps, vacuum equipment, or by scrapes and shovels. To assess the degree the tank units must be decontaminated and cleaned, the future use of the tank units will be taken into consideration.
- Decontamination of the tanks will consist of pressure washing the tank interior and piping system with caustic detergent. Approximately 20,000 gallons of contaminated wash water is expected to be generated during the cleaning of all tanks and ancillary equipment.
- The Facility can request to utilize the alternate treatment standards for hazardous debris specified in Table 1 of 6 NYCRR Part 376.4(g) to obtain a conditioned exclusion for treated hazardous debris if the Facility recycles the metal tanks. If approved, Norlite, LLC will provide photographic evidence and submit a certification by an independent New York State PE that the cleanliness standard for the treated debris (metal tank) is met. When shipping the conditioned excluded waste (metal tank) 6 NYCRR Part 364.2

may still require the waste to be shipped using a certified hazardous waste transporter.

- The interior surfaces of piping, valves, and pumps associated with the tank system will be decontaminated/cleaned by flushing and rinsing. Rinsate will be drained to storage/treatment tanks or appropriately containerized.
- The tank containment dikes and loading/unloading area will be decontaminated by removing any liquid or solvent with squeegees and vacuum truck equipment. Contaminated areas will be cleaned using a solvent and stiff brushes.
- The tank containment dikes and loading/unloading areas will be thoroughly cleaned by utilizing an appropriate cleaning agent to remove residual hazardous wastes. The tank containment dikes and loading/unloading area will be thoroughly washed utilizing a steam cleaner or pressure spray equipment. Contaminated wash water will be collected with squeegees and vacuum truck equipment and shipped offsite for treatment and disposal.

5.3.3 Rotary Kilns & Ancillary Equipment

Norlite, LLC's two lightweight aggregate kilns are cylindrical, horizontally mounted rotary kilns. The kilns are constructed of steel shells, with a six-inch refractory lining. The system involves piping and intermediate pumping station for feeding waste from the LLGF storage tanks to the kilns, the kilns, a mechanical cyclone collector, a Gas Conditioning Tower, a semi-dry scrubber and a baghouse for air emission control from the kilns, and an exhaust stack. (Each Kiln has independent emission control systems.)

Since the LLGF is filtered prior to burning and the kilns have a very high destruction efficiency, there is no remaining hazardous waste residues within the kilns. Therefore, closure procedures associated with closure of the kiln's operations will involve the decontamination and dismantling of waste feed lines to the kilns, disposal of contaminated wash waters generated from decontamination procedures, and excavation and disposal of any contaminated surface soils.

5.3.3.1 If closure of the hazardous waste energy recovery operations at the kilns occur in accordance with the procedures outlined, the operation of the kilns may continue during closure with the use of non-waste fuel. Thus, dismantling or demolition of the aggregate kilns and their ancillary equipment (i.e., APC equipment, etc.) is not included in the final closure procedures; however, closure costs include a worst-case scenario as described in 5.3.3.2.

However if closing of kilns is implemented, to indicate successful decontamination of the kilns upon cessation of the use of LLGF, the kiln will be operated in a "burnout" mode with only auxiliary fuel fired for an appropriate time period, but not less than four hours, maintaining at least the minimum temperature specified in the permit. This will allow for the combustion of any remaining organic constituents within the kiln system. As soon as practical, allowing for the kiln or APC unit to properly cool prior to entry, a set of wipe samples (minimum of ten locations scattered throughout the kiln) will be taken. Wipe sampling will involve sampling kiln surfaces exposed to the LLGF and/or exhaust gases. Each wipe sample collected will be a 100 square centimeter. sample. Alternate to wipe samples, rinsate or dust samples may be substituted based on SW-846 analytical requirements for the required parameters. Decontamination will be deemed successful if the resulting analytical results for the specified parameters, using appropriate methods of analysis in accordance with SW-846, do not exceed regulatory standards in effect at the time of closure.

