OMB# 2050-0024; Expires 12/31/2014

SEND COMPLETED FORM TO: The Appropriate State or Regional Office.	United States Environmental Protection Agency **RCRA SUBTITLE C SITE IDENTIFICATION FORM**	

1. Reason for Submittal

MARK ALL BOX(ES) THAT APPLY

Reason for Submittal:

- ☐ To provide an Initial Notification (first time submitting site identification information / to obtain an EPA ID number for this location)
- ☐ To provide a Subsequent Notification (to update site identification information for this location)
- ☐ As a component of a First RCRA Hazardous Waste Part A Permit Application
- ▪ As a component of a Revised RCRA Hazardous Waste Part A Permit Application (Amendment # 1)
- ☐ As a component of the Hazardous Waste Report (If marked, see sub-bullet below)
  - ☐ Site was a TSD facility and/or generator of ≥1,000 kg of hazardous waste, >1 kg of acute hazardous waste, or >100 kg of acute hazardous waste spill cleanup in one or more months of the report year (or State equivalent LQG regulations)

2. Site EPA ID Number

EPA ID Number N Y D 0 8 0 4 6 9 9 3 5

3. Site Name

Name: Norlite, LLC.

4. Site Location Information

Street Address: 628 South Saratoga Street

City, Town, or Village: Cohoes | **County:** Albany

State: New York | **Country:** United States | **Zip Code:** 12047

5. Site Land Type

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

6. NAICS Code(s) for the Site (at least 5-digit codes)

A.	2 1 2 3 2 5	**C.**	
B.	5 6 2 2 1 1	**D.**	

7. Site Mailing Address

Street or P.O. Box: 80 State Street

City, Town, or Village: Albany

State: New York | **Country:** United States | **Zip Code:** 12207-2543

8. Site Contact Person

First Name: Robert | **MI:** | **Last:** O'Brien

Title: President

Street or P.O. Box: 1301 West 22nd Street, Suite 500

City, Town or Village: Oak Brook

State: Illinois | **Country:** United States | **Zip Code:** 60523

Email: bob.obrien@tradebe.com

Phone: 1-518-235-0401 | **Ext.:** NA | **Fax:** NA

9. Legal Owner and Operator of the Site

A. Name of Site's Legal Owner: Tradebe Treatment & Recycling | **Date Became Owner:** 04/15/2011

Owner Type: ☑ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

Street or P.O. Box: 1301 West 22nd Street, Suite 500

City, Town, or Village: Oak Brook | **Phone:** NA

State: Illinois | **Country:** United States | **Zip Code:** 60523

B. Name of Site's Operator: Norlite, LLC. | **Date Became Operator:** 01/01/1956

Operator Type: ☑ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

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; Complete all parts 1-10.

Y[✓] N[ ] **1. Generator of Hazardous Waste**
If "Yes", mark only one of the following – a, b, or c.

- [✓] a. LQG: Generates, in any calendar month, 1,000 kg/mo (2,200 lbs./mo.) or more of hazardous waste; **or** Generates, in any calendar month, or accumulates at any time, more than 1 kg/mo (2.2 lbs./mo) of acute hazardous waste; **or** Generates, in any calendar month, **or** accumulates at any time, more than 100 kg/mo (220 lbs./mo) of acute hazardous spill cleanup material.
- [ ] b. SQG: 100 to 1,000 kg/mo (220 – 2,200 lbs./mo) of non-acute hazardous waste.
- [ ] c. CESQG: Less than 100 kg/mo (220 lbs./mo) of non-acute hazardous waste.

If "Yes" above, indicate other generator activities in 2-4.

Y[✓] N[ ] **2. Short-Term Generator** (generate from a short-term or one-time event and not from on-going processes). If "Yes", provide an explanation in the Comments section.

Y[✓] N[ ] **3. United States Importer of Hazardous Waste**

Y[ ] N[✓] **4. Mixed Waste (hazardous and radioactive) Generator**

Y[ ] N[✓] **5. Transporter of Hazardous Waste**
If "Yes", mark all that apply.
- [ ] a. Transporter
- [ ] b. Transfer Facility (at your site)

Y[✓] N[ ] **6. Treater, Storer, or Disposer of Hazardous Waste** Note: A hazardous waste Part B permit is required for these activities.

Y[ ] N[✓] **7. Recycler of Hazardous Waste**

Y[ ] N[✓] **8. 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

Y[ ] N[✓] **9. Underground Injection Control**

Y[✓] N[ ] **10. Receives Hazardous Waste from Off-site**

B. Universal Waste Activities; Complete all parts 1-2.

Y[ ] N[✓] **1. Large Quantity Handler of Universal Waste (you accumulate 5,000 kg or more) [refer to your State regulations to determine what is regulated]. Indicate types of universal waste managed at your site. If "Yes", mark all that apply.**

- 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; Complete all parts 1-4.

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

You can **ONLY** Opt into Subpart K if:

you are at least one of the following: a college or university; a teaching hospital that is owned by or has a formal affiliation agreement with a college or university; or a non-profit research institute that is owned by or has a formal affiliation agreement with a college or university; AND

you have checked with your State to determine if 40 CFR Part 262 Subpart K is effective in your state

Y ☐ N ☑ 1. Opting into or currently operating under 40 CFR Part 262 Subpart K for the management of hazardous wastes in laboratories **See the item-by-item instructions for definitions of types of eligible academic entities. Mark all that apply:**

☐ a. College or University

☐ b. Teaching Hospital that is owned by or has a formal written affiliation agreement with a college or university

☐ c. Non-profit Institute that is owned by or has a formal written affiliation agreement with a college or university

Y ☐ N ☑ 2. Withdrawing from 40 CFR Part 262 Subpart K for the management of hazardous wastes in laboratories

11. Description of Hazardous Waste

A. 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.

** Please See	Attached	Hazardous	Waste Permit	Information	Form **	

B. Waste Codes for State-Regulated (i.e., non-Federal) Hazardous Wastes. Please list the waste codes of the State-Regulated 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.

NA						

12. 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 261.2(a)(2)(ii), 40 CFR 261.4(a)(23), (24), or (25)?

If "Yes", you must fill out the Addendum to the Site Identification Form: Notification for Managing Hazardous Secondary Material.

13. Comments

14. 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. For the RCRA Hazardous Waste Part A Permit Application, all owner(s) and operator(s) must sign (see 40 CFR 270.10(b) and 270.11).

Signature of legal owner, operator, or an authorized representative	Name and Official Title (type or print)	Date Signed (mm/dd/yyyy)
	Robert O'Brien, President	1-10-13

EPA ID Number | N | Y | D | 0 | 8 | 0 | 4 | 6 | 9 | 9 | 3 | 5 |

OMB#: 2050-0024; Expires 12/31/2014

United States Environmental Protection Agency

HARDOUS WASTE PERMIT INFORMATION FORM

1. Facility Permit Contact	**First Name:** Robert	**MI:**	**Last Name:** O'Brien	
	Contact Title: President			
	Phone: 1-518-235-0401	**Ext.:** NA	**Email:** bob.obrien@tradebe.com	
2. Facility Permit Contact Mailing Address	**Street or P.O. Box:** 80 State Street			
	City, Town, or Village: Albany			
	State: New York			
	Country: United States	**Zip Code:** 12207-2543		
3. Operator Mailing Address and Telephone Number	**Street or P.O. Box:** 80 State Street			
	City, Town, or Village: Albany			
	State: New York	**Phone:** 1-518-235-0401		
	Country: United States	**Zip Code:** 12207-2543		
4. Facility Existence Date	**Facility Existence Date (mm/dd/yyyy):** 01/01/1956			

5. Other Environmental Permits

A. Facility Type *(Enter code)*	B. Permit Number	C. Description
N	4-01031-16/20	Surface Water Discharge Permit
P	4-01031-16/48	Title V Air Permit
E	4-01031-16/19	Mined Land Reclamation Permit

6. 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 a farbic filter (baghouse) followed by a wet scrubber system. Norlite, LLC. also stores and blends wastes from off-site generators for use on-site or for off-site transfer.

7. Process Codes and Design Capacities – Enter information in the Section on Form Page 3

A. PROCESS CODE – Enter the code from the list of process codes below that best describes each process to be used at the facility. If more lines are needed, attach a separate sheet of paper with the additional information. For "other" processes (i.e., D99, S99, T04 and X99), describe the process (including its design capacity) in the space provided in Item 8.

B. PROCESS DESIGN CAPACITY – For each code entered in Item 7.A; enter the capacity of the process.

1. **AMOUNT – Enter the amount. In a case where design capacity is not applicable (such as in a closure/post-closure or enforcement action) enter the total amount of waste for that process.**
2. **UNIT OF MEASURE – For each amount entered in Item 7.B(1), enter the code in Item 7.B(2) from the list of unit of measure codes below that describes the unit of measure used. Select only from the units of measure in this list.**

C. PROCESS TOTAL NUMBER OF UNITS – Enter the total number of units for each corresponding process code.

Process Code	Process	Appropriate Unit of Measure for Process Design Capacity
Disposal		
D79	Underground Injection Well Disposal	Gallons; Liters; Gallons Per Day; or Liters Per Day
D80	Landfill	Acre-feet; Hectares-meter; Acres; Cubic Meters; Hectares; Cubic Yards
D81	Land Treatment	Acres or Hectares
D82	Ocean Disposal	Gallons Per Day or Liters Per Day
D83	Surface Impoundment Disposal	Gallons; Liters; Cubic Meters; or Cubic Yards
D99	Other Disposal	Any Unit of Measure Listed Below
Storage		
S01	Container	Gallons; Liters; Cubic Meters; or Cubic Yards
S02	Tank Storage	Gallons; Liters; Cubic Meters; or Cubic Yards
S03	Waste Pile	Cubic Yards or Cubic Meters
S04	Surface Impoundment	Gallons; Liters; Cubic Meters; or Cubic Yards
S05	Drip Pad	Gallons; Liters; Cubic Meters; Hectares; or Cubic Yards
S06	Containment Building Storage	Cubic Yards or Cubic Meters
S99	Other Storage	Any Unit of Measure Listed Below
Treatment		
T01	Tank Treatment	Gallons Per Day; Liters Per Day
T02	Surface Impoundment	Gallons Per Day; Liters Per Day
T03	Incinerator	Short Tons Per Hour; Metric Tons Per Hour; Gallons Per Hour; Liters Per Hour; BTUs Per Hour; Pounds Per Hour; Short Tons Per Day; Kilograms Per Hour; Gallons Per Day; Metric Tons Per Hour; or Million BTU Per Hour
T04	Other Treatment	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Short Tons Per Day; BTUs Per Hour; Gallons Per Day; Liters Per Hour; or Million BTU Per Hour
T80	Boiler	Gallons; Liters; Gallons Per Hour; Liters Per Hour; BTUs Per Hour; or Million BTU Per Hour

Process Code	Process	Appropriate Unit of Measure for Process Design Capacity (for T81 – T94)
Treatment (Continued)		
T81	Cement Kiln	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; BTU Per Hour; Liters Per Hour; Kilograms Per Hour; or Million BTU Per Hour
T82	Lime Kiln	
T83	Aggregate Kiln	
T84	Phosphate Kiln	
T85	Coke Oven	
T86	Blast Furnace	
T87	Smelting, Melting, or Refining Furnace	
T88	Titanium Dioxide Chloride Oxidation Reactor	
T89	Methane Reforming Furnace	
T90	Pulping Liquor Recovery Furnace	
T91	Combustion Device Used in the Recovery of Sulfur Values from Spent Sulfuric Acid	
T92	Halogen Acid Furnaces	
T93	Other Industrial Furnaces Listed in 40 CFR 260.10	
T94	Containment Building Treatment	Cubic Yards; Cubic Meters; Short Tons Per Hour; Gallons Per Hour; Liters Per Hour; BTU Per Hour; Pounds Per Hour; Short Tons Per Day; Kilograms Per Hour; Metric Tons Per Day; Gallons Per Day; Liters Per Day; Metric Tons Per Hour; or Million BTU Per Hour
Miscellaneous (Subpart X)		
X01	Open Burning/Open Detonation	Any Unit of Measure Listed Below
X02	Mechanical Processing	Short Tons Per Hour; Metric Tons Per Hour; Short Tons Per Day; Metric Tons Per Day; Pounds Per Hour; Kilograms Per Hour; Gallons Per Hour; Liters Per Hour; or Gallons Per Day
X03	Thermal Unit	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; BTU Per Hour; or Million BTU Per Hour
X04	Geologic Repository	Cubic Yards; Cubic Meters; Acre-feet; Hectare-meter; Gallons; or Liters
X99	Other Subpart X	Any Unit of Measure Listed Below

Unit of Measure	Unit of Measure Code
Gallons	G
Gallons Per Hour	E
Gallons Per Day	U
Liters	L
Liters Per Hour	H
Liters Per Day	V

Unit of Measure	Unit of Measure Code
Short Tons Per Hour	D
Short Tons Per Day	N
Metric Tons Per Hour	W
Metric Tons Per Day	S
Pounds Per Hour	J
Kilograms Per Hour	X
Million BTU Per Hour	X

Unit of Measure	Unit of Measure Code
Cubic Yards	Y
Cubic Meters	C
Acres	B
Acre-feet	A
Hectares	Q
Hectare-meter	F
BTU Per Hour	I

7. Process Codes and Design Capacities (Continued)

EXAMPLE FOR COMPLETING Item 7 (shown in line number X-1 below): A facility has a storage tank, which can hold 533.788 gallons.

Line Number		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure	C. Process Total Number of Units	For Official Use Only
X	1	S	0	2	533.788	G	001	
	1	S	0	1	14,685	G	002	
	2	S	0	2	155,579	G	015	
	3	T	0	1	155,579	G	015	
	4	T	8	3	1,236	E	002	
	5							
	6							
	7							
	8							
	9							
1	0							
1	1							
1	2							
1	3							

Note: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the line sequentially, taking into account any lines that will be used for "other" process (i.e., D99, S99, T04, and X99) in Item 8.

8. Other Processes (Follow instructions from Item 7 for D99, S99, T04, and X99 process codes)

Line Number (Enter #s in sequence with Item 7)		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure	C. Process Total Number of Units	For Official Use Only
X	2	T	0	4	100.00	U	001	

9. Description of Hazardous Wastes - Enter Information in the Sections on Form Page 5

A. EPA HAZARDOUS WASTE NUMBER – Enter the four-digit number from 40 CFR, Part 261 Subpart D of each listed hazardous waste you will handle. For hazardous wastes which are not listed in 40 CFR, Part 261 Subpart D, enter the four-digit number(s) from 40 CFR Part 261, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

B. ESTIMATED ANNUAL QUANTITY – For each listed waste entered in Item 9.A, estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in Item 9.A, estimate the total annual quantity of all the non-listed waste(s) that will be handled which possess that characteristic or contaminant.

C. UNIT OF MEASURE – For each quantity entered in Item 9.B, enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure, taking into account the appropriate density or specific gravity of the waste.

D. PROCESSES

1. PROCESS CODES:

For listed hazardous waste: For each listed hazardous waste entered in Item 9.A, select the code(s) from the list of process codes contained in Items 7.A and 8.A on page 3 to indicate all the processes that will be used to store, treat, and/or dispose of all listed hazardous wastes.

For non-listed waste: For each characteristic or toxic contaminant entered in Item 9.A, select the code(s) from the list of process codes contained in Items 7.A and 8.A on page 3 to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed hazardous wastes that possess that characteristic or toxic contaminant.

NOTE: THREE SPACES ARE PROVIDED FOR ENTERING PROCESS CODES. IF MORE ARE NEEDED:

1. **Enter the first two as described above.**
2. **Enter "000" in the extreme right box of Item 9.D(1).**
3. **Use additional sheet, enter line number from previous sheet, and enter additional code(s) in Item 9.E.**

2. PROCESS DESCRIPTION: If code is not listed for a process that will be used, describe the process in Item 9.D(2) or in Item 9.E(2).

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER – Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. **Select one of the EPA Hazardous Waste Numbers and enter it in Item 9.A. On the same line complete Items 9.B, 9.C, and 9.D by estimating the total annual quantity of the waste and describing all the processes to be used to store, treat, and/or dispose of the waste.**
2. **In Item 9.A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In Item 9.D.2 on that line enter "included with above" and make no other entries on that line.**
3. **Repeat step 2 for each EPA Hazardous Waste Number that can be used to describe the hazardous waste.**

EXAMPLE FOR COMPLETING Item 9 (shown in line numbers X-1, X-2, X-3, and X-4 below) – A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operations. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Qty of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter Code)									D. PROCESSES (2) PROCESS DESCRIPTION (If code is not entered in 9.D(1))
X	1	K	0	5	4	900	P	T	0	3	D	8	0				
X	2	D	0	0	2	400	P	T	0	3	D	8	0				
X	3	D	0	0	1	100	P	T	0	3	D	8	0				
X	4	D	0	0	2												Included With Above

9. Description of Hazardous Wastes ***(Continued. Use additional sheet(s) as necessary; number pages as 5a, etc.)***

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Qty of Waste	C. Unit of Measure (Enter code)	D. PROCESSES									
								(1) PROCESS CODES (Enter Code)									(2) PROCESS DESCRIPTION (If code is not entered in 9.D(1))
	1	D	0	0	1	10,000	T	S	0	1	S	0	2	T	8	3	
	2	F	0	0	1	4,000	T	S	0	1	S	0	2	T	8	3	
	3	F	0	0	2	4,000	T	S	0	1	S	0	2	T	8	3	
	4	F	0	0	3	4,000	T	S	0	1	S	0	2	T	8	3	
	5	F	0	0	5	4,000	T	S	0	1	S	0	2	T	8	3	
	6	D	0	0	2	1,000	T	S	0	1	S	0	2	T	8	3	
	7	D	0	0	3	1,000	T	S	0	1	S	0	2	T	8	3	
	8	D	0	0	4	1,000	T	S	0	1	S	0	2	T	8	3	
	9	D	0	0	5	1,000	T	S	0	1	S	0	2	T	8	3	
1	0	D	0	0	6	1,000	T	S	0	1	S	0	2	T	8	3	
1	1	D	0	0	7	1,000	T	S	0	1	S	0	2	T	8	3	
1	2	D	0	0	8	1,000	T	S	0	1	S	0	2	T	8	3	
1	3	D	0	0	9	1,000	T	S	0	1	S	0	2	T	8	3	
1	4	D	0	1	0	1,000	T	S	0	1	S	0	2	T	8	3	
1	5	D	0	1	1	1,000	T	S	0	1	S	0	2	T	8	3	
1	6	D	0	1	8	1,000	T	S	0	1	S	0	2	T	8	3	
1	7	D	0	1	9	1,000	T	S	0	1	S	0	2	T	8	3	
1	8	D	0	2	1	1,000	T	S	0	1	S	0	2	T	8	3	
1	9	D	0	2	2	1,000	T	S	0	1	S	0	2	T	8	3	
2	0	D	0	2	3	1,000	T	S	0	1	S	0	2	T	8	3	
2	1	D	0	2	4	1,000	T	S	0	1	S	0	2	T	8	3	
2	2	D	0	2	5	1,000	T	S	0	1	S	0	2	T	8	3	
2	3	D	0	2	6	1,000	T	S	0	1	S	0	2	T	8	3	
2	4	D	0	2	7	1,000	T	S	0	1	S	0	2	T	8	3	
2	5	D	0	2	8	1,000	T	S	0	1	S	0	2	T	8	3	
2	6	D	0	2	9	1,000	T	S	0	1	S	0	2	T	8	3	
2	7	D	0	3	0	1,000	T	S	0	1	S	0	2	T	8	3	
2	8	D	0	3	2	1,000	T	S	0	1	S	0	2	T	8	3	
2	9	D	0	3	3	1,000	T	S	0	1	S	0	2	T	8	3	
3	0	D	0	3	4	1,000	T	S	0	1	S	0	2	T	8	3	
3	1	D	0	3	5	1,000	T	S	0	1	S	0	2	T	8	3	
3	2	D	0	3	6	1,000	T	S	0	1	S	0	2	T	8	3	
3	3	D	0	3	7	1,000	T	S	0	1	S	0	2	T	8	3	
3	4	D	0	3	8	1,000	T	S	0	1	S	0	2	T	8	3	
3	5	D	0	3	9	1,000	T	S	0	1	S	0	2	T	8	3	
3	6	D	0	4	0	1,000	T	S	0	1	S	0	2	T	8	3	

9. Description of Hazardous Wastes *(Continued. Use additional sheet(s) as necessary; number pages as 5a, etc.)*

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Qty of Waste	C. Unit of Measure (Enter code)	D. PROCESSES									
								(1) PROCESS CODES (Enter Code)									(2) PROCESS DESCRIPTION (If code is not entered in 9.D.1)
3	7	D	0	4	1	1,000	T	S	0	1	S	0	2	T	8	3	
3	8	D	0	4	2	1,000	T	S	0	1	S	0	2	T	8	3	
3	9	D	0	4	3	1,000	T	S	0	1	S	0	2	T	8	3	
4	0	F	0	0	4	1,000	T	S	0	1	S	0	2	T	8	3	
4	1	F	0	3	2	1,000	T	S	0	1	S	0	2	T	8	3	
4	2	F	0	3	4	1,000	T	S	0	1	S	0	2	T	8	3	
4	3	F	0	3	5	1,000	T	S	0	1	S	0	2	T	8	3	
4	4	F	0	3	7	1,000	T	S	0	1	S	0	2	T	8	3	
4	5	F	0	3	8	1,000	T	S	0	1	S	0	2	T	8	3	
4	6	F	0	3	9	1,000	T	S	0	1	S	0	2	T	8	3	
4	7	K	0	0	1	1,000	T	S	0	1	S	0	2	T	8	3	
4	8	K	0	0	2	1,000	T	S	0	1	S	0	2	T	8	3	
4	9	K	0	0	3	1,000	T	S	0	1	S	0	2	T	8	3	
5	0	K	0	0	4	1,000	T	S	0	1	S	0	2	T	8	3	
5	1	K	0	0	5	1,000	T	S	0	1	S	0	2	T	8	3	
5	2	K	0	0	6	1,000	T	S	0	1	S	0	2	T	8	3	
5	3	K	0	0	7	1,000	T	S	0	1	S	0	2	T	8	3	
5	4	K	0	0	8	1,000	T	S	0	1	S	0	2	T	8	3	
5	5	K	0	0	9	1,000	T	S	0	1	S	0	2	T	8	3	
5	6	K	0	1	0	1,000	T	S	0	1	S	0	2	T	8	3	
5	7	K	0	1	1	1,000	T	S	0	1	S	0	2	T	8	3	
5	8	K	0	1	3	1,000	T	S	0	1	S	0	2	T	8	3	
5	9	K	0	1	4	1,000	T	S	0	1	S	0	2	T	8	3	
6	0	K	0	1	5	1,000	T	S	0	1	S	0	2	T	8	3	
6	1	K	0	1	6	1,000	T	S	0	1	S	0	2	T	8	3	
6	2	K	0	1	7	1,000	T	S	0	1	S	0	2	T	8	3	
6	3	K	0	1	8	1,000	T	S	0	1	S	0	2	T	8	3	
6	4	K	0	1	9	1,000	T	S	0	1	S	0	2	T	8	3	
6	5	K	0	2	0	1,000	T	S	0	1	S	0	2	T	8	3	
6	6	K	0	2	2	1,000	T	S	0	1	S	0	2	T	8	3	
6	7	K	0	2	3	1,000	T	S	0	1	S	0	2	T	8	3	
6	8	K	0	2	4	1,000	T	S	0	1	S	0	2	T	8	3	
6	9	K	0	2	5	1,000	T	S	0	1	S	0	2	T	8	3	
7	0	K	0	2	6	1,000	T	S	0	1	S	0	2	T	8	3	
7	1	K	0	2	7	1,000	T	S	0	1	S	0	2	T	8	3	
7	2	K	0	2	8	1,000	T	S	0	1	S	0	2	T	8	3	

EPA ID Number | N | Y | D | 0 | 8 | 0 | 4 | 6 | 9 | 9 | 3 | 5 |

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9. Description of Hazardous Wastes ***(Continued. Use additional sheet(s) as necessary; number pages as 5a, etc.)***

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Qty of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter Code)	(2) PROCESS DESCRIPTION (If code is not entered in 9.D.1)
73	K029	1,000	T	S01 S02 T83	
74	K030	1,000	T	S01 S02 T83	
75	K046	1,000	T	S01 S02 T83	
76	K048	1,000	T	S01 S02 T83	
66	K049	1,000	T	S01 S02 T83	
78	K050	1,000	T	S01 S02 T83	
79	K051	1,000	T	S01 S02 T83	
80	K052	1,000	T	S01 S02 T83	
81	K060	1,000	T	S01 S02 T83	
82	K061	1,000	T	S01 S02 T83	
83	K062	1,000	T	S01 S02 T83	
84	K083	1,000	T	S01 S02 T83	
85	K084	1,000	T	S01 S02 T83	
86	K085	1,000	T	S01 S02 T83	
87	K086	1,000	T	S01 S02 T83	
88	K087	1,000	T	S01 S02 T83	
89	K093	1,000	T	S01 S02 T83	
90	K094	1,000	T	S01 S02 T83	
91	K095	1,000	T	S01 S02 T83	
92	K096	1,000	T	S01 S02 T83	
93	K100	1,000	T	S01 S02 T83	
94	K101	1,000	T	S01 S02 T83	
95	K102	1,000	T	S01 S02 T83	
96	K103	1,000	T	S01 S02 T83	
97	K104	1,000	T	S01 S02 T83	
98	K105	1,000	T	S01 S02 T83	
99	K106	1,000	T	S01 S02 T83	
100	K111	1,000	T	S01 S02 T83	
101	K112	1,000	T	S01 S02 T83	
102	K113	1,000	T	S01 S02 T83	
103	K114	1,000	T	S01 S02 T83	
104	K115	1,000	T	S01 S02 T83	
105	K116	1,000	T	S01 S02 T83	
106	K117	1,000	T	S01 S02 T83	
107	K136	1,000	T	S01 S02 T83	
108	K141	1,000	T	S01 S02 T83	

9. Description of Hazardous Wastes ***(Continued. Use additional sheet(s) as necessary; number pages as 5a, etc.)***

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Qty of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter Code)	(2) PROCESS DESCRIPTION (If code is not entered in 9.D.1)
109	K142	1,000	T	S01S02T83	
110	K143	1,000	T	S01S02T83	
111	K144	1,000	T	S01S02T83	
112	K145	1,000	T	S01S02T83	
113	K147	1,000	T	S01S02T83	
114	K148	1,000	T	S01S02T83	
115	K149	1,000	T	S01S02T83	
116	K150	1,000	T	S01S02T83	
117	K151	1,000	T	S01S02T83	
118	K152	1,000	T	S01S02T83	
119	K156	1,000	T	S01S02T83	
120	K157	1,000	T	S01S02T83	
121	K158	1,000	T	S01S02T83	
122	K159	1,000	T	S01S02T83	
123	K161	1,000	T	S01S02T83	
124	P002	1,000	T	S01S02T83	
125	P003	1,000	T	S01S02T83	
126	P005	1,000	T	S01S02T83	
127	P007	1,000	T	S01S02T83	
128	P010	1,000	T	S01S02T83	
129	P011	1,000	T	S01S02T83	
130	P012	1,000	T	S01S02T83	
131	P013	1,000	T	S01S02T83	
132	P014	1,000	T	S01S02T83	
133	P016	1,000	T	S01S02T83	
134	P017	1,000	T	S01S02T83	
135	P018	1,000	T	S01S02T83	
136	P021	1,000	T	S01S02T83	
137	P022	1,000	T	S01S02T83	
138	P023	1,000	T	S01S02T83	
139	P026	1,000	T	S01S02T83	
140	P028	1,000	T	S01S02T83	
141	P029	1,000	T	S01S02T83	
142	P030	1,000	T	S01S02T83	
143	P031	1,000	T	S01S02T83	
144	P033	1,000	T	S01S02T83	

9. Description of Hazardous Wastes ***(Continued. Use additional sheet(s) as necessary; number pages as 5a, etc.)***

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Qty of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter Code)	(2) PROCESS DESCRIPTION (If code is not entered in 9.D.1)
145	P036	1,000	T	S01 S02 T83	
146	P038	1,000	T	S01 S02 T83	
147	P041	1,000	T	S01 S02 T83	
148	P042	1,000	T	S01 S02 T83	
149	P046	1,000	T	S01 S02 T83	
150	P048	1,000	T	S01 S02 T83	
151	P049	1,000	T	S01 S02 T83	
152	P054	1,000	T	S01 S02 T83	
153	P060	1,000	T	S01 S02 T83	
154	P062	1,000	T	S01 S02 T83	
155	P064	1,000	T	S01 S02 T83	
156	P067	1,000	T	S01 S02 T83	
157	P068	1,000	T	S01 S02 T83	
158	P069	1,000	T	S01 S02 T83	
159	P074	1,000	T	S01 S02 T83	
160	P077	1,000	T	S01 S02 T83	
161	P082	1,000	T	S01 S02 T83	
162	P084	1,000	T	S01 S02 T83	
163	P093	1,000	T	S01 S02 T83	
164	P099	1,000	T	S01 S02 T83	
165	P101	1,000	T	S01 S02 T83	
166	P103	1,000	T	S01 S02 T83	
167	P104	1,000	T	S01 S02 T83	
168	P105	1,000	T	S01 S02 T83	
169	P110	1,000	T	S01 S02 T83	
170	P113	1,000	T	S01 S02 T83	
171	P114	1,000	T	S01 S02 T83	
172	P116	1,000	T	S01 S02 T83	
173	P118	1,000	T	S01 S02 T83	
174	P119	1,000	T	S01 S02 T83	
175	P120	1,000	T	S01 S02 T83	
176	P121	1,000	T	S01 S02 T83	
177	P123	1,000	T	S01 S02 T83	
178	P188	1,000	T	S01 S02 T83	
179	P189	1,000	T	S01 S02 T83	
180	P204	1,000	T	S01 S02 T83	

9. Description of Hazardous Wastes ***(Continued. Use additional sheet(s) as necessary; number pages as 5a, etc.)***

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Qty of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter Code)	(2) PROCESS DESCRIPTION (If code is not entered in 9.D.1)
1 8 1	U 0 0 1	1,000	T	S 0 1 S 0 2 T 8 3	
1 8 2	U 0 0 2	1,000	T	S 0 1 S 0 2 T 8 3	
1 8 3	U 0 0 3	1,000	T	S 0 1 S 0 2 T 8 3	
1 8 4	U 0 0 4	1,000	T	S 0 1 S 0 2 T 8 3	
1 8 5	U 0 0 5	1,000	T	S 0 1 S 0 2 T 8 3	
1 8 6	U 0 0 6	1,000	T	S 0 1 S 0 2 T 8 3	
1 8 7	U 0 0 7	1,000	T	S 0 1 S 0 2 T 8 3	
1 8 8	U 0 0 8	1,000	T	S 0 1 S 0 2 T 8 3	
1 8 9	U 0 0 9	1,000	T	S 0 1 S 0 2 T 8 3	
1 9 0	U 0 1 0	1,000	T	S 0 1 S 0 2 T 8 3	
1 9 1	U 0 1 2	1,000	T	S 0 1 S 0 2 T 8 3	
1 9 2	U 0 1 5	1,000	T	S 0 1 S 0 2 T 8 3	
1 9 3	U 0 1 6	1,000	T	S 0 1 S 0 2 T 8 3	
1 9 4	U 0 1 7	1,000	T	S 0 1 S 0 2 T 8 3	
1 9 5	U 0 1 8	1,000	T	S 0 1 S 0 2 T 8 3	
1 9 6	U 0 1 9	1,000	T	S 0 1 S 0 2 T 8 3	
1 9 7	U 0 2 0	1,000	T	S 0 1 S 0 2 T 8 3	
1 9 8	U 0 2 1	1,000	T	S 0 1 S 0 2 T 8 3	
1 9 9	U 0 2 2	1,000	T	S 0 1 S 0 2 T 8 3	
2 0 0	U 0 2 4	1,000	T	S 0 1 S 0 2 T 8 3	
2 0 1	U 0 2 5	1,000	T	S 0 1 S 0 2 T 8 3	
2 0 2	U 0 2 7	1,000	T	S 0 1 S 0 2 T 8 3	
2 0 3	U 0 2 8	1,000	T	S 0 1 S 0 2 T 8 3	
2 0 4	U 0 3 0	1,000	T	S 0 1 S 0 2 T 8 3	
2 0 5	U 0 3 1	1,000	T	S 0 1 S 0 2 T 8 3	
2 0 6	U 0 3 4	1,000	T	S 0 1 S 0 2 T 8 3	
2 0 7	U 0 3 5	1,000	T	S 0 1 S 0 2 T 8 3	
2 0 8	U 0 3 7	1,000	T	S 0 1 S 0 2 T 8 3	
2 0 9	U 0 3 9	1,000	T	S 0 1 S 0 2 T 8 3	
2 1 0	U 0 4 1	1,000	T	S 0 1 S 0 2 T 8 3	
2 1 1	U 0 4 2	1,000	T	S 0 1 S 0 2 T 8 3	
2 1 2	U 0 4 3	1,000	T	S 0 1 S 0 2 T 8 3	
2 1 3	U 0 4 4	1,000	T	S 0 1 S 0 2 T 8 3	
2 1 4	U 0 4 5	1,000	T	S 0 1 S 0 2 T 8 3	
2 1 5	U 0 4 6	1,000	T	S 0 1 S 0 2 T 8 3	
2 1 6	U 0 4 7	1,000	T	S 0 1 S 0 2 T 8 3	

EPA ID Number | N | Y | D | 0 | 8 | 0 | 4 | 6 | 9 | 9 | 3 | 5 |

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9. Description of Hazardous Wastes ***(Continued. Use additional sheet(s) as necessary; number pages as 5a, etc.)***

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Qty of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter Code)	(2) PROCESS DESCRIPTION (If code is not entered in 9.D.1)
217	U048	1,000	T	S01 S02 T83	
218	U049	1,000	T	S01 S02 T83	
219	U050	1,000	T	S01 S02 T83	
220	U051	1,000	T	S01 S02 T83	
221	U052	1,000	T	S01 S02 T83	
222	U053	1,000	T	S01 S02 T83	
223	U055	1,000	T	S01 S02 T83	
224	U056	1,000	T	S01 S02 T83	
225	U057	1,000	T	S01 S02 T83	
226	U059	1,000	T	S01 S02 T83	
227	U063	1,000	T	S01 S02 T83	
228	U064	1,000	T	S01 S02 T83	
229	U066	1,000	T	S01 S02 T83	
230	U069	1,000	T	S01 S02 T83	
231	U070	1,000	T	S01 S02 T83	
232	U071	1,000	T	S01 S02 T83	
233	U072	1,000	T	S01 S02 T83	
234	U073	1,000	T	S01 S02 T83	
235	U074	1,000	T	S01 S02 T83	
236	U075	1,000	T	S01 S02 T83	
237	U076	1,000	T	S01 S02 T83	
238	U077	1,000	T	S01 S02 T83	
239	U078	1,000	T	S01 S02 T83	
240	U079	1,000	T	S01 S02 T83	
241	U080	1,000	T	S01 S02 T83	
242	U081	1,000	T	S01 S02 T83	
243	U082	1,000	T	S01 S02 T83	
244	U083	1,000	T	S01 S02 T83	
245	U084	1,000	T	S01 S02 T83	
246	U085	1,000	T	S01 S02 T83	
247	U086	1,000	T	S01 S02 T83	
248	U087	1,000	T	S01 S02 T83	
249	U088	1,000	T	S01 S02 T83	
250	U089	1,000	T	S01 S02 T83	
251	U090	1,000	T	S01 S02 T83	
252	U091	1,000	T	S01 S02 T83	

EPA ID Number | N | Y | D | 0 | 8 | 0 | 4 | 6 | 9 | 9 | 3 | 5 |

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9. Description of Hazardous Wastes ***(Continued. Use additional sheet(s) as necessary; number pages as 5a, etc.)***

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Qty of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter Code)	(2) PROCESS DESCRIPTION (If code is not entered in 9.D.1)
253	U093	1,000	T	S01 S02 T83	
254	U094	1,000	T	S01 S02 T83	
255	U095	1,000	T	S01 S02 T83	
256	U096	1,000	T	S01 S02 T83	
257	U097	1,000	T	S01 S02 T83	
258	U098	1,000	T	S01 S02 T83	
259	U099	1,000	T	S01 S02 T83	
260	U101	1,000	T	S01 S02 T83	
261	U102	1,000	T	S01 S02 T83	
262	U103	1,000	T	S01 S02 T83	
263	U105	1,000	T	S01 S02 T83	
264	U106	1,000	T	S01 S02 T83	
265	U107	1,000	T	S01 S02 T83	
266	U108	1,000	T	S01 S02 T83	
267	U109	1,000	T	S01 S02 T83	
268	U110	1,000	T	S01 S02 T83	
269	U111	1,000	T	S01 S02 T83	
270	U112	1,000	T	S01 S02 T83	
271	U113	1,000	T	S01 S02 T83	
272	U114	1,000	T	S01 S02 T83	
273	U115	1,000	T	S01 S02 T83	
274	U116	1,000	T	S01 S02 T83	
275	U117	1,000	T	S01 S02 T83	
276	U118	1,000	T	S01 S02 T83	
277	U119	1,000	T	S01 S02 T83	
278	U120	1,000	T	S01 S02 T83	
279	U121	1,000	T	S01 S02 T83	
280	U122	1,000	T	S01 S02 T83	
281	U123	1,000	T	S01 S02 T83	
282	U124	1,000	T	S01 S02 T83	
283	U125	1,000	T	S01 S02 T83	
284	U126	1,000	T	S01 S02 T83	
285	U127	1,000	T	S01 S02 T83	
286	U128	1,000	T	S01 S02 T83	
287	U129	1,000	T	S01 S02 T83	
288	U130	1,000	T	S01 S02 T83	

9. Description of Hazardous Wastes ***(Continued. Use additional sheet(s) as necessary; number pages as 5a, etc.)***

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Qty of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter Code)	(2) PROCESS DESCRIPTION (If code is not entered in 9.D.1)
289	U134	1,000	T	S01 S02 T83	
290	U135	1,000	T	S01 S02 T83	
291	U137	1,000	T	S01 S02 T83	
292	U138	1,000	T	S01 S02 T83	
293	U140	1,000	T	S01 S02 T83	
294	U141	1,000	T	S01 S02 T83	
295	U143	1,000	T	S01 S02 T83	
296	U144	1,000	T	S01 S02 T83	
297	U146	1,000	T	S01 S02 T83	
298	U147	1,000	T	S01 S02 T83	
299	U149	1,000	T	S01 S02 T83	
300	U150	1,000	T	S01 S02 T83	
301	U151	1,000	T	S01 S02 T83	
302	U152	1,000	T	S01 S02 T83	
303	U153	1,000	T	S01 S02 T83	
304	U154	1,000	T	S01 S02 T83	
305	U155	1,000	T	S01 S02 T83	
306	U156	1,000	T	S01 S02 T83	
307	U157	1,000	T	S01 S02 T83	
308	U158	1,000	T	S01 S02 T83	
309	U159	1,000	T	S01 S02 T83	
310	U160	1,000	T	S01 S02 T83	
311	U161	1,000	T	S01 S02 T83	
312	U162	1,000	T	S01 S02 T83	
313	U163	1,000	T	S01 S02 T83	
314	U164	1,000	T	S01 S02 T83	
315	U165	1,000	T	S01 S02 T83	
316	U166	1,000	T	S01 S02 T83	
317	U167	1,000	T	S01 S02 T83	
318	U168	1,000	T	S01 S02 T83	
319	U169	1,000	T	S01 S02 T83	
320	U170	1,000	T	S01 S02 T83	
321	U171	1,000	T	S01 S02 T83	
322	U172	1,000	T	S01 S02 T83	
323	U173	1,000	T	S01 S02 T83	
324	U174	1,000	T	S01 S02 T83	

9. Description of Hazardous Wastes ***(Continued. Use additional sheet(s) as necessary; number pages as 5a, etc.)***

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Qty of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter Code)	(2) PROCESS DESCRIPTION (If code is not entered in 9.D.1)
325	U177	1,000	T	S01S02T83	
326	U178	1,000	T	S01S02T83	
327	U179	1,000	T	S01S02T83	
328	U180	1,000	T	S01S02T83	
329	U181	1,000	T	S01S02T83	
330	U182	1,000	T	S01S02T83	
331	U183	1,000	T	S01S02T83	
332	U186	1,000	T	S01S02T83	
333	U187	1,000	T	S01S02T83	
334	U188	1,000	T	S01S02T83	
335	U190	1,000	T	S01S02T83	
336	U191	1,000	T	S01S02T83	
337	U193	1,000	T	S01S02T83	
338	U194	1,000	T	S01S02T83	
339	U196	1,000	T	S01S02T83	
340	U197	1,000	T	S01S02T83	
341	U201	1,000	T	S01S02T83	
342	U202	1,000	T	S01S02T83	
343	U203	1,000	T	S01S02T83	
344	U206	1,000	T	S01S02T83	
345	U207	1,000	T	S01S02T83	
346	U208	1,000	T	S01S02T83	
347	U209	1,000	T	S01S02T83	
348	U210	1,000	T	S01S02T83	
349	U211	1,000	T	S01S02T83	
350	U213	1,000	T	S01S02T83	
351	U214	1,000	T	S01S02T83	
352	U215	1,000	T	S01S02T83	
353	U216	1,000	T	S01S02T83	
354	U217	1,000	T	S01S02T83	
355	U218	1,000	T	S01S02T83	
356	U219	1,000	T	S01S02T83	
357	U220	1,000	T	S01S02T83	
358	U221	1,000	T	S01S02T83	
359	U222	1,000	T	S01S02T83	
360	U223	1,000	T	S01S02T83	

EPA ID Number | N | Y | D | 0 | 8 | 0 | 4 | 6 | 9 | 9 | 3 | 5 |

OMB#: 2050-0024; Expires 12/31/2014

9. Description of Hazardous Wastes ***(Continued. Use additional sheet(s) as necessary; number pages as 5a, etc.)***

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Qty of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter Code)	(2) PROCESS DESCRIPTION (If code is not entered in 9.D.1)
361	U228	1,000	T	S01 S02 T83	
362	U235	1,000	T	S01 S02 T83	
363	U236	1,000	T	S01 S02 T83	
364	U238	1,000	T	S01 S02 T83	
365	U239	1,000	T	S01 S02 T83	
366	U243	1,000	T	S01 S02 T83	
367	U244	1,000	T	S01 S02 T83	
368	U246	1,000	T	S01 S02 T83	
369	U277	1,000	T	S01 S02 T83	
370	U328	1,000	T	S01 S02 T83	
371	U353	1,000	T	S01 S02 T83	
372	U359	1,000	T	S01 S02 T83	
373	U364	1,000	T	S01 S02 T83	
374	U365	1,000	T	S01 S02 T83	
375	U366	1,000	T	S01 S02 T83	
376	U367	1,000	T	S01 S02 T83	
377	U372	1,000	T	S01 S02 T83	
378	U373	1,000	T	S01 S02 T83	
379	U375	1,000	T	S01 S02 T83	
380	U376	1,000	T	S01 S02 T83	
381	U378	1,000	T	S01 S02 T83	
382	U379	1,000	T	S01 S02 T83	
383	U381	1,000	T	S01 S02 T83	
384	U382	1,000	T	S01 S02 T83	
385	U383	1,000	T	S01 S02 T83	
386	U386	1,000	T	S01 S02 T83	
387	U387	1,000	T	S01 S02 T83	
388	U389	1,000	T	S01 S02 T83	
389	U390	1,000	T	S01 S02 T83	
390	U391	1,000	T	S01 S02 T83	
391	U392	1,000	T	S01 S02 T83	
392	U400	1,000	T	S01 S02 T83	
393	U401	1,000	T	S01 S02 T83	
394	U402	1,000	T	S01 S02 T83	
395	U403	1,000	T	S01 S02 T83	
396	U404	1,000	T	S01 S02 T83	

EPA ID Number | N | Y | D | 0 | 8 | 0 | 4 | 6 | 9 | 9 | 3 | 5 |

OMB#: 2050-0024; Expires 12/31/2014

9. Description of Hazardous Wastes ***(Continued. Use additional sheet(s) as necessary; number pages as 5a, etc.)***

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Qty of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter Code)	(2) PROCESS DESCRIPTION (If code is not entered in 9.D.1)
397	U407	1,000	T	S01 S02 T83	
398	U410	1,000	T	S01 S02 T83	
399	K170	1,000	T	S01 S02 T83	
400		1,000	T	S01 S02 T83	
401		1,000	T	S01 S02 T83	
402		1,000	T	S01 S02 T83	
403		1,000	T	S01 S02 T83	
404		1,000	T	S01 S02 T83	
405		1,000	T	S01 S02 T83	

10. 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.

11. Facility Drawing

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

12. 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).

13. Comments

RCRA PART 373 PERMIT
EXECUTIVE SUMMARY/FACILITY BRIEFING DOCUMENT

NORLITE, LLC
COHOES, NEW YORK

June 2014

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 Environmental Affairs
DEC Contact/Responsible Permit Writer:	Thomas VanVranken, Environmental Manager
Initial/Renewal Permit:	Renewal Permit
Permit Term/Expiration Date:	
Estimated Closure Cost:	
Estimated Post-Closure Care Cost:	
Estimated Corrective Action Cost:	
On-site Environmental Monitor(s):	Joseph Hadersback
Annual Monitor Payment/Reimbursable State Costs:	

1.2 General Description

The Norlite LLC facility is 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 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 acres 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.

1.4 Site Map

Please see permit drawing labeled as 373-Map REVISED which details the facility's permitted units, boundaries, wind rows, north directional, 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

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]	2 areas 267 units	Storage	Hazardous Waste Fuels	14,685 gallons
Tanks (S02)	3 areas 15 units	Storage	Hazardous Waste Fuels	155,579 gallons
Industrial Furnaces (T03)	1 areas 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 Rolloff Staging Area

3.0 CORRECTIVE ACTION SUMMARY

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

At this time there are no corrective actions which planned or are underway at the facility.

Location Name / Designation	Activity Description	Estimated Completion Date

4.0 POST-CLOSURE CARE/SITE MANAGEMENT

The facility has an NYSDEC-approved:

Yes	No	
☒	☐	Post-Closure Plan
☒	☐	Site Management Plan

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

At this time there are actives occurring with the facility related to the post-closure and site management plans.

Area/Regulated Unit	Activity Description

4.1 Institutional Controls

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

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 storage are blanketed with inert nitrogen gas and the tanks are vented to the kilns via a sealed system to control emissions.

The kilns themselves are operated under negative pressure and vented through air pollution control systems including multi-cyclone particulate control, heat exchangers, fabric filter baghouses and wet scrubbers.

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 risk calculations were performed.

5.2 Regulatory Compliance History

Norlite received Order on Consent R4-2009-0610-101 in 2010. Norlite has completed all items in the Schedule of Compliance except for items related to Paragraph 12 of the Schedule of Compliance. Paragraph 12 specifically deals with fuel blending and fuel delivery to the kilns from the Fuel Farm area. Norlite has been working with the Department to complete the requirement of this schedule item.

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.

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

5.3 Unresolved Issues and Concerns

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 intends to incorporate an automated fuel delivery system at the kilns into the new permit. Norlite received approval of the concept of the new system on January 13, 2104. Once overall approval has been granted the new automated system will need to be identified in the permit.

5.5 Public Participation

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

5.6 Upcoming Significant Permit Modifications

The facility has proposed to make minor feedrate changes to the operation based on the data from the latest Comprehensive Performance Test, conducted in October 2010 and January 2011.

5.7 Upcoming Construction/Closure Activities

The facility is not proposing any construction activities at this time. The facility will be proposing the closure of the SP-100 Tank located in the the Fuel Farm. Once the tank has been closed and removed, the facility will be proposing a new drum stacking pattern for inclusion with the permit.

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 2014

OPERATIONS PLAN

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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 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 D 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: _____ _____

Signature

Name: _____

Title: _____

Company: _____

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 systems.

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

1.3 Facility Capacity

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 Solids Processing Building	Liquid Waste Storage in 5, 15, 30, 55 and 85 gallon drums. Emptying drums to Tank 200A.	5, 15, 30, 55 Gallon Drums	9,900 gallons in 180 55-gallon drum equivalents
Truck Unloading Area	Liquid Waste Storage in 5, 15, 30, 55 and 85 gallon drums	5, 15, 30, 55 Gallon Drums	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 hazardous waste tankers and	Up to 50 cubic yard rolloff, 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 101A, 101B, 102A and 102B	 1,174 Gal 1,174 Gal 1,174 Gal 1,174 Gal	 1,266 Gal 1,266 Gal 1,266 Gal 1,266 Gal
LLGF and Solids Processing Building	LLGF Operating SP100 dispersion tank.	 527 Gal	 623 Gal

1. *Unit codes are as described in the Part A Application.*
2. *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.*
3. *85-gallon overpacks can be used to secure leaking/damaged drums.*
4. *The total volume stored in drums shall not exceed 14,700 gallons, which is equivalent to 267 55-gallon drums.*

1.4 Topographic Map

6NYCRR Subpart §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 annual wind rose. The annual 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 6NYCRR Subpart §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 Hazard Boundary Maps for the City of Cohoes 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 6NYCRR subpart §373-2.2(j)(1). Accordingly, the information requirements of 6NYCRR subpart §373-1.5(2)(xi)(b) are not applicable.

1.6 Traffic Information

6NYCRR Subpart §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 insure 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) truck loads 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 in 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. Approximately twenty-five (25) hopper bottom rail cars of lightweight aggregate are shipped from the site weekly. Movement of rail cars and the private siding is under control of the company.

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 (Norlite) 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 with two-way “push-to-talk” functionality 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. At no time is there only one employee 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

6NYCRR Subpart §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 (30) 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

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, 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

6NYCRR Subpart §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 below.

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 Areas #1 or #2 which provides secondary containment for the operation. Prior to delivery, the transporter must certify that 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
- 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 the 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 chemical resistant coating to contain spills. A roof is provided over the Loading/Unloading Area #1 and the Solids 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. The results of those tests and a discussion of the site geology are included in Norlite's Part 360 application for the additional tank storage that was submitted to the DEC. Additional copies of that application will be submitted upon request.

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 activate 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 6NYCRR Subpart §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 following areas of the Plant: 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.

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.

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 Incompatible Wastes in Tanks

To prevent the mixing of incompatible wastes, Norlite does 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, NY003-3319 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 § 372.3(a)(6) and (7). This area is not used for transfer of drums between trucks.

Norlite accepts drums for treatment, storage or disposal at other off-site permitted TSD facilities. Norlite therefore also functions as a transfer facility for facilitating movement of waste to other permitted treatment facilities. Truck-to-Truck drum transfers can only take place in unloading areas #1 or through the solids processing building as shown in Drawing NY003-2475-1.

Hazardous waste that is physically solid can be stored on the concrete pad on the west side of the solids 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 (9,900 gallons capacity) suitable for storage of 180 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 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 & Solids Processing Bldg.	180 (55 gal drum equivalent)	9,900	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 was 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. 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 3Details 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 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. Details of the area are found on Drawing NY003-3319.

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 review the integrity testing on the tanks using 6 NYCRR 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:

TANK #	DIAMETER	SIDE LENGTH	SHELL THICKNESS	MAX. CAPACITY (GALS.)
300	10'11"	40'10"	>3/8"	27,903
400	10'11'	40'10"	>3/8"	27,903
500	10'11'	40'10"	>3/8"	27,903
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
101A	5'	7'6"	1/4"	1,266
101B	5'	7'6"	1/4"	1,266
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 attached compatibility charts from "Technology for the Storage of Hazardous Liquids," NYSDEC January 1983 found in Appendix 6.

The tanks are filled with LLGF by off loading 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 drain pipes wrapped with filter fabric installed above each of the HDPE geo-membranes. The lower set of drain pipes discharge to the secondary spill containment area as shown. The liner is sealed to the drain pipes 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" drain pipes 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 to 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.

4.2 New Tank Systems

RESERVED

4.3 Secondary Containment for Tank Systems

The 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 1×10^{-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 and 200-series tanks 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 101-series and 102-series tanks 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 four (4) tanks housed within the structure. The floors are sealed with Phenoline 300 sealant.

4.4 Double-Walled Tanks/Diked Tanks

RESERVED

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. 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. And Tanks 101A,B and 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
200C	yes	yes, from the bell*	yes
101A	yes	Yes	yes
101B	yes	Yes	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 drain pipe 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 drain pipe under the Tanks 300, 400, 500 and 600 has sufficient flow capacity 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 drain pipe. The pipes are wrapped with a geotextile filter fabric to prevent sand from clogging the drain pipes. The PVC pipe between the tanks and the spill containment slab is non-perforated as shown on 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.

The compatibility of the tanks with solvents is shown in the charts referenced above. 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 as follows:

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

RESERVED

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.

Location/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 1700^{o}F to 2000^{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 22 tons per hour.

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	NA	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	No Yes

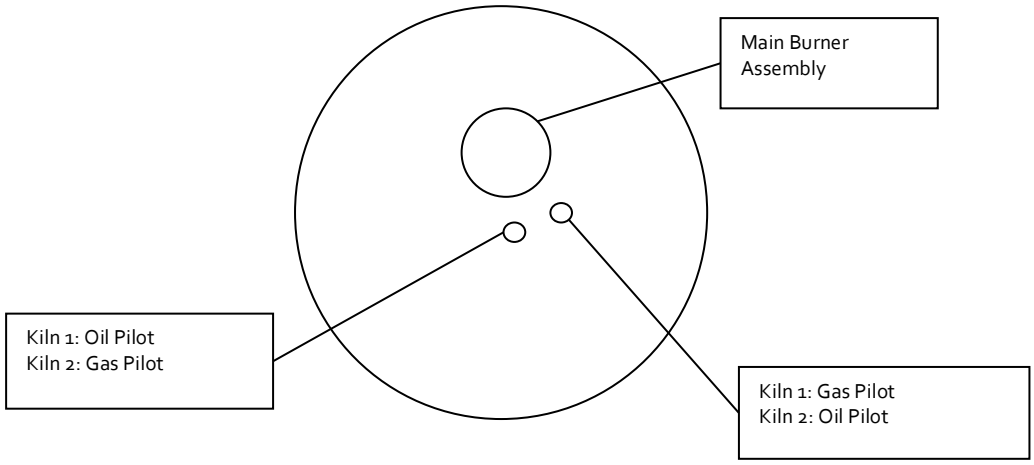
Note: NA = Not Applicable

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	Tank 9	Main Burner Assembly
Waste Fuel A	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
Vapors	NA	Main Burner Assembly
Air: Primary Atomization	NA	Main Burner Assembly

Each kiln has three injection points for these feeds: the main burner assembly, the oil pilot and 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 a Barrons 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 10.3 gpm. The facility has demonstrated and is requesting authorization to increase the maximum rate to 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 emission control systems. The systems include both wet and dry emission control devices for the collection and removal of particulate matter, metals, hydrogen chloride (HCl), and other gaseous species. The principal collection mechanisms employed by these devices are sedimentation, condensation, impaction, filtration and interception for particulates and metals, and absorption for HCl and other gaseous species.

Combustion gases and entrained particulates exiting the kiln pass through a mechanical collector, a Barrons multiple cyclone unit (multiclone), to remove large particulate matter. Particulates removed by this device accumulate in a hopper from which they are pneumatically conveyed to the Dust Storage Silos. Dust from these silos is beneficially used in a block mix product.

Gases exiting the multiclone then pass to an air cooler, a closed cycle air to air heat exchanger. Process gases enter the heat exchanger at approximately $900^{o}F$ and exit at approximately $450^{o}F$.

Following the heat exchanger, a three-module baghouse (fabric filter) is provided to remove fine particulates which are entrained in the gas. The baghouse is designed for operation on two modules while the third module is down for maintenance, however, hazardous waste is not fed unless all three modules are online. Hydrated lime ($Ca(OH)_2$) is continuously fed to the baghouse to enhance particulate removal and help control acid gases. Accumulated particulates and (partially) reacted lime is removed from the filter media by sequentially pulsing a small fraction of the filter bags at a time with compressed air. Particulates so removed accumulate in a hopper from which they are pneumatically conveyed to Dust Storage Silos. Like particulates removed from the multiclone, baghouse dust is beneficially used in a block mix product. A modulating damper located upstream of the baghouse automatically adjusts baghouse inlet gas temperatures (if required) to the range of $375^{o}F$ to $400^{o}F$ ($\pm$ $5^{o}F$) by tempering with ambient air.

Immediately downstream of the baghouse is an induced draft fan which draws tertiary combustion air through the kiln, multiclone, heat exchanger and baghouse and provides forced draft to exhaust combustion gases through the wet scrubbers and mist elimination units. Additionally, the fan provides induced draft for a hood installed over the kiln shale feed chute to capture any fugitive emissions emanating from this area.

Two wet scrubbers are provided to capture particulates and to remove acid gases which escape capture/removal in the baghouse. The first is a BECO Venturi (MMV) scrubber. This scrubber is of a rod design which utilizes stainless steel tubes installed in rows across the throat

to provide a series of smaller throats. The intent is to provide the effect of a small venturi throat without incurring the high pressure drop typically associated with conventional high efficiency venturi scrubbers. Further, the tubes provide additional impaction surfaces for enhanced particulate and HCl collection.

Clean water atomization headers are located at the entrance of the scrubber to cool and saturate combustion gases. The scrubbing medium is a sodium carbonate (soda ash) solution which is introduced through nozzles located directly above the venturi module. This solution is recycled through the unit at approximately 200 gpm and, at equilibrium, contains approximately 10% dissolved solids consisting principally of sodium carbonate, sodium chloride and/or sodium sulfate. Scrubbing solution is also injected into the transition segment located immediately downstream of the venturi scrubber.

Excess water/scrubbing solution drains from the venturi exit elbow to a settling/recycle tank. The pH of the solution in the recycle tank is continuously monitored by a pH probe and automatically maintained at a pH of 7.9 or greater by the introduction of a 5% sodium carbonate solution. A portion of the recirculated solution is removed (blown down) from the recycle pump discharge to maintain a stable solids concentration in the system. The blowdown rate ranges between 4 and 20 gpm, depending on the quantity of fuel burned as well as the chloride and sulfur contents. The second scrubber is a (Ducon) polishing scrubber/mist eliminator. This unit consists of a bundle of tubular baffles which are designed to capture droplets of scrubber solution entrained in gases exiting the BECO scrubber. Additionally, a mesh-type mist eliminator is fitted at the top of the unit, immediately preceding the exhaust stack. The mist eliminator is kept clean by a water spray. Finally, scrubbed gases are exhausted to the atmosphere, 120 feet above grade, via a 48 inch diameter stack.

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 Trial Burn. Critical feederate 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). The MACT CPT regulations have superseded RCRA Trial Burn testing.

Kiln Operating Parameters	Units	CPT Test Results			How Set	MIN or MAX	Cond. Used	Final OPL
		C2	C1RT	C1A				
Process & CEM Parameters --								
Total (and Pumpable) LLGF Feed	gpm	10.3	10.3	10.5	(a)	MAX	C1A	10.5
Kiln Production Rate (Shale Feed)	tph	22.8	23.6	23.6	(a)	MAX	C2	22.8
LLGF Atomization Pressure	psi	29.6	37.7	35.9	(b)	MIN	C1A	35.9
Back End Temperature	°F	990	895	895	(c)	MIN	C1A	895
Heat Exchanger Exit Temperature	°F	450	434	436	(c)	MAX	C1A	436
Flue Gas Flowrate	wet scfm	35,691	34,425	45,625	(c)	MAX	C1A	45,625
CO Conc. @ 7% O_2	ppm	41.7	34.5	45.5	(d)	MAX	N/A	100
APCS Parameters --								
Baghouse Inlet Temperature	°F	400	386	383	(c)	MAX	C2	400
Venturi Pressure Drop	in. w.c.	6.1	6.2	8.6	(c)	MIN	C2	6.1
Scrubber Recirculation Rate	gpm	174.7	172.7	171.1	(c)	MIN	C2	174.7
Scrubber Blowdown Rate	gpm	14.6	13.9	14.1	(c)	MIN	C2	14.6
Scrubber Liquid Ph	pH	8.1	8.0	8.0	(c)	MIN	C2	8.1
Scrubber Tank Liquid Level	% Ht.	58.0	56.5	56.7	(c)	MIN	C2	58.0
Scrubber Liquid to Gas Ratio	gal / 10^3 ft^3	4.9	5.0	3.8	(c)	MIN	C2	4.9
Lime Feed Rate	lb/hr	250	270	270	(c)	MIN	C2	250
Lime Carrier Fluid Flow Rate	scfm	151.8	150.8	150.1	(c)	MIN	C2	151.8
Constituent Feed Rates --								
Total Chlorine	lb/hr	119.2	93.4	119.2	(c)	MAX	C2	119.2
Total SVM (Cd & Pb)	lb/hr	6.56	1.26	1.68	(c)	MAX	C2	29.3
Total LVM (As + Be + Cr)	lb/hr	6.46	4.74	5.03	(c)	MAX	C2	16.6
Total Pumpable LVM	lb/hr	2.86	0.85	1.17	(c)	MAX	C2	5.55
Total Mercury	lb/hr	0.0109	0.0018	0.0022	(c)	MAX	C2	0.036

(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 averages. For metals, also based on extrapolation; see Table 4-11 and associated text.
(d) Regulatory citation

Table Key: LVM=Low Volatile Metals, SVM=Semivolatile Metals, C1A=Condition 1A, C1RT=Condition 1 Retest, C2=Condition 2

Table 4-11 Metal Extrapolation Calculations

Parameter	Units	Volatile Metals **VM**	Low Volatile Metals **LVM**	Semivolatile Metals **SVM**
Surrogate Metal for the CPT	--	Hg	Cr	Pb
Test Condition Used	--	C2	C2	C2
Average CPT Feed Rate	lb/hr	0.0108	5.63	6.20
Average CPT Emission Rate	µg/m³	33.6	36.6	54.5
	lb/hr	1.91E-03	2.05E-03	3.03E-03
Test Average Surrogate SRE	%	82.37%	99.965%	99.955%
MACT standard for LWAKs	µg/m³	120	110	250
MACT standard equivalent	lb/hr	0.0164	0.0150	0.0342
90% of the MACT standard	µg/m³	108	99	225
Stack Gas Flowrate	dscfm	36,504	36,504	36,504
Stack Oxygen Concentration	%	14.99	14.99	14.99
Extrapolated Feed Rate Limit at 90% of the MACT Standard	lb/hr	0.036	16.603	29.349
Established Feed Rate Limit	**lb/hr**	**0.036**	**16.6**	**29.3**
Minimum Required SRE to meet the MACT Standard	%	34.781%	99.885%	99.763%

Note: The MACT standard and the average CPT emission rate (µg/m³) are corrected to 7% oxygen.

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 LGF 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 LGF 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 LGF, 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 LGF 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 the 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 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 section 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.

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 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.

10.3.4 Recordkeeping and Reporting Requirements

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.

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.

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 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 LLC (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 372.2(b) are complied with by Norlite LLC for both hazardous waste transported to the Norlite LLC (Norlite) facility, as well as for hazardous waste transported from the Norlite LLC (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 376.1(g) is maintained on-file at the facility.

11.2 Operating Record

In accordance with 6 NYCRR 373-2.5(c), the Norlite LLC (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 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 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 LLC (Norlite).

11.3 Availability, Retention and Disposition of Records

In accordance with 6 NYCRR 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 LLC (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 (Norlite).

11.5 Hazardous Waste Reduction Plans

Since the Norlite LLC (Norlite) 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)

Term	Definition
HWMU	Hazardous Waste Management Unit
HWRP	Hazardous Waste Reduction Plan
LGF	Low Grade Fuel
LLGF	Liquid Low Grade Fuel
MACT	Maximum Achieveable Control Technology
MMV	Modified Multivane
MRA	Minute Rolling Average
NACE	National Association of Corrosion Engineers
NFPA	National Fire Prevention Association
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OSHA	Occupational Safety and Health Administration
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

NORLITE LLC

STANDARD OPERATING PROCEDURES

CONTAINERIZED (DRUMMED) WASTE MANAGEMENT PLAN

SOP#4-011

PROCEDURE NO: **Date:** August 1, 1997

TITLE: Containerized (drummed) Waste Management Plan

ORGANIZATION: 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.

PREREQUISITE PROCEDURES:

REFERENCES:

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/SLGF 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/SLGF 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)

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. The drum samples will be composite for each unique waste stream prior to analysis, with no more than 3 individual drum samples making up one composite sample. 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 and composite by waste streams in contained sampling area. 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 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 authorization 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. Incineration parameters (metals, BTU, halogen content) are not performed on samples of waste designated for transshipment to another permitted TSDF. The drums are designated as pumpable liquid for blends, extrudable for direct kiln feed, or transshipment and labeled for inventory tracking.

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. The extrudable drums are analyzed according to the Waste Analysis Plan.

1. 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 into the inventory control room

m. The laboratory will record all results of the waste analysis in the operating record, cross-referencing and to New York DEC.

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, facsimile or 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

Samples of composited waste streams for pumpable liquid drums will be tested with material in a targeted storage tank to assure compatibility according to Norlite SOP#4-005. No more than 3 drum samples of a given waste stream will make up 1 composite sample. Norlite will maintain representative samples for the contents of each LGF storage tank. Compatibility testing will be performed by placing an aliquot of the waste sample into the appropriate tank sample. The volume of waste sample used is proportional to the amount of waste being added to the tank in relation to the existing volume of the tank. 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 ££cording to their 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 SLGF feed as is needed to comply with permit and operational needs.

As each drum is removed from the waste inventory, its inventory number will be entered into the 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.

NORLITE LLC

STANDARD OPERATING PROCEDURE

TRANSFER STATION SCENARIOS PRACTICED AT NORLITE

SOP# 6-001

The following are the transfer station scenarios practiced by Norlite LLC. 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 only at the truck unloading areas shown in Drawings Nos. NY-D_C-3008 and 2475-50, all transportation-related temporary storage 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 a TSD other than Norlite. The truck is a tractor/trailer rig. 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 deliver it to the TSD Facility listed on the manifest. 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 another permitted TSD Facility. The manifest(s) are made out from the generator to the 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 the other 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 another permitted TSD Facility.

For all of the scenarios above, 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. Only hazardous waste authorized by the Part 373 Permit will be accepted for all scenarios of transfer operations, and the permitted storage capacity of the drum storage areas will not be exceeded.

DUDICK PROTECTO LINE 900
VINYL ESTER LINING/TOPPING

Selection Data

General: Protecto-Line 900 system is a thermosetting vinyl ester resin. Provides high protection against concentrations of organic acids, inorganic acids and solvents. It exhibits superior resistance to alkali and solvent concentration because the vinyl ester epoxy has no hydrolyzable ester groups. The few ester groups which are present are formed at the molecular terminals where stability is provided by steric hinderance from the methyl group of the methacrylic acid. A silica filled basecoat and topcoat and 9.8 oz. woven fiberglass roving reinforcement from a tough, corrosive resistant system for concrete and steel exposed to general chemical environments.

Property:

Tensile Strength	2,400 PSI
Flexural Strength	8,600 PSI
Compressive Strength	12,500 PSI
Hardness (Barcol)	70-75
Coefficient of Expansion ($n \times 10^{-5}$ in./in./°f)	12-15

Chemical Resistance: Organic Acids Inorganic Acids Salts Oils Alkali Solutions
Protecto-Line 800/900 systems are highly resistant to a wide range of caustic and acids, chemicals, salts and oils.

Specifications: Lining shall be a 1/8" thick silica filled vinyl ester based resin, consisting of a deep penetrating primer, a 1/16" basecoat, 9.8 oz. woven fiberglass roving and a 1/16" topcoat as manufactured by Dudick Corrosion-Proof, Inc. Materials shall be applied in accordance with manufacture's recommended practices.

Proteco-Line System: The Protecto-Line system uses several layers of thermosetting, filled vinyl ester resins to build-up the protection that vulnerable steel and concrete need in chemically oriented manufacturing or processing operations. When fully cured, the separate elements lose their individual identity and become a single, monolithic topping.

Each of the five elements in the system not only provides its own special function, but also supports the other elements.

Primer: Protecto-Line Primer 27 is designed to prevent sand-blasted steel from developing rust bloom prior to the application of a Proteco-Line system, Concrete must always be primed to aid in the "wetting out" required for good bonding.

Basecoat: Protecto-Line 800/900 vinyl ester resins are filled with silica or carbon, depending on the chemical environment involved. The filler reduces the coefficient of expansion and provides a thixotropic base on which to embed the fiberglass or synthetic roving.

DUDICK PROTECTO LINE 900
VINYL ESTER LINING/TOPPING
Continued

Reinforcement: A woven fiberglass or synthetic fabric is used to help bridge small surface cracks and provide 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 reinforcing bar does in concrete.

Saturant: Protecto-Line vinyl ester resins is used to wet out the reinforcing fabric, thus providing a mechanical and chemical bond.

Topcoat: Protecto-Line silica or carbon filled vinyl ester resins provide an abrasion resistant and chemical resistant outer barrier. Inert aluminum oxide fillers can be added to this coat to significantly increase skid and abrasion resistance/

Sikaflex - 1a
Elastic Sealant/Adhesive

Technical Data

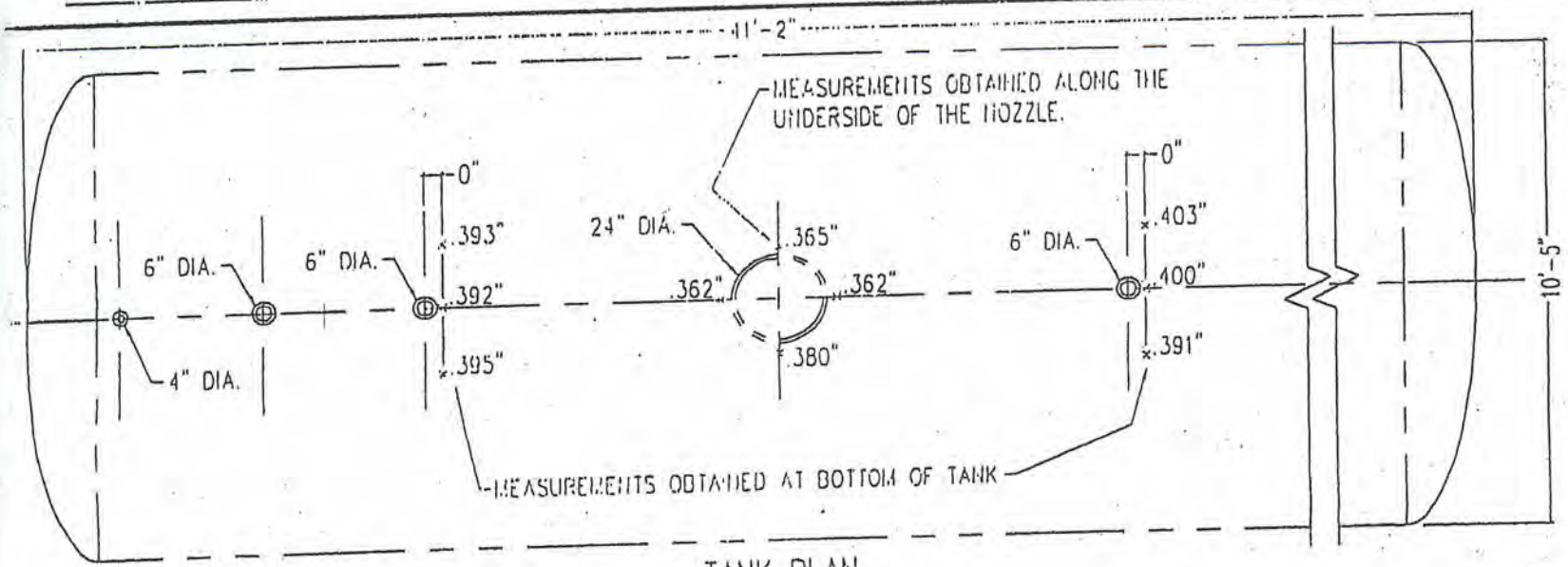
DESCRIPTION: Sikaflex - 1a is a premium-grade, high -performance, moisture-cured, 1-component, polyurethane-base, non-sag elastomeric sealant.

WHERE TO USE: Designed for all types of joints with maximum depth of 1/2 in. Excellent for small joints and fillets... windows, door frames, reglets, flashing, glazing, and many construction adhesive applications. Suitable for vertical and horizontal joints; readily placeable at 40F. Has many applications as an elastic adhesive between materials with dissimilar coefficients of expansion.

ADVANTAGES:

* Easy, low-cost, ready-to-use
* Eliminates time, effort, and equipment for mixing, filling cartridges, pre-heating or thawing, and cleaning of equipment
* High elasticity - Cures to a tough, durable, flexible consistency with exceptional cut- and tear- resistance
* Excellent adhesion - Bonds to most construction materials...without primer in most cases
* Long life
* Excellent resistance to aging, weathering
* Proven in tough climates around the world
* USDA- and FDA- approved ▒
* Approved for use in contact with potable water
* Resists fuel, mineral oils, and dilute minerals, plant and animal fats
* Odorless, non-staining. Can be painted over with water-, oil-and rubber-base paints. Since some paints, dry slowly and the surface may remain slightly tacky, a preliminary test is essential.
* Meets Fed Spec TT-S-00230C, Type II Class A
* Meets EPA regulations on water extractability
* Meets Canadian Standard 19-GP-16A,Type II

▒ Chemically acceptable to the U.S. Department of Agriculture for use in meat and poultry processing area under federal inspection. Meets FDA Regulation Title 21 on indirect Food Additives, as found in Part 174; Part 175, Paragraph 175.105; Part 177, Paragraph 177.1680, and Paragraph 177.2600, being composed of ingredients acceptable and transporting food.

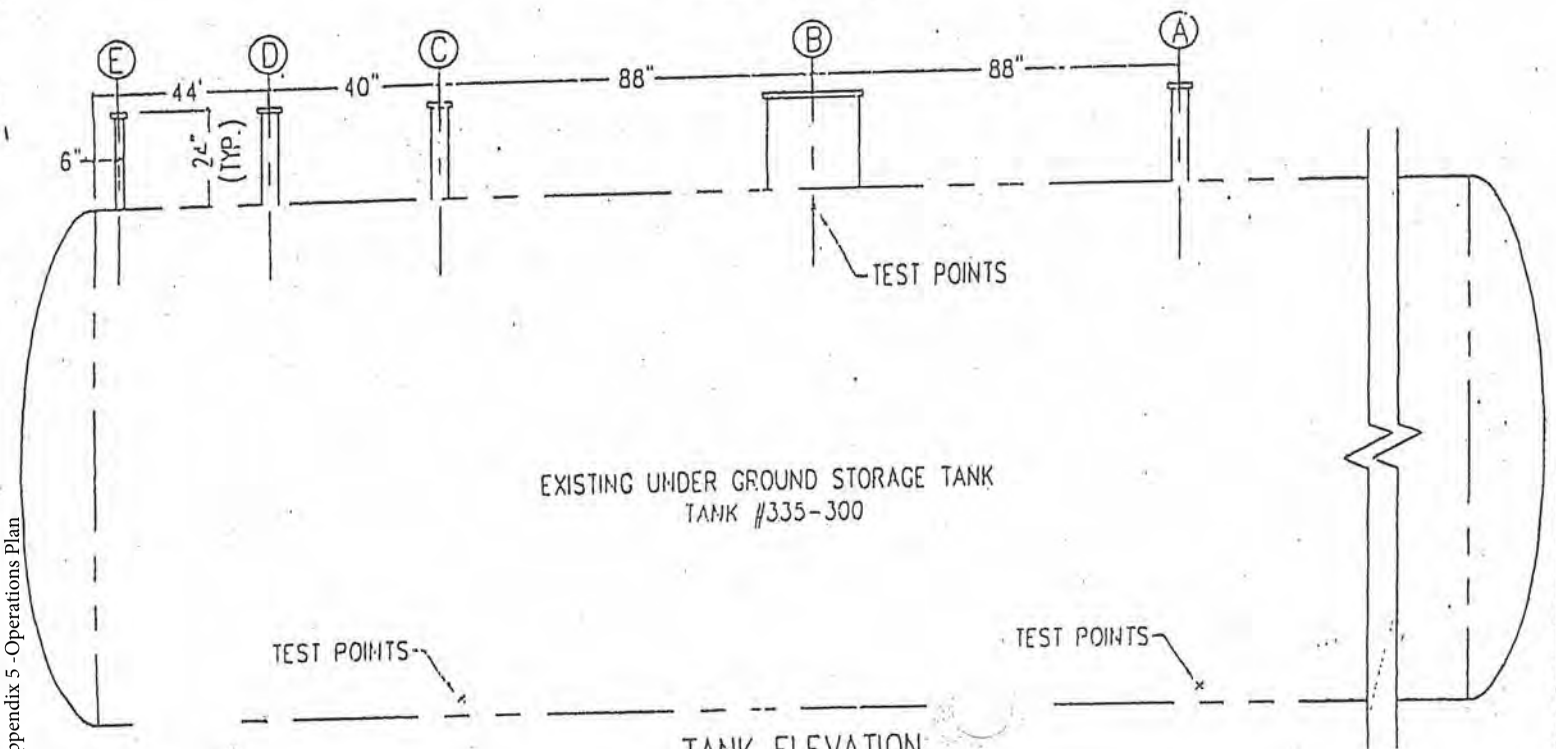


TANK PLAN

SCALE: 1/4" = 1'-0"

NOTES:

1. MEASUREMENTS OBTAINED AT TH BOTTOM OF THE TANK WERE MA BY REMOVING SMALL SECTIONS GLASS AND READING SHELL MET THICKNESS.
2. MEASUREMENTS OBTAINED AT TH UNDERSIDE OF NOZZLE (B) WERE MADE ON EXISTING EXPOSED ME



EXISTING UNDER GROUND STORAGE TANK
TANK #335-300

TANK ELEVATION

0	ISSUED	9/2
NO.	DESCRIPTION	DA
	REVISIONS	
PROJECT:	AGITATOR INSTALLA N	
CLIENT:	NORLITE CORP.	
TITLE:	TANK #335-300 & ST CA	
DWG #	WA-94152-	
SHEET 1 OF 1	DATE 09/	NO.

Appendix 5 -Operations Plan

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					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
Acetaldehyde	G	P	G	G	G	P	G	P	G		Cyclohexane	G	G	G	G	G	G	P	G	G	G
Acetate Solvents - Crude	G	F	F	F	G	P	P	G	G		Cyclohexanol	G	G	G	G	G	G		G	G	G
Acetate Solvents - Pure	G	G	G	G	G	P		G	G		Cyclohexanone	G	G	P	G	G	P	F	P	G	
Acetic Acid - Pure	G	G	P	P	G	F	F	F	G												
Acetic Anhydride	G	P	F	P	G	G	G	G	G		Detergent Oils			G	G	G	G		G	G	G
Acetic - Glacial	G	G	P	P	G	G	G	G	G	P	Diacetone Alcohol	G	G	G	G	G	P	G	F	G	
Acetone	G	G	G	G	G	P	G	F	G	P	Dichlorobenzene	G	G	P	P	G	P	P	P	G	G
Acetyl Acetone	G	G	G	G	G	P	P	P	G		Dichloro Ethane	G	G		G	G	F			G	
Acetyl Chloride	F	F	F	G	G				G		Dichloro Ethylene	G	G	G	G	G	P	P	P	G	
Acrylonitrile	G	G	G	G	G	P	F	G	G		Diesel Oil	G	G	G	G	G	G			G	G
Aliphatic Hydrocarbons	G	G	G	G	G	G	P	G	G	G	Diethyl Ether	G	G	G	G	G	F		G	G	
Aluminum Chloride	F	F	P	P	F	G	G	G	G		Diethyl Phthalate		G	G	G	G	P		P	G	
Aluminum Nitrate	G		P	P	G	G	G	G	G		Diethylene Glycol	G	G	G	G	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		Ethyl Acetate	G	G	G	G	G	P	F	F	G	
Ammonium Liquors	F	P	G	G	G				G		Ethyl Alcohol	G	G	G	G	G	G	G	G	G	G
Ammonium Nitrate	G	P	G	G	G	G	G	G	G		Ethyl Benzene	G	G	F	F	G	P	P	P	G	
Ammonia, Anhydrous	G	P	G	G	G	G	G	G	G		Ethyl Benzoate	G	G	G	G	G	G	P	P	G	G
Ammonia, Aqua	F	P	G	G	G	F	G		G		Ethyl Chloride	G	G	G	G	G	G	G	G	G	G
Amyl Alcohol	G	G	G	G	G	G	G	G	G	G	Ethyl Ether	G	G	G	G	G	F	F	F	G	
Anthracene	G	G	G	G	G				G		Ethylene Chloride	G	G	P	G	G				G	
Aromatic Hydrocarbons	G	G	G	G	G	G	F	F	G	G	Ethylene Glycol	G	G	G	G	G	G	G	G	G	G
Asphalt	G	G	G	G	G	F	F	F	G		Ethylene Oxide	G	F	G	G	G	F		P	G	
Aviation Gasoline	G	G	G	G	G	G		G	G	G											
											Fatty Acids	G	F	P	P	G	G	F	F	G	G
Beer - Beer Wort	G	G	F	F	G	P	G	G	G	G	Foods	G				G				G	
Benzene - Benzol	G	G	G	G	G	P	F	P	G	F	Formaldehyde	G	G	F	F	G	G	G	G	G	G
Benzyl Alcohol	G	G	P	P	G	P	G	G	G	G	Formic Acid	G	F	P	P	G	P	G	P	G	
Benzyl Chloride	P	P	P	P	G	P	G	P	G		Freon, Dry	G	G	G	G	G	G	F	P	G	G
Brines		G					G		G		Fuel Oil	G	G	G	G	G	G	P	G	G	G
Butadiene	G	G	G	G	G	G			G	G											
Butane	G	G	G	G	G	G	P	G	G	G	Gas, Natural - Manufactured	G	G	G	G	G	G	P	P	G	G
Butyl Acetate	G	G	G	G	G	P	F	F	G		Gasolene, Sour	G	F	F	F	G	G	P	G	G	G
Butyl Alcohol - Butanol	G	G	G	G	G	G	G	G	G	G	Gasolene, Motor	G	G	G	G	G	G	P	G	G	G
Butyl Ether	G	G		G		F		P	G		Gasolene, Aromatic	G	G	G	G	G	F	P	P	G	
Butylene	G	G	G	G	G	G			G	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
Calcium Hydroxide	F	G	G	G	G	G	G	G	G	G	Grease	G	G	G	G	G	G	F	G	G	G
Calcium Nitrate	F	G	G	G	G	G		G	G	G											
Carbide Solvent	G	G				G	G	G	G	G	Heptane	G	G	G	G	G	G		G	G	G
Carbolic Acid - Phenol	G	G	P	P	G	P	P	P	G		Hexane	G	G	G	G	G	G	P	G	G	G
Carbon Disulphide	G	F	G	G	G	P	P		G	G	Hexanol - Hexyl Alcohol	G	G	G	G	G	G		G	G	G
Carbon Tetrachloride	F	G	F	G	G	F	P	F	G		Hi-Boiling Naptha		G			G				G	G
Carbonic Acid	G	P	P	P	G	F	G	G	G		Hi Flash Naptha		G			G				G	G
Castor Oil	G	G	F	F	G	G	G	G	G	G	Hydraulic Oil		G			G	G	G	F	G	G
China Wood Oil - (Tung Oil)	G	G	F	F	G	G		G	G	G	Hydrochloric Acid 150°	P	P	P	P	P	G	G	G	G	G
Chlorobenzene	P	G		G				G	G		Hydrogen Peroxide	G	P	P	P	G	G	G	G	G	G
Chloroform		G			G	P		P	G		Hydrogen Sulphide, Wet	G	F	G	G	G	F	G	F	G	
Chlorine, Dry	G	G	G	G	G	P	P	P	G												
Chlorobenzene	G	G	G	G	G	P	P	P	G		Isobutane	G	G	G	G	G	G	P	G	G	G
Chlorine Dry	F	F	G	G	G	F	F	F	G		Isobutylene		G			G	G			G	G
Chlorine Gas	F	G	G	G	G				G		Isopropyl Acetate	G	G	G	G	G	P	G	P	G	
Chloromethane	G	G	F	F	G	P		P	G		Isopropyl Alcohol	G	G	F	G	G	F	G	F	G	G
Citric Acid	G	F	P	P	G	G	F	G	G	G	Isopropyl Ether	G	G	G	G	G	G	P	F	G	G
Coal Oils	G	G	G	G	G	G	G	F	G	G											
Cotton Seed Oil	G	G	G	G	G	G	G	G	G	G	Jet Fuel JP-4 JP-5	G	G	G	G	G	G	P	F	G	G
Creosol	G	G	G	G	G	P	P	G	G												
Creosote, Crude	G	F	G	G	G	G	P	F	G	G	Kerosene	G	G	G	G	G	G	P	G	G	G
Cresylic Acid	G	G	G	G	G	G	P	P	G	G											
											Lime Sulph										
Cutting Oils	G	G	G	G	G	G			G	G	Lactic Acid										

Emco Wheaton Inc., *Loading Arm Assemblies*, Catalog E-12/72, EMCO Wheaton Inc., Chamberlain Blvd., Cor- [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
											Styrol		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
Napthalene	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 Gal	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	P	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	
Perfume	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 Sterols	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	G											
Propylene Oxide	G	G	G	G	G				G												

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.