5.3.3.2 If the outlined closure procedures including the "burnout" mode are not completed prior to partial or full closure of the Facility, verification of decontamination will involve, at minimum, procedures that are described in 5.3.2 following the alternate treatment standards for hazardous debris specified in Table 1 of 6 NYCRR Part 376.4(g). The Facility may request additional consideration for other decontamination verification methods by contacting NYSDEC in writing prior to any closure or partial closure activities. As agreed by both parties, a walk-through inspection may be coordinated to determine the best methods of decontamination verification.

5.4 SWMU, AOC and Site Management

As identified in Norlite LLC's Site Management Plan, there are Solid Waste Management Units (SWMUs) and Areas of Concern (AOC) which were identified during a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) (See Figure 5). At the time of closure of the Facility or any ancillary equipment located in an SWMU or AOC, Norlite, LLC must consider the activities outlined in the SMP. Although each SWMU and AOC was classified as 'No Further Action,' some ongoing monitoring and future evaluation may be required. Closure costs have been updated accordingly.

Any SWMUs or AOCs not fully removed during closure or partial closure, or additionally identified during closure, may need an additional RFI to determine if further management is needed. At the time of post closure, Norlite, LLC will provide a financial assurance mechanism

to cover costs as identified in any additional RFI or corrective actions deemed required post closure.

5.5 Soil Sampling and Analysis

If visual inspection indicates possible contamination, the following procedures will be used to sample the soils in and adjacent to the perimeter of the hazardous waste permitted treatment and storage areas of the Facility. Samples obtained from these areas will be analyzed for appropriate indicator parameters to ensure that no hazardous waste or hazardous constituents from the Facility activities remain after closure. Analytical results will be compared to action levels to determine if further sampling and analysis and/or remediation are necessary. This may also identify any SWMU or AOCs as described above.

Sample boring locations will be selectively located in areas of suspected contamination such as:

- cracked areas of the containment structure,
- areas of un-remediated releases,
- suspected down slope, downwind, or runoff areas of a containment structure, and
- where standing liquid or spills were observed.

Samples will be analyzed for the following parameters:

Parameter	**SW-846-95 Analytical Method**
pH	9045
Total RCRA Metals/Mercury	6010C / 7471A
Total Volatile Organics	8260C
Total Semi-Volatile Organics	8270C
Polychlorinated Biphenyls (PCBs)	8080A

Any detections above soil guidance values will trigger an RFI as described in section 5.4.

All sample collection and handling activities will be performed by trained personnel. All analytical work will be performed by a Norlite, LLC Certified Laboratory or alternate New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-

approved laboratory, in accordance with the minimum quality assurance and quality control protocols set forth in this permit.

Norlite, LLC will use appropriate sample preservation procedures and preservatives depending upon the sample matrix, parameters, and requirements of the laboratory performing the analysis. Preservatives can include HCl, Sodium Bisulfate, Methanol or reagent water for volatile organic compounds (VOCs), nitric acid for metals, and ice.

5.6 Certification of Closure

Within 60 days of completion of final or partial closure of the Facility or any HWMU, Norlite, LLC will submit to the NYSDEC, via registered mail, a certification of closure stipulating that the unit/Facility was closed in accordance with the approved Closure Plan, as required under 6 NYCRR Part 373-2.7(f). T he certification will be signed by Norlite, LLC and an independent PE registered in New York State.

6.0 CLOSURE COST ESTIMATE

The closure cost estimate calculation for the Facility is included in Attachment 1.

7.0 FINANCIAL ASSURANCE FOR CLOSURE

7.1 Closure Trust Fund

The Standby Trust Agreement pending approval.

7.2 Surety Bond

The Surety Bond for Closure pending approval.

8.0 LIABILITY REQUIREMENTS

A current copy of the Facility's insurance certificate demonstrating satisfactory liability limits is provided in Attachment 2.

8.1 Variance Procedures and Adjustments by Commissioner

No variance to the liability requirements is requested.