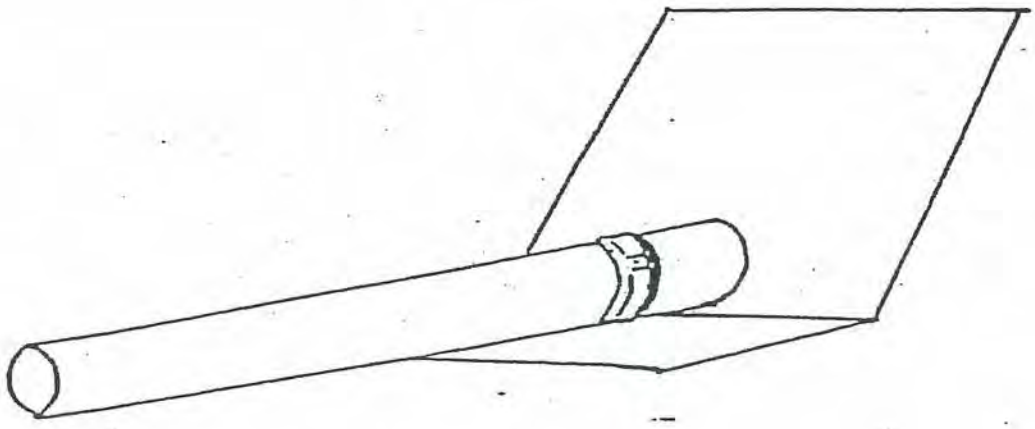
If any more details are required, please contact me.

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.

MINIMUM SHELL THICKNESS (FROM ASME SECTION VIII)

For 15 psig internal pressure

Shall circumferential stress, UG-27(c)(1)

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.	Thickness in Inches
335-300	0.394
335-400	0.381
335-500	0.387
335-600	0.384

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	16.9
335-500	17.5
335-600	17.2

carboline®

CARBOMASTIC® 15

350 HANLEY INDUSTRIAL COURT • ST. LOUIS, MO. 63144 • 314-644-1000

Appendix 9 -Operations Plan

SELECTION DATA

GENERIC TYPE: High build, modified aluminum epoxy mastic. Part A and Part B mixed prior to application.

GENERAL PROPERTIES: Self priming, high build coating with excellent adhesion to rusted steel and most aged paints. Over ten years proven field performance in corrosive environments. Consult Carboline for case history information. Only a single coat required for most applications. Hand or power tool cleaning is acceptable surface preparation for most surfaces. For severely corroded surfaces, see surface preparation instructions for non-immersion service on back page.

RECOMMENDED USES: Particularly recommended for repainting rusty steel and for upgrading old, deteriorated coatings. Also used where hand cleaned steel is being coated for the first time. Ideal for metal buildings, fences, piping, process equipment, highway bridges and exposed structural steel.

NOT RECOMMENDED FOR: Immersion service in acids, alkalies or solvents.

CHEMICAL RESISTANCE GUIDE:

Exposure	Immersion	Splash and Spillage	Fumes
Acids	NR	Fair	Very good
Alkalies	NR	Good	Excellent
Solvents	NR	Good	Excellent
Salt Water	Excellent*	Excellent	Excellent
Water	Excellent*	Excellent	Excellent

*Discolors to gray.

TEMPERATURE RESISTANCE: (non-immersion)
Continuous: 180°F (82°C)
Non-continuous: 250°F (121°C)

FLEXIBILITY: Excellent WEATHERING: Excellent

ABRASION RESISTANCE: Fair

SUBSTRATES: Rusty steel, aged galvanized steel, or others as recommended.

TOPCOAT REQUIRED: Normally none, but can be topcoated with most generic types. Some alkyd or oil modified paints exhibit poor adhesion. Consult Carboline Technical Service for specific recommendations.

COMPATIBILITY WITH OTHER COATINGS: May be used over most generic types of coatings which are tightly adhering and properly prepared; inorganic and organic zinc primers. A test patch is recommended for use over existing coatings.

SPECIFICATION DATA

THEORETICAL SOLIDS CONTENT OF MIXED MATERIAL:

	By Volume
Carbomastic 15	90% ± 2%

RECOMMENED DRY FILM THICKNESS PER COAT: (Measured in addition to the rust or steel substrate) 5 mils (125 microns) minimum. For severe exposures 7 mils (175 microns) minimum is recommended.

THEORETICAL COVERAGE PER MIXED GALLON*:
1444 mil sq. ft. (36.0 sq. m/l @ 25 microns)
289 sq. ft. at 5 mils (7.2 sq. m/l @ 125 microns)

*NOTE: Material losses during mixing and application will vary and must be taken into consideration when estimating job requirements.

SHELF LIFE: 24 months minimum.

COLORS: Aluminum only. May bronze under certain application and curing conditions. Aluminum color will return upon weathering. In order to obtain a highly reflective, uniform appearance, a topcoat of Carboline 1265 may be applied.

GLOSS: Not applicable.

ORDERING INFORMATION

Prices may be obtained from Carboline Sales Representative or Main Office. Terms – Net 30 days.

SHIPPING WEIGHT:

	2's	10's
Carbomastic 15	25 lbs. (11.4 kg)	119 lbs. (54.1 kg)
Carbomastic Thinner	8 lbs. in 1's (3.6 kg)	40 lbs. in 5's (18.2 kg)

FLASH POINT: (Pensky-Martens Closed Cup)
Carbomastic 15 Part A 200°F (93°C)
Carbomastic 15 Part B 94°F (34°C)
Carbomastic Thinner 73°F (23°C)

APPLICATION INSTRUCTIONS

ese instructions are not intended to show product recommendations for specific service. They are issued as an aid in determining correct surface preparation, mixing instructions, and application procedure. It is assumed that the proper product recommendations have been made. These instructions should be followed closely to obtain the maximum service from the materials.

SURFACE PREPARATION: Remove any oil or grease from surface to be coated with clean rags soaked in Carboline Thinner #2 or toluol.

Steel: For water immersion service, dry abrasive blast to a Near White Metal Finish in accordance with SSPC-SP 10 to a degree of cleanliness in accordance with NACE #2 to obtain a 1-3 mil (25-75 micron) blast profile.

For non-immersion service, clean per Power Tool or Hand Tool in accordance with SSPC-SP 3 or SSPC-SP 2, respectively, to a cleanliness defined by SSPC-St 2 pictorial standards. Alternatively, for more severe environments, dry abrasive blast per SSPC-SP 7 (brush-off blast) to a degree of cleanliness defined by SSPC-Sa 1 pictorial standards. Water blasting is an acceptable means of preparing the surface to a cleanliness defined by SSPC-St 2.

MIXING: Mix separately, then combine and mix in the following proportions:

	2-Gal. Kit	10-Gal. Kit
Carbomastic 15 Part A	1 Gal.	5 Gals.
Carbomastic 15 Part B	1 Gal.	5 Gals.

Thin up to 25% by volume with Carbomastic Thinner.

POT LIFE: Four hours at 75°F (24°C) when thinned 25%, two hours at 75°F unthinned and one hour at 90°F (32°C) unthinned. Pot life ends when the coating becomes too viscous to use.

APPLICATION TEMPERATURES:

	Material	Surfaces
Normal	65-85°F (18-29°C)	65-85°F (18-29°C)
Minimum	50°F (10°C)	40°F (4°C)
Maximum	90°F (32°C)	130°F (54°C)

	Ambient	Humidity
Normal	65-85°F (18-29°C)	35-80%
Minimum	40°F (4°C)	0%
Maximum	100°F (38°C)	95%

Do not apply when the surface temperature is less than 5°F (2°C) above the dew point.

Special thinning and application techniques may be required above or below normal conditions.

SPRAY: Use adequate air volume for correct operation.

Use a 50% overlap with each pass of the gun. On irregular surfaces, coat the edges first, making an extra pass later.

NOTE: The following equipment has been found suitable, however, equivalent equipment may be substituted.

Conventional: Use 1/2" minimum I.D. material hose. Hold gun 8-10 inches from the surface and at a right angle to the surface.

Mfr. & Gun	Fluid Tip	Air Cap
Binks #18 or #62	67	67B
DeVilbiss P-MBC or JGA	D	64
	Approx. .086" I.D.	

Airless: Use 3/8" minimum I.D. material hose. Hold gun 12-14 inches from the surface and at a right angle to the surface.

Mfr. & Gun	Pump*
DeVilbiss JGB-507	QFA-514
Graco 205-591	President 30:1 or Bulldog 30:1
Binks Model 500	Mercury

*Teflon packings are recommended and available from pump manufacturer.

Use a .023 to .027" tip with 2400 psi.

BRUSH OR ROLLER: Use clean, short, natural bristled brush or medium nap roller. Work coating into all irregularities. Brush or roller application may result in a non-uniform bronze color.

DRYING TIMES:

Between coats:	6 days at 40°F (4°C)
	3 days at 60°F (16°C)
	24 hours at 75°F (24°C)
	18 hours at 90°F (32°C)
Final cure:	20 days at 40°F (4°C)
	10 days at 60°F (16°C)
	5 days at 75°F (24°C)
	3 days at 90°F (32°C)

CLEANUP: Use Carboline Thinner #2 or xylol.

STORAGE CONDITIONS:
Temperature: 45-110°F (7-43°C) Humidity: 0-100%

SPECIFICATION STANDARD
GALVANIC ANODE CATHODIC PROTECTION SYSTEM
ENGINEERING, MATERIALS AND INSTALLATION

1.0 GENERAL

Work under this section is subject to all the requirements of the Contract Documents, including the General Conditions, and Special Conditions of the Specifications.

2.0 SCOPE OF WORK

2.1 It is the intent under the conditions of this Contract that the Contractor under this section, provide the services of a NACE Corrosion Specialist for the purpose hereinafter specified. As such, said Specialist shall be considered the Contractor's Agent.

2.2 All fees and/or other charges for services rendered by the Contractor's corrosion engineering Specialist and/or firm shall be included completely and totally under this Contract.

2.3 The cathodic protection system work shall include the furnishing and installation of all electrical work, wiring, conduits, fittings, anodes, bonding, thermite brazing, holiday detection, and all other work and items required for a complete and functioning cathodic protection system with a minimum design life of 20 years. .

2.4 Cathodic protection using galvanic anodes shall be provided for underground metallic structures as follows:

2.5 The cathodic protection system shown on the drawings shall be confirmed as adequate for the soil and tank conditions by the corrosion engineering specialist.

3.0 REFERENCE STANDARDS

3.1 The cathodic protection installation shall comply with applicable requirements codes, laws and ordinances of Federal, State, and local bodies having jurisdiction; the requirements of the local power company; the electrical requirements and/or codes of insurance underwriters; the Standards of the

National Electrical Manufactures Association (NEMA); Underwriters' Laboratories (UL); the Institute of Electrical and Electronics Engineers (IEEE); the National Association of Corrosion Engineers (NACE), including applicable supplements, bulletins, and special rulings.

3.2 Where more stringent requirements than code are shown or specified, the more stringent requirements shall apply. All electrical items shall be UL listed or labeled, where such listing or labeling is obtainable.

4.0 RELATED WORK SPECIFIED ELSEWHERE

4.1 Dielectric couplings, protective pipe coating, wrapping, and patching will be provided by the Contractor.

4.2 Backfilling other than specified herein for anodes will be provided by the Contractor.

5.0 STANDARD PRODUCTS

Materials and equipment submitted for approval under this specification shall be a product of a manufacturer regularly engaged in the manufacture of the product, shall be the respective manufacturer's standard design and shall meet the requirements of the specifications.

6.0 MATERIALS AND EQUIPMENT

6.1 ANODE

6.1.1 The dimensions of magnesium anodes shall be the standard anode sizes for the weights specified. Magnesium anodes shall be Dow Galvomag and shall conform to the following specifications:

Aluminum (Al)	0.10% maximum
Manganese (mn)	0.50% to 1.30%
Zinc (Zn)	0.00
Silicon (Si)	0.00
Copper (Cu)	0.02% maximum
Nickel (Ni)	0.001% maximum
Iron (Fe)	0.03% maximum
Other Impurities - each	0.05% maximum
- total	0.03% maximum
Magnesium (Mg)	Balance

6.1.2 All anodes shall come prepackaged in special backfill material consisting of 75% ground hydrated gypsum, 20% powdered bentonite and 5% anhydrous sodium sulfate. The backfill shall have a grain size such that 100% is capable of passing through a 20 mesh screen and 50% will be retained by a 100 mesh screen. The backfill mixture shall be firmly packaged around the magnesium anode within a cotton bag by means of adequate vibration.

For standard cast ingots, the magnesium anode weight of backfill required, shall be as follows:

Magnesium Anode (in pounds)	Backfill (in pounds)	Total Weight (per Anode)
3	6	9
5	9	14
9	15	24
17	25	42
20	50	70
32	38	70
48	48	96

6.1.3 Anode lead wires shall be No. 12 AWG solid copper conductors with TW insulation. Lead wires shall be a minimum of ten feet in length.

6.1.4 Standard sized magnesium anodes shall be cast with a perforated, galvanized steel core, with the weight of the core not to exceed 0.10 pounds per linear foot. One end of the anode shall be recessed to expose the core for the lead wire connection. The lead wire shall be silver soldered to the core and the connection fully insulated by filling the recess with an electrical potting compound.

6.2 CONDUCTORS

6.2.1 All conductors shall be copper.

6.2.2 No. 12 AWG wire shall have TW insulation which complies with Federal Specification J-C-30. The contractor shall have the option of substituting polyethylene insulation for TW.

6.2.3 No. 8 AWG wire or larger shall be cathodic protection cable specifically designed for the purpose, shall comply with ASTM D 1248 and shall be insulated with high molecular weight polyethylene, type I, class C, grade 5.

6.2.4 The minimum thickness of insulation at any point shall not be less than 90 per cent of the nominal wall thickness. The wall thickness for AWG size No. 8 through No. 2 shall be 7/64" and for sizes No. 1 through No. 4/0, 8/64".

6.3 TEST STATIONS

Test Stations shall be of the flush mounted type with cast iron covers. Handley PT4R5L or approved equal are acceptable.

6.4 PERMANENT REFERENCE CELLS

Permanent reference cells shall be direct burial copper/copper sulfate electrodes for underground use, prepackaged in special backfill material and have a minimum design life of 15 years.

6.5 THERMITE BRAZING

Thermite brazing of electrical connections shall be Erico "Cadweld", or approved equal.

6.6 COATING

Coating compound shall be cold applied coal-tar base mastic or approved pipe line coating such as Royston A-51.

6.7 FLANGE INSULATION

Flange insulation shall consist of full faced, neoprene faced phenolic gaskets with full length Mylar sleeves and double, phenolic washers as manufactured by PSI or approved equal. High temperature kits shall be used if temperatures exceed 200^{0}F

6.8 CASING SEALS

Hard rubber casings seals shall be used where the pipe passes through concrete walls. These shall be as manufactured by Thunderline Corporation or approved equal.

7.0 SUBMITTALS

7.1 SHOP DRAWINGS

7.1.1 As soon as practicable and within thirty (30) days after the date of receipt of notice to proceed, and before any material or equipment is purchased, the Contractor shall submit for approval a complete list, in quadruplicate, of materials and equipment to be incorporated in the work.

7.1.2 The list shall include catalog numbers, cuts, diagrams, drawings and other descriptive data as may be required by the owner. No consideration will be given to partial lists submitted from time to time. Approval will be based on the manufacturer's published ratings. Any materials and equipment listed which are not in accordance with the specification requirements will be rejected.

7.2 CERTIFICATION

7.2.1 Certification shall be submitted with the shop drawings giving the name of the firm, the number of years of experience and a list of not less than ten of the firm's cathodic protection installations, five years old or more, which have been tested and found satisfactory.

7.2.2 The installation shall be supervised by a member of the National Association of Corrosion Engineers (NACE) accredited as a Corrosion Specialist. The name and qualifications of the supervisor shall be submitted with the shop drawings.

8.0 INSTALLATION

8.1 MAGNESIUM ANODES

8.1.1 All anodes shall be magnesium and shall be installed at the locations indicated on the Drawings.

8.1.2 All anodes shall be installed in native soil, a minimum of three feet from the structure to be protected and below the center line of that structure.

8.1.3 Anode lead wires shall be thermite brazed to the structure except for test station locations where the anode lead shall terminate on a test station lug with a lead wire thermite brazed to the structure.

8.1.4 Anodes shall be backfilled with native soil - sand or rock is not permissible.

8.2 WIRING

8.2.1 Underground wires, cables, and connections shall be buried at a minimum depth of 2"0" below grade, with a 6" minimum separation from other underground structures.

8.2.2 All splices and repairs to damaged cable associated with a cathodic protection system shall be sealed against moisture penetration.

8.2.3 All wiring shall be backfilled with material free from rocks and debris which could damage the insulation.

8.3 THERMITE BRAZING

8.3.1 Thermite brazing techniques shall comply with the manufacturer's recommendations. Only proper size cartridges and welders will be permitted.

8.3.2 Prior to brazing, an area of piping three inches square shall be cleaned to bright metal with a grinder or file.

8.3.3 The slag shall be removed from the completed braze with a hammer.

8.3.4 The adequacy of each braze shall be demonstrated by gently striking the top of the connection with a hammer.

8.3.5 The cleaned piping surface, including the brazed connection and any exposed copper wire, shall be coated with a cold applied coal tar compound. Recommended coating materials are Kopper's Bitumastic #50 or Royston Handicaps.

8.4 TEST STATIONS

8.4.1 Test stations shall be provided where indicated on the Drawings and shall be installed in accordance with the details given.

8.4.2 Test leads shall be #12 AWG solid copper conductors with TW insulation.

8.4.3 Thermite brazing techniques shall comply with this specification.

8.5 BONDS

8.5.1 Electrical continuity shall be provided along all underground metallic piping to be provided with cathodic protection by installing bond cables across every underground mechanical coupling.

8.5.2 Bonding techniques shall be in accordance with the details shown on the Drawing.

8.5.3 All bond cables shall be #4 AWG stranded copper cable with high molecular weight polyethylene insulation.

8.5.4 Thermite brazing techniques shall comply with this specification.

8.6 INSULATION

8.6.1 Flange insulation shall be provided to electrically isolate portions of the pipelines.

8.6.2 Where the pipe passes through concrete walls, the wall shall be sleeved and seals shall be placed between the pipe and the sleeve to provide both electrical isolation of the piping and a moisture seal.

8.6.3 Insulating materials shall be inspected and tested by the contractor to assure the integrity of the insulating joint.

8.6.4 No metallic structures shall be permitted in contact with the electrically isolated section of underground piping.

8.7 COATING INSPECTION

8.7.1 All coatings shall be visually inspected for "holidays" and "breaks" during construction. Electrical tests shall be conducted in the field with a portable high voltage, low amperage holiday detector. Electrical field testing shall conform to the procedure outlined hereafter. The contractor shall provide the electrical inspection equipment and shall furnish an operator for the equipment.

8.7.2 The electrical test equipment shall be portable low amperage adjustable voltage, pulse-type holiday detector. The holiday detector shall be furnished with a coil spring electrode for use with large coated pipe areas and a suitable brush type electrode for smaller coated bolt and structural surfaces.

11.0 TESTING

11.1 The corrosion engineering specialist and/or firm shall conduct tests of the cathodic protection system after completion of the installation. Testing will be performed in accordance with accepted practices as recommended by the National Association of Corrosion Engineers.

11.1.1 All insulating fittings shall be tested to insure proper electrical isolation.

11.1.2 Structure-to-soil potential measurements shall be made at representative locations throughout the system.

11.1.3 Magnesium anode current outputs shall be recorded at all test stations in order to evaluate the system performance.

11.1.4 The cathodic protection system shall be adjusted in such a manner as to comply with the criteria for protection as given in NACE RP-01-69.

11.2 The corrosion engineering specialist shall be responsible for cooperating with owners of foreign structures in order to coordinate corrosion control measures. Joint cathodic interferences tests shall be conducted with all interested parties to insure that the subject cathodic protection system is neither adversely affecting other underground metallic structures nor experiencing detrimental effects from neighboring cathodic protection systems.

11.3 In the event that interference problems are detected, the corrosion engineering specialist shall cooperate with the companies involved until a mutually satisfactory solution is reached.

11.4 A written report shall be submitted to the contractor and shall include all test data, and analysis of the data and instructions for operation and maintenance of the cathodic protection system.

12.0 GUARANTEE

12.1 All material and equipment shall be guaranteed for a period of one year from the date of the Final Report. Upon receipt of notice from the owner of failure of any part of the system during the guarantee period, new replacement parts shall be furnished and installed by the contractor at no additional cost. This guarantee is limited to defects in workmanship and materials.

BRADLEY ENGINEERING, P.C.
CONSULTING ENGINEER
~~Bald Mt. Road~~
Box 206, R. D. 6
Troy, New York 12180

8 November, 1988

Norlite Corporation
P.O. Box 694
625 S. Saratoga Street
Cohoes, New York 12047

Subject: Fuel Lines Pressure Tests

During the period of 10/13/88 thru 10/16/88 the LGF lines from the transfer pump station to the kiln pump house were pressure tested to ascertain that they were pressure tight.

The green line was pressurized to 60 psi at 1500 hrs. 10/13/88 . A check of the line pressure at 0800 hrs. 10/14/88 indicated a residual pressure of 58 psi. The line proved to be pressure tight.

On 10/14/88 a test of the yellow and white lines was began. The yellow and white lines were pressurized to 60 and 58 psi respectively. The white line did not hold pressure. A check of the line brought to light the fact the packing of one inline valve was leaking. The valve was isolated and the line at 1600 hrs. was pressurized to 60 psi. A check of the pressure in the two lines was made at 0900 hrs. on 10/15/88. The white line maintained pressure at 59 psi. The yellow line had dropped to 56 psi. A check of the line gave an indication of a possible gasket leak on a segmented ball valve. It was decided to isolate the valve and retest. The system was isolated and pressurized to 60 psi. A check of the line was made at 0830 hrs. on 10/16/88. The pressure reading was holding at 59 psi.

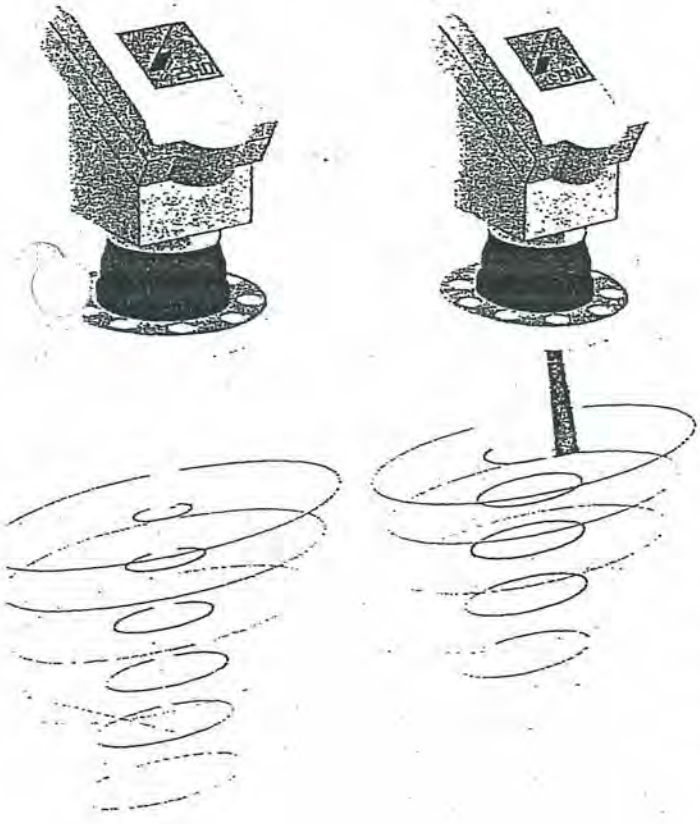
It is our conclusion that the LGF pipelines from the transfer pumps to the kiln pump house are pressure tight and that they remain satisfactory for handling the Low Grade Fuels that they were designed to handle.

For Bradley Engineering, P.C.

William D. Bradley, P.E.

VEGAPULS Radar Level Sensors

Ohmart/VEGA offers the widest variety of radar gauges on the market. The VEGAPULS 50 Series is a new generation of loop powered, low-cost level measurement sensors that are designed for use in simple measurement environments. The VEGAPULS 56 HT with its unique ceramic antenna makes radar level measurement possible in high temperature applications. The VEGAPULS 81, used in conjunction with advanced EchoFox™ software, is designed for use in heavily agitated process vessels. With this large selection of radar gauges, designed for a vast array of process applications, Ohmart/VEGA excels in providing customers with optimal solutions to their level and specialty measurement applications.



Microwave pulse signal transmitted to product surface.

Reflected pulse signal returned from product surface to sensor antenna.

Principle of Operation

Pulse
The sensor transmits energy in the form of microwave pulses. These pulses are directed toward a specific target that reflects the energy back to an antenna.

Target
The amount of energy that returns to the antenna depends on the reflective properties of the material being measured. Reflectivity can be determined by examining two characteristics, conductivity and dielectric constant (DK).

Return to the Antenna
The transit time of the microwave pulse that returns to the antenna is measured and used to calculate the distance to the target.

Reflectivity
Conductive products such as water, acids, etc., have very good reflectivity and can be measured regardless of the DK value. For non-conductive materials, the DK value alone determines the reflectivity. Materials with a low DK absorb a large portion of the microwaves transmitted by the radar sensor, thus reducing [illegible] antenna.

VEGASON

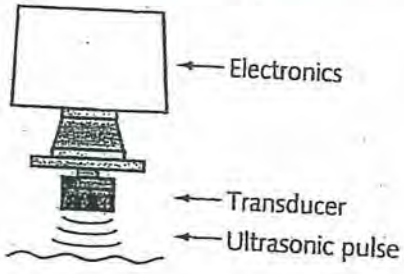
Ultrasonic continuous level measurement

One of 12 Ohmart/VEGA advanced technologies

The VEGASON ultrasonic transducers and electronics represent one of twelve technologies available from Ohmart/VEGA for level detection and continuous measurement. Given the parameters of a level problem it is often the best technology that can be applied relative to both performance and economics. Other Ohmart/VEGA technologies include miniature and point level ultrasonics, nuclear, capacitance, pulse radar, microwave barrier, vibration, hydrostatic, electromechanical, conductive, and total interface profile. The quality of our range of VEGASON ultrasonic level transmitter models is attested by thousands of successful applications worldwide, especially in the measurement of difficult solids, granules, and powders.

Ultrasonic measuring principles

VEGASON ultrasonic transducers are located at the top of the tank or silo. Piezoelectric high-performance crystals are used within the transducer. Short ultrasonic pulses are emitted to the product surface. The pulses reflected by the product are received by the transducer operating as transmitter and receiver. The time taken to receive the reflected pulse is measured by the electronics, and is linear with and proportional to the distance between the face of the transducer and the product, provided that the density of the airspace remains constant. The reflection time is then converted into a level value for display/output purposes. Due to the use of high-energy pulses non-contact measurement of liquids and solids is possible with this continuous measuring principle.



19 models *new short and long range options*

Ohmart/VEGA offers nineteen ultrasonic VEGASON models covering ranges from 12 inches to 196 feet. In addition, Ohmart offers a wide range of miniature and standard ultrasonic gap switches, transducers, and transmitters, which completes the product offering for measuring levels of liquids and solids from a few milimeters in vials to 196 feet for large storage tanks (see Ohmart ultrasonic catalog). This broad range of products provide users with an ideal model for each application. ... performance and significant cost benefits for many applications ... more powerful transducer systems would no

CERTIFICATION

Continental Disc® Corporation

3160 W. Heartland Drive • Liberty, MO 64068-3385 USA • (816) 792-1500 • Fax (816) 792-2277 / 5447

Manufactured and Tested under an ISO-9001 Certified
Quality System. TUV-CERT Certificate Reg. No. 12 100 9200.
Inspection Certificate EN 10 204 3.1.B: 1991

Date: 9/ 6/01

Sold To: NORLITE CORP.

S.O. No: 01-09-090-00

Customer Order No: 981307

Item: 01

Mfg No: 340727

Quantity: 5

FOR TANKS 100A, 100B, 100C 200B, 200C

Type: 6" CAL-VAC (FS) Continental Rupture Disc

Material: 316 SS Top Section
Teflon Seal
Teflon Girdle

Requested Rupture Pressure and Temperature:
POS RATED: 20 psig MAX @ 80 deg F
VAC PRESSURE RATING: 8 MIN to 14 MAX in. water @ 80 deg F

* POS Burst Test Results:
1) 17.9 2) 17.0

VAC Burst Test Results:
1) 10.0 2) 11.0

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

Ambient Rupture Pressure and Temperature:
17.7 psig @ 72 deg F

CONTINENTAL DISC CORPORATION

*Certified Chart Number: 511FY
(... alysis Available Upon Request)

DIRECTOR OF Q[illegible]

Continued

CERTIFICATION

Continental Disc® Corporation
3160 W. Heartland Drive • Liberty, MO 64068-3385 USA • (816) 792-1500 • Fax (816) 792-2277 / 5447

Manufactured and Tested under an ISO-9001 Certified Quality System. TUV-CERT Certificate Reg. No. QA211. Inspection Certificate EN 10 204 3.1.B: 1991

Date: 7/28/01

Sold To: NORLITE CORP.

S.O. No: 01-07-486-00

Customer Order No: 980807

Item: 01

Mfg No: 339359

Quantity: 5

FOR TANKS 3,4,5,6

Type: Special 6" ENVIROSEAL III Continental Rupture Disc For 150# ANSI Bolting Per SC 12136

Material: NON-ASBESTOS GASKET
316 SS TOP SECTION
TEFLON SEAL
316 SS TOP SECTION
NON-ASBESTOS GASKET

REQUESTED RUPTURE PRESSURE AND TEMPERATURE:
POS BURST PRESSURE: 12 MIN to 15 MAX psig @ 72 deg F
VAC BURST PRESSURE: 2 MIN to 4 MAX psig @ 72 deg F

BURST TEST RESULTS: POS: 1) 12.5 2) 14.1
VAC: 1) 3.13 2) 3.33

STAMPED RUPTURE PRESSURE AND TEMPERATURE:
POS BURST PRESSURE: 12 MIN to 15 MAX psig @ 72 deg F
VAC BURST PRESSURE: 2 MIN to 4 MAX psig @ 72 deg F

CONTINENTAL DISC CORPORATION

Dean Dorsenlauser

CERTIFICATION

Continental Disc® Corporation
3160 W. Heartland Drive • Liberty, MO 64068-3385 USA • (816) 792-1500 • Fax (816) 792-2277 / 5447

Manufactured and Tested under an ISO-9001 Certified Quality System. TUV-CERT Certificate Reg. No. 12 100 9200. Inspection Certificate EN 10 204 3.1.B: 1991

Date: 9/13/01

Sold To: NORLITE CORP.

S.O. No: 01-08-890-00

Customer Order No: 981231

Item: 01

Mfg No: 340922

Quantity: 2

FOR TANKS 101A, 101B 102A, 102B

Type: 3" CAL-VAC (FS) Continental Rupture Disc

Material: 316 SS Top Section
Teflon Seal
Teflon Girdle

Requested Rupture Pressure and Temperature:
POS RATED: 20 psig MAX @ 80 deg F
VAC PRESSURE RATING: 8 MIN to 14 MAX in. water @ 80 deg F

POS Burst Test Results:
1) 17.0 2) 18.4

VAC Burst Test Results:
1) 11.5 2) 11.5

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

Ambient Rupture Pressure and Temperature:
17.9 psig @ 72 deg F

CONTINENTAL DISC CORPORATION

Dean Birkenhauser

DIRECTOR OF QUALITY ASSURANCE

CERTIFICATION

Continental Disc® Corporation
3160 W. Heartland Drive • Liberty, MO 64068-3385 USA • (816) 792-1500 • Fax (816) 792-2277 / 5447

Manufactured and Tested under an ISO-9001 Certified Quality System. TUV-CERT Certificate Reg. No. 12 100 9200. Inspection Certificate EN 10 204 3.1.B: 1991

Date: 1/17/02

Sold To: NORLITE CORP.

S.O. No: 02-01-296-00

Customer Order No: 982374

Item: 03

Mfg No: 344757

Quantity: 2

FOR TANK 200A

Type: 6" CDCV (FS) Continental Rupture Disc

Material: 316 SS Top Section
Teflon Seal
316 SS Vacuum Support

Requested Rupture Pressure and Temperature:
RATED: 20 psig MAX @ 80 deg F

* Burst Test Results:
1) 17.1 2) 19.1

Stamped Rupture Pressure and Temperature:
18.1 psig @ 80 deg F

Ambient Rupture Pressure and Temperature:
18.3 psig @ 72 deg F

CONTINENTAL DISC CORPORATION

Dean Dorsenhausen

DIRECTOR OF QUALITY ASSURANCE

Certified Chart Number: 503AR
(Chemical Analysis Available Upon Request)

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
DALY ENGINEERING COMPANY INCORPORATED
LICENSED PROFESSIONAL ENGINEER
NO. 076

K. Mc[illegible]

…osi… for Choice of Gasketing

● … erred
O … sfactory

PRODUCT	BASIC COMPOSITION	STYLE	Hardness, Durometer	Acids: Mild	Acids: Corrosive	Alkalies: Mild	Alkalies: Corrosive	Gases: Air & Dry Industry	Gases: [illegible]	Gases: Oxygen	Oils: Petroleum	Oils: Synthetic	Solvents: Aromatic	Solvents: Aliphatic	Solvents: Chlorinated	Refrigerants	Steam	Water & Salt Solutions	Fluid Where Non-Contamination Required	COMMENTS
Comp… sed Asbestos	White Asbestos, SBR Binder	900/7735	†NA	O		O	O	O	●	•							●	●	O	Prime General Service
Comp… sed Asbestos	White Asbestos, SBR Binder	7006/7819	NA	O		O	O	O	●								O	O		Medium Grades
Comp… sed Asbestos	White Asbestos, SBR Binder	7021	NA	O		O	O	O	O		●						O	O		Hot Oil Resistant
Compressed Asbestos	White Asbestos, Neoprene Binder	7228	NA	O		O	O	O	O		●		O	●	O	O	O	O		Prime for Oils
Compressed Asbestos	White Asbestos, Neoprene Binder	9057	NA	O		O	O	O	O		O					●	O	O		Prime for Refrigerants
Compressed Asbestos	White Asbestos, Nitrile Binder	8748	NA	O		O	●	O	O		●	●	●	O	●		O	O		General Solvent Service
Compressed Asbestos	Blue Asbestos, SBR Binder	7705	NA	O	O	O	O	O	O		O						O	O		Acid Resistant
Compressed Asbestos	Wire Inserted, White Asbestos, SBR Binder	1000	NA	O		O	O	O	O								●	●		Heavy Duty Steam
Homogeneous Rubber	Natural Rubber	6023	35	O		O		O										O	●	Soft Tan Gum Rubber
Homogeneous Rubber	SBR	152	50	O		O		O										●		
Homogeneous Rubber	SBR	91	60	O		O		O										●		
Homogeneous Rubber	SBR	22	80	O		O		O										●	●	Prime "Red Rubber"
Homogeneous Rubber	SBR	353	80	O		O		O										O		
Homogeneous Rubber	Neoprene	8312	50	O		O		O			O			O		O		O		
Homogeneous Rubber	Neoprene	7986	60	O		O		O			●			●		O		O		
Homogeneous Rubber	Neoprene	8639	70	O		O	O	O			O	O		O		O		O		
Homogeneous Rubber	Neoprene	7797	80	O		O	O	O			●			O		●		O		
Homogeneous Rubber	Nitrile	9122	60	O		O	O	O			●		●	●				O		
Homo… eous Rubber	Nitrile	8495	70	O		O	O	●			●	O	●	●				O		
Homo… eous Rubber	Nitrile	8459	80	O		O	O	●			●	O	●	●				O		
Homo… eous Rubber	EPDM	9712	50	●		●	●	●									O	O		Excellent Ozone Resistance
Homo… eous Rubber	EPDM	8314	60	●		●	●	●									O	O		Excellent Ozone Resistance
Reinf… ed Rubber	SBR Rubber, 10-oz. Cotton Chafer	19	80					O										●		1/32", uses 5-oz. Cotton Sheeting
Diaph… m	SBR Rubber, 20-oz. Hose Duck	619	50					O										●		Heavy Cotton Reinforcement
Diaph… m	Neoprene, 20-oz. Hose Duck	7992	50					●										O		Heavy Cotton Reinforcement
Diaph… m	Neoprene, 13-oz. Nylon	8798	70					●			O							O		Prime General Duty
Diaph… m	Nitrile, 4.5-oz. Nylon	9205	50					O			●	O						O		Very Sensitive
Wove… sbestos	White Asbestos, White SBR Impregnated	605	NA	O		O		O									●	O		Soft and Conforming
Vege… e Fiber	Cellulose Fiber, Cork, Glue, Glycerine	660	NA					O			●	O	O	O	O					Soft, Resilient, Non-water
Vege… e Fiber	Cellulose Fiber, Glue, Glycerine	681	NA					O			●	O	O	O	O					Firm, Non-water
PTFE	PTFE plus Inert Filler	GYLON	NA	O	●	●	●	O	●	●	O	O	●	●	●	O	O	O	●	Low Cold Flow
Fle… Graphite	Pure Graphite	GRAPH-LOCK	NA	O	●	●	●	●	O		●	●	●	●	●	●	●	O		Very High Temperatures
Fibe… ss	Fiberglass, Elastomer	THERMO-SIL	NA	O		O		●									●	●		Soft and Conforming

†NA=not applicable

STYLE …00 Compressed Asbestos sheet has never been officially approved by any governmental or
other … pendent laboratory for oxygen service. Despite the fact that we have many satisfied customers
who … used this product for years in oxygen service, we cannot guarantee its fitness for such use.