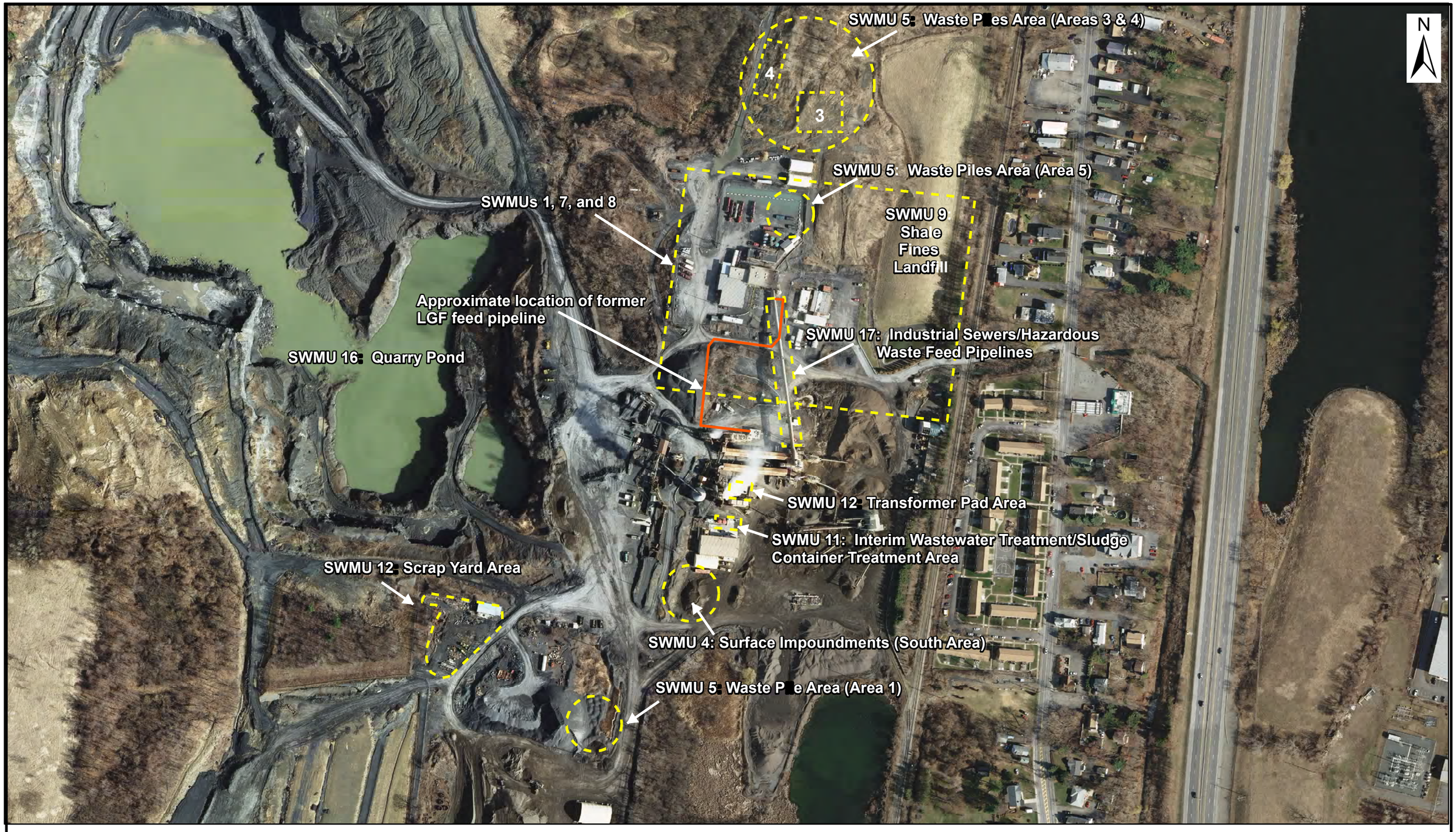
8.2 Coverage Levels for Sudden and Non-Sudden Accidental Occurrences

Norlite, LLC carries insurance for sudden and non-sudden accidental occurrences in the amount of $10,000,000 per occurrence and $30,000,000 annual aggregate as shown on the Facility's insurance certificate in Attachment 2.

9.0 GLOSSARY

Term	Definition
6 NYCRR	Title 6 of the New York Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OSHA	Occupational Safety and Health Administration
PPE	Personal Protective Equipment

Figure 5. Solid Waste Management Units



Notes:
Basemap image: New York State GIS Clearinghouse Orthoimagery, 2011.