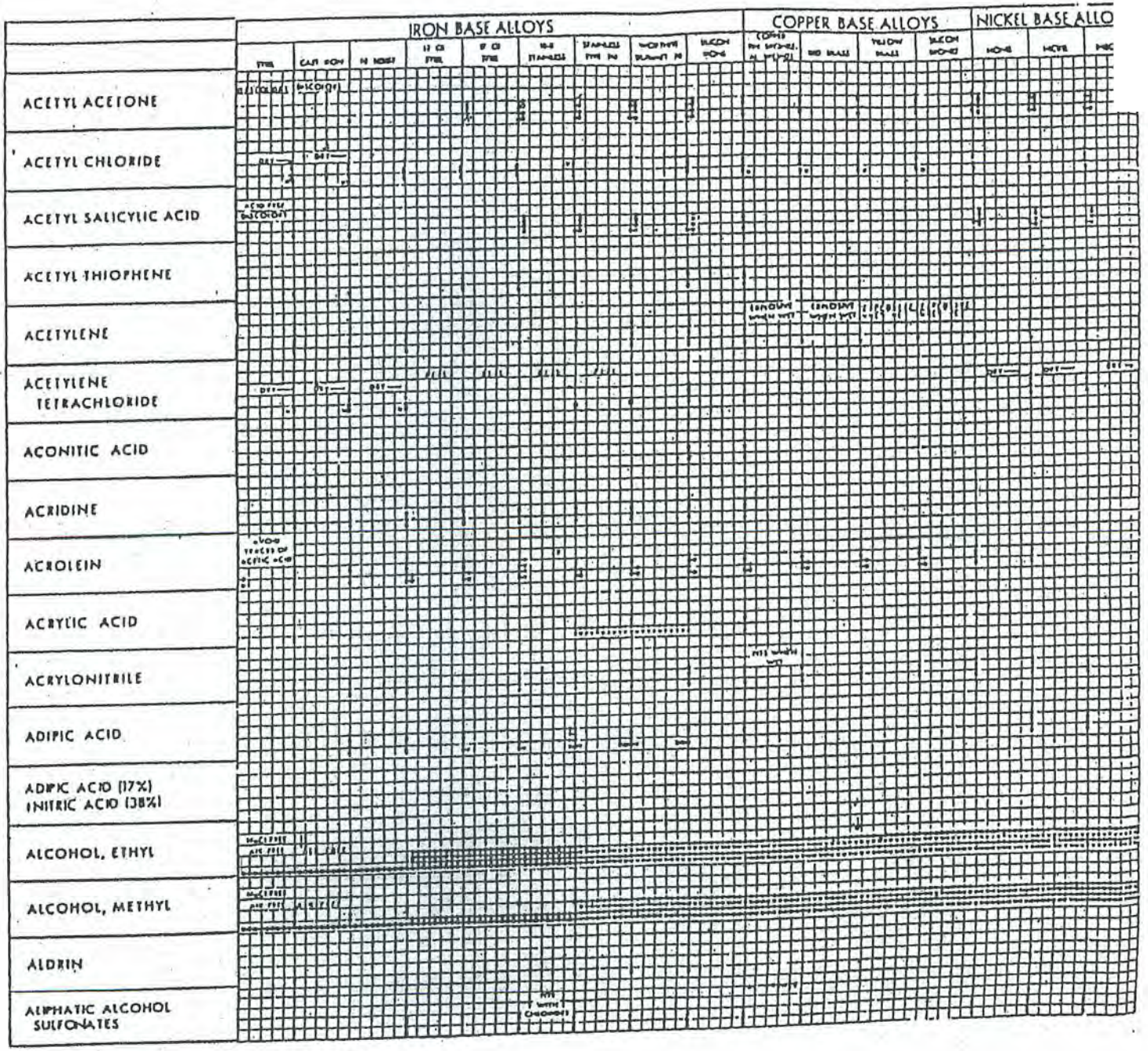
H-METALLIC RATINGS

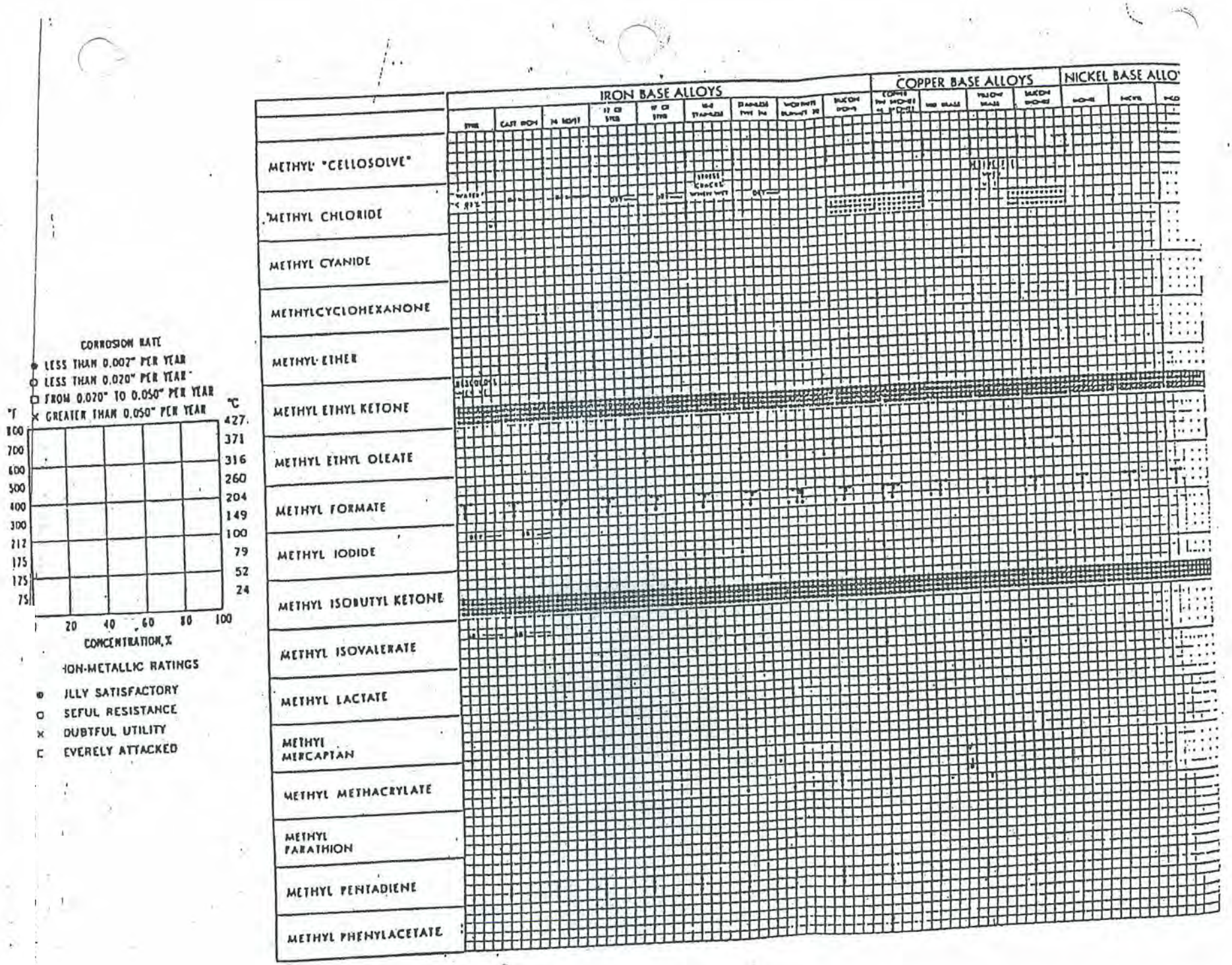
LY SATISFACTORY

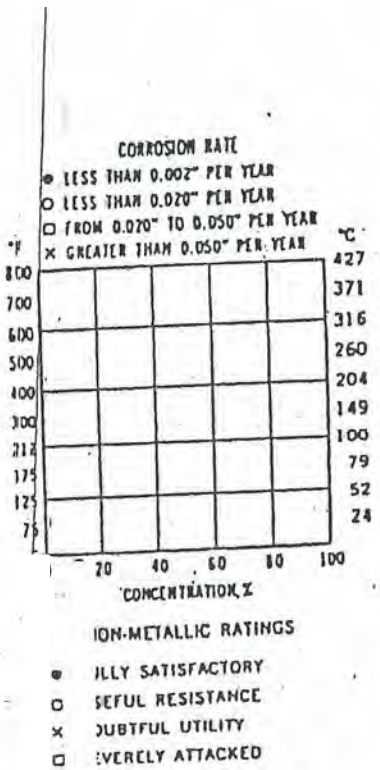
FUL RESISTANCE

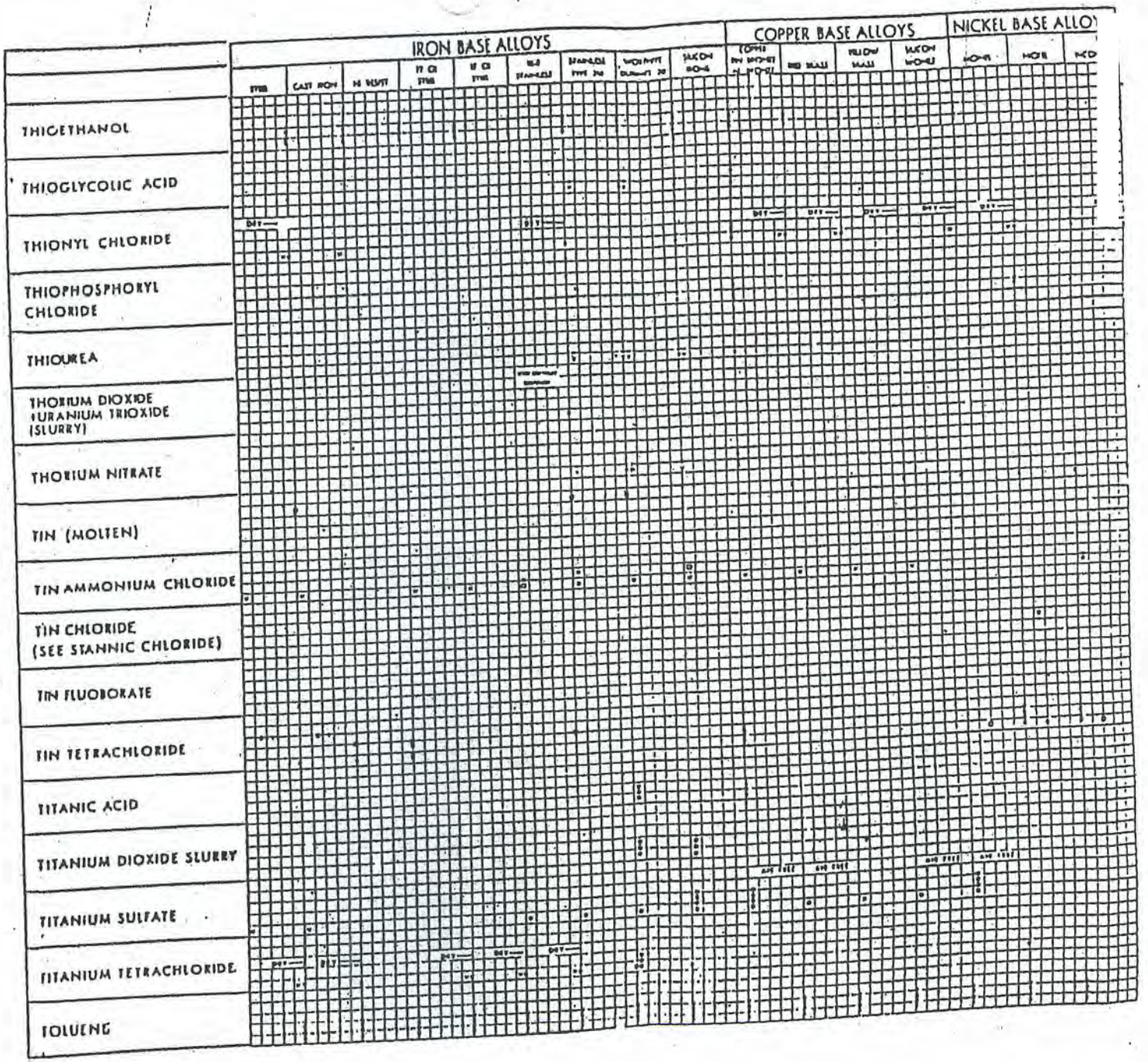
IBTFUL UTILITY

ERELY ATTACKED




IRON BASE ALLOYS
COPPER BASE ALLOYS
NICKEL BASE ALLO
METHYL "CELLOSOLVE"
METHYL CHLORIDE
METHYL CYANIDE
METHYLCYCLOHEXANONE
METHYL ETHER
METHYL ETHYL KETONE
METHYL ETHYL OLEATE
METHYL FORMATE
METHYL IODIDE
METHYL ISOBUTYL KETONE
METHYL ISOVALERATE
METHYL LACTATE
METHYL MERCAPTAN
METHYL METHACRYLATE
METHYL PARATHION
METHYL PENTADIENE
METHYL PHENYLACETATE
CORROSION RATE
LESS THAN 0.002" PER YEAR
LESS THAN 0.020" PER YEAR
FROM 0.020" TO 0.050" PER YEAR
GREATER THAN 0.050" PER YEAR
°F
°C
800
700
600
500
400
300
212
175
125
75
427
371
316
260
204
149
100
79
52
24
20
40
60
80
100
CONCENTRATION, %
ION-METALLIC RATINGS
JLLY SATISFACTORY
SEFUL RESISTANCE
OUBTFUL UTILITY
EVERELY ATTACKED


CORROSION RATE
● LESS THAN 0.002" PER YEAR
○ LESS THAN 0.020" PER YEAR
□ FROM 0.020" TO 0.050" PER YEAR
× GREATER THAN 0.050" PER YEAR
°F
°C
800
700
600
500
400
300
212
175
125
75
427
371
316
260
204
149
100
79
52
24
20
40
60
80
100
CONCENTRATION, %
ION-METALLIC RATINGS
● ILLY SATISFACTORY
○ SEFUL RESISTANCE
× OUBTFUL UTILITY
□ EVERELY ATTACKED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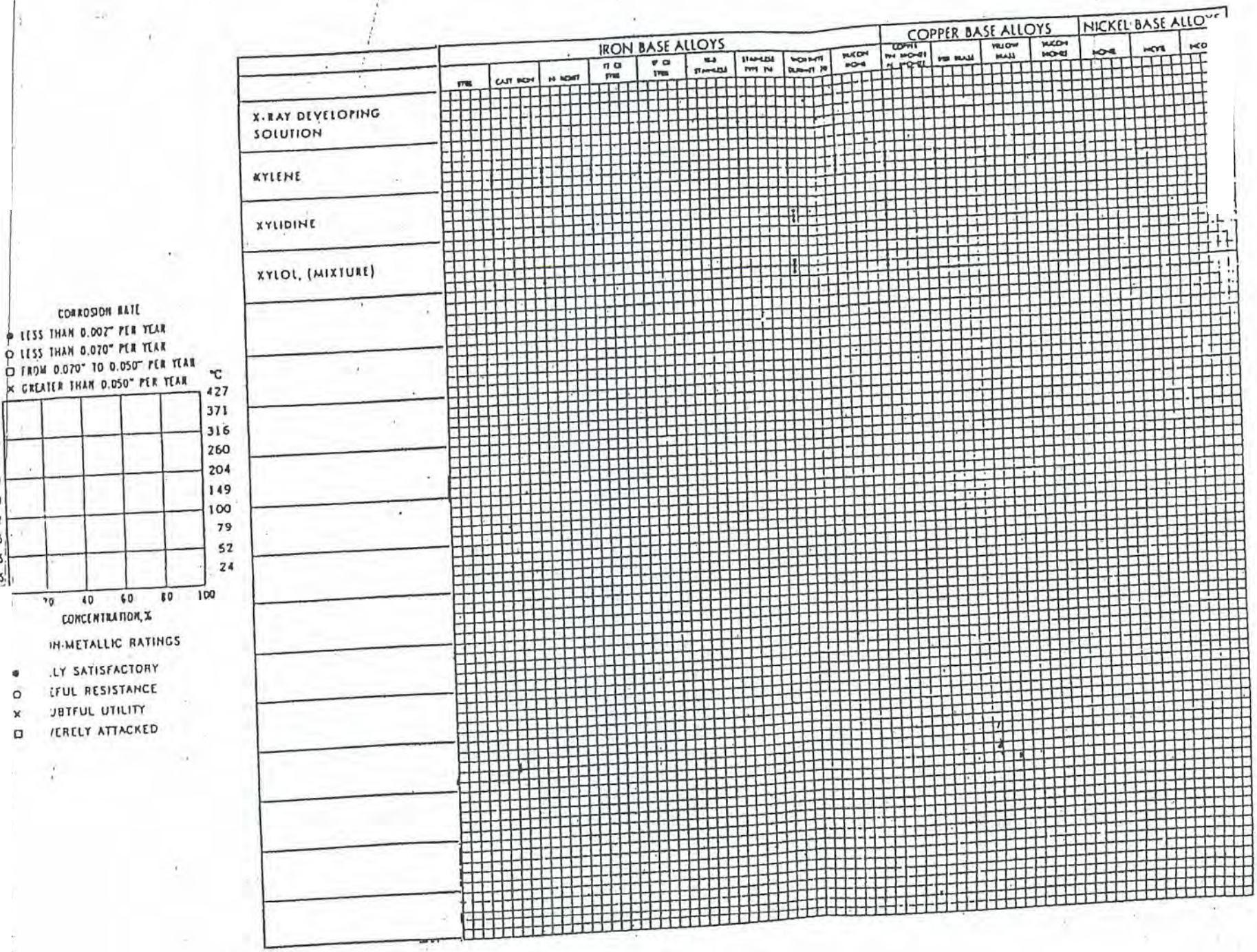
THIOETHANOL
THIOGLYCOLIC ACID
THIONYL CHLORIDE
THIOPHOSPHORYL CHLORIDE
THIOUREA
THORIUM DIOXIDE +URANIUM TRIOXIDE (SLURRY)
THORIUM NITRATE
TIN (MOLTEN)
TIN AMMONIUM CHLORIDE
TIN CHLORIDE (SEE STANNIC CHLORIDE)
TIN FLUOBORATE
TIN TETRACHLORIDE
TITANIC ACID
TITANIUM DIOXIDE SLURRY
TITANIUM SULFATE
TITANIUM TETRACHLORIDE
TOLUENE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COPPER BASE ALLOYS
NICKEL BASE ALLOYS
X-RAY DEVELOPING SOLUTION
XYLENE
XYLIDINE
XYLOL, (MIXTURE)
CORROSION RATE
LESS THAN 0.002" PER YEAR
LESS THAN 0.020" PER YEAR
FROM 0.020" TO 0.050" PER YEAR
GREATER THAN 0.050" PER YEAR
°F
°C
800
700
600
500
400
300
212
175
125
75
427
371
316
260
204
149
100
79
52
24
20
40
60
80
100
CONCENTRATION, %
IN-METALLIC RATINGS
LY SATISFACTORY
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UBTFUL UTILITY
/ERELY ATTACKED

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.

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: _____

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 2014

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WASTE ANALYSIS PLAN

The purpose of this Waste Analysis Plan it 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 Personnel Training 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 D** 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 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 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 §261 - Appendix VIII and/or 6NYCRR Part §371 - Appendix 23. The Waste Profile Sheet also requires a verification by the Generator that the information is accurate, 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 the permit limits and the compatibility requirements.

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.

1.2.2 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.

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 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 261.31 and 6 NYCRR 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 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 & 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 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 6NYCRR 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 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 6NYCRR Subpart §371.4(d)(6). The following hazardous wastes, as listed in 6NYCRR Subpart §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 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 6NYCRR Subpart §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 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 LGF 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, laboratory pipets from sampling and analysis. The waste is generally contaminated with waste solvent and alcohol. The sludge is hazardous 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 has contracted with an experienced environmental contractor for the tank cleaning operation. The cleaning of one storage tank generates from 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 an annual basis.

If the tank bottom sludge contains free liquids, it can be characterized as LLGF by 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 first. 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 by 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 6NYCRR §371.3(c).

Norlite generates a wastewater onsite that is separate from the scrubber wastewater. Wastewater from the secondary containment systems is collected and pumped to the LLGF tanks to be managed as LLGF. This includes stormwater from the outside tanker staging area.

Scrubber waste water is treated in the waste water treatment plant and is not pumped to the LLGF tanks.

1.2.9 Used Oil Fuel and Waste Fuel A

Norlite is a generator, marketer and burner of used oil as defined under 6 NYCRR 374-2 and is subject to § 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 374-2, or Waste Fuel A as defined in 6 NYCRR 225-2 except PCB limits in this permit must be lower, as per Schedule 1 of Module. 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 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 start up 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 § 225-2 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)(2)]
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 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 225-2 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 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 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 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 371-4(i).

1.2.11 Remedial Waste

Norlite Corporation 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 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, five (5) 8,613-gallon tanks, four (4) 1,174-gallon tanks, one (1) 9,271-gallon tank, 55-gallon or smaller drum containers, and rolloffs.

The hazardous wastes received are blended and used as fuel in two lightweight aggregate kilns.

Full detail 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 any 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 any 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 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 the process.

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.

After analysis, the remainder of the sample is stored in its glass jar with a teflon 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 4°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 wastestream 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. Once or twice per month, 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 will be collected from the blasted shale after every blast. There will be 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 will be composited in a clean "ZIPLOCK" style plastic bag for delivery to the onsite laboratory.

This composite sample for the blast will be 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 when 80 or more containers have been accumulated. 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. Cleaning of the sampler and containers is accomplished by the method used to rinse the coliwasa sampler used for tank truck. Alternatively, the sampler equipment can be disposed as a waste.

3.2 Sample Preservation and Storage

Samples are stored at 4°C if they cannot be analyzed within one hour of collection. Retained samples are stored at 4°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.

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 and the New York State Department of Environmental Conservation. This QA manual plan document 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. 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 many analyses onsite. On a monthly basis, a random LLGF sample will be split and submitted to an independent, NYS ELAP certified laboratory for metals, total halogens and heat content. A relative difference in the results between the laboratories that is >25% for any analytes will trigger investigation, corrective action, and repeat of the split sampling event for those analytes and matrices for that month. The results from each laboratory will be included in the next monthly report to NYSDEC for comparison. 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 preshipment waste, the generator will be contacted and the shipment 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.

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 10^0C indicates a reaction has occurred. Wastes that fail the compatibility test will be rejected or denied approval. If the temperature rise is between 5^0C and 10^0C, 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 9056 will 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 or steam is provided through the outer pipe. Atomization pressure is maintained as specified in Schedule 1 of Module I of the 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 this procedure.

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 A1016, A1221, A1232, A1242, A1248, A1254, and A1260. 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 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. The confirmation criteria and corrective action developed with the Department will be applied.

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 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 if 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 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 6NYCRR Part §371 known or suspected to be present in the wastestream 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 6NYCRR 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-.

(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 1 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", OSWER 9938.4-03, April

1994, Sections 1.5 and 1.5.2) are met. Waste produced by processes that are less well characterized are wastestreams 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 inSchedule 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 6NYCRR 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 6NYCRR 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", OSWER 9938.4-03, April 1994, Sections 1.5 and 1.5.2) 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 §373 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 the 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.

Wastewater 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.

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 or 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 to be unloaded and the truck is to be 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 the rejection in accordance with 6NYCRR Subpart §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 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 the 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.

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 content 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 heat content, PCBs and total halogens. Since the metal content of this product is fairly consistent and since the flowrate of this product to the kiln

is comparatively low, Norlite establishes an average concentration of each metal of concern through analysis performed on samples taken by the facility. 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. A monthly average of metals contribution is maintained by averaging the metals concentrations measured over the previous month. The feedrates obtained in this calculation will be used as the feedrate for the current month. For the calculation of metals contribution to the kilns from specification used oil used as pilot fuel, a flow rate of one and one half gallons per minute will be used. A higher flowrate will be used if the kilns' usage exceeds this flowrate. 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 371-4(i) and Norlite has notified of its intent to accept the comparable fuel stream. Each load will be sampled and analyzed for heat content, bottom sediment and 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 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. 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) 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 two-way radio 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 thoroughly 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 (Liquid Low Grade Fuel) 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 Director

Q.C. Technicians

SUPERVISORY PERSONNEL

Plant Manager

Laboratory Director

Q.C. Technicians

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 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 266.102(e)(6), and the manner in which the Comprehensive Performance Test, Air Dispersion Modeling and Risk Assessment evaluations were performed by ENSR/AECOM. 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. The SOP 4-009 is titled "Process Control Procedure - Preparation for and Incineration of Waste Blends Containing High Concentrations of Organic Halogens or High BTU Materials".

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 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 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. 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 374-1.3(a)(2), the clinker must meet the following criteria in order to be used as a 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 nonwastewater 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 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 266 Appendix VII as referenced in 6 NYCRR 374 Appendix 47. This method is consistent with 6 NYCRR 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 multiclone APC devices and the filtercake produced from the treatment of the scrubber blowdown 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 SW846) 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 multiclone APC devices and the filtercake produced from the treatment of the scrubber blowdown 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 multiclone 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. Norlite will also draw and analyze a sample of the wastewater treatment plant filter cake that is generated during the sampling event. 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 content 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 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 content. Any comparable fuel not meeting the specification in 6 NYCRR 371-4(i) will be rejected or managed as LLGF.

Based on the specification in 6 NYCRR 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 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 MSDSs 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

Term	Definition
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

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-1298-85	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 5050 & 9253	Norlite SOP#04-014	Halogen Content	each load[6] and one blended tank weekly
LLGF, CF	Bottom Sediment	Norlite SOP#4-049	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	D6160	Norlite SOP#04-073 & 04-074	Compliance with permit limits	each load[6]
LLGF, OSUOF, WFA, SUOF, CF, SCW	Arsenic	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Beryllium	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Cadmium	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Chromium	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Copper	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Lead	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Barium	EPA 3052/6010C	Norlite SOP#04-058 & 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	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Antimony	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Selenium	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Silver	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Thallium	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each load[6], one blended tank weekly
	Zinc	EPA 3052/6010C	Norlite SOP#04-058 & 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

STREAM[2]	PARAMETER	ANALYTICAL METHOD[1][3]	NORLITE SOP FOR ANALYTICAL METHOD	RATIONAL FOR PARAMETER	SAMPLING AND ANALYSIS FREQUENCY
Raw Shale	Arsenic	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each blast
	Beryllium	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each blast
	Cadmium	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each blast
	Chromium	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each blast
	Copper	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each blast
	Lead	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each blast
	Barium	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each blast
	Mercury	EPA 7471B	Norlite SOP#04-065 & 066	Verify Metals Below Permit Levels	each blast
	Nickel	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each blast
	Antimony	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each blast
	Selenium	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each blast
	Silver	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each blast
	Thallium	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each blast
	Zinc	EPA 3052/6010C	Norlite SOP#04-058 & 070	Verify Metals Below Permit Levels	each blast
	Total Halogen	EPA 5050/9056	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]	EPA 5035A/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

Kiln: 1 & 2

Tank #: 300
Total Gallons: 25675
Released: Wednesday, January 11, 2012
LGF DCS: 1816.28
Used Oil DCS: 621.27
Pilot Oil DCS: 140.38

WAP-2
Norlite Corporation
Metals and Halogens
LGF Tank Certification

PREVIEW

LGF File: -
Used Oil File: 20807
Pilot Oil File: 20798

Kiln Operator Inputs
Metals & Halogens Feed Rates

MAX LGF (G/Min)	10.3
MAX Used Oil (G/Min)	10.0
MAX Pilot Oil (G/Min)	10.0
LGF (BTU/Gal)	**60565**
Used Oil (BTU/Gal)	**104681**
Pilot Oil (BTU/Gal)	**128528**
Operator DCS	**293774**

Date entry number must match DCS value shown on PLC

While Burning LGF
Maximum BTU/HR = 62,000,000

Lime Feed (Lbs/Hr) x3.2	207
Natural Gas BTU/Ft^3	1,010

Tank Contributions

Date	Source	CTRL#	Manifest	Gallons
1/11/2012	Norlite Corporation	-	-	25675

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	Max Feed Limits	Max Liquid Feed
Total Halogens	38.8827	18.79352	6.91303	0.82300	64.5893	82.3	-
Ash	71.9330	108.42417	72.81721	-	253.1744	-	-
Arsenic	0.0035	0.00337	0.00355	0.01080	0.0069	1.08	0.21
Beryllium	0.0002	0.00029	0.00088	0.00099	0.0005	0.099	0.012
Cadmium	0.0336	0.05860	0.00092	0.00360	0.0922	0.36	0.32
Chromium	0.0917	0.07151	0.02097	0.07780	0.1632	7.78	5.98
Copper	7.2210	1.49139	0.11116	0.13120	8.7124	13.12	9.48
Lead	0.1351	0.22172	0.03217	0.06360	0.3568	6.36	4.03
Barium	0.1423	0.12351	0.08134	0.12170	0.2658	12.17	0.97
Mercury	0.0002	0.00010	0.00009	0.00008	0.0004	0.0081	0.0064
Nickel	0.1122	0.17555	0.06074	0.07060	0.2878	7.06	6.16
Antimony	0.0209	0.04212	0.02046	0.00310	0.0835	0.31	0.22
Selenium	0.0047	0.00732	0.00401	0.00170	0.0160	0.17	0.12
Silver	0.0148	0.00805	0.00207	0.00180	0.0249	0.18	0.13
Thallium	0.0049	0.00482	0.00489	0.00350	0.0146	0.35	0.26
Zinc	1.0316	0.77275	0.29574	0.25610	2.1001	25.61	10.32

Date: 1/11/2012 @ 3:41:29 PM

LGF Laboratory Authorization: Prince M Knight III

Supervisor Authorization: David Maguffin

Tank Usage Details

Date	Time	Action (Start / On / Off / Finish / Continue)	Notes	Burner

Batch: 2011-11
Date of Blast: 12/15/2011
Initial Release Date: 12/29/2011
Sample Id: S121611009

WAP-3
Norlite Corporation
Shale Feed Tank Certification

LGF File:
Used Oil File: 20807
Pilot Oil File: 20798

Max Feed Rate (Ton/Hr)	22.0
Alarm Set Point (Ton/Hr)	21.0
WFCO Set Point (Ton/Hr)	21.5
Lime Feed Rate x3.2 (Lbs/Hr)	0.0

Analytical Information

Parameter	Conc. (mg/g)	Feed Rate (Lbs/Hr)	Max Shale (Lbs/Hr)
Arsenic	6.402	0.2817	1.0696
Beryllium	0.5438	0.0239	0.0976
Cadmium	0.07	0.0031	0.2669
Chromium	15.54	0.6838	7.5958
Copper	34.79	1.5308	4.2964
Lead	15.00	0.66	5.971
Barium	121.3	5.3372	11.8229
Mercury	0.0303	0.0013	0.0077
Nickel	26.43	1.1629	6.7115
Antimony	1.455	0.064	0.2265
Selenium	0.85	0.0374	0.154
Silver	0.1643	0.0072	0.1551
Thallium	1.421	0.0625	0.3354
Zinc	97.96	4.3102	23.5099
Total Halogens	0.23	0.0101	-
DCS	322.1864	-	-

- Maximum Shale (lbs/hr) is equal to Maximum Total feed minus the Liquid Feed.
- Metals Digestion Completed By SW-846 3050B
- Total Halogen analysis completed by SW-846 9056 with preparation by SW-846 5050
- Mercury Digestion & Analysis completed by SW-846 7471A

Date: 1/11/2012 Laboratory Approval: Prince M Knight III

Date: 1/11/2012 Operations Approval: David Maguffin

Burner Approval

Date	Time	Notes	Burner

TABLE WAP-4
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	6
04-014	Determination of Total Halogens in LGF by Titration	11
04-015	MDS 2000 Microwave Digestion for ICP Analysis	13
04-027	Toxicity Characteristic Leaching Proceudre	10
04-032	Preparation of Shale for Chlorine Analysis by Ion Chromatography	4
04-043	Determination of Ash Content in Fuel	5
04-047	MARS Microwave Digestion for ICP Analysis (Method 3050B)	7
04-048	Automatic Flash Point Analysis	6
04-049	Determination of Bottom Sediment and Water	4
04-053	Sample Receipt and Handling	3
04-058	Mars Microwave 3052 Digestion for ICP Analysis	3
04-063	Compatibility	1
04-064	Determination of Heat of Combustion of LGF	1
04-065	Mercury Digestion of Liquid and Solid Waste by Method 7471B	1
04-066	Mercury Analysis of Liquid and Solid Waste by Method 7471B	1
	(reserve for 6160 SOP)	
04-068	Analysis to Determine Content of PCBs by Method 8082A	1
04-069	Extraction of Solid Waste to Determine Levels of PCBs by Method 8082A	1
04-070	Determination of Metals Content in Solid and Liquid Waste by Method 6010C	1

WAP Appendix 1

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 # : _____
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

BILLING INFORMATION:

Billing Name: _____
Billing Address: _____
City: _____ State: _____ Zip: _____
Billing Contact Name: _____
Billing Phone: _____
Billing Fax: _____
Sales Rep: _____

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 products ___ 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

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): _____

D. CHEMICAL COMPOSITION CONTINUATION: Total of Maximum concentration must be > or = to 100%.

Constituents	Min%	Max%	ppm	Constituents	Min%	Max%	ppm

G. R.C.R.A. 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

		METHOD
NONMETALLIC ANALYTE	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-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

Organic Constituent	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-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

628 SOUTH SARATOGA STREET
COHOES, NY 12047
(518) 235-0401

Client/Generator ID-Name:	UNITED - COHOES (NORLITE)
Sample Identification:	003 METALS
Date Collected:	4/14/2014
Time Collected:	9:30 AM
Matrix:	Water
Composite/Grab:	GRAB
Number of Containers:	1
Manifest #:	
Job ID:	
Special Handling:	
Receiving Plant:	628 SOUTH SARATOGA STREET COHOES,NY 12047

Sample # :	**S041514002**
Sample Type:	Customer Sample
Target:	INTERNAL
Profile#:	
Sampled By:	TL
Condition:	Intact
Condition Comment:	pH<2 VERIFIED UPON RECIPT
Temperature:	16.7 C
Rcvd within Holding time:	Yes
Visual Inspection Memo:	CLEAR LIQUID

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
Metals Digestion	EPA 200.7		Complete		4/15/2014 7:49AM
Mercury	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 Water[3]
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	1.51E-04	3.85E-03	None Detected
Barium	0.9731	2.57E-04	7.48E-03	3.08E-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 FOR:

NORLITE LLC
628 SOUTH SARATOGA STREET
COHOES, NEW YORK 12047

PREPARED BY:

NORLITE LLC
628 SOUTH SARATOGA STREET
COHOES, NEW YORK 12047

June 2014

INTEGRATED CONTINGENCY PLAN

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INTEGRATED CONTINGENCY PLAN

This Integrated Contingency Plan (ICP or Plan) for the Norlite, LLC 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 1 - 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
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 during normal working hours. 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*

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, Turn 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 Hess gas Station.
d.	Mailing address of the facility	Robert O'Brien 80 State Street, Albany NY 12207-2543

e.	Other identifying information	EPA ID: NYD080469935 NAICS: 327310 SIC: 3299 TRI ID: 12047NRLTC628SO
f.	Key contact(s) for plan development and maintenance	Thomas Van Vranken, Environmental Manager Timothy Lachell, 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 373-Map Revised.
- 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
    - NY003-1312
    - NY003-1314
    - NY003-1315
    - NY003-1317
    - NY003-1903

- 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 373-Map Revised, as well as the facility drawings

Section 2 - 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 the Annex 2 (need section).

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 Kiln Supervisors are trained as Incident Commanders and therefore the on-site kiln Supervisor at the time must have the initial notification. The on-site Kiln Supervisors can be reached on a shared cell phone at 518-587-5737.

The on-site Kiln Supervisor must contact one of the following facility Incident Commanders:

Primary Incident Commander:
Health and Safety Manager: Robert Milburn
Office: 235-0401 Plant Ext.:4005
Cell Phone: 518-857-7385

Alternate:
Plant Manager: Timothy Lachell
Office: 235-0401 Plant Ext.: 4014
Cell Phone: 518-857-9196

Alternate:
Environmental Manager: Thomas Van Vranken
Office: 235-0401 Plant Ext.:4038
Cell Phone: 518-365-2443

Alternate:
Fuel Farm Manger: David Glover
Office: 235-0401 Plant Ext.:4028
Cell Phone: 518-857-4606

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: 518-785-2352
- 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
- St. Mary's Hospital: 518-424-8802
- Mine Safety Health Administration: 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, than 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, and identification can be made, than appropriate procedures will be followed. If identification cannot be made, than 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, MSDS, 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, 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
    - 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 of 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 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, or neutralization, or a combination of.
- 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 insuring 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, LEPC, or contracted response services. An example of a sustained action would be 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 route 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 route cause analysis, the company will institute corrective action measures which will ensure a similar situation does not occur again.

  During the route 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 impacted media (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.

ANNEXES

ANNEX 1

FACILITY AND LOCALITY INFORMATION

Annex 1: Facility and Locality Information

A1.1 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 373-Map revised. This drawing identifies each building on the facility, have topography information, wind row 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 drawing which provide P&ID information of the fuel farm and kiln area, including emergency shut-off valve information.

- NY003-1311
- NY003-1312
- NY003-1314
- NY003-1315
- NY003-1317

. The layout will be made available to the 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.

A1.2 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 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.

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 closes 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 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 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 3000 ^{o}F near the burner zone and approximately 1000^{o}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 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. Both kilns have identical emission control systems which consist of both wet and 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.

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

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 waste are sampled and under analysis 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 either one of (4) specification used oil tanks or the one off-specification used oil tank. Norlite uses computer modeling and laboratory analysis to blend the different hazardous wastes into a mixture which will meet the requirements if 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 Safety Data Sheets (MSDSs) 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 **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, Material 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 respectively 1 mile due east of the property, and 3/4 mile northeast of the property.

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	Telephone Number
NA	On-Site Kiln Supervisor	Cell Phone: 518-587-5737
Robert Milburn	Health and Safety Manager	Office: 518-235-0401 Ext. 4005 Cell Phone: 518-857-7385
Timothy Lachell	Plant Manager	Office: 518-235-0401 Ext. 4014 Cell Phone: 518-857-9196
Tom Van Vranken	Environmental Manager	Office: 518-235-0401 Ext. 4038 Cell Phone: 518-365-2443
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 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
Fire Department		911
Police Department		911
Ambulance		911
Hospital/Emergency Care Facility		518-268-5697
Poison Control Center		(800) 336-6997
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. This information is available in the Core Plan Section 2.1.1.

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 MANGEMENT PLAN

Annex 3: Response Management System

The following sections provides 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 24 individuals which have all received the specific training to 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
    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 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, 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 of emergency or potentially 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 Kiln Supervisor will take charge as the Emergency Coordinator until relieved by the Incident Commander. There are four kiln supervisors, providing coverage 24 hours a day, seven days a week.

A3.2 Command

The following is a list of Emergency Coordinators for the facility:

Chris DiNovo: Kiln Supervisor Shift A

Mike McNally: Kiln Supervisor Shift B

James Guerin: Kiln Supervisor Shift C

William Clairmont: Kiln Supervisor 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 employee 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 office 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, 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 HAZ WOPER 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	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 cross wind direction. Employees working in the kiln area; which includes the kiln control room, the EQ Tank (101A, 101B, 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 Local Emergency Planning Committee (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 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 [6NYCRR, Subpart '373-2.4(c)(1) and Subpart '373-2.4(g) and Subpart '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 Atell-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 alarms (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 reported 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 on 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**.

2. Reporting
   (a) Petroleum releases must be reported to the DEC within 24 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.
      (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 appropriate under the Emergency Coordinator.

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 [6NYCRR, Subpart ' 373-2.4(c)(1) and Subpart ' 373-2.4(g) and Subpart ' 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**

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 hand held 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 MSDS 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 used to determine the materials involved will 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, MSDS 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 handles 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 which respect to handling, disposal outlets, and having available equipment to handle the waste management. Tradebe employees specialized response crews trained and capable of remediating areas after an incident has occurred.

A3.4.5 Logistics

A. Medical needs of responders

Minor medial 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 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 & 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.

Annex 3 – 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, 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, 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, than 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, and identification can be made, than appropriate procedures will be followed. If identification cannot be made, than 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, MSDS, 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, 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

- toxicity
- ignition source

- Determine if incident can be handled by 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, or 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 insuring 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.
- 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, prevent unauthorized personnel from entry
- If one extinguisher does not extinguish fire, or the employee is unable to safely use a fire extinguisher, than the employee must immediately contact his supervisor, and notify the emergency coordinator.

STEP 1: Site Management

- Manage the physical layout of the fire.
- Approach from an uphill, upwind side.
- Ensure area is isolated and deny entry via barriers, tape, 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, MSDS 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 Equipment Officer.
- Processes utilized will be dilution, absorption, or neutralization, or a combination of.
- Protect clean up personnel.
- Arrange for proper disposal of all contaminated materials, including insuring 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.
- Notification to proper authorities that activities have been completed.
- File a report within 15 days of the emergency action.

ANNEX 4

INCIDENT DOCUMENTATION

Annex4. Incident Documentation

This annex provides Norlite's procedures for conducting a follow-up investigation of the cause of the accident, including coordination with federal, state and local officials.

A4.1 Post-Accident Investigation

Post-accident 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	Spill/Incident Type	Description
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 wastestream that it will no longer be accepted at the facility to ensure this type of event does not occur again.

ANNEX 5

TRAINING AND EXCERISE 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 a 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. Job titles and job duties and are included.

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 (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.

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. Interact 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, SOP's, CPR/First-Aid, Refresher Training, DOT, On-the-job training.

II. Plant Engineer

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, SOP's, 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, SOP's, 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, SOP's, CPR/First-Aid, Refresher, DOT, On-the-job training.

V. 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, SOP's, CPR/First-Aid, Refresher, On-the-job training.

VI. Kiln Supervisor

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, SOP's, CPR/First-Aid, Refresher, DOT, On-the-job training.

VII. 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, SOP's, CPR/First-Aid, Refresher, DOT, On-the-job training.

VIII. 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, SOP's, Refresher, DOT, On-the-job training.

IX. 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, SOP's, CPR/First-Aid, Refresher, On-the-job training.

X. 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, SOP's, Refresher, DOT, On-the-job training.

XI. 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, SOP's, Refresher, DOT.

XII. 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, SOP's, Refresher, DOT, On-the-job training.

XIII. Wastewater Treatment Plant Operator

A. Job Description

1. Monitors and operates the Wastewater Treatment Facility
2. Performs repairs to related piping and pumping systems
3. Conducts routine chemical analysis of wastewater

B. Training Requirements: Orientation, 24-Hour Initial, Emergency Response, SOP's, 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, SOP's, Refresher, On-the-job training.