0 120 240 480 720 960 Feet

ARCADIS

NORLITE CORPORATION
COHOES, NEW YORK

SITE MANAGEMENT PLAN

SOLID WASTE MANAGEMENT UNITS (SMWUs)

ARCADIS-US, INC

AUGUST 2013

FIGURE 5

G:\GISMOD\2475007\GIS\SWMUs.mxd
G:\PROJECT\02475019.0000\CMS\PDFs\Figure 2-1.pdf

Attachments

Attachment 1 Closure Cost Estimate Calculation

NORLITE, LLC CLOSURE COST ESTIMATE - 2020					
All Estimates are based on Worst Case Closure Scenario					
		$ cost (ea)	**units**	**Total**	
CLOSURE OF TANKS, PIPING NETWORK AND KILNS					
Removal and Disposal of Inventory					
Volume of Waste - 155,579					
Volume of Liquid - 116,687 Volume of Sludge - 38,892 gallons					
Pumping $5.10 per 1000 gallons		5.1	156	$ 793.46	
Protective Clothing 11 man-days @ $27/day		27	11	$ 297.00	
Transportation $6.13/mile for 300 miles - 20 trucks		6.13	6,000	$ 36,780.00	
Disposal Cost for HW fuels @ $1.81/gallon		1.81	155,579	$ 281,597.99	
Disposal Baghouse Residues - 355 cu yds @ $110/cu yd		110	355	$ 39,050.00	
Disposal of Laboratory Wastes - 100 drums @ $325/drum		325	100	$ 32,500.00	
Transportation of Baghouse Residues - 20 trips @ 300 miles @ $6.13/mile		6.13	6,000	$ 36,780.00	
Supervision - 40 hours @ $110/hour		100	40	$ 4,000.00	
Subtotal					$431,798.45
Removal and Disposal of Tanks					
Tank Cleaning - Tanks 300, 400, 500 and 600					
Labor $1100 x 36 man days		1100	36	$ 39,600.00	
Equipment $900/day x 12 days		900	12	$ 10,800.00	
Wipe/Rinsate sampling 32 samples @ $600/sample		600	32	$ 19,200.00	
PPE Level C $80/man day x 12 man days		80	12	$ 960.00	
PPE Level B $170/man day x 12 man days		170	12	$ 2,040.00	
Monitoring Equipment @ $145/day x 12 days		145	12	$ 1,740.00	
Soil Sampling around covered tanks - 8 samples @ $477/sample		477	8	$ 3,816.00	
PPE and Miscellaneous Disposal - 8 drums@ $80/drum		80	8	$ 640.00	
Assume 100 cu yds contaminated soil removal					
Transportation 4 trips @ 300 miles @ $6.13/mile		6.13	1,200	$ 7,356.00	
Disposal @ $165/cu yd		165	100	$ 16,500.00	
Subtotal for covered tanks					$ 102,652.00
Tank Cleaning - Tanks 100A,B,C and Tanks 200A,B, C					
Labor 1100 x 24 man days		1100	24	$ 26,400.00	
Equipment $900/day x 8 days		900	8	$ 7,200.00	
Wipe/Rinsate sampling 48 samples @ $600/sample		600	48	$ 28,800.00	
PPE Level C $80/man day x 12 man days		80	12	$ 960.00	
PPE Level B $170/man day x 6 man days		170	6	$ 1,020.00	
Monitoring Equipment @ $145/day x 8 days		145	8	$ 1,160.00	
Subtotal					$ 65,540.00
Tank Cleaning - Tanks 102A,B					
Labor 1100 x 9 man days		1100	9	$ 9,900.00	
Equipment $900/day x 3 days		900	3	$ 2,700.00	
Sampling 2 samples @ $600/sample		600	2	$ 1,200.00	
PPE Level C $80/man day x 6 man days		80	6	$ 480.00	
PPE Level B $170/man day x 3 man days		170	3	$ 510.00	
Monitoring Equipment @ $145/day x 3 days		145	3	$ 435.00	
Subtotal					$ 15,225.00
Secondary Containment Decontamination for LLGF Building and EQ Room 5232 square feet of concrete					
Cleaning rate is 105 sq ft/hr for a total of 50 hours					
Labor - 50 hours @ $110/hour		110	50	$ 5,500.00	
Supervision - 50 hours @ $110/hour		110	50	$ 5,500.00	
Pressure Washer - $0.63/sqft		0.8	5,232	$ 4,185.60	
Concrete chip sampling 10 samples, 5 hours@ $101.82		101.82	5	$ 509.10	
Sample analysis, standard turnaround $1,090/sample		1090	10	$ 10,900.00	
Disposal of Washwater 4.8 gpm x 60 min x 50 hrs x $0.50/gallon		0.5	14,400	$ 7,200.00	
Subtotal					$33,794.70
Tank Removal					
Covered Tanks - 4 tanks @967.38/tank		967.38	4	$ 3,869.52	
LLGF Inside Tank - 6 tanks @ 967.38/tank		967.38	6	$ 5,804.28	
EQ Tanks - 2 Tanks @ 967.38/tank		967.38	2	$ 1,934.76	
Subtotal					$11,608.56
Decontamination and Dismantle Piping and Ancillary Equipment					
Labor - 80 man hours @ $110/hour		110	80	$ 8,800.00	
Supervision -80 man hours @ 110/hour		110	80	$ 8,800.00	
Backhoe, 2 days @ $1140/day		1140	2	$ 2,280.00	

NORLITE, LLC CLOSURE COST ESTIMATE - 2020					
All Estimates are based on Worst Case Closure Scenario					
		$ cost (ea)	**units**	**Total**	
Front End Loader - 2 days @ $895		895	2	$ 1,790.00	
Steam Cleaning Equipment - 5 days @ $120/day		120	5	$ 600.00	
Pumping Equipment - 5 days @ $75/day		75	5	$ 375.00	
Crane - 10 day @ $2715/day		2715	10	$ 27,150.00	
Subtotal					$49,795.00
Disposal of Wastewater					
Transportation - 5 trips @ 300 miles @ $6.13/mile		6.13	1,500	$ 9,195.00	
Disposal - 25000/gallons @ $1.10/gallon		1.1	25,000	$ 27,500.00	
Subtotal					$36,695.00
KILN CLOSURE					
Fossil Fuel Burnout					
Fuel 8 gpm x 60 min x 4 hr x 2 kilns x $4.34/gal		4.34	3840	$ 16,665.60	
Labor 4 hr x 2 kilns x $110/hr		110	8	$ 880.00	
Supervisor 4 hr x 2 kilns x $110/hr		110	8	$ 880.00	
Subtotal					$18,425.60
Cleaning Rotary Kilns & APC **(Based on Worst-Case: No Burn Out / No Dust Reuse)**					
Labor - 100 hours @ $110/hr		110	100	$ 11,000.00	
Supervisor - 100 hours @ $110/hr		110	100	$ 11,000.00	
Waste Disposal 40 Drums @ $160/drum		160	40	$ 6,400.00	
Waste Transportation 1 trip x 300 miles x $6.13/mile		6.13	300	$ 1,839.00	
10 samples @ 1100/sample		1100	10	$ 11,000.00	
Dust Handling System (Cyclones, GCT, GSA, Baghouse)					
Labor - 80 hours @ $110/hr		110	80	$ 8,800.00	
Supervisor - 80 hours @ $110/hr		110	80	$ 8,800.00	
Waste Disposal (APC Dust) 300 cu yds @ $163/cu yd		163	300	$ 48,900.00	
Waste Disposal - Dust Silos Dust 2000 cu yds @ 163/cu yd (1,000 + 500 + 500)		163	2000	$ 326,000.00	
10 samples @ 1100/sample		1100	10	$ 11,000.00	
GCT & GSA Scrubbing System					
Labor 100 hours @ 110/hour		110	100	$ 11,000.00	
Supervisor - 100 hours @ $110/hr		110	100	$ 11,000.00	
Solids Disposal 10 drums @ $160/drum		160	10	$ 1,600.00	
Washwater Disposal 550 gallons @ $0.33/gal		0.33	550	$ 181.50	
10 samples @ $1100/sample		1100	10	$ 11,000.00	
ID Fans and Stacks					
Labor - 40 hours @ $110/hr		110	40	$ 4,400.00	
Supervisor - 40 hours @ $110/hr		110	40	$ 4,400.00	
10 samples @ 1100/sample		1100	10	$ 11,000.00	
Dioxin Samples					
12 dioxin samples @ $1000/sample		1000	12	$ 12,000.00	
Subtotal					$511,320.50
Subtotal For Section A					$1,276,854.81
CLOSURE OF CONTAINER AREAS					
Removal and Disposal of Final Inventory					
Disposal of 277 Drums of Liquid Waste and 50 Drums of Solids					
Liquids Disposal 277 x 55 gal x $1.81/gal		1.81	15235	$ 27,575.35	
Solids Disposal 50 x $160/drum		160	50	$ 8,000.00	
Container Loading 80 pallets x $5.06/pallet		5.06	80	$ 404.80	
Transportation - 4 trips x 300 miles x $6.13/mile		6.13	1200	$ 7,356.00	
Supervision 8 man hours x $110/hr		110	8	$ 880.00	
Subtotal					$44,216.15
Containment Areas Decontamination					
9,200 square feet of concrete					
Cleaning rate is 105 sq ft/hr for a total of 88 hours					
Labor - 88 hours @ $110/hour		110	88	$ 9,000.00	
Supervision - 88 hours @ $110/hour		110	88	$ 9,000.00	
Pressure Washer - $0.63/sqft		0.63	9200	$ 3,150.00	
Concrete chip sampling 20 samples, 10 hours@ $101.82		101.82	10	$ 937.60	
Sample analysis, standard turnaround $1,100/sample		1100	20	$ 20,100.00	
Disposal of Washwater 4.8 gpm x 60 min x 68 hrs x $1.10/gallon		1.1	19584	$ 19,584.00	
Subtotal					$61,771.60