ANNEX 6

RESPONSE CRITIQUE/REVIEW/MODIFICATION

Annex 6: Response Critique and 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 by March 31st to identify any changes which are needed. Any identified changed will be made in the plan and implemented in the facility by May 1st of the same year.

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

A list of plan amendments is listed in Table 2

Date	Representative Name and Title	Signature	Sections Reviewed	Plan Amended	Date Amended	Certification Required?	Certification Date
				{Yes/No}		{Yes/No}	

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 provided below and summarized in the table below:

{

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 Records	Record Retention Period
Burner Shift Safety Inspection	Safety inspection of Kiln buner 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
Fuel Farm Shift Report	Visual inspection of tanks and recording of tank levels	Once every 4 hour 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.
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, 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 intersticial space to detect leaks
Kiln Rear Chamber System	This system is a double seal system with a vacated interstial 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 reside 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.

SECURITY AND INSPECTION 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 2014

SECURITY AND INSPECTION PLAN

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4.0 GLOSSARY

1.0 INTRODUCTION

This Security and Inspection Plan (SIP) was developed by Norlite LLC for the Norlite facility herafter 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 and Equipment

To comply with 6 NYCRR 373-2.2(f)(1), Norlite employs personnel who provide security coverage Monday through Friday from 6AM to 10PM and Saturday 6AM to 12PM at the main plant entrance (Elm Street). The main entrance is closed on Sundays and holidays. Access to the second plant entrance, at Saratoga Street, is controlled by Key Card activated security gate. Norlite personnel monitor the active portion of the facility and its operating conditions twenty four hours per day, 365 days per year.

Norlite LLC complies with the security provisions of 6 NYCRR 373-2.2(f)(2) and 373-2.2(f)(3) as outlined below.

The following paragraphs describe applicable aspects of the plant security system.

2.1 – <u>24-Hour Surveillance System</u>

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 and loading/unloading areas. Norlite has installed a fence on the south end of the facility from the south gate to the quarry.

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 twenty-four 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 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 6NYCRR Subpart §373-2.2(f)(1) authorize a waiver from the security provisions of 6NYCRR Subpart §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

3.1 – Inspection Schedule

AREA/EQUIPMENT	SPECIFIC ITEM	TYPES OF PROBLEMS	INSPECTION FREQUENCY
Security Devices	Signs	Removed, Dirty and Knocked Down	Weekly
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
LGF 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 101 A, B & 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
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
Solids Mixing Tank 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
	Gas Exit Temperature	Reading Malfunction, Electrical Failure	Daily
	Flame/Material Temperature	Reading Malfunction, Electrical Failure	Daily
	Carbon Monoxide	Reading Malfunction, Sensor/Detector Failure	Daily
	Oxygen	Reading Malfunction, Cell Failure	Daily
	Combustion Gas Velocity	Reading Malfunction	Daily
	Atomization Air Pressure Gauge	Reading Malfunction, Compressor Failure	Daily
	Venturi Water Flow	Reading Malfunction, Pump Malfunction	Daily
	Scrubber Pressure Drop	Reading Malfunction, Pump Failure, Plugging	Daily
	Combustion Air	Reading Malfunction, Fan Failure	Daily
	Kiln Pressure	Reading Malfunction, Plugging, Draft	Daily
	Blowdown Rate	Reading Malfunction, Float Sticking	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, Permittee 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 speed-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:

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 will have 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-3. 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-4. 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 "Burner Operator's Shift Log" is attached to this part as Figure F-5. A file of "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-6. 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

Annually, based upon the schedule for tank cleaning, each below ground 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 12 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 on the form presented in Figure F-7. A file of these reports is maintained at the facility as part of the inspection log.

On an annual basis, each below ground 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 four equalization tanks (T101A, T101B, T102A and T102B) will undergo integrity testing once every five years by an independent inspector since they will be 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 new tanks 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 such as 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 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-6).

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 insure 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.

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 HWMUs are maintained in the operating record. The inspection logs contain a list of inspection parameters as well as an inspection frequency. On each logsheet, 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

KILN FIELD OPERATORS SHIFT REPORT

NAME_____ DATE_____ SHIFT_____

SUPERVISORS SIGNATURE:_____

WATER READINGS AND SILO LEVELS

QUARRY/CITY WATER READINGS	START	END	GALLONS
KILN1 QUARRY/CITY WATER TOTALIZER			
KILN 1 CAUSTIC TOTALIZER			
KILN 2 QUARRY/CITY WATER TOTALIZER			
KILN 2 CAUSTIC TOTALIZER			
SODA ASH MAKE-UP TOTALIZER			
LIME SILO LEVEL	TIME		
SODA ASH SILO LELEL	TIME		

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			

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			

NOTE PIER 1 IS DISCHARGE PIER

DO OIL DRUMS NEED TO BE EMPTIED AT KILN 2?	PIER 1	PIER 2	PIER 3
KILN 1 PIERS CLEAN			
KILN 2 PIERS CLEAN			
KILN 1 TRUNNION DRIP TRAYS CLEAN			
KILN 2 TRUNNION DRIP TRAYS CLEAN			

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			

LIME FEEDERS, ROTARY VALVES AND BLOWER INSPECTION- RECORD ALL CHANGES

*USE ADDITIONAL SHEETS AS REQUIRED

FEEDING KILN	TIME	SETTING *NOT FROM WAP 2- ACTUAL SETTING*	LIME FEEDER	ROTARY VALVE	BLOWER SELECTED
KILN 1		________lbs./hr	1 2 3	ON OFF	A B C D
KILN 2		________lbs./hr	1 2 3	ON OFF	A B C D
KILN 1		_________lbs./hr	1 2 3	ON OFF	A B C D
KILN 2		________lbs./hr	1 2 3	ON OFF	A B C D
KILN 1		________lbs./hr	1 2 3	ON OFF	A B C D
KILN 2		________lbs./hr	1 2 3	ON OFF	A B C D
KILN 1		________lbs./hr	1 2 3	ON OFF	A B C D
KILN 2		________lbs./hr	1 2 3	ON OFF	A B C D

ARE ALL LIME FEEDERS GUARDED- REPORT CONDITION
IS LIME SILO CLEAN AND FREE OF SPENT LIME- REPORT CONDITION
IS ANY MAINTENANCE REQUIRED IN THIS AREA

NAME:______________________________ DATE:_______________ SHIFT:______________

SCRUBBER SYSTEM INSPECTION

	KILN 1	KILN 2
RECYCLE PUMP RUNNING	NORTH OR SOUTH	NORTH OR SOUTH
RECYCLE PUMP LEAKING	YES OR NO	YES OR NO
BLOWDOWN PUMP LEAKING	YES OR NO	YES OR NO

KILN 1 QUENCH WATER SETTINGS	1	2	3	4
KILN 1 MIST PAD WATER SETTING		*NOTE-READINGS TO BE TAKEN AT CENTER OF FLOAT TOTAL QUENCH FLOW SHOULD BE 8 TO 10 GPM		
KILN 2 QUENCH WATER SETTINGS	1	2	3	4
KILN 2 MIST PAD WATER SETTINGS				

KILN 1 QUENCH PUMP RUNNING	YES OR NO	KILN 1 EMERGENCY QUENCH VALVES OPEN	YES OR NO
KILN 2 QUENCH PUMP RUNNING	YES OR NO	KILN 2 EMERGENCY QUENCH VALVES OPEN	YES OR NO
KILN 1 SCRUBBER- IS ANY MAINTENANCE REQUIRED IN THIS AREA?			
KILN 2 SCRUBBER- IS ANY MAINTENANCE REQUIRED IN THIS AREA?			

SODA ASH BUILDING

		KILN 1	KILN 2	TIME	CONCENTRATION
NORTH PUMP FEEDING KILN IS PUMP LEAKING	YES NO				
SOUTH PUMP FEEDING KILN IS PUMP LEAKING	YES NO				
SODA ASH SCREW-REPORT CONDITION ARE ALL COVERS IN PLACE ARE ALL GUARDS IN PLACE	 YES NO YES NO				
SODA ASH MIXERS RUNNING- REPORT CONDITION					
IS ANY MAINTENANCE REQUIRED IN THIS AREA					

HEAT EXCHANGER FANS, PRIMARY AIR FANS, KILN 2 DRIVE AND SILO HEAT INSPECTION

KILN 1 UPPER HEAT EXCHANGER FAN GREASED	YES NO	KILN 1 LOWER HEAT EXCHANGER FAN GREASED	YES NO
KILN 2 HEAT EXCHANGER FAN GREASED	YES NO	KILN 1 LOWER (OLD) FAN RUNNING	YES NO
KILN 1 UPPER(NEW) FAN SETPOINT	HZ	KILN 2 MAIN DRIVE SETPOINT	HZ
KILN 2 HEAT EXCHANGER SETPOINT	HZ	K1 SHALE SILO HEAT RUNNING	YES NO
KILN 1 PRIMARY AIR FAN SETPOINT	HZ	IS ANY MAINTENANCE REQUIRED IN THESE AREAS?	
KILN 2 PRIMARY AIR FAN SETPOINT	HZ		

NAME:_____ DATE:_____ SHIFT:_____

F-3

RAW SHALE BELTS INSPECTION

	KILN 1 TOP	KILN 1 BOTTOM	KILN 2 TOP	KILN 2 MIDDLE	KILN 2 BOTTOM
SHALE BELTS AND SPLICES IN WORKING CONDITION	YES NO	YES NO	YES NO	YES NO	YES NO
ROLLERS AND RETURNS IN WORKING CONTITION	YES NO	YES NO	YES NO	YES NO	YES NO
WIPERS IN PLACE AND IN GOOD CONDITION	YES NO	YES NO	YES NO	YES NO	YES NO
HEAD PULLEYS AND TAIL PULLEYS GREASED	YES NO	YES NO	YES NO	YES NO	YES NO
KILN 1 ALL CONVEYOR COVERS AND GUARDS IN PLACE	YES NO	YES NO	YES NO	YES NO	YES NO
KILN 2 ALL CONVEYOR COVERS AND GUARDS IN PLACE			YES NO	YES NO	YES NO

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		

COOLER SYSYTEM AND COOLER FAN INSPECTION

COOLERS AND COOLER FANS	KILN 1	KILN 2
COOLER DRIVE SYSTEM GREASED	YES NO	YES NO
BARRON EXHAUST SYSTEM GREASED	YES NO	YES NO
EAST COOLER FAN GREASED	YES NO	YES NO
WEST COOLER FAN GREASED	YES NO	YES NO
KILN COOLER AREAS CLEANED	YES NO	YES NO
COOLER SCREWS RUNNING NORTH	YES NO	YES NO
COOLER SCREW RUNNING SOUTH	YES NO	YES NO
DUST DRUMS EMPTIED	YES NO	YES NO
KILN 1 COOLER- IS ANY MAINTENANCE REQUIRED IN THIS AREA		
KILN 2 COOLER- 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		

AIR COMPRESSORS AND PORTABLE AIR COMPRESSORS

	KILN 1	KILN 2
OIL LEVEL CHECKED	YES NO	YES NO
HOW MUCH OIL WAS ADDED		
AIR COMPRESSOR TEMP		
AIR DRYERS AND AFTERCOOLERS WORKING	YES NO	YES NO
DRYER RELIEF VALVE WORKING PROPERLY	YES NO	YES NO
PORTABLE COMPRESSOR RUNNING	YES NO	YES NO
FLUIDS CHECKED IN PORTABLE	YES NO	YES NO
PORTABLE RE-FUELED FOR NEXT SHIFT	YES NO	YES NO
ANY MAINTENANCE REQUIRED IN THIS AREA		

NAME:_____ DATE:_____ SHIFT:_____

FUEL FARM SHIFT REPORT

DATE:_____ SHIFT:_____ OPERATOR:_____

TIME				
I. TANK LEVELS				
TK 3 (INCHES)				
TK 4 (INCHES)				
TK 5 (INCHES)				
TK 6 (INCHES)				
TK 100A (GAL)				
TK 100B (GAL)				
TK 100C (GAL)				
TK 102B (GAL)				
TK 200A (GAL)				
TK 200B (GAL)				
TK 200C (GAL)				
KILN OIL TANK (FEET-INCHES)				
II. SWITCHED TANKS	**TIME**	**FROM**	**TO**	**FEED PUMP PRESSURE (PSIG)**
III. OTHER TANKS				
FIRE DAY TK LEVEL				
NITROGEN TK LEVEL				
HEATER DAY TK LEVEL				
COMMENTS: (ANY LEAKS, ODD NOISES, HIGH PRESSURES, PROBLEMS, ETC.)				

SUPERVISORS SIGNATURE: _____

FUEL FARM OPERATOR'S PRE-SHIFT & DAILY INSPECTION REPORT

DATE: _____ ***INSPECTED BY:*** _____

ITEM	OK / YES	OK / NO	STATUS	ACTION NEEDED OR TAKEN
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				
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				

FUEL FARM OPERATOR'S PRE-SHIFT & DAILY INSPECTION REPORT

DATE: _____ ***INSPECTED BY:*** _____

ITEM	OK / YES	OK / NO	STATUS	ACTION NEEDED OR TAKEN
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				
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				
Free of Contamination Leaks				
Other Remarks:				

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FUEL FARM OPERATOR'S PRE-SHIFT & DAILY INSPECTION REPORT

DATE: _____ ***INSPECTED BY:*** _____

ITEM	OK / YES	OK / NO	STATUS	ACTION NEEDED OR TAKEN
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				
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				
Other Remarks:				
FUEL OIL TANK AREA				
Housekeeping				
East Pump				
West Pump				
Pipe, Valves, Fittings				
Fire Extinguisher (1)				
Lights				
Other Remarks:				

F-4

FUEL FARM OPERATOR'S PRE-SHIFT & DAILY INSPECTION REPORT

DATE: _____ ***INSPECTED BY:*** _____

ITEM	OK / YES	OK / NO	STATUS	ACTION NEEDED OR TAKEN
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:				

BURNER OPERATORS LOG

KILN _____ *BURNER* _____ *SHIFT* A B C D *DATE* ____/____/____

	KILN											COOLER				
TIME	CLINKER WT LBS	FEEDER SETTING TPH	STONE TEMP ^{0}F	FLAME TEMP ^{0}F	BACKEND TEMP ^{0}F	KILN HOOD PRESSURE "WC	LGF GPM	WASTE OIL GPM	WATER GPM	NATURAL GAS	ATOM AIR PSI	COOLER SPEED	EAST COOLER FAN	WEST COOLER FAN	FRONT BARRON SPEED	FRONT BARRON AMPS
7:00																
8:00																
9:00																
10:00																
11:00																
12:00																
13:00																
14:00																
15:00																
16:00																
17:00																
18:00																

	SCRUBBER							BAGHOUSE					HEAT EXCHANGER/MC			
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	INLET TEMP ^{0}F	DIFF PSI "WC	OXYGEN %	CO CNT PPM	LIME FEED ON / OFF	HX D.P. "WC	HX EXIT TEMP	M.C. DIFF PSI "WC	DILUTION DAMPER %
7:00																
8:00																
9:00																
10:00																
11:00																
12:00																
13:00																
14:00																
15:00																
16:00																
17:00																
18:00																

KILN	END			END		**AVERAGE**	**REMARKS**	
RAW	START		**GAS**	START		**WEIGHT** _____		
SHALE	TOTAL			TOTAL				

BURNER OPERATORS LOG

KILN _____ *BURNER* _____ *SHIFT* A B C D *DATE* ____ / ____ / ____

	KILN											COOLER				
TIME	CLINKER WT LBS	FEEDER SETTING TPH	STONE TEMP ^{0}F	FLAME TEMP ^{0}F	BACKEND TEMP ^{0}F	KILN HOOD PRESSURE "WC	LGF GPM	WASTE OIL GPM	WATER GPM	NATURAL GAS	ATOM AIR PSI	COOLER SPEED	EAST COOLER FAN	WEST COOLER FAN	FRONT BARRON SPEED	FRONT BARRON AMPS
19:00																
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/MC			
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	INLET TEMP ^{0}F	DIFF PSI "WC	OXYGEN %	LIME FEED ON / OFF	CO HRA PPM	HX D.P. "WC	HX EXIT TEMP	M.C. DIFF PSI "WC	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	END			END		**AVERAGE**	**REMARKS**	
RAW	START		**GAS**	START		**WEIGHT** _____		
SHALE	TOTAL			TOTAL				

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]			ACTION
A. PUMP PAD - TANKS 3 & 4						
A1. Secondary Containment	X					
A2. Drip Pans	X					
A3. Housekeeping	X					
A4. Pumps	X					
A5. Valves	X					
A6. Piping / Fittings	X					
A7. Fire Extinguisher (1)	X					
B. PUMP PAD - TANKS 5 & 6						
B1. Secondary Containment	X					
B2. Drip Pans	X					
B3. Housekeeping	X					
B4. Pumps	X					
B5. Valves	X					
B6. Piping / Fittings	X					
B7. Fire Extinguisher (1)	X					
C. TANKS 3-6 GROUND COVER						
C1. Vegetation	X					
C2. Erosion	X					
C3. Housekeeping	X					
D. SECURITY						
D1. Fencing	X					
D2. Signs and Locks	X					
E. CONTAINER STORAGE AREA			Unloading Pad	Drum Room	IN USE	
E1. # of Non-haz drums	X		0	0		
E2. # of Haz Drums	X		0	0	0	
E3. (Max. 214 haz drums)	X					0
E4. Corrosion/Leakage	X					
E5. Drainage	X					
E6. Container Pad	X					
E7. Housekeeping	X					
E8. Signs / Labeling	X					
E9. Fire Extinguishers (3)	X					
F. TANKER UNLOADING AREA #1 (north)						
F1. Concrete Pad	X					
F2. Pumps	X					
F3. Piping / Fittings	X					
F4. Valves	X					
F5. Safety Shower (1)	X					
F6. Housekeeping	X					
Fa. TANKER UNLOADING AREA #2						
Fa1. Concrete Pad	X					
Fa2. Pumps	X					
Fa3. Piping / Fittings	X					
Fa4. Valves	X					
Fa5. Housekeeping	X					
G. TANKER STAGING AREA						
G1. Spills/Stains on Ground	X					
G2. Condition of Contained Water	X					
G3. Housekeeping	X					

[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]	ACTION
H. ROLL-OFF CONTAINERS				
H1. Condition of Containers	X			
H2. Absence of Spills	X			
H3. Covered	X			
H4. Labels	X			
H5. Haz. Quantity (Max 160 cu yds)	X			
I. LGF STORAGE BUILDING				
I1. Tank 100A	X			
I2. Tank 100B	X			
I3. Tank 100C	X			
I4. Tank 200A	X			
I5. Tank 200B	X			
I6. Tank 200C	X			
I7. Pump 100A	X			
I8. Pump 100B	X			
I9. Pump 100C	X			
I10. Pump 200A	X			
I11. Pump 200B	X			
I12. Pump 200C	X			
I13. Grated Trench & Sump	X			
I14. Secondary Containment	X			
I15. Housekeeping	X			
I16. Pipes, Valves, & Fittings	X			
I17. Fire Extinguishers (5)	X			
I18. Safety Shower (outside bldg.)	X			
J. LGF PIPE BRIDGE & TUNNEL				
J1. Piping / Fittings	X			
J2. Fire Extinguishers (3)	X			
J3. Safety Showers (2)	X			
J4. Housekeeping	X			
K. FUEL OIL STORAGE TANK AREA				
K1. Physical Condition of Tank	X			
K2. Cracks, Corrosion, Thinning?	X			
K3. Pipes, Valves, & Pumps	X			
K4. Housing & Foundation Integrity	X			
K5. Housekeeping	X			
K6. Leak detection devices (located in utility building)	X			
K7. Fire Extinguishers (2)	X			
Ka. F, M, R TANKS				
Ka1. Condition of Tanks	X			
Ka2. Cracks, Corrosion, Thinning?	X			
Ka3. Pipes, Valves, & Pumps	X			
Ka4. Containment Condition	X			
Ka5. Housekeeping	X			

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 form must be returned to the Compliance Dept. for filing. (Permit Required)

ITEM	ACCEPTABLE[1] YES		NO		STATUS (or OBSERVATION)[2]	ACTION
L. BAGHOUSE	K1	K2	K1	K2		
L1. Structure Integrity	X	X				
L2. Piping/Fittings	X	X				
L3. Housekeeping	X	X				
M. SCRUBBER BUILDING	K1	K2	K1	K2		
M1. Containment Area	X	X				
M2. Pumps	X	X				
M3. Piping/Fittings	X	X				
M4. Valves	X	X				
M5. Housekeeping	X	X				
N. KILN	K1	K2	K1	K2		
N1. Backend Seal	X	X				
N2. No Dust or Emissions?	X	X				
N3. Trunnions	X	X				
N4. Not Leaking Oil on Ground?	X	X				
N5. Drip Pans in use? (if needed)	X	X				
N6. Shell	X	X				
O. BURNER FLOOR AREA	K1	K2	K1	K2		
O1. Piping, Fittings, & Valves	X	X				
O2. Pumps	X	X				
O3. Fire Extinguishers (1 ea. area)	X	X				
O4. Safety Shower (removed)	X	X				
O5. Housekeeping	X	X				
P. EXTRUDER ROOM						
P1. Housekeeping	X					
P2. Piping/Fittings	X					
P3. Drums	X					
P4. Number of Haz. Drums	n/a					
P5. Number of Non-Haz Drums	n/a					
Q. EQUALIZATION TANKS						
Q1. Tank 101A	X					
Q2. Tank 101B	X					
Q3. Tank 102A	X					
Q4. Tank 102B	X					
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]	ACTION
R. EQUALIZATION AREA				
R1. Sump in Basement	X			
R2. Secondary Containment	X			
R3. Pumps & Valves	X			
R4. Safety Shower (1)	X			
R5. Piping/Fittings	X			
R6. Fire Extinguishers (4)	X			
R7. Housekeeping	X			
R8. Drum Storage Area (<55 gals.)	X			
S. TUNNEL FIRE/LEL/O2 MONITOR AND CONTROL SYSTEM (located in k1 control room)				
S1. Fire Protection Device	X			
S2. Smoke Detector	X			
S3. Oxygen and LEL Monitors	X			
S4. Automated AFFF System	X			
S5. Latest Calibration (Quarterly):	X			
T. KILN #1 GAS ROOM				
T1. Piping/Fittings	X			
T2. Housekeeping	X			
T3. Containment Pad	X			
U. WASTEWATER TREATMENT AREA				
U1. Pumps & Valves	X			
U2. Piping/Fittings	X			
U3. Containment Area	X			
U4. Fire Extinguisher (1)	X			
U5. Housekeeping	X			
V. DUST STORAGE SILOS				
V1. External Condition	X			
V2. Absence of Spills	X			
V3. Pipings/Fittings	X			
V4. Bag Vent Functional	X			
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	X			
W2. Condition of Labels	X			
W3. Absence of Spills / Leaks	X			

Date & Time: _____ **Inspector(s):** _____
Area: Plant

ITEM	ACCEPTABLE[1] YES	ACCEPTABLE[1] NO	STATUS (or OBSERVATION)[2]	ACTION
X. UNIVERSAL WASTE STORAGE				
X1. Containers Labeled / Dated	X			
X2. Containers Closed	X			

[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 _____
Environmental Manager _____ Fuel Farm Manager _____

INSPECTION LOG

DATE OF INSPECTION: _____ TIME: _____

INSPECTORS:

Print Name	Signature	Dept.

FINDINGS/COMMENTS	CORRECTIVE ACTIONS	COMPLETED
1.		
2.		
3.		
4.		

ADDITIONAL FOLLOW-UP INFORMATION

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 2014

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2.0 IMPLEMENTATION OF TRAINING PROGRAM

3.0 GLOSSARY

EXHIBIT A – TRAINING PROGRAM OUTLINE

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 affects 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 of 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
Kiln Supervisor	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
Wastewater Treatment Operator	Monitors and operates the Wastewater Treatment Facility Performs repairs to related piping and pumping systems Conducts routine chemical analysis of wastewater
Mechanic	Maintain, repair, and overhaul facility equipment.

Runner	Maintain stockroom to ensure adequate supply of replacement equipment Provide support in getting materials needed for plant activities

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 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.

Except for on-the-job training, the training occurs off-site in a classroom setting to avoid distraction. The 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.

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 (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.
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.

1.3 Training Content, Frequency and Techniques

The facility's training programs consist of introductory and continuing education training programs for personnel relevant to their job title/position. The training programs consist of a combination of classroom instruction and on-the-job training 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 Director

The Training Director is the Safety Manager, a Norlite LLC employee, who is responsible for overseeing the design and implementation of the training program. At the completion of initial training and each annual course, the Training Director certifies that each employee has successfully completed the program. Training may also be conducted by a reputable outside firm experienced in the appropriate training courses (HAZWOPER, DOT, etc).

The current Safety Manager is Robert Milburn. His qualifications include the following.

- BS in Occupation Safety & Health Engineering
- Certified Mine Safety Professional
- Trained to provide Leadership Training
- Certified in OHSAS 18001 Internal Auditing
- Member of the International Society of Mine Safety Professionals
- Member of the American Society of Safety Engineers
- Trained Emergency Medical Technician
- 40 Hour HAZWOPER
- 24 MSHA Training
- First Aid/CPR Training
- Trained as an MSHA Instructor

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 Director maintains required training records and shall make them available to the Department upon request. These files identify the employee name, job title, education, 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 annual 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	HAZard COMmunication
HazMat	Hazardous Materials
HAZWOPER	HAZardous Waste OPerations 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

A. Outline for Introductory Training Program

a. Occupational Safety and Health Administration(OSHA) HAZardous Waste OPerations and Emergency Response (HAZWOPER) (40-hour course)

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) authorizatin
    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. Personal 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
        a. Response to fires or explosions
        b. Response to groundwater contamination incidents
        c. Shutdown of operations
        d. Key parameters for automatic waste feed cutoff systems
    2. Location of emergency equipment and PPE
    3. Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment
    4. 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, Commingling Wastes, Segregation of Incompatible Wastes
ii. Emergency Response Procedures / Integrated Contingency Plan Review
iii. 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

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 STREET
COHOES, NEW YORK 12047

June 2014

Closure Plan

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9.0 GLOSSARY

CLOSURE PLAN

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 as well as the closure of one or more hazardous waste management units (partial closure).

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 1 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 standard operating procedures utilized at the Facility are designed to minimize the possibility of a spill 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.

In the event of facility closure, Norlite LLC personnel trained in hazardous waste management operations at this facility will undertake the following specific procedures. While

this assumption is made for discussion purposes, third party contractors could also implement this Closure Plan in the unlikely event Norlite LLC personnel are not available. The closure cost estimate assumes that the Closure Plan is implemented by utilizing third party contractors.

2.0 CLOSURE PERFORMANCE STANDARD

Norlite LLC 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.

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), 373-2.10(h), 373-2.11(f), 373-2.12(h), 373-2.13(h), 373-2.14(g), 373-2.15(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. Since the facility is a commercial hazardous waste treatment facility, hazardous wastes are constantly brought to the site for treatment as fuel.

Upon closure, if any changes to the Closure Plan are necessary, Norlite LLC 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
SLGF Processing Building	9,900 gallons in 180 55-gallon drum equivalents
Truck Unloading Area #1	4,785 gallons in 87 55-gallon drum equivalents
LLGF Tank Farm	155,579 gallons in 15 Tanks
Tanker Truck & Onsite Rolloff Staging Area	104,000 gallons in 13 8,000-gallon tanker trucks
Kiln 1 and Kiln 2	none

3.2 – Notification of Closure

Norlite LLC shall notify the Commissioner of the 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, the effectiveness of the decontamination procedure will be determined by collecting rinse water, wipe, soil and/or core samples from each of the hazardous waste management units. End point soil samples will verify the complete removal of all impacted soil located within LLGF Fuel Farm, Container Storage Areas and Tanker Truck & Onsite Rolloff Staging Areas. The samples will be analyzed for the constituents of all wastes previously stored within the respective unit during the unit's entire

operational history, 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.

3.4 – Amendment of Closure Plan

Norlite LLC will amend this Closure Plan whenever significant changes occur in the operations conducted at the Facility or modifications to the design of the facility affect the implementation of the 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 portion 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.

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;
2. Confirm the integrity of all containers in preparation for inventory removal; and
3. Identify, by visual observation, any potentially contaminated areas.

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 OSHA 1910.120 training.

Task appropriate personal protective equipment (PPE) will be provided. If closure activities are performed by Norlite LLC 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 personal protective equipment while performing the decontamination of the Facility.
- Inspect slab area, tanks ancillary process equipment, liquid transfer lines, sump structures and secondary containment areas for spills or evidence of spills, leaks, cracks, or other evidence of potential release of contaminants to the environment and document the findings.
- Waste cleaning solutions/solvent, 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.

5.3.1 – Containers

- 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.
- 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 SLGF Processing Building and Truck Unloading Area #1, 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.

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.

- Decontamination of the tanks will consist of pressure washing the tank interior and piping system with caustic detergent. Approximately 20,000 gallons of contaminated washwater is expected to be generated during the cleaning of all tanks and ancillary equipment.

- 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 washwater will be collected with squeeges and vacuum truck equipment and shipped offsite for treatment and disposal.

5.3.3 – Rotary Kilns

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 LGF storage tanks to the kilns, the kilns, a mechanical collector, a heat exchanger, baghouse, a venturi and Ducon scrubber for air emissions from the kilns and an exhaust stack.

Since the LGF 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, 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 LGF, 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 LGF 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.

5.4 – Certification of Closure

Within 60 days of completion of final or partial closure of the facility or any hazardous waste management unit, 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). The certification will be signed by Norlite LLC and an independent Professional Engineer 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 is included in Attachment 2.

7.2 – Surety Bond

The Surety Bond for Closure is included in Attachment 2.

8.0 LIABILITY REQUIREMENTS

A current copy of the facility's insurance certificate demonstrating satisfactory liability limits is provided in Attachment 3.

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 occurences 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 3.

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

ATTACHMENT 1

CLOSURE COST ESTIMATE

NORLITE CORPORATION CLOSURE COST ESTIMATE - 2014

A. CLOSURE OF TANKS, PIPING NETWORK AND KILNS

1 Removal and Disposal of Inventory

Volume of Waste - 155,579

Volume of Liquid - 116,687

Volume of Sludge - 38,892 gallons

a. Pumping $4.70 per 1000 gallons - 24 trucks	$731.18
b. Protective Clothing 11 man-days @ $25/day	$275.00
c. Transportation $5.64/mile for 300 miles - 20 trucks	$33,840.00
d. Disposal Costfor HW fuels @ $1.67/gallon	$259,817.00
e. Disposal Cost for Scrubber Water (68,000 gallons at $1.00/gallon)	$68,000.00
f. Disposal Baghouse Residues - 355 cu yds @ $100/cu yd	$35,500.00
g. Disposal of Laboratory Wastes - 100 drums @ $300/drum	$30,000.00
h. Transportation of Baghouse Residues - 20 trips @ 300 miles @ $5.64/mile	$33,840.00
i. Supervision - 40 hours @ $100/hour	$4,000.00
Subtotal	$466,003.18

2 Removal and Disposal of Tanks

a. Tank Cleaning - Tanks 300, 400, 500 and 600	
Labor $1000 x 36 man days	36000
Equipment $830/day x 12 days	9960
Wipe sampling 32 samples @ $550/sample	17600
PPE Level C $75/man day x 12 man days	900
PPE Level B $155/man day x 12 man days	1860
Monitoring Equipement @ $135/day x 12 days	1620
b. Soil Sampling around covered tanks - 8 samples @ $439/sample	$3,512.00
c. PPE and Miscellaneous Disposal - 8 drums@ $75/drum	$600.00
d. Assume 100 cu yds contaminated soil removal -	
Transportation 4 trips @ 300 miles @ $5.64/mile	$6,768.00
Disposal @ $150/cu yd	$15,000.00
Subtotal for covered tanks	$93,820.00
e. Tank Cleaning - Tanks 100A,B,C and Tanks 200A,B C	
Labor 1000 x 24 man days	24000
Equipment $830/day x 8 days	6640
Wipe sampling 48 samples @ $550/sample	26,400
PPE Level C $75/man day x 12 man days	900
PPE Level B $155/man day x 6 man days	932
Monitoring Equipement @ $135/day x 8 days	1080
Subtotal	59952

f. Tank Cleaning - Tanks 101A,B and Tanks 102A,B	
Labor 1000 x 9 man days	9000
Equipment $830/day x 3 days	2490
Wipe sampling 16 samples @ $550/sample	8,800
PPE Level C $75/man day x 6 man days	450
PPE Level B $155/man day x 3 man days	465
Monitoring Equipement @ $135/day x 3 days	405
Subtotal	21610
g. 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 @ $100/hour	$5,000.00
Supervision - 50 hours @ $100/hour	$5,000.00
Pressure Washer - $0.58/sqft	$3,035.00
Concrete chip sampling 10 samples, 5 hours@ $93.76	$468.80
Sample analysis, standard turnaround $1,005/sample	$10,050.00
Disposal of Washwater 4.8 gpm x 60 min x 50 hrs x $0.46/gallon	$6,624.00
Subtotal	$30,177.80
h.Tank Removal	
Covered Tanks - 4 tanks @ 890.77/tank	$3,563.08
LLGF Inside Tank - 6 tanks @ 890.77/tank	$5,344.62
EQ Tanks - 4 tanks @ 890.77/tank	$3,563.08
Subtotal	$12,470.78
i. Decontamination and Dismantle Piping and Ancillary Equipment	
Labor - 80 man hours @ $100/hour	$8,000.00
Supervision -80 man hours @ 100/hour	$8,000.00
Backhoe, 2 days @ $1050/day	$2,100.00
Front End Loader - 2 days @ $825	$1,650.00
Steam Cleaning Equipment - 5 days @ $110/day	$550.00
Pumping Equipment - 5 days @ $70/day	$350.00
Crane - 10 day @ $2500/day	$25,000.00
Subtotal	$45,650.00
j. Disposal of Waste Water	
Transportation - 5 trips @ 300 miles @ $5.64/mile	$8,460.00
Disposal - 25000/gallons @ $1.00/gallon	$25,000.00
Subtotal	$33,460.00

3 KILN CLOSURE	
a. Fossil Fuel Burnout	
Fuel 8 gpm x 60 min x 4 hr x 2 kilns x $4.00/gal	$15,360.00
Labor 4 hr x 2 kilns x $100/hr	$800.00
Supervisor 4 hr x 2 kilns x $100/hr	$800.00
subtotal	$16,960.00
b. Cleaning Rotary Kilns	
Labor - 100hours @ $100/hr	$10,000.00
Supervisor - 100 hours @ $100/hr	$10,000.00
Waste Disposal 40 Drums @ $150/drum	$6,000.00
Waste Transportation 1 trip x 300 miles x $5.64/mile	$1,692.00
10 wipe samples @ 1005/sample	$10,050.00
Dust Handling System	
Labor - 80 hours @ $100/hr	$8,000.00
Supervisor - 80 hours @ $100/hr	$8,000.00
Waste Disposal 5 drums @ $150/drum	$750.00
10 wipe samples @ 1005/sample	$10,050.00
Scrubbing System	
Labor 100 hours @ 100/hour	$10,000.00
Supervisor - 100 hours @ $100/hr	$10,000.00
Solids Disposal 10 drums @ $150/drum	$1,500.00
Washwater Disposal 550 gallons @ $0.30/gal	$165.00
10 wipe samples @ 1005/sample	$10,050.00
ID Fans and Stacks	
Labor - 40 hours @ $100/hr	$4,000.00
Supervisor - 40 hours @ $100/hr	$4,000.00
10 wipe samples @ 1005/sample	$10,050.00
Caustic Supply System	
Labor - 40 hours @ $100/hr	$4,000.00
Supervisor - 40 hours @ $100/hr	$4,000.00
10 wipe samples @ 1005/sample	$10,050.00
Neutralization Chemicals	$100.00
Dioxin Samples	
12 dioxin samples @ $1000/sample	$12,000.00
subtotal	$144,457.00
Subtotal For Section A.	$924,560.76

B. CLOSURE OF CONTAINER AREAS

1. Removal and Disposal of Final Inventory

a. Disposal of 267 Drums of Liquid Waste and 50 Drums of Solids

Liquids Disposal 267 x 55 gal x $1.67/gal	$24,524.00
Solids Disposal 50 x $150/drum	$7,500.00
Container Loading 80 pallets x $4.66/pallet	$370.00
Transportation - 4 trips x 300 miles x $5.64/mile	$6,768.00
Supervision 8 man hours x $100/hr	$800.00
Subtotal	$39,962.00

2. Containment Areas Decontamination

9200 square feet of concrete	
Cleaning rate is 105 sq ft/hr for a total of 50 hours	
Labor - 90 hours @ $100/hour	$9,000.00
Supervision - 90 hours @ $100/hour	$9,000.00
Pressure Washer - $0.58/sqft	$3,150.00
Concrete chip sampling 20 samples, 10 hours@ $93.76	$937.60
Sample analysis, standard turnaround $1,005/sample	$20,100.00
Disposal of Washwater 4.8 gpm x 60 min x 68 hrs x $1.00/gallon	$19,584.00
Subtotal	$61,771.60

3. Tanker Staging Area Decontamination

Assume 444 cu yds removal	
Transportation 20 trips @ 300 miles @ $5.64/mile	$33,840.00
Disposal @ $150/cu yd	$66,600.00
Subtotal	$100,440.00
Subtotal for Section B	$202,173.60

C.CONTAMINATED SOIL

1. Sample Collection and Analysis

Sample Collection	$1,100.00
Sample Analysis 70 Samples by GC @ 188.83/sample	$13,218.00
Sample Analysis 7 Samples by GC/MS @ $525.00	$3,675.00

2. Stockpile Shale

Supervision 24 man hours @ $35/hr	$840.00
Front End Loader, 2 days @ $825	$1,650.00
Backhoe, 2 Days @ $1050	$2,100.00

3. Excavated Soil and Shale Stockpile	
Supervision 24 man hours @ 35/hr	$840.00
Front End Loader, 3 days @ $825	$2,475.00
Backhoe, 3 Days @ $1050	$3,150.00
4. Disposal	
Transportation 35 trips x 300 miles x $5.64/mile	$59,220.00
Disposal of 700 cu yds @ $150/yd	$105,000.00
5. Regrade Site	
Supervision, 16 man hours @ $35/hr	$560.00
Front End Loader, 1 day @ $825	$825.00
Backhoe, 1 Day @ $1050	$1,050.00
Bulldozer, 2 days @ $925	$1,850.00
Subtotal for Section C	$197,553.00

D. HEALTH AND SAFETY

1. Disposal PPE	
150 man hours @ $9.00/hour	$1,350.00
Temporary snow fencing, disposal tarps	$1,675.00
Disposal Cost 15 drums @ $55/drum	$825.00
Subtotal for Section D	$3,850.00

E. CLOSURE CERTIFICATION

1. Professional Engineer 8 systems @ $4,423 per system	$35,384.00
2. Marine Chemist 12 days @ $750/day	$9,000.00
Subtotal for Section E	$44,384.00

F. OVERHEAD AND CONTINGENCY

1. Subtotal for Sections A, B, C, D and E	$1,372,521.36
2. Engineering 10% of total	$137,252.14
3.Contingency 25% of total	$343,130.34
Total Closure Cost	$1,852,903.84

ATTACHMENT 2

STANDBY TRUST AGREEMENT & SURETY BOND

STANDBY TRUST AGREEMENT

This TRUST AGREEMENT, the "Agreement," is entered into as of June 6, 2013, 2013 by and between Norlite, LLC, a Delaware limited liability company, the "Settlor," and RBS Citizens Bank, N.A., a national bank, the "Trustee.".

WHEREAS, the New York State Department of Environmental Conservation (hereinafter referred to as "NYSDEC") has established certain regulations applicable to the Settlor, requiring that an owner or operator of a hazardous waste management facility shall provide financial assurance that funds will be available when needed for facility closure, and post-closure facility monitoring and maintenance (hereinafter referred to as "Closure and Post-Closure"), and

WHEREAS, the Settlor has elected to establish a trust to provide all or part of such financial assurance for the facilities identified herein, and

WHEREAS, the Settlor acting through its duly authorized officers, has selected the Trustee to be the trustee under this Agreement, and the Trustee is willing to act as trustee,

NOW, THEREFORE, the Settlor and the Trustee agree as follows:

Section 1. *Definitions.* As used in this Agreement:

(a) The term "Settlor" means the owner or operator who enters into this Agreement and any successors or assigns of the Settlor.

(b) The term "Trustee" means the Trustee who enters into this Agreement and any successor Trustee.

(c) The term "Commissioner" means the Commissioner of the New York State Department of Environmental Conservation, or the commissioner's duly appointed designee.

Section 2. *Identification of Facilities and Cost Estimates.* This Agreement pertains to the facilities and cost estimates identified on attached Schedule A.

Section 3. *Establishment of Fund.* The Settlor and the Trustee hereby establish a trust fund (hereinafter referred to as the "Fund") for the benefit of NYSDEC. The Settlor and the Trustee intend that no third party have access to the Fund except as herein provided. The Fund is established initially as consisting of the property, which is acceptable to the Trustee, described in Schedule B annexed hereto. Such property and any other property subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible, nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the Settlor, any payments necessary to discharge any liabilities of the Settlor established by NYSDEC.

Section 4. *Payment for Closure, Post-Closure.* The Trustee shall make payment from the Fund as the Commissioner shall direct, in writing, to provide for the payment of the costs of Closure and Post-Closure of the facilities covered by this Agreement. The Trustee shall reimburse the Settlor or other persons as specified by the Commissioner from the Fund for the expenditures of such covered activities in such amounts as the Commissioner shall direct in writing. In addition, the Trustee shall refund to the Settlors such amounts as the Commissioner specifies in writing. Upon refund, such funds shall no longer constitute part of the Fund as defined herein.

Section 5. *Payments Comprising the Fund.* Payments made to the Trustee for the Fund shall consist of cash or securities acceptable to the Trustee.

Section 6. *Trustee Management.* The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the Settlor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this Section. In investing, reinvesting, exchanging, selling and managing the Fund, the Trustee shall discharge his or her duties with respect to the trust fund solely in the interest of the beneficiary and with the care, skill, prudence and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

(a) Securities or other obligations of the Settlor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940,15 USCA 80a-2(a) (see section 370.1[e]), shall not be acquired or held, unless they are securities or other obligations of the Federal or a State government;

(b) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal or State government; and

(c) The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. *Commingling and Investment.* The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the Fund to any common, commingled or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 USCA 80a-1*etseq.* (see 6 NYCRR 370.1[e]), including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. *Express Powers of Trustee.* Without in any way limiting the powers and discretions conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depository even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depository with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States Government, or any agency or instrumentality thereof, with a Federal Reserve Bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal or State government;

(e) To accept additions to the Fund from sources other than the Settlor of the Trust; and

(f) To contest, compromise, or otherwise settle any claim in favor of the Fund or Trustee, or in favor of third persons and against the Fund or Trustee.

Section 9. *Taxes and Expenses.* All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Settlor, and all other proper charges and disbursements of the Trustee shall be paid from the Fund.

Section 10. *Annual Valuation.* The Trustee shall annually, at least 30 days prior to the anniversary date of establishment of the Fund, furnish, to the Settlor and to the Commissioner, a statement confirming the value of the Trust. Any securities in the Fund shall be valued at market value as of no more than 60 days prior to the anniversary date of the establishment of the Fund. The failure of the Settlor to object in writing to the Trustee within 90 days after the statement has been furnished to the Settlor and to the Commissioner shall constitute a conclusively binding assent by the Settlor, barring the Settlor from asserting any claim or liability against the Trustee with respect to matters disclosed in the statement.

Section 11. *Advice of Counsel.* The Trustee may from time to time consult with counsel, who may be counsel to the Settlor, with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. *Trustee Compensation.* The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Settlor.

Section 13. *Successor Trustee.* The Trustee may resign or the Settlor may replace the Trustee, but such resignation or replacement shall not be effective until the Settlor has appointed a successor trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer, and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason the Settlor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instruction. The successor trustee shall specify the date on which it assumes administration of the trust in a writing sent to the Settlor, the Commissioner, and the present Trustee by certified mail, return receipt requested, 10 days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this Section shall be paid as provided in Section 9.

Section 14. *Instructions to the Trustee.* All orders, requests and instructions by the Settlor to the Trustee shall be in writing, signed by such persons as are designated in the attached Exhibit A or such other designees as the Settlor may designate by amendment to Exhibit A. The Trustee shall be fully protected in acting without inquiry in accordance with the Settlor's orders, requests and instructions. All orders, requests and instructions by the Commissioner to the Trustee shall be in writing, signed by the Commissioner, and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Settlor or NYSDEC hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests and instructions from the Settlor and/or NYSDEC except as provided for herein.

Section 15. *Notice of Nonpayment.* The Trustee shall notify the Settlor and the Commissioner, by certified mail, return receipt requested, within 10 days following the expiration of the 30-day period after the anniversary of the establishment of the Trust, if no payment is received from the Settlor during that period. After the pay-in period is completed, the Trustee shall not be required to send a notice of nonpayment.

Section 16. *Amendment of Agreement.* This Agreement may be amended by an instrument in writing executed by the Settlor, the Trustee and the Commissioner, or by the Trustee and the Commissioner if the Settlor ceases to exist.

Section 17. *Irrevocability and Termination.* Subject to the right of the parties to amend this Agreement as provided in Section 16, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Settlor, the Trustee and the Commissioner, or by the Trustee and the Commissioner if the Settlor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Settlor.

Section 18. *Immunity and Indemnification.* The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust, or in the carrying out of any directions by the Settlor or the Commissioner issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Settlor or from the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Settlor fails to provide such defense.

Section 19. *Choice of Law.* This Agreement shall be administered, construed and enforced according to the laws of the State of New York.

Section 20. *Interpretation.* As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each Section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement.

In Witness Whereof the parties have caused this Agreement to be executed by their respective officers duly authorized and their corporate seals to be hereunto affixed and attested as of the date first above written. The parties below certify that the wording of this Agreement is identical to the wording specified in 6 NYCRR 373-2.8(j)(1) as such regulations were constituted on the date first above written.

NORLITE, LLC.
Settlor

By: _____

Title: SECRETARY/TREASURER

RBS CITIZENS BANK, N.A.
Trustee

By: _____

Title: Vice President

STATE OF RI. :
: SS. :
COUNTY OF PROVIDENCE:

On this 6TH day of JUNE, 2013, before me personally came JEAN A. PARRILLO, to me known, who, by me duly sworn, did depose and say that (s)he resides at JOHNSTON, RI; that (s)he is the VICE PRESIDENT of RBS Citizens Bank, N.A., a national bank, the banking institution described in and which executed the within Trust Fund Agreement; and that (s)he signed his/her name thereto by authority of such banking institution.

Richard A. Falvo

Notary Public
My commission expires: 10/4/15

STATE OF CONNECTICUT:
: SS: MERIDEN
COUNTY OF NEW HAVEN:

On this 29th day of MAY, 2013, before me personally came Michael Ferraro to me known, who being by me duly sworn, did depose and say that he resides at Park Ridge, Illinois, that he is Secretary/Treasurer of Norlite, LLC, the limited liability company described in and which executed the within Trust Fund Agreement; and that he signed his name thereto by authority of such limited liability company.

Edward G. Lang

Edward G. Lang
Commissioner of the Superior Court
State of Connecticut
Juris Number 033182

SCHEDULE A
TO TRUST AGREEMENT

The Trust Agreement pertains to the following facility and cost estimate:

Facility I.D. No.	Name of Facility	Closure Estimate
NYD080469935	Norlite, LLC 628 Saratoga Street Cohoes, NY 12047	$1,580,000.00

SCHEDULE B
TO TRUST AGREEMENT

The Trust Agreement to which this Schedule B is appended, by and between Norlite, LLC and RBS Citizens Bank, N.A., is to be funded by funds on deposit with RBS Citizens Bank, in an account entitled Citizens Bank, as Trustee for Norlite, LLC, only in the event the Commissioner of the New York State Department of Environmental Conservation properly so certifies.

EXHIBIT A
TO TRUST AGREEMENT

Pursuant to Section 14 of the Trust Agreement, all orders, requests, and instructions by the Grantor, Norlite, LLC., to the Trustee shall be in writing and signed by one of the following designated persons or such other designees as the Grantor may designate by amendment to EXHIBIT A:

1. Mr. Alberto Diez Quintanilla
   Manager
   Norlite, LLC
   1301 West 22nd Street, Suite 500
   Oakbrook, IL 60523
   219-354-2353

2. Mr. Sergio Nusimovich Kolodny
   Manager
   Norlite, LLC
   1301 West 22nd Street, Suite 500
   Oakbrook, IL 60523
   219-354-2402

3. Mr. Bob O'Brien
   President
   Norlite, LLC
   1301 West 22nd Street, Suite 500
   Oakbrook, IL 60523
   203-238-8128

4. Mr. Michael Ferraro
   Secretary/Treasurer
   Norlite, LLC
   1301 West 22nd Street, Suite 500
   Oakbrook, IL 60523
   219-354-2452

SURETY BOND

Date Bond Executed: April 5, 2013
Effective Date: April 5, 2013

Bond Number: K08538335
Bond Premium: $31,600.00 Per Annum

PRINCIPAL

Legal name and business address of owner or operator:	NORLITE, LLC 1301 West 22nd Street, Suite 500 Oak Brook, IL 60523
Type of organization:	**Limited Liability Company**
State of Incorporation:	Delaware

SURETY

Name and business address	Westchester Fire Insurance Company 436 Walnut Street, P.O. Box 1000, Philadelphia, PA 19106

FACILITY

EPA Identification Number:	EPA ID # NYD080469935
Name:	NORLITE, LLC
Address:	628 Saratoga Street, Cohoes, NY 12047
Closure Amount:	$1,580,000
Total penal sum of bond:	ONE MILLION, FIVE HUNDRED EIGHTY THOUSAND DOLLARS ($1,580,000.00)
Surety's Bond Number:	K08538335
Amount for Closure	ONE MILLION, FIVE HUNDRED EIGHTY THOUSAND DOLLARS ($1,580,000.00)
Amount for Postclosure	ZERO DOLLARS ($0.00)
Obligee	New York State Department of Environmental Conservation (NYSDEC)

NOW, THEREFORE, know All Persons By These Presents, that we, the Principal and Surety(ies) hereto are held and firmly bound to NYSDEC in the above penal sum for the payment of which we bind ourselves, our heirs, executors, administrators, successors and assigns jointly and severally; provided that, where the Surety(ies) are corporations acting as co-sureties, we, the Sureties, bind ourselves in such sum "jointly and severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety, but if no limit of liability is indicated, the limit of liability shall be the full amount of the penal sum.

WHEREAS said Principal is required, under ECL Article. 27, to have a permit or interim status in order to own or operate each hazardous waste management facility identified above; and

WHEREAS said principal is required to provide financial assurance for closure, or closure and post-closure care, as referred to above, as a condition of the permit(s) or interim status; and

WHEREAS said Principal shall establish a standby trust fund as is required when a surety bond is used to provide such financial assurance;

NOW, THEREFORE, the conditions of the obligation are such that if the Principal shall faithfully, before the beginning of final closure of each facility identified above, fund the standby trust fund in the amount(s) identified above for the facility.

OR, if the Principal shall fund the standby trust fund in such amounts(s) within 15 days after an order to begin closure is issued by the Commissioner or a United States district court or other court of competent jurisdiction.

OR, if the Principal shall provide alternate financial assurance, as specified in ECL section 27-0917 or 6 NYCRR section 373-2.8 or 373-3.8, as applicable, and obtain the Commissioner's written approval of such assurance, within 90 days after the date notice of cancellation is received by both the Principal and the Commissioner from the Surety(ies), then this obligation shall be null and void, otherwise it is to remain in full force and effect.

The Surety(ies) shall become liable on this bond obligation only when the Principal has failed to fulfill the conditions set forth above. Upon notification by the Commissioner that the Principal has failed to perform as guaranteed by this bond, the Surety(ies) shall place funds in the amount guaranteed for the facility(ies) into the standby trust fund as directed by the Commissioner.

The liability of the Surety(ies) shall not be discharged by any payment or succession of payments hereunder, unless and until such payment shall amount in the aggregate to the penal sum of the bond, but in no event shall the obligation of the Surety(ies) hereunder exceed the amount of said penal sum.

The Surety(ies) may cancel the bond by sending notice of cancellation by certified mail, return receipt requested, to the Principal and the Commissioner, provided, however, that cancellation shall not occur during the 120 days beginning on the date of receipt of the notice of cancellation by both the Principal and the Commissioner, as evidenced by the return receipts.

The Principal may terminate this bond by sending written notice to the Surety(ies) provided, however, that no such notice shall become effective until the Surety(ies) receive(s) written authorization for termination of the bond by the Commissioner.

The Principal may terminate this bond by sending written notice to the Surety(ies), provided, however, that no such notice shall become effective until the Surety(ies) receive(s) written authorization for termination of this bond by the Division Director.

IN WITNESS WHEREOF, the Principal and Surety(ies) have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety(ies) and that the wording of this surety bond is identical to the wording specified in 6 NYCRR 373-2.8(j)(2), as such regulations were constituted on the date this bond was executed.

NORLITE, LLC

Affix Corporate Seal

Principal

By: _____ Date April 5, 2013
Name Michael Ferraro Title SECRETARY/TREASURER

Westchester Fire Insurance Company
436 Walnut Street, P.O..Box 1000, Philadelphia, PA 19106
Surety

State of Incorporation Pennsylvania
Liability Limit $1,580,000.00
Affix Corporate Seal

By: William R. Lambert Date: April 5, 2013
William R. Lambert, Attorney - In - Fact

Bond Premium $31,600.00 Per Annum

STATE OF CONNECTICUT)
) ss. Meriden April 5, 2013
COUNTY OF NEW HAVEN)

On this 4th day of April, 2013, before me personally came Michael Ferraro to me known, who being by me duly sworn, did depose and say that he has a place of business 1301 West 22nd Street, Suite 500 Oak Brook, Illinois 60523, that he is the Secretary/Treasurer of Norlite, LLC, the limited liability company described in and which executed the above instrument; that he acknowledged to me that he executed the same in his capacity; and that by his signature, the entity upon behalf of which the individual acted, executed the instrument.

Edward G. Lang
Commissioner of the Superior Court
Juris No. 033182

Power of Attorney

WESTCHESTER FIRE INSURANCE COMPANY

Know all men by these presents: That WESTCHESTER FIRE INSURANCE COMPANY, a corporation of the Commonwealth of Pennsylvania pursuant to the following Resolution, adopted by the Board of Directors of the said Company on December 11, 2006, to wit:

"RESOLVED, that the following authorizations relate to the execution, for and on behalf of the Company, of bonds, undertakings, recognizances, contracts and other written commitments of the Company entered into the ordinary course of business (each a "Written Commitment"):

(1) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise.

(2) Each duly appointed attorney-in-fact of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise, to the extent that such action is authorized by the grant of powers provided for in such persons written appointment as such attorney-in-fact.

(3) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to appoint in writing any person the attorney-in-fact of the Company with full power and authority to execute, for and on behalf of the Company, under the seal of the Company or otherwise, such Written Commitments of the Company as may be specified in such written appointment, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.

(4) Each of the Chairman, the President and Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to delegate in writing any other officer of the Company the authority to execute, for and on behalf of the Company, under the Company's seal or otherwise, such Written Commitments of the Company as are specified in such written delegation, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.

(5) The signature of any officer or other person executing any Written Commitment or appointment or delegation pursuant to this Resolution, and the seal of the Company, may be affixed by facsimile on such Written Commitment or written appointment or delegation.

FURTHER RESOLVED, that the foregoing Resolution shall not be deemed to be an exclusive statement of the powers and authority of officers, employees and other persons to act for and on behalf of the Company, and such Resolution shall not limit or otherwise affect the exercise of any such power or authority otherwise validly granted or vested."

Does hereby nominate, constitute and appoint Alexandra Lambert, William R Lambert, all of the City of SANTA CLARITA, California, each individually if there be more than one named, its true and lawful attorney-in-fact, to make, execute, seal and deliver on its behalf, and as its act and deed any and all bonds, undertakings, recognizances, contracts and other writings in the nature thereof in penalties not exceeding Five million dollars & zero cents ($5,000,000.00) and the execution of such writings in pursuance of these presents shall be as binding upon said Company, as fully and amply as if they had been duly executed and acknowledged by the regularly elected officers of the Company at its principal office.

IN WITNESS WHEREOF, the said Stephen M. Haney, Vice-President, has hereunto subscribed his name and affixed the Corporate seal of the said WESTCHESTER FIRE INSURANCE COMPANY this 28 day of March 2013.

WESTCHESTER FIRE INSURANCE COMPANY

Stephen M. Haney, Vice President

COMMONWEALTH OF PENNSYLVANIA
COUNTY OF PHILADELPHIA ss.

On this 28 day of March, A.D. 2013 before me, a Notary Public of the Commonwealth of Pennsylvania in and for the County of Philadelphia came Stephen M. Haney, Vice-President of the WESTCHESTER FIRE INSURANCE COMPANY to me personally known to be the individual and officer who executed the preceding instrument, and he acknowledged that he executed the same, and that the seal affixed to the preceding instrument is the corporate seal of said Company; that the said corporate seal and his signature were duly affixed by the authority and direction of the said corporation, and that Resolution, adopted by the Board of Directors of said Company, referred to in the preceding instrument, is now in force.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal at the City of Philadelphia the day and year first above written.

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
KAREN E. BRANDT, Notary Public
City of Philadelphia, Phila. County
My Commission Expires September 26, 2014

Notary Public

I, the undersigned Assistant Secretary of the WESTCHESTER FIRE INSURANCE COMPANY, do hereby certify that the original POWER OF ATTORNEY, of which the foregoing is a substantially true and correct copy, is in full force and effect.

In witness whereof, I have hereunto subscribed my name as Assistant Secretary, and affixed the corporate seal of the Corporation, this 5th day of April 2013

William L. Kelly, Assistant Secretary

THIS POWER OF ATTORNEY MAY NOT BE USED TO EXECUTE ANY BOND WITH AN INCEPTION DATE AFTER March 28, 2015.

THE BACK OF THIS DOCUMENT LISTS VARIOUS SECURITY FEATURES THAT WILL PROTECT AGAINST COPY COUNTERFEIT AND ALTERATION.

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California

County of Los Angeles

On April 5, 2013 (Date) before me, Alexandra Lambert, Notary Public (Here Insert Name and Title of the Officer),

personally appeared William R. Lambert (Name(s) of Signer(s)),

who proved to me on the basis of satisfactory evidence to be the person(~~s~~) whose name(~~s~~) is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/her/their authorized capacity(~~ies~~), and that by his/~~her/their~~ signature(s) on the instrument the person(~~s~~), or the entity upon behalf of which the person(~~s~~) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature Alexandra Lambert (Signature of Notary Public)

ALEXANDRA LAMBERT
Commission # 1985823
Notary Public - California
Los Angeles County
My Comm. Expires Aug 18, 2016

Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: Bond # K08538335; Power of Attorney 6890519

Document Date: April 5, 2013 Number of Pages: _____

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: William R. Lambert
- ☐ Individual
- ☐ Corporate Officer — Title(s): _____
- ☐ Partner — ☐ Limited ☐ General
- ☒ Attorney in Fact
- ☐ Trustee
- ☐ Guardian or Conservator
- ☐ Other: _____

Signer Is Representing: Westchester Fire Insurance Company

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

Signer's Name: _____
- ☐ Individual
- ☐ Corporate Officer — Title(s): _____
- ☐ Partner — ☐ Limited ☐ General
- ☐ Attorney in Fact
- ☐ Trustee
- ☐ Guardian or Conservator
- ☐ Other: _____

Signer Is Representing: _____

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

ATTACHMENT 3

INSURANCE CERTIFICATE

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 12/30/2013

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 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 37230-5191

CONTACT NAME:
PHONE (A/C, NO, EXT): 877-945-7378 FAX (A/C, NO): 888-467-2378
E-MAIL ADDRESS: certificates@willis.com

INSURER(S)AFFORDING COVERAGE	NAIC #
INSURER A: XL Insurance America	24554-002
INSURER B: Zurich American Insurance Company	16535-007
INSURER C: American Zurich Insurance Company	40142-001
INSURER D:	
INSURER E:	
INSURER F:	

INSURED

Tradebe Environmental Service, LLC
1301 West 22nd Street, Suite 500
Oak Brook, IL 60523

COVERAGES **CERTIFICATE NUMBER: 20952225** **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	ADD'L INSRD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	GENERAL LIABILITY			US00066349LI13A	12/31/2013	12/31/2014	EACH OCCURRENCE	$ 2,000,000
	X COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurence)	$ 10,000
	CLAIMS-MADE X OCCUR						MED EXP (Any one person)	$ 5,000
	X Blanket Contractual						PERSONAL & ADV INJURY	$ 2,000,000
	X Liability						GENERAL AGGREGATE	$ 2,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS - COMP/OP AGG	$ 2,000,000
	POLICY X PRO-JECT LOC							$
B	AUTOMOBILE LIABILITY			BAP544799200	12/31/2013	12/31/2014	COMBINED SINGLE LIMIT (Ea accident)	$ 2,000,000
	X ANY AUTO						BODILY INJURY(Per person)	$
	ALL OWNED AUTOS / SCHEDULED AUTOS						BODILY INJURY(Per accident)	$
	HIRED AUTOS / NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$
	X MCS-90 End t							$
A	X UMBRELLA LIAB X OCCUR			US00066348LI14A	12/31/2013	12/31/2014	EACH OCCURRENCE	$ 14,000,000
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$ 14,000,000
	DED RETENTION $							$
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N	N/A		WC544799100	12/31/2013	12/31/2014	X WC STATU-TORY LIMITS OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. EACH ACCIDENT	$ 1,000,000
							E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000
A	Site Pollution Liabi Claims Made			US00066349LI13A	12/31/2013	12/31/2014	Aggregate $30,000,000 Each Loss $10,000,000	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach Acord 101, Additonal Remarks Schedule, if more space is required)

See Attached:

CERTIFICATE HOLDER

Evidence Only
.
.

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 Paino

Coll:4298222 Tpl:1757241 Cert:20952225

AGENCY CUSTOMER ID: 33005437

LOC#:

ADDITIONAL REMARKS SCHEDULE

AGENCY	NAMED INSURED
Willis of Illinois, Inc.	Tradebe Environmental Service, LLC 1301 West 22nd Street, Suite 500 Oak Brook, IL 60523
POLICY NUMBER See First Page	
CARRIER: See First Page / NAIC CODE	EFFECTIVE DATE: See First Page

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,
FORM NUMBER: 25 FORM TITLE: CERTIFICATE OF LIABILITY INSURANCE

Additional Named Insureds:

Tradebe GP
Tradebe Capital Corporation
Tradebe Environmental Services, LLC
Tradebe Treatment and Recycling of Tennessee LLC
Tradebe Industrial Services, LLC
Tradebe Onsite Services, LLC
Thunderbird Trucking LLC
Tradebe Treatment and Recycling, LLC
Tradebe Treatment and Recycling Northeast, LLC
Tradebe Treatment and Recycling of Bridgeport, LLC
Tradebe Treatment and Recycling of Stoughton, LLC
Tradebe Treatment and Recycling of Northborough, LLC
Norlite, LLC
Bridgeport Analytical Laboratory, LLC
F.O.G. Services, LLC
Tradebe Transportation, LLC
United Industrial Services, Inc.
Compliance Associates, LLC'

Coverage : Contractor's Poll Liability & Professional Liability
Policy : PEC000096404
Policy Period : 04/01/2012 - 04/01/2015
Carrier : Indian Harbor Insurance Company
Limits : $15,000,000 Each Loss
: $15,000,000 Aggregate

INDEX FOR RCRA PERMIT RELATED DRAWINGS

EPA ID# NYD080469935
NYSDEC Part 373 Permit #4-0103-16/16-0

DRAWING NO.	DRAWING TITLE
NY003-373-1	SITE PLAN
HMK-003-3319	PLOT PLAN & CROSS SECTION; LGF TANKER/ROLL-OFF STAGING AREA
NY 003-1311	PIPING & INSTRUMENTATION DIAGRAM; FUEL UNLOADING & OFF-SPECIFICATION USED OIL STORAGE
NY003-1312	PIPING & INSTRUMENTATION DIAGRAM; LGF STORAGE & TRANSFER
NY003-1314	PIPING & INSTRUMENTATION DIAGRAM; LGF EQUALIZATION & FEED (TANKS TP-101A, TP-101B)
NY003-1315	PIPING & INSTRUMENTATION DIAGRAM; LGF EQUALIZATION & FEED (TANKS 102A, 102B)
NY003-1317-HI	PIPING & INSTRUMENTATION DIAGRAM; EXTERIOR LGF TANK SYSTEM
NY003-1903	PIPING & INSTRUMENTATION DIAGRAM; KILN BURNERS
NY003-2301	GENERAL ARRANGEMENT; LGF BUILDING
NY003-2306	GENERAL ARRANGEMENT; EQUALIZATION BUILDING
NY003-2475-1	MATERIAL TRANSFER FACILITY
NY003-2475-2	MATERIAL TRANSFER FACILITY; PIER & FOOTING DETAILS
NY003-2475-3	MATERIAL TRANSFER FACILITY; DESIGN SPECIFICATIONS
NY003-3008	GENERAL ARRANGEMENT; FOUNDATION PLAN & SECTIONS DRUM PROCESSING BUILDING
NY003-3018	PIPE RACK & TUNNEL FROM LGF STORAGE TANKS TO KILN
NY003-4312	TANK VESSEL 200-A
NY003-5001	KILN #2 WASTE FEED CUT OFFS
NY003-5006	KILN #1 WASTE FEED CUT OFFS
NY003-5010	PIPING & INSTRUMENTATION DIAGRAM; DISPERSION/MIXING TANK (SP-100)
NY003-5011	DISPERSION/MIXING TANK (SP-100)
NY003-5317	PIPING & INSTRUMENTATION DIAGRAM; TRUCK FUGITIVE EMISSIONS SYSTEM

DRAWING NO.	DRAWING TITLE
NY003-5430	LFG TANKS SECONDARY CONTAINMENT DESIGN DETAILS
NY003-5431	LGF TANKS PUMP CONTAINMENT SLAB & STRUCTURAL DETAILS
NY003-5432-J	SCHEMATIC PLAN VIEW; P & I DIAGRAM FOR EXTERIOR LGF TANKS 300, 400, 500, 600
NY003-5433-J	LGF TANKS 300, 400, 500
NY003-5434-J	LGF TANK 600
NY003-6301	SECTIONS & DETAILS; LGF PIPE TUNNEL
NY003-7006	DETAILS & SECTIONS FUEL SYSTEM STRUCTURES
NY003-92023-1	132" O.D. HOLDING TANK; ROBEN MFG. CO., INC. (TANKS 200B, 200C)
NY003-92023-2	132" O.D. HOLDING TANK; ROBEN MFG. CO., INC. (TANKS 100A, 100B, 100C)
NY003-92024-1	60" O.D. EQUALIZATION TANK; ROBEN MFG. CO., INC. (TANKS 101A, 101B)
NY003-92024-2	60" O.D. EQUALIZATION TANK; ROBEN MFG. CO., INC. (TANKS 102A, 102B)
NY1001DA	P & I DIAGRAM; ZERO DISCHARGE SYSTEM
NY1403EC	PLANT PERMIT IMPLEMENTATION; PIPING & INSTRUMENTATION DIAGRAM; APC: MULTICLONE/HEAT EXCHANGER/BAGHOUSE KILN #1
NY1404E1	PLANT PERMIT IMPLEMENTATION; PIPING & INSTRUMENTATION DIAGRAM; APC: FAN/SCRUBBER/SCTACK KILN #1
NY1405DB	PLANT PERMIT IMPLEMENTATION; PIPING & INSTRUMENTATION DIAGRAM; LIME STORAGE SILO
NY1406E0	PLANT PERMIT IMPLEMENTATION; PIPING & INSTRUMENTATION DIAGRAM; CARBONATE SILO
NY1420D	PLANT PERMIT IMPLEMENTATION; SIMPLIFIED BLOCK DIAGRAM; AIR POLLUTION CONTROL
NY1502EB	PLANT PERMIT IMPLEMENTATION; PIPING & INSTRUMENTATION DIAGRAM; COOLER OPERATION - KILN #1

A ROTARY KILN Norlite EXPANDED SHALE AGGREGATE

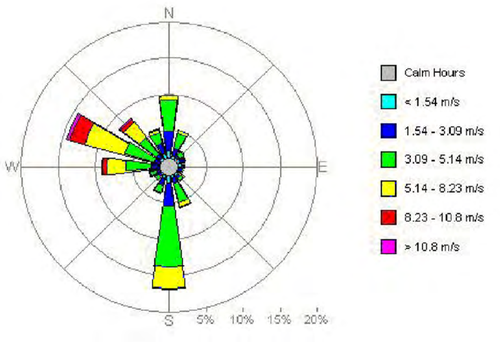
NORLITE LLC
628 SOUTH SARATOGA STREET
COHOES, NEW YORK 12047

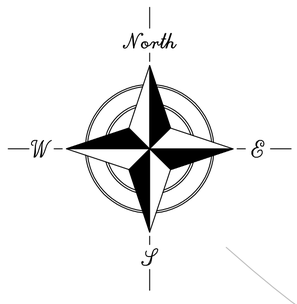
HARVEY M. KING, P.E.
ENVIRONMENTAL ENGINEERS & SCIENTISTS
39 FALCON CHASE, CITY OF RENSSELAER, NY 12144

EPA ID# NYD080469935
NYSDEC Part 373 Permit #4-0103-16/16-0
INDEX FOR
RCRA PERMIT RELATED DRAWINGS

FILE NAME: RCRA INDEX.DWG | DATE: MAY 5, 2014

WIND ROSE, ALBANY AIRPORT DATA (1997)





PERMITS:

1. SPDES Permit No. 4-103-16/01
2. HBS 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: NYDO80469935

MAP REFERENCES:

1. Map "NY003-E3363" Sheets 1 & 2, Golden Aerial Surveys, Inc. Newton CT, Date of Photography 4/28/92.
2. Map "Mining Plan" Prepared by Dunn Geoscience Corp., Latham, NY, Last Revised 6/12/89.
3. Map "Mining Map, Norlite Corporation, Cohoes Quarry" Prepared by Greenbush Resources, Inc., 78 Troy Road, East Greenbush, Dated 11/09/01.
4. Taken from documentation resulting from a Flood Insurance Study for the City of Cohoes performed during a period between the initial identification in 1973 and the June 1976 revisions that were published final in June 1979 as FIRM Community Panel 36006 0005 B.
5. Troy North 7.5 Minute USGS Quadrangle.

NOTE:

ALL PHYSICAL FEATURES, PROPERTY BOUNDARIES AND MINING AREAS ARE DRAWN APPROXIMATELY TO SCALE. MAP FOR PERMITTING PURPOSES ONLY.

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

Approximate Property Boundary

100 year Flood Plain
Harvey M. King, P.E. 100 Year Flood Plain Designation
Based On Map Reference #4

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

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

SITE PLAN MAP
FOR
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

NOT TO SCALE — DRAWN BY JTL
CONTOUR INTERVAL: 5' — DATE: 5/02

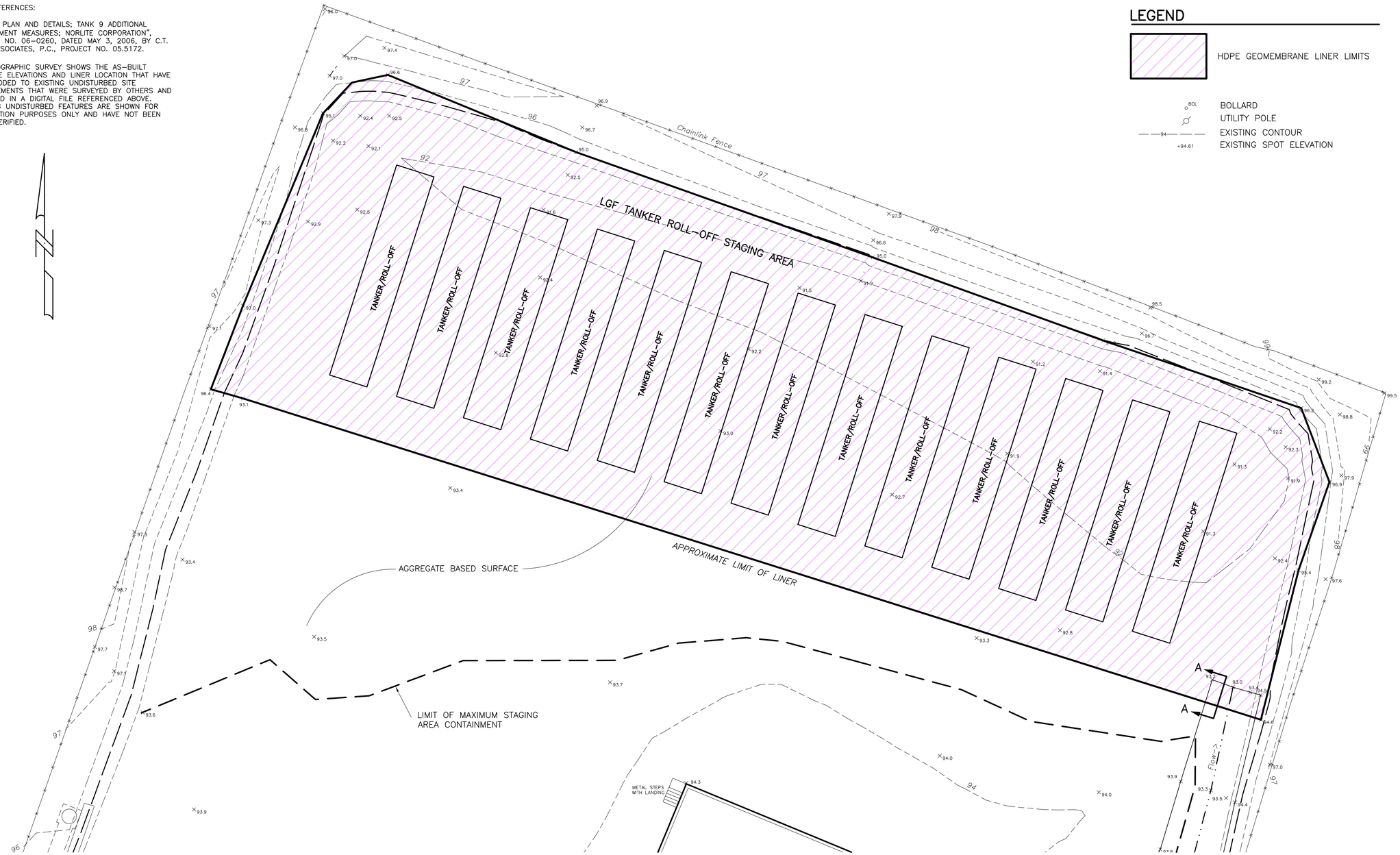
DRAWING NO. NY003-3731

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

MAP REFERENCES:

1. "SITE PLAN AND DETAILS; TANK 9 ADDITIONAL CONTAINMENT MEASURES; NORLITE CORPORATION", DRAWING NO. 06-0260, DATED MAY 3, 2006, BY C.T. MALE ASSOCIATES, P.C., PROJECT NO. 05.5172.

2. TOPOGRAPHIC SURVEY SHOWS THE AS-BUILT SURFACE ELEVATIONS AND LINER LOCATION THAT HAVE BEEN ADDED TO EXISTING UNDISTURBED SITE IMPROVEMENTS THAT WERE SURVEYED BY OTHERS AND PROVIDED IN A DIGITAL FILE REFERENCED ABOVE. EXISTING UNDISTURBED FEATURES ARE SHOWN FOR ORIENTATION PURPOSES ONLY AND HAVE NOT BEEN FIELD VERIFIED.



SITE PLAN

BAR SCALE
10 0 5 10 20
1 inch = 10 ft.

NOTE:
POTENTIAL STORAGE (13 TANKERS): 13 X 5500 GAL. (TYPICAL SIZE) = 71,500 GAL.
REQUIRED CONTAINMENT = 100% OF LARGEST TANKER OR 6000 GAL. (MAXIMUM TANKER SIZE)
DESIGN CONTAINMENT CAPACITY: 60'W X 1.8'D. X 200'L. = 21,600 C.F. X 7.48 GAL. = 161,568 GAL.
ACTUAL CONTAINMENT WILL VARY BASED ON TOPOGRAPHY OF COVER MATERIAL PROTECTING THE HDPE LINER.

A ROTARY KILN Norlite EXPANDED SHALE AGGREGATE

CLIENT APPROVAL: _____ DATE: _____

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
1	STAGING AREA UPDATED	TVB			02/20/14

HARVEY M. KING, P.E.
ENVIRONMENTAL ENGINEERS & SCIENTISTS
PO BOX 4369, CLIFTON PARK, NY 12065

NORLITE CORPORATION – COHOES, NY

LGF TANKER/ROLL-OFF STAGING AREA
– RECORD DRAWING –

DRAWN BY: T.V.B.	DATE: 02/08/2014	DRAWING/FILE REF:	
ENGINEER: H.M.K.	FILE NAME: HMK-003-3319	DRAWING NO.:	HMK-003-3319

STOP FUEL OIL
PPS PC 700A & B

PC 107
PP SHUT DN.

LAH 3102 — LSH 3102 — LSL 3102 — LAL 3102

LI 3102

OVERFILL COLLECTION
SUO
CONTAINMENT

0309–CS150–2 1/2–OSUO

OSUO HEADER FOR
TANKS 200A/B/C AND 900A/B/C
0323–CS150–2–OSUO → NY003–1312

OSUO OIL HEADER
(KILN PIPING TUNNEL)
0323–CS150–2–OSUO → NY003–1312

0303–CS150–2 1/2–OSUO

TANK 9
OFF–SPECIFICATION USED OIL
DOUBLE WALLED STORAGE TANK

LA 3102
LS 3102
LE 3102
TW 3110
TI 3110

PLC
SHELL
VAPOR/LEAK
LGF/UNLOADING
CONTROL ROOM

TO LGF
BUILDING
CONTAINMENT

8" — 3" — 0304–CS150–2
1/2–OSUO

PI

1" SP — PI — 0307–CS150–2 1/2–OSUO
PC–700B OSUO PUMP
M — START HS STOP — START HS STOP MANUAL

0306–CS150–2 1/2–OSUO

0305–CS150–2–OSUO

3" SP — PI — 1" SP — PI — 0308–CS150–2 1/2–OSUO
PC–700A OSUO PUMP
M — START HS STOP — START HS STOP MANUAL

F–102
OSUO
FILTER/STRAINER

0310–CS150–2 1/2–OSUO

SP

XCV

3"

START
OPERATOR'S STATION SWITCH HS
STOP

0302–CS150–2 1/2–OSUO

N2

CS150–2 1/2–SUO → SUO STORAGE TANKS

TU–016–3" — LGF TANK 300/400/500/600 → NY003–1317

0320–CS150–3"–OSUO

0313–CS150–2 1/2–LGF

LGF STORAGE BUILDING
200 SIDE – LGF TANKS → NY003–1312

CS150–2–SUO → SUO STORAGE TANKS

WASTE TRANSFER PUMPS & EQUIPMENT (UNLOADING AREA 1)

NY003–1312 — A1

START HS M
STOP

N2

3" — 1/2" SP — 1/2" SP — PC–107 WASTE OIL TRANSFER PUMP
3" — F–101C LGF UNLOADING STRAINER

0321–CS150–2–OSUO

0320–CS150–3–SUO

1" SP — 3" — Z–101A LGF SOLIDS GRINDER
1/2" SP — F–101A LGF UNLOADING STRAINER
0315–CS150–3"–LGF
PC–104A LGF UNLOADING PUMP
1/2" SP — 1" SP

START HS STOP — START HS STOP — START HS STOP — M
OPERATOR'S STATION SWITCH

0316–CS150–2 1/2–LGF → LGF STORAGE BUILDING → 100 SIDE – LGF TANKS → NY003–1312

2 1/2 LGF → TU–008–3" → LGF TANK 300/400/500/600 → NY003–1317

NY003–1312 — A3

WASTE TRANSFER PUMPS & EQUIPMENT (UNLOADING AREA 2)

2 1/2" SUO

N2 → LGF STORAGE BUILDING → NY003–1312
0319–CS150–2–N_2

N_2 STORAGE

Z–103A LGF SOLIDS GRINDER — 3" — 1/2" SP — CS150–3"–LGF
F–102C LGF UNLOADING STRAINER
PC–110B
START HS STOP — START HS STOP — START HS STOP — M
OPERATOR'S STATION SWITCH

TO SUO TANKS
TO TANKS 300, 400, 500, 600
TO TANKS 200A, B, C
TO TANKS 100A, B, C

Z–103C LGF SOLIDS GRINDER — 1" SP — 3" — 1/2" SP — CS150–3"–LGF
F–102A LGF UNLOADING STRAINER
PC–110A
START HS STOP — START HS STOP — START HS STOP — M
OPERATOR'S STATION SWITCH

TO TANK 300
TO TANK 400
TO TANK 500
TO TANK 600

LGF TANKS 300/400/500/600 → NY003–1317
LOADING/UNLOADING LINES

TO SUO TANKS
TO TANKS 300, 400, 500, 600
TO TANKS 200A, B, C
TO TANKS 100A, B, C

FOR PERMIT PURPOSES ONLY

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
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

CLIENT APPROVAL: _____ DATE: _____

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

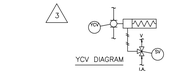
NORLITE CORPORATION – COHOES, NY

PIPING & INSTRUMENTATION DIAGRAM FUEL UNLOADING AND OFF–SPECIFICATION USED OIL STORAGE

DRAWN BY:	DATE:	DRAWING/FILE REF:
T.V.B.	04/29/02	NY003–E1311
ENGINEER:	FILE NAME	DRAWING NO.
H.M.K.	NY003–1311	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)



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.