NORLITE, LLC CLOSURE COST ESTIMATE - 2020					
All Estimates are based on Worst Case Closure Scenario					
		$ cost (ea)	**units**	**Total**	
Tanker Staging Area Decontamination					
Assume 444 cu yds removal					
Transportation 20 trips @ 300 miles @ $6.13/mile		6.13	6000	$ 36,780.00	
Disposal @ $160/cu yd		160	444	$ 71,040.00	
Subtotal					$107,820.00
Subtotal for Section B					$213,807.75
CONTAMINATED SOIL, SWMU-AOC Discovery					
Sample Collection and Analysis					
Sample Collection				$ 1,100.00	
Sample Analysis - 70 samples - pH & Metals @ $175/sample		175	70	$ 12,250.00	
Sample Analysis 70 Samples by GC @ 205/sample		205	70	$ 14,350.00	
Sample Analysis 70 Samples by GC/MS @ $570		570	70	$ 39,900.00	
Subtotal					$67,600.00
Stockpile Shale					
Supervision 24 man hours @ $38/hr		38	24	$ 912.00	
Front End Loader, 2 days @ $895		895	2	$ 1,790.00	
Backhoe, 2 Days @ $1140		1140	2	$ 2,280.00	
Subtotal					$4,982.00
Excavated Soil and Shale Stockpile					
Supervision 24 man hours @ 38/hr		38	24	$ 912.00	
Front End Loader, 3 days @ $895		895	3	$ 2,685.00	
Backhoe, 3 Days @ $1140		1140	3	$ 3,420.00	
Subtotal					$7,017.00
Disposal					
Transportation 35 trips x 300 miles x $6.13/mile		6.13	10500	$ 64,365.00	
Disposal of 700 cu yds @ $160/yd		160	700	$ 112,000.00	
Subtotal					`
Regrade Site					
Supervision, 16 man hours @ $38/hr		38	16	$ 608.00	
Front End Loader, 1 day @ $895		895	1	$ 895.00	
Backhoe, 1 Day @ $1140		1140	1	$ 1,140.00	
Bulldozer, 2 days @ $1005		1005	2	$ 2,010.00	
Subtotal					$4,653.00
Subtotal for Section C					$84,252.00
HEALTH AND SAFETY					
Disposal PPE					
150 man hours @ $10.00/hour		10	150	$ 1,500.00	
Temporary snow fencing, disposal tarps		N/A	N/A	$ 1,819.00	$ 1,975.43
Disposal Cost 15 drums @ $60/drum		60	15	$ 900.00	
Subtotal for Section D					$4,219.00
CLOSURE CERTIFICATION					
Professional Engineer 8 systems @ $4,803 per system		4803	8	$ 38,424.00	
Marine Chemist 12 days @ $815/day		815	12	$ 9,780.00	
Subtotal for Section E					$48,204.00
OVERHEAD AND CONTINGENCY					
Subtotal for Sections A, B, C, D and E					$1,627,337.56
Engineering 10% of total					$162,733.76
Contingency 25% of total					$406,834.39
Total Closure Cost					**$2,196,905.70**