100 SIDE – LGF TANKS
NY003–1311
TANK TRUCK UNLOADING

N_2
NY003–1311

VALVE ACTUATION

OFF–SPEC USED OIL HEADER
NY003–1311

200 SIDE – LGF TANKS
NY003–1311
TANK TRUCK UNLOADING

VACUUM RELIEF
VR1 VR2

VACUUM SOURCE IN UTILITY BUILDING OR VACUUM TRUCK

VACUUM TRANSFER LINE FROM DRUM PROCESSING BUILDING NY003–5010

LINE 2 RECIRCULATION
NY003–1317 3–LGF

NY003–1317 3–LGF

SPECIFICATION USED OIL LINE 3–SUO

SPECIFICATION USED OIL RETURN LINE 1–1/2–SUO

NY003–1311
OFF–SPECIFICATION USED OIL LINE

A ROTARY KILN Norlite EXPANDED SHALE AGGREGATE

TP–100A LGF TANK
AB–100A AGITATOR
PC–100A LGF TRANSFER PUMP

TP–100B LGF TANK
AB–100B AGITATOR
PC–100B LGF TRANSFER PUMP

TP–100C LGF TANK
AB–100C AGITATOR
PC–100C LGF DELIVERY PUMP

TP–200A LGF TANK
AB–200A AGITATOR
PC–200A LGF TRANSFER PUMP

TP–200B LGF TANK
AB–200B AGITATOR
PC–200B LGF TRANSFER PUMP

TP–200C LGF TANK
AB–200C AGITATOR
PC–200C LGF DELIVERY PUMP

X–101 CARBON ADSORPTION UNIT

TANKS 300/400/500/600
NY003–1317
VENT LINE

TANKS 300/400/500/600
NY003–1317
LGF LINE

VENT TO TANK 102B
NY003–1315

1240–150CS1–4–VX
NY003–1314

1119–150CS1–2–N2
NY003–1314

1234–250CSX1–3–LGF
NY003–1314
RECIRCULATION FROM KILN BURNERS

1234–250CSX1–3–LGF
NY003–1314
LINE 1 TO KILN BURNERS

SPECIFICATION USED 2–SUO LINE
NY003–1314
TO KILN BURNERS

SPECIFICATION USED OIL 1–1/2 RETURN LINE
NY003–1314
FROM KILN BURNERS

LINE 2 RECIRCULATION FROM KILN BURNERS
3–LGF
NY003–1314

1232–250CSX1–3–LGF
NY003–1314
LINE 2 TO KILN BURNERS

1110–150CS1–2–OSUO
NY003–1314
OSUO HEADER

3–OSUO
NY003–1314
OSUO LINE

250CS–4"–LGF/KO
FLOOR HEADER – 200 SERIES TANKS

90'ϕ LINED PIPING CONTAINMENT DUCT

FOR PERMIT PURPOSES ONLY

CLIENT APPROVAL: _____ DATE: _____

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
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.	J.E.	J.R.	12/4/92
2	REVISED PER ENG'R REVIEW	D.	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

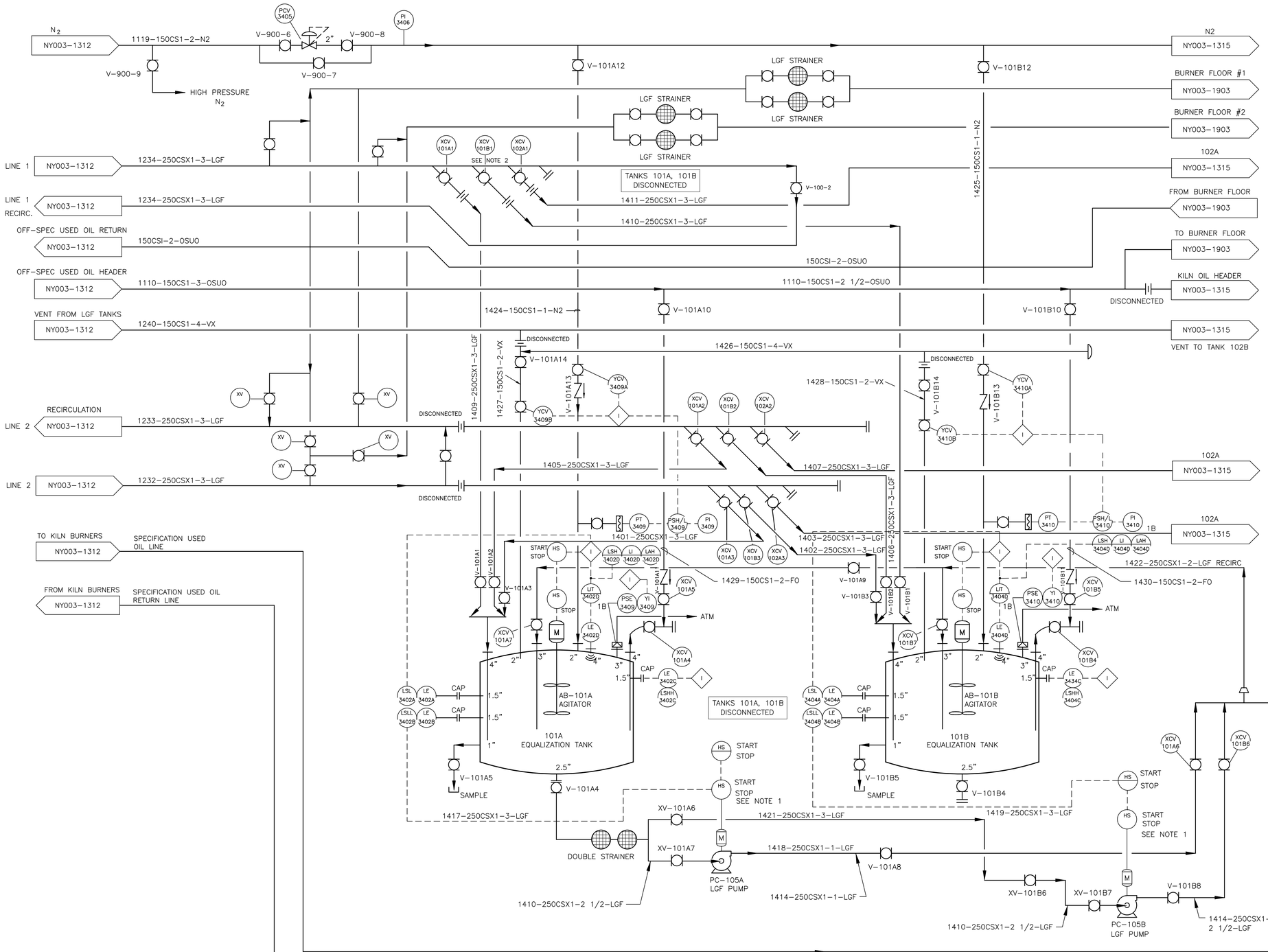
INFORMATION PRESENTED ON THIS DRAWING HAS BEEN COMPILED FROM CURRENT FIELD DATA AND ORIGINAL DESIGN DRAWINGS PREPARED BY ENSR CONSULTING & ENGINEERING.

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

NORLITE CORPORATION – COHOES, NY

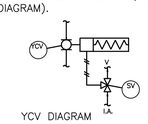
PIPING & INSTRUMENTATION DIAGRAM LGF STORAGE AND TRANSFER

DRAWN BY: T.V.B.	DATE: 04/29/02	DRAWING/FILE REF:	NY003–E1312
ENGINEER: H.M.K.	FILE NAME NY003–1312	DRAWING NO.	NY003–1312

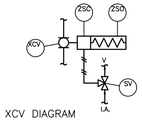


NOTES:

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 – LATERALS TO BE LOCATED AS CLOSE TOGETHER AS POSSIBLE.

LOCATION LEGEND
1A = PANEL IN LGF BUILDING
1B = PANEL IN EQUALIZATION BUILDING

FOR PERMIT PURPOSES ONLY

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
8	UPDATED CONFIGURATION	T.V.B.	HMK		02/20/14
7	UPDATED CONFIGURATION	T.V.B.	HMK		07/15/05
6	UPDATED CONFIGURATION	T.V.B.	HMK		06/08/04
5	UPDATED CONFIGURATION	T.V.B.	HMK		7/17/02
4	DELETED LINES 1404, 1408, 1412	PMW	J.E.	J.E.	8/11/93
3	REVISED PER ENG'R REVIEW	DC	J.E.	J.R.	12/04/92
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

INFORMATION PRESENTED ON THIS DRAWING HAS BEEN COMPILED FROM CURRENT FIELD DATA AND ORIGINAL DESIGN DRAWINGS PREPARED BY ENSR CONSULTING & ENGINEERING.

CLIENT APPROVAL: _____ DATE: _____

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ENVIRONMENTAL ENGINEERS & SCIENTISTS
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NORLITE CORPORATION – COHOES, NY

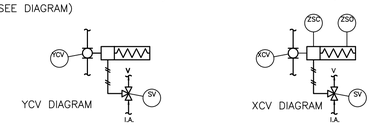
PIPING & INSTRUMENTATION DIAGRAM LGF EQUALIZATION AND FEED (TANKS TP–101A, TP–101B)

DRAWN BY:	DATE:	DRAWING/FILE REF:
T.V.B.	04/29/02	NY003–E1314
ENGINEER:	FILE NAME	DRAWING NO.
H.M.K.	NY003–1314	NY003–1314

A ROTARY KILN Norlite EXPANDED SHALE AGGREGATE

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)



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

N_2 LOW PRESSURE
NY003–1312
1119–150CS1–2–N2

N_2 HIGH PRESSURE
NY003–1312
VALVE ACTUATION

PI 3506
V–102A12
V–102B12
1513–150CS1–1–N2
1514–150CS1–1–N2

VENT FROM LGF TANKS
NY003–1312
1240–150CS1–4–VX

1510–150CS1–4–VX

1511–150CS1–2–VX

OFF SPECIFICATION USED OIL
NY003–1312
1110–150CS1–2 1/2–OSUO

V–102A14
V–102A10
V–102B10

100C 200C
LINE 1
NY003–1312
1407–250CSX1–3–LGF

YCV 3509B
YCV 3509A
V–102A13
1240–150CS1–4–VX
1511–150CS1–2–VX
1510–150CS1–4–VX
YCV 3510A
V–102B13

TANK 102A DISCONNECTED
CAP
1411–250CSX1–3–LGF

1511–150CS1–2–VX
1509–150CS1–2–FO

100C 200C
LINE 2
NY003–1312
1403–250CSX1–3–LGF

PT 3509
PSH/L 3509
PI 3509
1B
PT 3510
PSH/L 3510
PI 3510
1B
1508–150CS1–2–FO
1506–250CSX1–2–LGF

V–102A1
V–102A2
V–102A3
START
STOP
HS
STOP
HS
LSH 3502D
LI 3502D
LAH 3502D
LIT 3502D
1B
PSE 3509
YI 3509
XCV 102A5
V–102A11
ATM
XCV 102A7
M
LE 3502D
SEE NOTE 2
XCV 102A4
V–102B11
LSH 3504D
LI 3504D
LAH 3504D
XCV
LIT 3504D
1B
PSE 3510
YI 3510
XCV 102B5
ATM
V–102B9
XCV 102A6
XCV 102B6
XCV 102B4
LE 3504D
CAP
LE 3502C
LSL 3502A
LE 3502A
CAP
LSLL 3502B
LE 3502B
1.5"
1"
2.5"
AB–102A AGITATOR
102A EQUALIZATION TANK
V–102A5
SAMPLE
V–102A4
LSHH 3502C
PSL 106A
LSL 106A
102B VENT COLLECTION TANK
V–102B5
SAMPLE
V–102B4
XSE 3502
XSE 3501
FLAME ARRESTOR
TO KILN #2 HOOD
NY003–1903
TO KILN #1 HOOD
NY003–1903
NY003–1903
1503–250CSX1–3"–LGF
1504–250CSX1–2–LGF
1501–250CSX1–3"–LGF
HS START
STOP
SEE NOTE 1
HS STOP
1505–250CSX1–3"–LGF
PI 3507
1502–250CSX1–2–LGF
V–102A8
XV–102A7
PC–106A LGF RECIRCULATION PUMP
XV–102A6
XV–102B7
M
PI 3508
V–102B8
PC–106B LGF RECIRCULATION PUMP

FOR PERMIT PURPOSES ONLY

CLIENT APPROVAL: _____ DATE: _____

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
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		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

INFORMATION PRESENTED ON THIS DRAWING HAS BEEN COMPILED FROM CURRENT FIELD DATA AND ORIGINAL DESIGN DRAWINGS PREPARED BY ENSR CONSULTING & ENGINEERING.

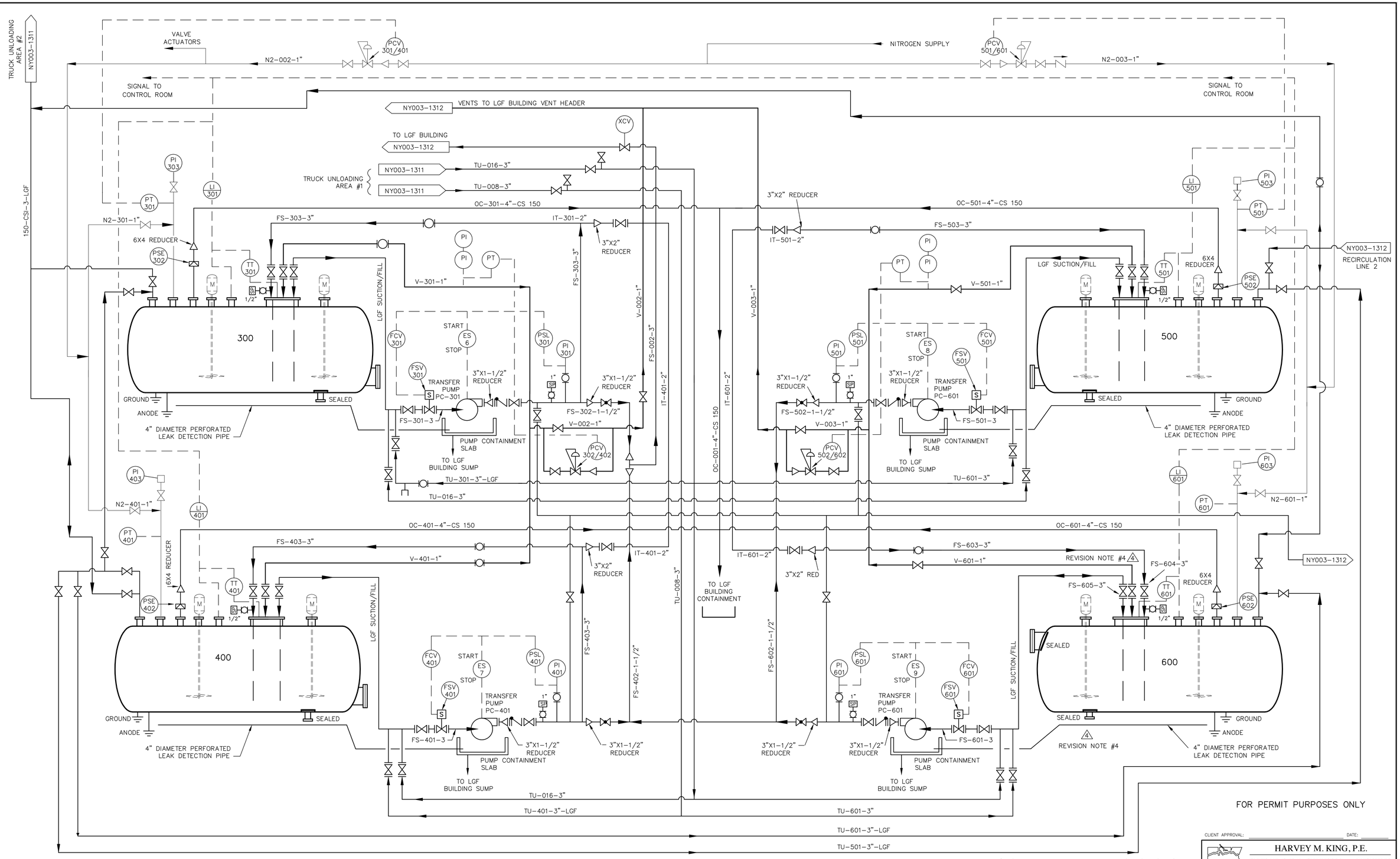
HARVEY M. KING, P.E.
ENVIRONMENTAL ENGINEERS & SCIENTISTS
4 STONY BROOK DRIVE, RENFORD, NEW YORK 12148–1608

NORLITE CORPORATION – COHOES, NY

PIPING & INSTRUMENTATION DIAGRAM LGF 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

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

CLIENT APPROVAL: _____ DATE: _____

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
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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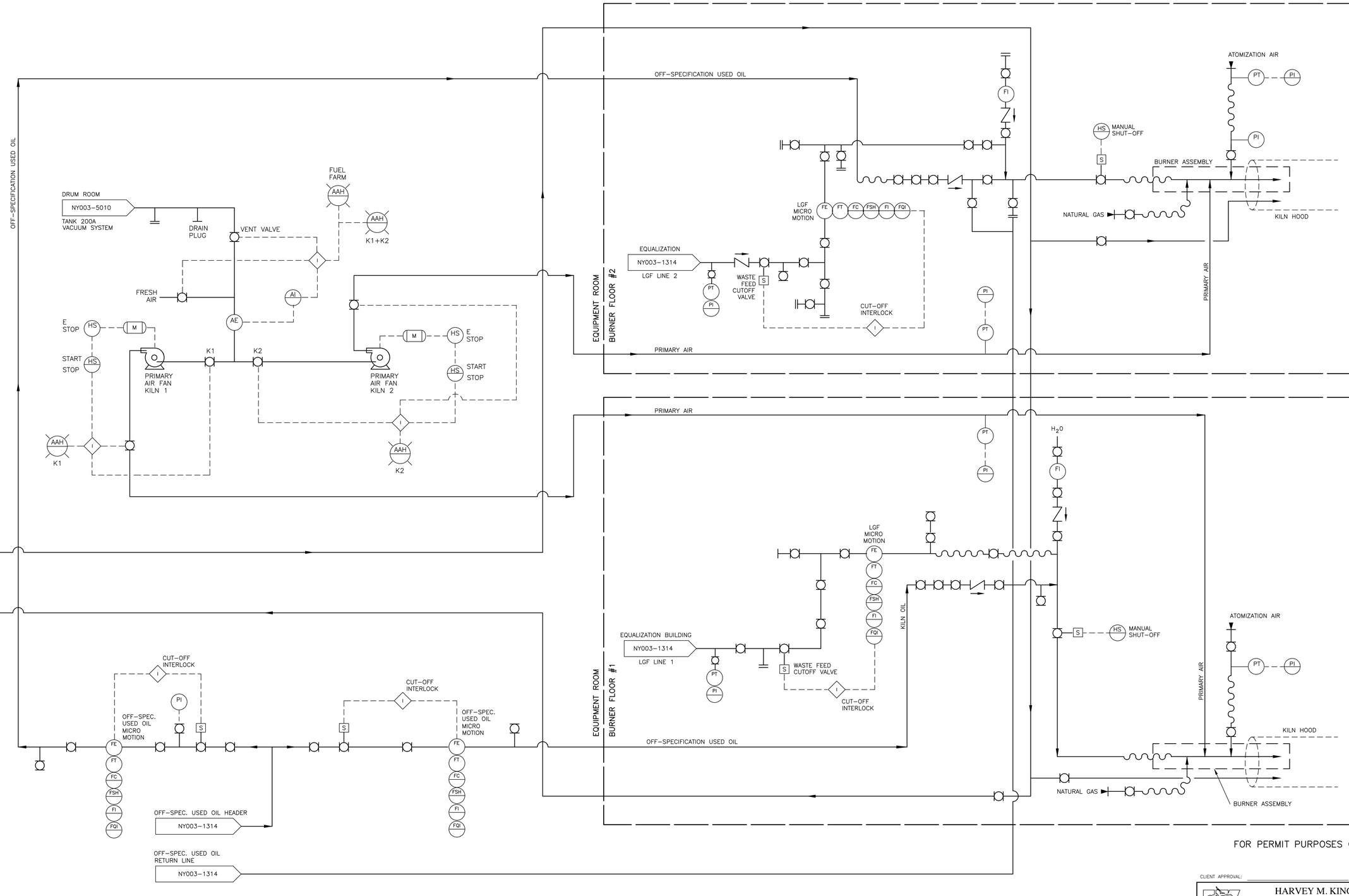
NORLITE CORPORATION – COHOES, NY

PIPING & INSTRUMENTATION DIAGRAM EXTERIOR LGF TANK SYSTEM

DRAWN BY: T.V.B.	DATE: 04/29/02	DRAWING/FILE REF:	DRAWING #4
ENGINEER: H.M.K.	FILE NAME: NY003-1317-HI	DRAWING NO.	NY003-1317



FOR PERMIT PURPOSES ONLY

CLIENT APPROVAL: _____ DATE: _____

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

NORLITE CORPORATION – COHOES, NY

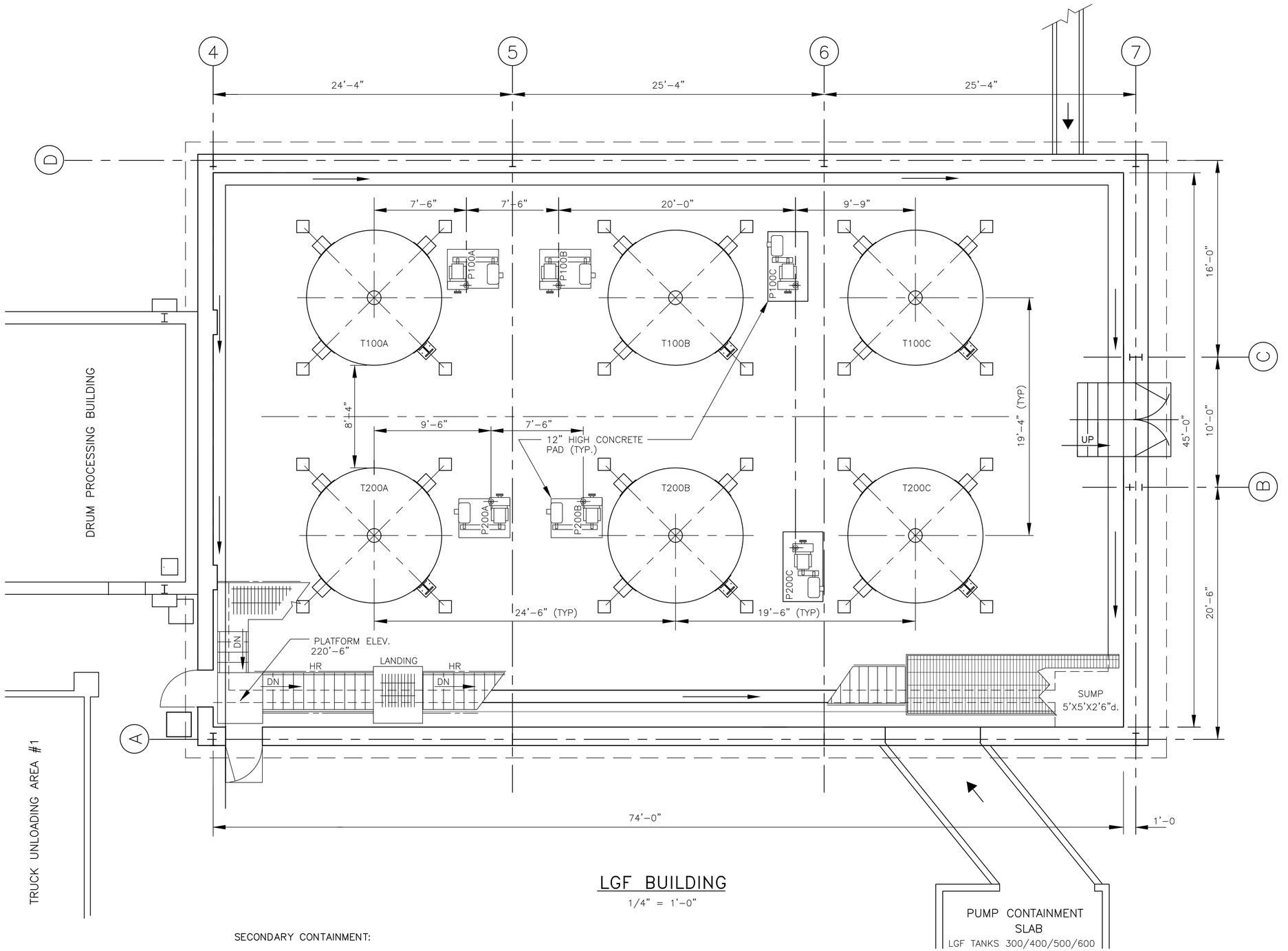
PIPING & INSTRUMENTATION DIAGRAM
KILN BURNERS

REV.	DESCRIPTION	DWN.	ENG.	CHK.	DATE
1	UPDATED CONFIGURATION	TVB	HMK		02/20/14
0	UPDATED CONFIGURATION	TVB	HMK		07/15/05

DRAWN BY:	DATE:	DRAWING/FILE REF:
T.V.B.	04/29/02	
ENGINEER:	FILE NAME:	DRAWING NO.
H.M.K.	NY003-1903	NY003-1903

INFORMATION PRESENTED ON THIS DRAWING HAS BEEN PROVIDED BY NORLITE CORPORATION.

A ROTARY KILN Norlite EXPANDED SHALE AGGREGATE



LGF BUILDING

1/4" = 1'–0"

PUMP CONTAINMENT SLAB
LGF TANKS 300/400/500/600

SECONDARY CONTAINMENT:

REQUIRED CONTAINMENT:
TANK VOLUME: 9,271 GALS. X 100% = 9,271 GALS.

PROVIDED CONTAINMENT:
74.0' X 45.0' X 2.3' = 7,659 X 7.48 = 57,289 GAL.
*DOES NOT ACCOUNT FOR ADDITIONAL CAPACITY OF TRENCH AND SUMP.

A ROTARY KILN Norlite EXPANDED SHALE AGGREGATE

INFORMATION PRESENTED ON THIS DRAWING HAS BEEN COMPILED FROM CURRENT FIELD DATA AND ORIGINAL DESIGN DRAWINGS PREPARED BY ENSR CONSULTING & ENGINEERING.

FOR PERMIT PURPOSES ONLY

CLIENT APPROVAL: _____ DATE: _____

REV.	DESCRIPTION	DWN.	ENG.	CHK.	DATE
E	UPDATED CONFIGURATION	T.V.B.			02/20/14
D	UPDATED CONFIGURATION	T.V.B.			7/17/02
C	GEN. REV.'S	RJS	KP		8–24–92
B	GEN. REV.'S	JO	KP		3/30/92
A	ISSUED FOR COMMENTS	JEG	KP		2/13/92

HARVEY M. KING, P.E.
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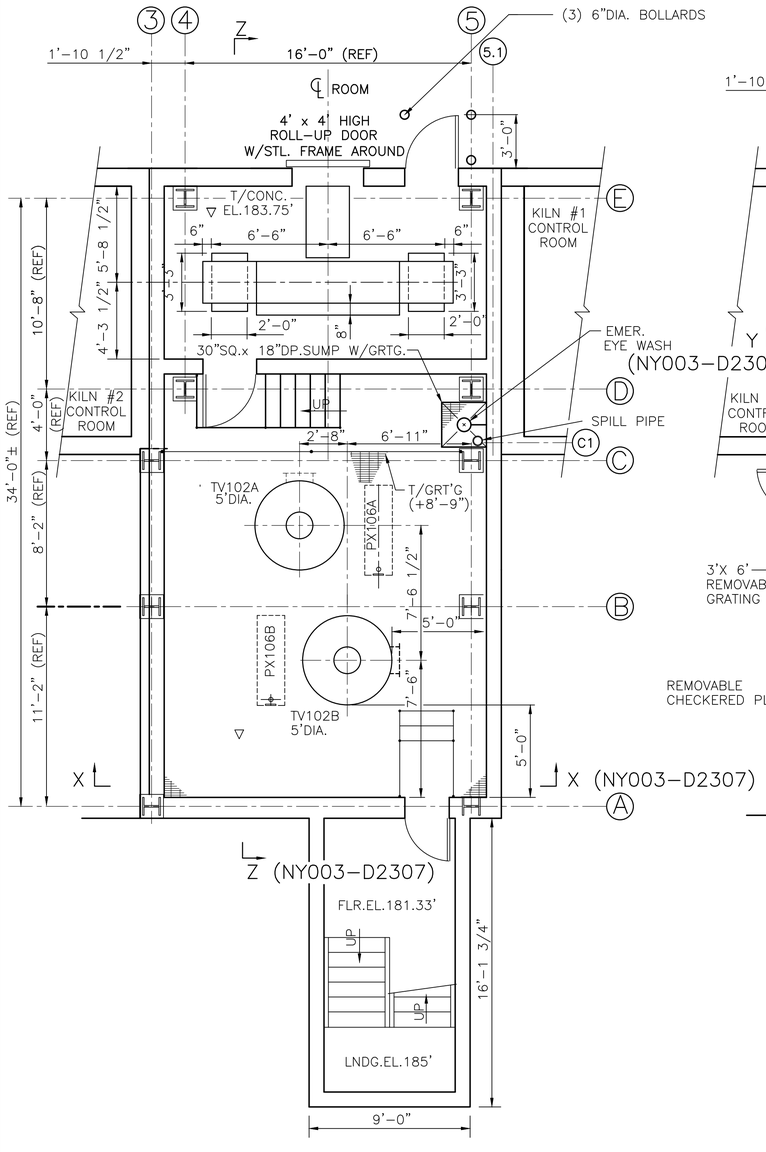
4 STONY BROOK DRIVE, REXFORD, NEW YORK 12148–1608

NORLITE CORPORATION – COHOES, NY

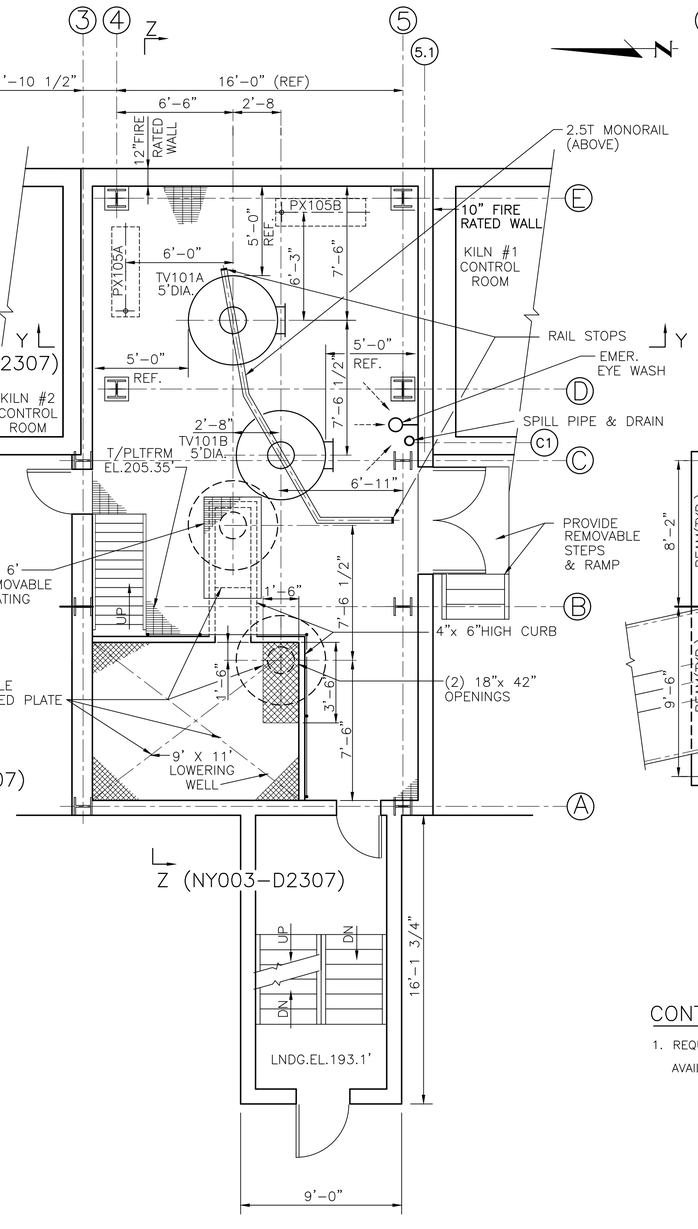
GENERAL ARRANGEMENT
LGF BUILDING

DRAWN BY:	DATE:	DRAWING/FILE REF:
T.V.B.	04/29/02	NY003–D2301
ENGINEER: H.M.K.	FILE NAME: NY003–2301	DRAWING NO.: NY003–2301



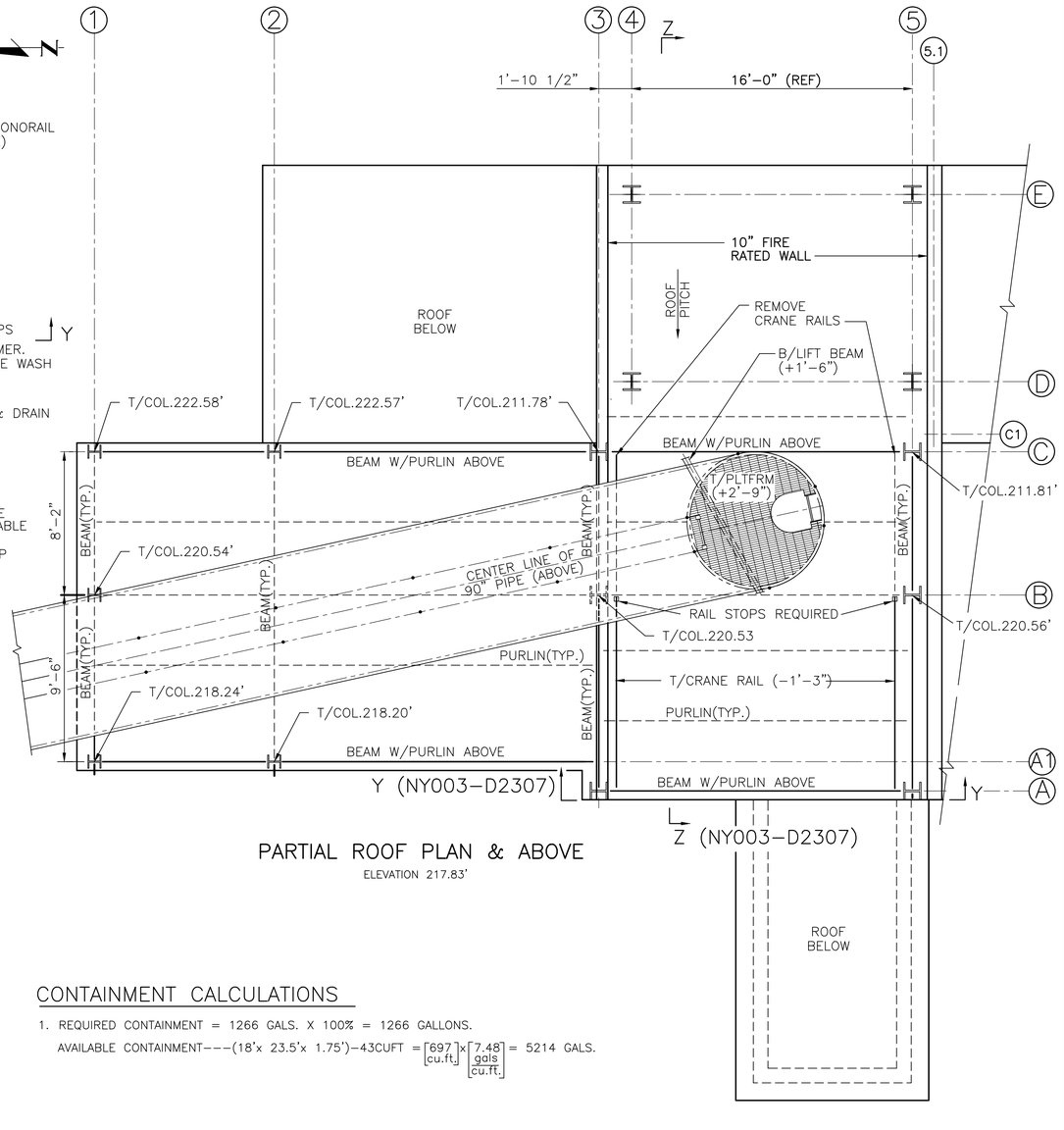
GROUND FLOOR – AREA PLAN

ELEVATION 179.58' T/C FIN.FLR.



OPERATING FLOOR – AREA PLAN

ELEVATION 197.2' T/C FIN.FLR.



PARTIAL ROOF PLAN & ABOVE

ELEVATION 217.83'

CONTAINMENT CALCULATIONS

1. REQUIRED CONTAINMENT = 1266 GALS. X 100% = 1266 GALLONS.

   AVAILABLE CONTAINMENT---(18'x 23.5'x 1.75')-43CUFT = $\left[\frac{697}{\text{cu.ft.}}\right] \times \left[\frac{7.48}{\frac{\text{gals}}{\text{cu.ft.}}}\right]$ = 5214 GALS.

LEGEND

- HYDROCARBON DETECTORS
- FLAME DETECTORS

A ROTARY KILN Norlite EXPANDED SHALE AGGREGATE

INFORMATION PRESENTED ON THIS DRAWING HAS BEEN COMPILED FROM CURRENT FIELD DATA AND ORIGINAL DESIGN DRAWINGS PREPARED BY ENSR CONSULTING & ENGINEERING.

FOR PERMIT PURPOSES ONLY

SCALE: 1/4" = 1'-0"

REV.	DESCRIPTION	DWN.	ENG.	CHK.	DATE
6	UPDATED CONFIGURATION	T.V.B.			7/17/02
5	GENERAL UPDATE REVISIONS	RJS	KP		4-23-92
4	DWG # CHANGED WITH REVISIONS	RJS	KP		3-25-92
3	GENERAL REVISION	RJS	KP		3-20-92
2	REVISED FLOOR OPENINGS	RJS	KP		3-13-92
1	GENERAL REVISIONS	RJS	JE		3-4-92
0	ISSUED FOR NYSDEC PERMIT	JEG	KP		2/19/92

CLIENT APPROVAL: _____ DATE: _____

HARVEY M. KING, P.E.
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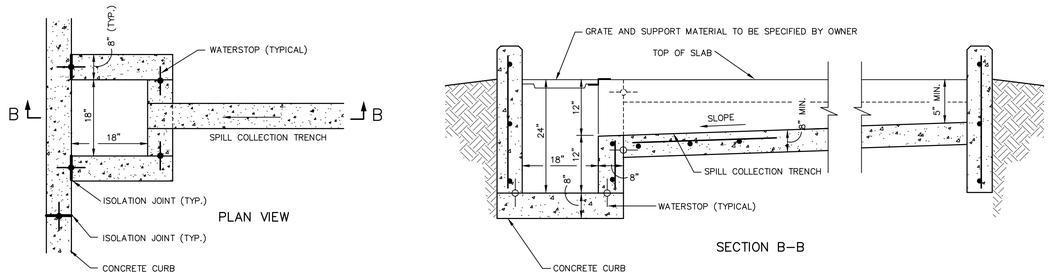
4 STONY BROOK DRIVE, REXFORD, NEW YORK 12148-1608

NORLITE CORPORATION – COHOES, NY

GENERAL ARRANGEMENT EQUALIZATION BUILDING

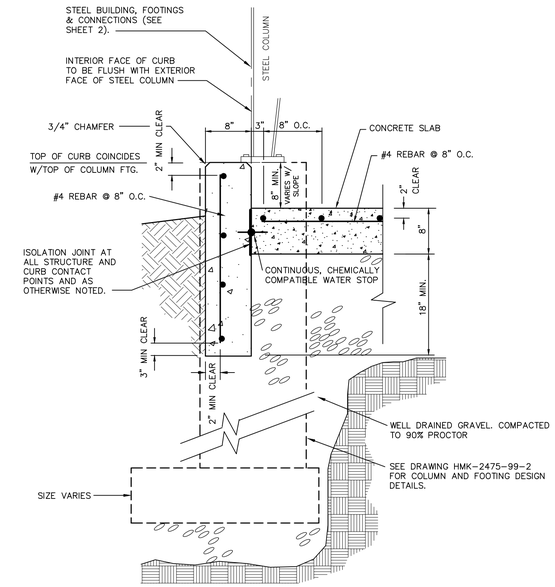
DRAWN BY: T.V.B.	DATE: 04/29/02	DRAWING/FILE REF:	NY003-D2306
ENGINEER: H.M.K.	FILE NAME: NY003-2306	DRAWING NO.	NY003-2306



CHEMICALLY COMPATIBLE WATER STOPS AT ALL CONSTRUCTION JOINTS & SLAB/CURB/PIER INTERSECTIONS.

COLLECTION SUMP DETAIL

SCALE: NONE



CONCRETE CURB & SLAB DETAIL

SCALE: NONE

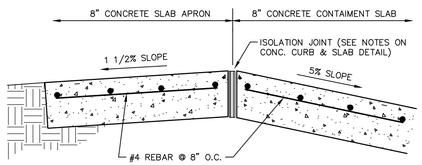
NOTES:

1. DURAFLEX ELAST–O–COAT HIGH BUILD EPOXY SLURRY MIX (OR EQUAL) SHALL BE USED AS FILLER IN ALL CONTROL/CONTRACTION/ISOLATION JOINTS AND AT INSIDE AND OUTSIDE CORNER LOCATIONS WITH INITIAL CONTAINMENT COATING.
2. CONCRETE CURB W/CONTRACTION JOINT A MAX. OF EVERY 15 FEET.
3. WHERE CURB RESTS ON COLUMN FOOTING A CONTROL JOINT SHALL BE PLACES IN THE CURB IN LINE WITH THE EDGE OF THE FOOTING.
4. CONTAINMENT COATING

   The concrete containment shall receive a chemically compatible coating after installation of the new foundation slab. Surface preparation for the installation of the coating materials shall be void filling, removal of sharp corners and application of Dur–A–Flex elast–o–coat epoxy primer at 50 mils thickness. Transition between floor and wall at joint and at outside corners shall be constructed using a slurry mix of DUR–A–FLEX elast–o–coat resin.