Attachment 2 Insurance Certificate

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 12/20/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Willis of Illinois, Inc. c/o 26 Century Blvd P.O. Box 305191 Nashville, TN 372305191 USA	CONTACT NAME: Willis Towers Watson Certificate Center PHONE (A/C, No, Ext): 1-877-945-7378 FAX (A/C, No): 1-888-467-2378 E-MAIL ADDRESS: certificates@willis.com
INSURED Norlite, LLC 628 S Saratoga St. Cohoes, NY 12047 USA	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A: Indian Harbor Insurance Company — 36940 INSURER B: Everest Denali Insurance Company — 16044 INSURER C: Everest National Insurance Company — 10120 INSURER D: INSURER E: INSURER F:

COVERAGES **CERTIFICATE NUMBER:** W14806331 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY PRO-JECT LOC OTHER:			US00077228LI19A	12/31/2019	12/31/2020	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 2,000,000 $ 300,000 $ 10,000 $ 2,000,000 $ 2,000,000 $ 2,000,000
B	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY HIRED AUTOS ONLY SCHEDULED AUTOS NON-OWNED AUTOS ONLY			RM8CA00039-191	12/31/2019	12/31/2020	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 2,000,000 $ $ $
A	X UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DED X RETENTION $ 10,000			US00077229LI19A	12/31/2019	12/31/2020	EACH OCCURRENCE AGGREGATE	$ 14,000,000 $ 14,000,000
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N No If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		RM8WC00049-191	12/31/2019	12/31/2020	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000
C	Workers Compensation - Retro & Employers Liability Work Comp: Per Statute			RM8WC00051-191	12/31/2019	12/31/2020	E.L. Each Accident E.L. Disease-Each Emp E.L. Disease-Pol Lmt	$1,000,000 $1,000,000 $1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

SEE ATTACHED

CERTIFICATE HOLDER

Evidence of Insurance

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Andrea Paris

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AGENCY CUSTOMER ID: _____

LOC #: _____

ADDITIONAL REMARKS SCHEDULE

AGENCY	NAMED INSURED
Willis of Illinois, Inc.	Norlite, LLC 628 S Saratoga St. Cohoes, NY 12047 USA
POLICY NUMBER See Page 1	
CARRIER: See Page 1 / NAIC CODE: See Page 1	EFFECTIVE DATE: See Page 1

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: 25 FORM TITLE: Certificate of Liability Insurance

INSURER AFFORDING COVERAGE: Everest National Insurance Company NAIC#: 10120
POLICY NUMBER: RM8WC00050-191 EFF DATE: 12/31/2019 EXP DATE: 12/31/2020

TYPE OF INSURANCE:	LIMIT DESCRIPTION:	LIMIT AMOUNT:
Workers Compensation - FL/NJ	Each Accident	$1,000,000
	Disease-policy limit	$1,000,000
Work Comp - Per Statute	Disease-each employee	$1,000,000

INSURER AFFORDING COVERAGE: Indian Harbor Insurance Company NAIC#: 36940
POLICY NUMBER: PEC004703903 EFF DATE: 12/31/2019 EXP DATE: 12/31/2020

TYPE OF INSURANCE:	LIMIT DESCRIPTION:	LIMIT AMOUNT:
Contractor's Poll. & Prof. Liability		See Below

ADDITIONAL REMARKS:
Professional Liability and Contractors Pollution Liability, claims-made
Insurer affording coverage: Indian Harbor Insurance Company
Policy Number: PEC004703903, Effective date: 12/31/2019, Expiration Date 12/31/2020
Limit of Liability: $15,000,000 each occurrence / $15,000,000 aggregate

INSURER AFFORDING COVERAGE: Indian Harbor Insurance Company NAIC#: 36940
POLICY NUMBER: PEC004563901 EFF DATE: 12/31/2019 EXP DATE: 12/31/2020

TYPE OF INSURANCE:	LIMIT DESCRIPTION:	LIMIT AMOUNT:
Site Pollution Liability		See Below

ADDITIONAL REMARKS:
Site Pollution Liability - New York, Connecticut and Massachusetts financial responsibility, claims-made
Insurer affording coverage: Indian Harbor Insurance Company
Policy Number: PEC 004563901, Effective date: 12/21/2019, Expiration Date 12/31/2020
Limit of liability:
NY: $5,500,000 / $11,000,000
CT: $1,000,000 / $2,000,000
CT: $1,000,000 / $2,000,000
MA: $8,000,000 / $16,000,000
MA: $3,000,000 / $6,000,000

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AGENCY CUSTOMER ID: _____

LOC #: _____

ADDITIONAL REMARKS SCHEDULE

AGENCY		NAMED INSURED
Willis of Illinois, Inc.		Norlite, LLC 628 S Saratoga St. Cohoes, NY 12047 USA
POLICY NUMBER See Page 1		
CARRIER See Page 1	NAIC CODE See Page 1	EFFECTIVE DATE: See Page 1

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: 25 FORM TITLE: Certificate of Liability Insurance

INSURER AFFORDING COVERAGE: Indian Harbor Insurance Company NAIC#: 36940
POLICY NUMBER: PEC004563701 EFF DATE: 12/31/2019 EXP DATE: 12/31/2020

TYPE OF INSURANCE:	LIMIT DESCRIPTION:	LIMIT AMOUNT:
Site Pollution Liability		See Below

ADDITIONAL REMARKS:
Site Pollution Liability - Wisconsin, Indiana and Tennessee financial responsibility, claims-made
Insurer affording coverage: Indian Harbor Insurance Company
Policy Number: PEC 004563701, Effective date: 12/31/2019, Expiration Date 12/31/2020
Limit of liability:
WI: $1,000,000 / $2,000,000
TN: $4,000,000 / $8,000,000
IN: $4,000,000 / $8,000,000

INSURER AFFORDING COVERAGE: Indian Harbor Insurance Company NAIC#: 36940
POLICY NUMBER: PEC000096407 EFF DATE: 12/31/2019 EXP DATE: 12/31/2020

TYPE OF INSURANCE:	LIMIT DESCRIPTION:	LIMIT AMOUNT:
Site Pollution Liability		See Below

ADDITIONAL REMARKS:
Site Pollution Liability - All Tradebe Environmental Services locations and excess of financial responsibility policies, non-owned disposal sites and third party transportation
Insurer affording coverage: Indian Harbor Insurance Company
Policy Number: PEC 000096407, Effective date 12/31/2019, Expiration Date 12/31/2020
Limit of liability:
All Tradebe Environmental Services locations and excess of financial responsibility policies: $2,000,000 / $2,000,000
Non-owned disposal sites and third party transportation: $5,000,000 / $10,000,000

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Additional Named Insureds:

Tradebe Environmental Services, LLC

Tradebe Treatment and Recycling, LLC

Tradebe Treatment and Recycling Nashville, LLC

Tradebe Treatment and Recycling Wisconsin, LLC

Tradebe Treatment and Recycling Northeast, LLC

Norlite, LLC

Tradebe Transportation, LLC

Thunderbird Trucking, LLC

Aaron Oil Company, Inc.

Aaron Oil Company, LLC

Tradebe Industrial Services, LLC