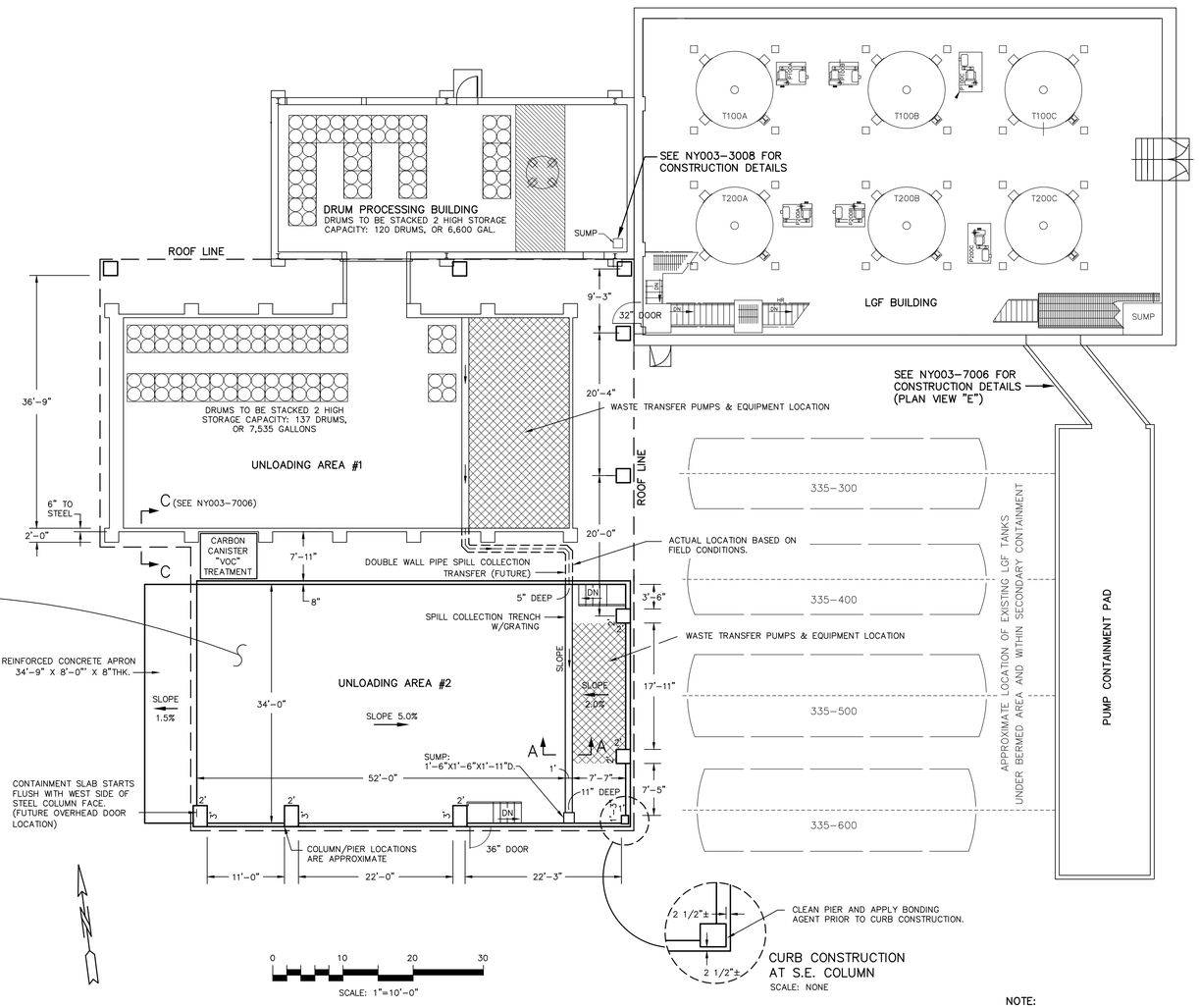
   Final coating shall be a minimum of 32 mils of Dur–A–Glaze Novolac epoxy protective coating with broadcast aggregate and final Novolac coating. Color(s) as specified by Owner.

   Final coating shall cover all concrete surfaces including extending over the top of the curb and down the exterior surface at least 3 inches.
5. UNLOADING AREA #2 HAS BEEN CONSTRUCTED TO THE REQUIREMENTS OF 373–2.9(f).



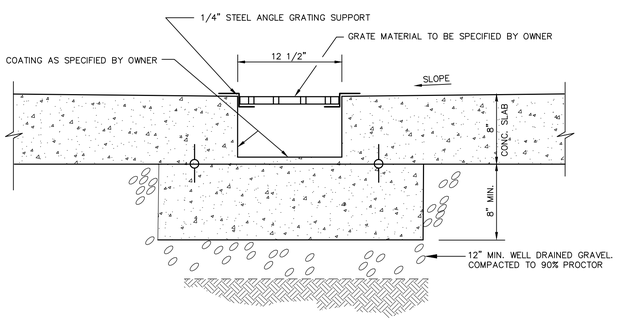
CONC. APRON SECTION

SCALE: NONE



PLAN VIEW

NOTE:
1) UNLOADING AREA 2 COMPLETE 2002.



NOTE: REINFORCING AS SHOWN ELSEWHERE.

SPILL COLLECTION TRENCH CROSS SECTION A–A

SCALE: NONE

CONTAINMENT CALCULATIONS

UNLOADING AREA #1

THE EXISTING MATERIAL TRANSFER AREA SERVES AS A TRANSFER FACILITY FOR DRUMS AND/OR BULK TANKERS.

ONE TANKER = 5500 GALLONS
87 DRUMS = 55 X 87 = 4785 GALLONS
TOTAL CAPACITY = 10,285 GALLONS

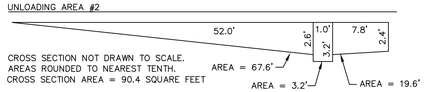
REQUIRED CONTAINMENT CAPACITY: 100% OF 5500 GALLONS.

AVERAGE CONTAINMENT DEPTH = $\frac{(0.48' + 1.20')}{2} = 0.84$

AVAILABLE CONTAINMENT CAPACITY: 0.84' X 30' X 48' X 7.48 GAL./C.F. = 9,048 GAL.

*DOES NOT ACCOUNT FOR ADDITIONAL CAPACITY WITHIN PUMP/EQUIPMENT AREA.
**DOES NOT ACCOUNT FOR DISPLACEMENT OF STORED DRUMS.

UNLOADING AREA #2



CROSS SECTION NOT DRAWN TO SCALE.
AREAS ROUNDED TO NEAREST TENTH.
CROSS SECTION AREA = 90.4 SQUARE FEET

CONTAINMENT CAPACITY = 90.4' X 34.0' WIDE = 3,074 X 7.48 GAL = 22,991 GALLONS

THIS MATERIAL TRANSFER AREA WILL SERVE AS A TRANSFER FACILITY FOR BULK TANKERS OF 5500 GALLON MAXIMUM CAPACITY.

REQUIRED CONTAINMENT CAPACITY: 100% OF 5500 GALLONS.

COMBINED CONTAINMENT CAPACITY FOR AREAS #1 AND #2
9,048 GAL. + 22,991 GAL. = 32,039 GAL.

MAP REFERENCE:

MAP TITLED "SITE PLAN AND SECTIONS, TRUCK UNLOADING FACILITY EXPANSION: PERMIT MODIFICATION APPLICATION, NORLITE CORPORATION, COHOES N.Y. (2475–50)" DATED NOVEMBER 1995 AND PREPARED BY MALCOLM PIRNIE, INC.

FOR PERMIT PURPOSES ONLY

CLIENT APPROVAL: _____ DATE: _____

REV.	DESCRIPTION	DWN.	ENG.	CHK	DATE
11	UPDATED CONFIGURATION	TVB	HMK	HMK	03/05/14
10	UPDATED CONFIGURATION	TVB	HMK	HMK	7/17/02
9	NOTES #4 & #5 ADDED	TVB	HMK	HMK	05/15/02
8	RECORD INFORMATION ADDED	TVB	HMK	HMK	04/05/02
7	RECORD INFORMATION ADDED	TVB	HMK	HMK	12/04/00
6	MISC. REVISIONS	TVB	HMK	HMK	08/22/00
5	MISC. REVISIONS	TVB	HMK	HMK	08/18/00
4	MISC. REVISIONS	TVB	HMK	HMK	07/25/00

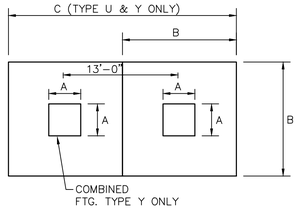
HARVEY M. KING, P.E.
ENVIRONMENTAL ENGINEERS & SCIENTISTS
4 STONY BROOK DRIVE, RENFORD, NEW YORK 12148–1608

NORLITE CORPORATION – COHOES, NY

MATERIAL TRANSFER FACILITY

DRAWN BY: T.V.B.	DATE: 04/29/02	DRAWING/FILE REF:	HMK–2475–99–1
ENGINEER: H.M.K.	FILE NAME: NY003–2475–1	DRAWING NO.	NY003–2475–1

A ROTARY KILN Norlite EXPANDED SHALE AGGREGATE



PLAN VIEW
TYPICAL FOOTING & PIER
(N.T.S.)

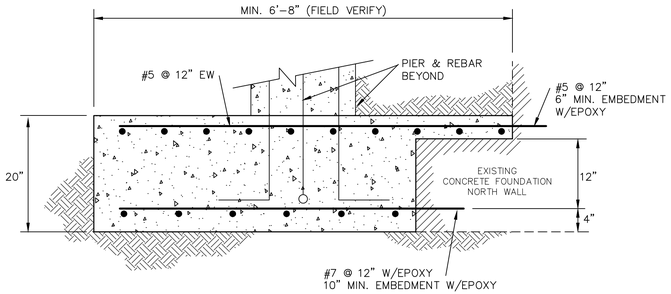
FOOTING SCHEDULE

TYPE	LOCATIONS**	A (")	B (")	C (")	D (")	FTG. REBAR	DOWELS	STIRRUPS
U	2A	24	80	138	20	13 #7 SHORT* 8 #7 LONG	8 #9	4 #4
V	5A & 5B	18	48	--	12	5 #5 EW	4 #6	4 #4
W	1A & 1C	18	24	--	12	3 35 EW	4 #6	4 #4
X	1 @ A.1 & A.7 1 @ B.1 & B.7	18	54	--	12	5 #5 EW	4 #6	4 #4
Y	3 & 4 @ A	24	80	216	20	25 #7 SHORT* 8 #7 LONG	8 #9	4 #4
Z	2, 3 & 4 @ C	24	102	--	20	9 #7 EW	8 #9	4 #4

*PROVIDE TOP MAT OF REBAR #5 @ 12" EW.

**LOCATIONS REFER TO COLUMN LINES ON ANCHOR BOLT LAYOUT PLAN

NOTE: COORDINATE ANCHOR BOLT LOCATIONS WITH BUILDING MANUFACTURERS PLANS. LOCATE PIERS & FOOTINGS SO THAT ANCHOR BOLTS ARE AS CLOSE AS POSSIBLE TO CENTER LINES OF PIER & FOOTINGS. PROVIDE MINIMUM 2" SETBACK FROM BASE PLATE TO EDGE OF CONCRETE PIER.



PROVIDE 3" COVER TYPICAL

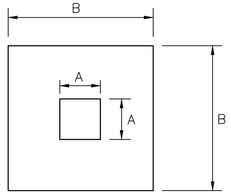
CROSS SECTION AA-AA

TYPE U & Y FOUNDATIONS
(ALONG NORTH WALL)
(N.T.S.)

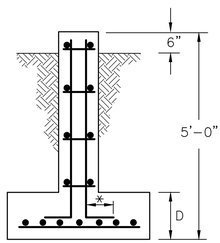
CONSTRUCTION NOTES:

EARTHWORK: EXCAVATIONS SHALL BE FREE OF WATER. ALL EXCAVATIONS IN EXCESS OF 4 FOOT DEEP SHALL BE BRACED OR LAID BACK AS REQUIRED BY OSHA AND NEW YORK STATE DEPT. OF LABOR. SUBGRADE SHALL BE PROOF ROLLED WITH A MECHANICAL COMPACTOR APPROVED BY THE ENGINEER. THE GEOTECHNICAL ENGINEER SHALL BE NOTIFIED OF ANY SOFT SPOTS. SUB-BASE AND BACKFILL MATERIAL TO BE COMPACTED IN LIFTS OF MAXIMUM 8" LOOSE THICKNESS. MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DENSITY DENSITY PER ASTM D 1557 MODIFIED PROCTOR AND WITH 2% OF OPTIMUM MOISTURE. EACH LIFT SHALL BE TESTED AT A MINIMUM OF 3 LOCATIONS OR EVERY 500 SF, WHICHEVER IS GREATER. ALL TEST RESULTS SHALL BE FORWARDED TO THE ENGINEER WITHIN 48 HOURS. BACKFILL FOOTINGS AND FILL WITHIN 1 FOOT OF BOTTOM OF SLAB WITH MATERIAL WHICH IS FREELY DRAINING, CLEAN (LESS THAN 10% PASSING NO. 200 SIEVE). COHESIONLESS, AND FREE OF ORGANICS AND DELETERIOUS MATERIALS. THE MAXIMUM PARTICLE SIZE SHALL BE NO MORE THAN HALF THE LIFT THICKNESS. GRADE GROUND SURFACE AWAY FROM IMPROVEMENTS.

CONCRETE: ALL CAST-IN-PLACE CONCRETE WORK SHALL BE PERFORMED IN ACCORDANCE WITH ACI 301 AND ACI 318 (LATEST EDITIONS), UNLESS SPECIFICALLY NOTED OTHERWISE. WATER SHALL BE POTABLE AND SUITABLE FOR MIXING CONCRETE. CONCRETE EXPOSED TO WEATHER SHALL HAVE AIR ENTRAINING AGENT PER "SPECIFICATIONS FOR AIR ENTRAINING ADMIXTURES FOR CONCRETE", ASTM C260. TOTAL ENTRAPPED PLUS ENTRAINED AIR SHALL BE 4.0% TO 6.0% OF VOLUME OF CONCRETE PER ASTM C231, WITH REQUIRED STRENGTHS MAINTAINED. CALCIUM CHLORIDE SHALL NOT BE ALLOWED. MIXING AND DELIVERY OF CONCRETE SHALL BE PER THE REQUIREMENTS OF A "STANDARD SPECIFICATION FOR READY-MIXED CONCRETE", ASTM C94. CONCRETE SHALL NOT REMAIN IN TRUCK FOR MORE THAT 3/4 HOURS. MAXIMUM AGGREGATE SIZE 3/4" FOR SLABS AND 1 1/2" FOR FOOTINGS, GRADE BEAMS, AND WALLS. CONCRETE SHALL HAVE A SLUMP BETWEEN 2 AND 4 INCHES AND VIBRATED TO CONSOLIDATE COMPLETELY. STRENGTH OF CONCRETE SHALL BE A MINIMUM OF 4000 PSI AT 28 DAYS. CONCRETE SHALL BE KEPT CONTINUOUSLY WARM (40 DEGREES F MIN.) FOR 7 DAYS. CURING SHALL BE DONE BY MOIST CURING TECHNIQUES AND SHALL BE KEPT MOIST FOR A MINIMUM OF 7 DAYS. MEMBRANE CURING TECHNIQUES MAY BE USED SUBJECT TO THE APPROVAL OF THE ENGINEER. REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60. CONCRETE COVER SHALL BE 3 INCHES WHEN IN CONTACT WITH SOIL AND 2 INCHES ELSEWHERE. SLAB REINFORCEMENT SHALL BE 3 INCHES FROM THE BOTTOM. INSPECTION AND TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY LICENSED IN THE STATE OF NEW YORK. THE TECHNICIAN SHALL MAKE THREE TEST CYLINDERS AND PERFORM A MINIMUM OF ONE AIR CONTENT TEST AND SLUMP TEST FOR EVERY 10 C.Y. AND EACH PLACEMENT. ONE SAMPLE SHALL BE TESTED AT 7 DAYS AND 2 AT 28 DAYS IN ACCORDANCE WITH ASTM C31 AND C192. SLAB TO BE LEVEL WITHIN +/-1/8". ALL TEST RESULTS TO BE FORWARDED TO ENGINEER WITHIN 48 HOURS. COORDINATE BLOCK-OUTS AS NECESSARY WITH OTHER TRADES. REINFORCING STEEL TO BE ANCHORED INTO EXISTING CONCRETE AND SHALL BE FIXED WITH EPOXY IN A HOLE WHICH IS APPROXIMATELY 1/4" LARGER THAN THE STEEL, MINIMUM EMBEDMENT SHALL BE THE GREATER THAN 12 TIMES THE DIAMETER ON THE BAR OR 6 INCHES.



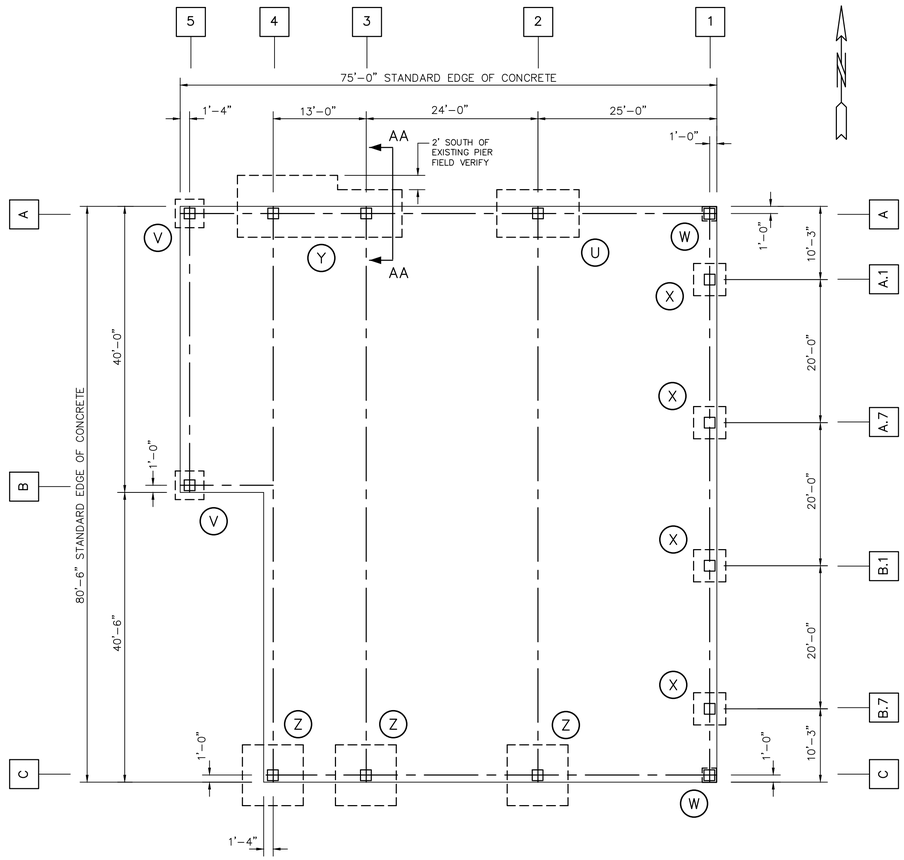
PLAN VIEW (TYPE V, W, X & Z)



*MIN. 15" #6 DOWEL
24" #9 DOWEL

SECTION VIEW

TYPICAL FOOTING AND PIER
(N.T.S.)



FOUNDATION PIER LOCATIONS
SCALE: 1"=10'

FOR PERMIT PURPOSES ONLY

CLIENT APPROVAL: _____ DATE: _____

MAP REFERENCE:

MAP TITLED "SITE PLAN AND SECTIONS, TRUCK UNLOADING FACILITY EXPANSION: PERMIT MODIFICATION APPLICATION, NORLITE CORPORATION, COHOES N.Y. (2475-50)" DATED NOVEMBER 1995 AND PREPARED BY MALCOLM PIRNIE, INC.

REV.	DESCRIPTION	DWN.	ENG.	CHK.	DATE

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

NORLITE CORPORATION - COHOES, NY

MATERIAL TRANSFER FACILITY
PIER & FOOTING DETAILS

DRAWN BY:	DATE:	DRAWING/FILE REF:
T.V.B.	04/29/02	HMK-2475-99-2
ENGINEER:	FILE NAME	DRAWING NO.
H.M.K.	NY003-2475-2	NY003-2475-2

A ROTARY KILN Norlite EXPANDED SHALE AGGREGATE

PROJECT TECHNICAL SPECIFICATIONS

SELECTIVE DEMOLITION

RELATED DOCUMENTS:

Drawings and general provisions of the Contract, including General and Supplementary Conditions provided by the Owner apply to this section.

DEFINITIONS:

Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the Owner's property.

Existing to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the Engineer, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations.

MATERIALS OWNERSHIP:

Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.

SUBMITTALS:

General: Submit each item in this article according to the Conditions of the Contract or Owner's requirements for information purposes only.

- Schedule of selective demolition activities indicating the following:
- Detailed sequence of selective demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.
- Interruption of utility services.
- Coordination for shutoff, capping and continuation of utility services.

Regulatory Requirements: Comply with governing local regulations and site work permits before starting selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

PROJECT CONDITIONS:

Asbestos: It is not expected that asbestos will be encountered in the Work. If any materials suspected of containing asbestos are encountered, do not disturb the materials. Immediately notify the Owner.

SCHEDULING:

Arrange selective demolition schedule so as not to interfere with Owner's on-site operations. The schedule shall be as approved by the Owner.

PRODUCTS:

REPAIR MATERIALS

Use repair materials identical to existing materials unless otherwise agreed to by the Owner or specified.

EXECUTION:

EXAMINATION

Verify that utilities have been disconnected and capped.

When unanticipated mechanical, electrical, or structural elements that conflict with the intended function or design are encountered, investigate and measure the nature and extent of the conflict. Promptly submit a written report to the Owner and Engineer.

UTILITY SERVICES

Utility Requirements: Locate, identify, disconnect and seal or cap off any utility service necessary during selective demolition as instructed by Owner.

PREPARATION

Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain and to ensure minimum interference with roads, streets and walks. Ensure safe passage of people around selective demolition area. Protect existing site improvements, appurtenances, and landscaping to remain.

Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of adjacent structures, walks, and streets during progress of selective demolition.

CAST-IN-PLACE CONCRETE

GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of the Contract, including General and Supplementary Conditions supplied by the Owner, apply to this Section.

SUMMARY:

This Section specifies cast-in-place concrete, including formwork, reinforcing, mix design, placement procedures and finishes.

Cast-in-place concrete includes the following:

- Slabs-on-grade.
- Curbing
- Sump

SUBMITTALS:

General: Submit the following according to Conditions of the Contract and specification Sections as required by the Owner.

Product data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, finish materials and others if requested by Engineer or Owner.

- Laboratory test reports for concrete materials and mix design test.
- Material certificates in lieu of material laboratory test reports when permitted by Engineer. Material certificates shall be signed by manufacturer and Contractor, certifying that each material item complies with or exceeds specified requirements. Provide certification from admixture manufacturers that chloride content complies with specification requirements.

QUALITY ASSURANCE:

Codes and Standards: Comply with provisions of the following codes, specifications and standards, except where more stringent requirements are shown or specified:

- ACI 318, Building Code Requirements for Reinforced Concrete".
- Concrete Reinforcing Steel Institute (CRSI) -Manual of Standard Practice.

PRODUCTS:

REINFORCING MATERIALS

Reinforcing Bars: ASTM A 615, Grade 60, deformed.

- Supports for Reinforcement: Bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Use wire bar-type supports complying with CRSI specifications.
- For exposed-to-view concrete surfaces where legs of supports are in contact with forms, provide supports with legs that are protected by plastic (CRSI, Class 1) or stainless steel (CRSI, Class 2).

CONCRETE MATERIALS

Portland Cement ASTM C 150, Type IV [HIGH-EARLY]

- Use one brand of cement throughout Project unless otherwise acceptable to Engineer.

Normal-Weight Aggregates: ASTM C 33 and as specified. Provide aggregates from a single source for exposed concrete.

- For exposed exterior surfaces, do not use fine or coarse aggregates that contain substances that cause spalling.

Water: Potable.

Admixtures, General: Provide concrete admixtures that contain not more than 0.1 percent chloride ions.

RELATED MATERIALS:

CONTAINMENT COATING

The concrete containment shall receive a chemically compatible coating after installation of the new foundation slab. Surface preparation for the installation of the coating materials shall be void filling, removal of sharp corners and application of Dur-A-Flex elast-o-coat (or equal) epoxy primer at 50 mils thickness. Transition between floor and wall at joint and at outside corners shall be constructed using a slurry mix of DUR-A-FLEX elast-o-coat (or equal) resin.

Final coating shall be a minimum of 32 mils of Dur-A-Glaze Novolac (or equal) epoxy protective coating with broadcast aggregate and final Novolac coating. Color(s) as specified by Owner.

Final coating shall cover all concrete surfaces including extending over the top of the curb and down the exterior surface at least 3 inches.

Chemically compatible waterstops

Waterstops shall be installed as shown on the drawings and as specified by the owner.

Moisture-Retaining Cover & Underlayment: One of the following, complying with ASTM C 171.

- Waterproof paper.
- Polyethylene film.

PROPORTIONING AND DESIGNING MIXES:

Limit use of fly ash to not exceed 25 percent of cement content by weight.

Design mixes to provide normal weight concrete with the following properties as indicated on drawings and schedules:

- 4000-psi, 28-day compressive strength; water-cement ratio, 0.44 maximum (non-air-entrained), 0.35 maximum (air-entrained).

Water-Cement Ratio: Provide concrete for following conditions with maximum water-cement (W/C) ratios as follows:

- Subjected to freezing and thawing: W/C 0.45.
- Subjected to deicers/watertight: W/C 0.40.

Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:

- Reinforced foundation systems: Not less than 1 inch and not more than 3 inches.

CONCRETE MIXING:

Ready-Mixed Concrete: Comply with requirements of ASTM C 94, and as specified.

EXECUTION:

GENERAL

Coordinate the installation of joint materials, vapor retarder/barrier and other related materials with placement of forms and reinforcing steel.

Construct forms to sizes, shapes, lines, and dimension shown and to obtain accurate alignment, location, grades, level, and plumb work in finished structures. Provide for openings, offsets, settling, keyways, recesses, moldings, rustication, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in the Work. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent cement paste from leaking.

Provisions for Other Trades: Provide openings in concrete form work to accommodate work of other trades. Determine size and location of openings recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.

PLACING REINFORCEMENT:

General: Comply with Concrete Reinforcing Steel Institutes recommended practice for Placing Reinforcing Bars, for details and methods of reinforcement placement and supports and as specified.

Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that reduce or destroy bond with concrete.

Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers as approved by Engineer.

Place reinforcement to maintain minimum coverages as indicated for concrete protection. Arrange, space and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

JOINTS:

Construction Joints: Locate and install construction joints so they do not impair strength or appearance of the structure, as acceptable to Engineer.

Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints except as indicated otherwise. Do not continue reinforcement through sides of strip placements.

Isolation Joints in Slabs-on-Grade: Construct isolation joints in slabs-on-grade at points of contact between slabs-on-grade and vertical surfaces, such as column pedestals, curbs, foundation walls, grade beams, and other locations, as indicated.

- Joint fillers and sealants shall be as specified herein or by the Owner.

Contraction (Control) Joints in Slabs-on-Grade & Curbing: Construct contraction joints in slabs-on-grade to form panels or patterns as shown. Use saw cuts 1/8 inch wide by one-fourth of slab depth or inserts 1/4 inch wide by one-fourth of slab depth, unless otherwise indicated.

- Form contraction joints by inserting pre-molded plastic or hardboard strip into fresh concrete until top surface of strip is flush with slab surface. Tool slab edges round on each side of insert. After concrete has cured, remove inserts and clean groove of loose debris.
- Contraction joints in floor slabs may be formed by saw cuts as soon as possible after slab finishing as may be safely done without dislodging aggregate.
- If joint pattern is not shown, provide joints not exceeding 12 feet in either direction and located to conform to bay spacing wherever possible (at column center lines, half bays, third bays).
- Joint fillers and sealants are as specified by owner.

INSTALLING EMBEDDED ITEMS:

General: Set and build into formwork anchorage devices and other embedded items required for other work that is attached to or supported by cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached.

Forms for Slabs: Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and contours in finished surfaces. Provide and secure units to support screed strips using strike-off templates or compacting-type screeds.

CONCRETE PLACEMENT:

Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.

General: Comply with ACI 304, Guide for Measuring, Mixing, Transporting, and Placing Concrete, and as specified.

Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened sufficiently to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation at its final location.

Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until completing placement of a panel or section.

FINISHING FORMED SURFACES:

Smooth-Formed Finish: Provide a smooth-formed finish of formed concrete surfaces exposed to view or to be covered with a coating material applied directly to concrete, such as waterproofing, damp-proofing, veneer plaster, painting, or another similar system. Repair and patch defective areas with fins and other projections completely removed and smoothed.

CONCRETE CURING AND PROTECTION:

General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. During cold weather protect from freezing with appropriate measures. If these measures include heating protect concrete from rapid moisture loss as stated herein. Apply evaporation control material according to manufacturer's instructions after screeding and bull floating, but before power floating and troweling.

Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.

Curing Methods: Cure concrete by moist curing, by moisture-retaining cover curing, or by combining these methods, as required by site conditions.

CONCRETE SURFACE REPAIRS:

Repairing Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface tolerances specified for each surface and finish. Correct low and high areas as specified. Test unformed surfaces sloped to drain for trueness of slope and smoothness by using a template having the required slope.

- Repair finished unformed surfaces containing defects that affect the concretes durability. Surface defects include crazing and cracks in excess of 0.01 inch wide or that penetrate to the reinforcement or completely through non-reinforced sections regardless of width, spalling, popouts, honeycombs, rock pockets, and other objectionable conditions.
- Correct high areas in unformed surfaces by grinding after concrete has cured at least 14 days.

Repair methods not specified above may be used, subject to acceptance of Engineer

FOR PERMIT PURPOSES ONLY

CLIENT APPROVAL: _____ DATE: _____

REV.	DESCRIPTION	DWN.	ENG.	CHK.	DATE
1	RECORD INFORMATION ADDED	TVB	HMK	HMK	12/04/00

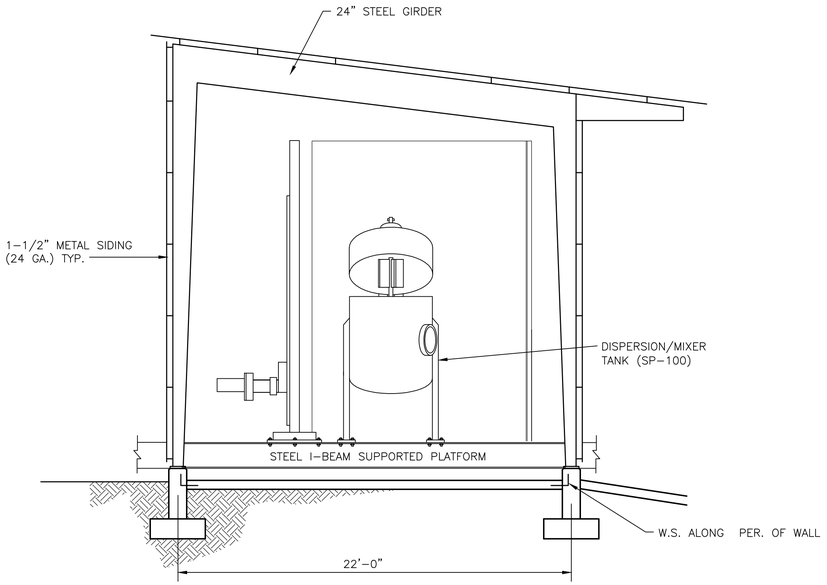
HARVEY M. KING, P.E.
ENVIRONMENTAL ENGINEERS & SCIENTISTS
4 STONY BROOK DRIVE, REXFORD, NEW YORK 12148-1608

NORLITE CORPORATION - COHOES, NY

MATERIAL TRANSFER FACILITY
DESIGN SPECIFICATIONS

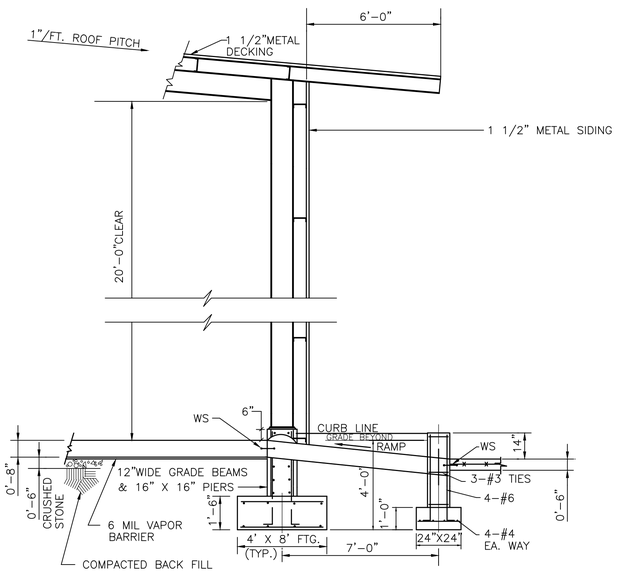
DRAWN BY: T.V.B.	DATE: 04/29/02	DRAWING/FILE REF:	HMK-2475-99-S
ENGINEER: H.M.K.	FILE NAME: NY003-2475-3	DRAWING NO.	NY003-2475-3

A ROTARY KILN
Norlite
EXPANDED SHALE AGGREGATE



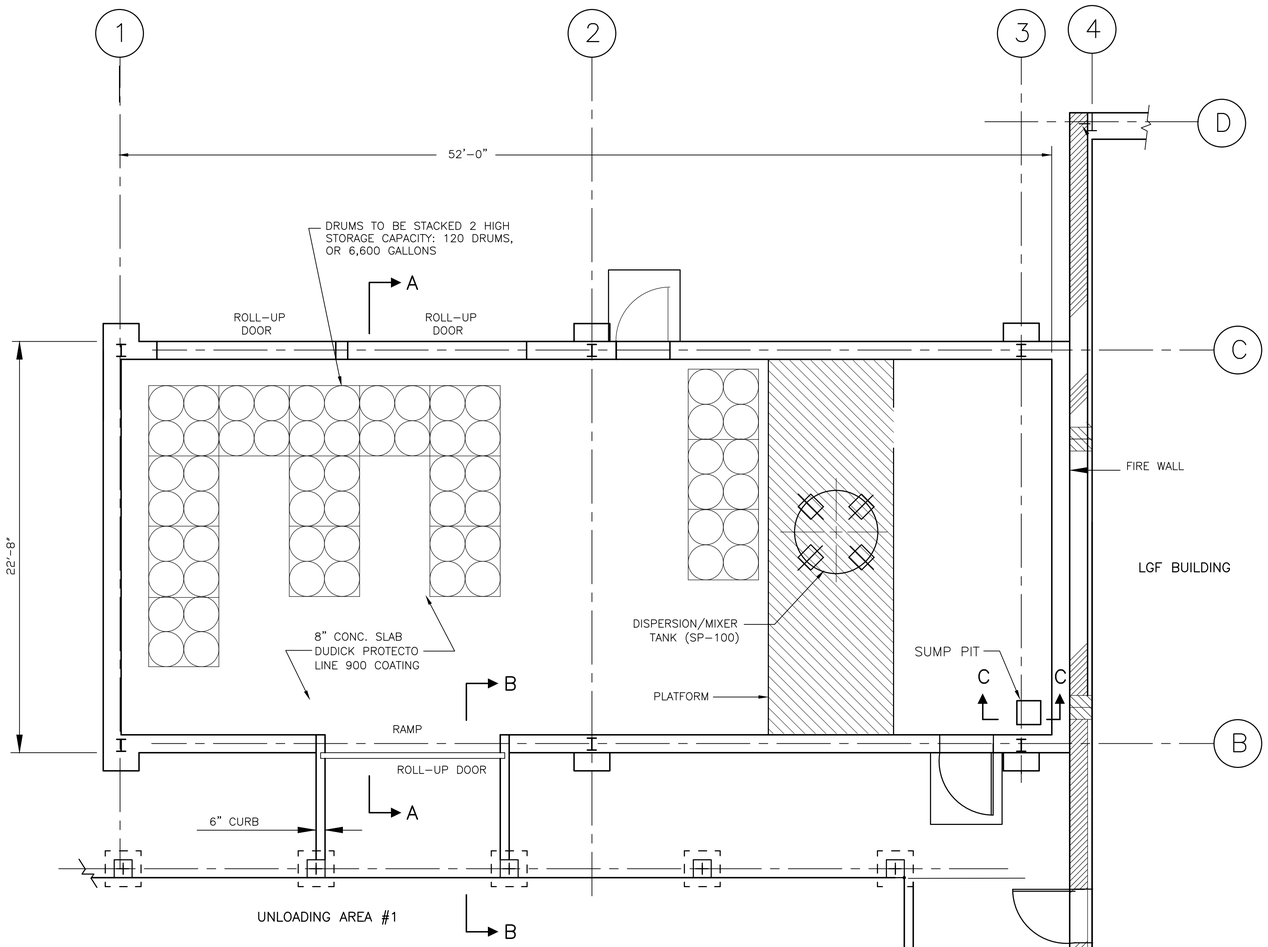
CROSS SECTION A–A

1/4" = 1'–0"



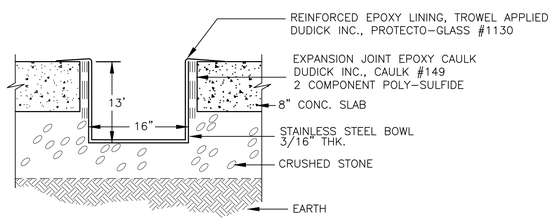
COLUMN PILASTER & FOOTING DETAIL
SECTION B–B

3/8"=1'–0"



GROUND FLOOR PLAN

1/4" = 1'–0"



SUMP PIT SECTION C–C

SECONDARY CONTAINMENT REQUIREMENTS:

(180) 55 GALLONS DRUMS = 9,900 GALLONS +
TANK SP–100 = 623 GALLONS
TOTAL VOLUME = 10,523 GALLONS

TOTAL CONTAINMENT REQUIRED = 10,523 X 0.1 = 1,052 GAL.

AVAILABLE CONTAINMENT: (52' X 21' X 0.25') X 7.48 GAL./C.F. = 2,042 GAL.
PROVIDED CONTAINMENT IS GREATER THAN IS REQUIRED.

FOR PERMIT PURPOSES ONLY

A ROTARY KILN
Norlite
EXPANDED SHALE AGGREGATE

INFORMATION PRESENTED ON THIS DRAWING HAS BEEN COMPILED FROM CURRENT FIELD DATA AND ORIGINAL DESIGN DRAWINGS PREPARED BY ENSR CONSULTING & ENGINEERING.

FOUNDATION PLAN INFORMATION TAKEN FROM:
ENSR DRAWING NY003–D4305

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
4	UPDATED CONFIGURATION	T.V.B.			7/17/02
3	MISC. NOTES ADDED	JJN	JBM		11/2/95
2	RENERAL REV.	JF	DR		9/10/95
1	DEC COMMECT REV. SUBMITTAL	MP	RCB		1/20/92
0	NYSDEC SUBMITTAL	RPF	KP		5/5/92

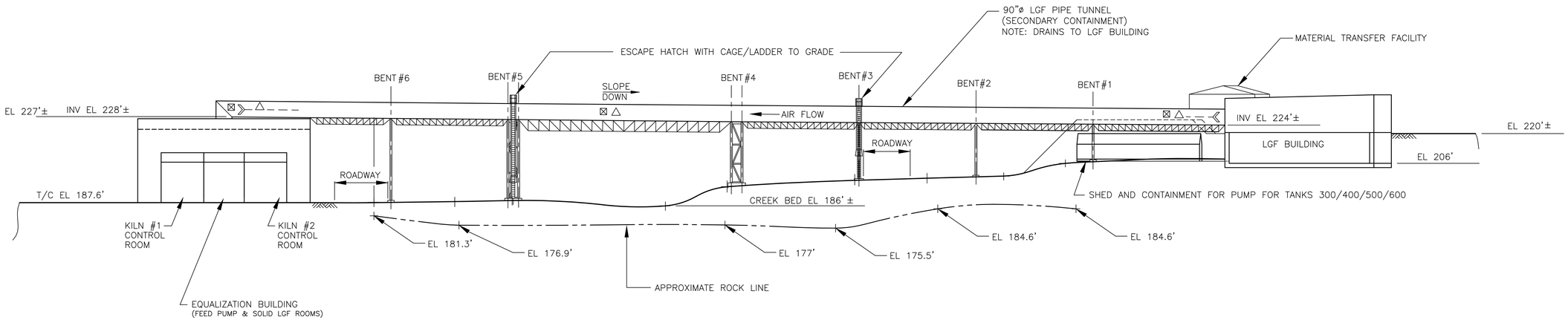
CLIENT APPROVAL: _____ DATE: _____

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

NORLITE CORPORATION – COHOES, NY

GENERAL ARRANGEMENT
FOUNDATION PLAN AND SECTIONS
DRUM PROCESSING BUILDING

DRAWN BY:	DATE:	DRAWING/FILE REF:
T.V.B.	04/29/02	NY–D–C–3008
ENGINEER:	FILE NAME	DRAWING NO.
H.M.K.	NY003–3008	NY003–3008



ELEVATION LOOKING WEST

SCALE: 1" = 300'

LEGEND:

⊠ HYDROCARBON DETECTORS
△ SMOKE DETECTORS
⩓ FLAME DETECTORS

FOR PERMIT PURPOSES ONLY

CLIENT APPROVAL: _____ DATE: _____

A ROTARY KILN
Norlite
EXPANDED SHALE AGGREGATE

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
E	UPDATED CONFIGURATION	T.V.B.			7/17/02
D	RELEASED FOR NYSDEC SUBMITTAL	RJS	JE		1/10/92
C	CHANGED KILN BLDG.	RJS			12-20-91
B	GENERAL REVISIONS	RJS			12-17-91
A	ISSUED FOR COMMENTS	M.L.			11/14/91

HARVEY M. KING, P.E.
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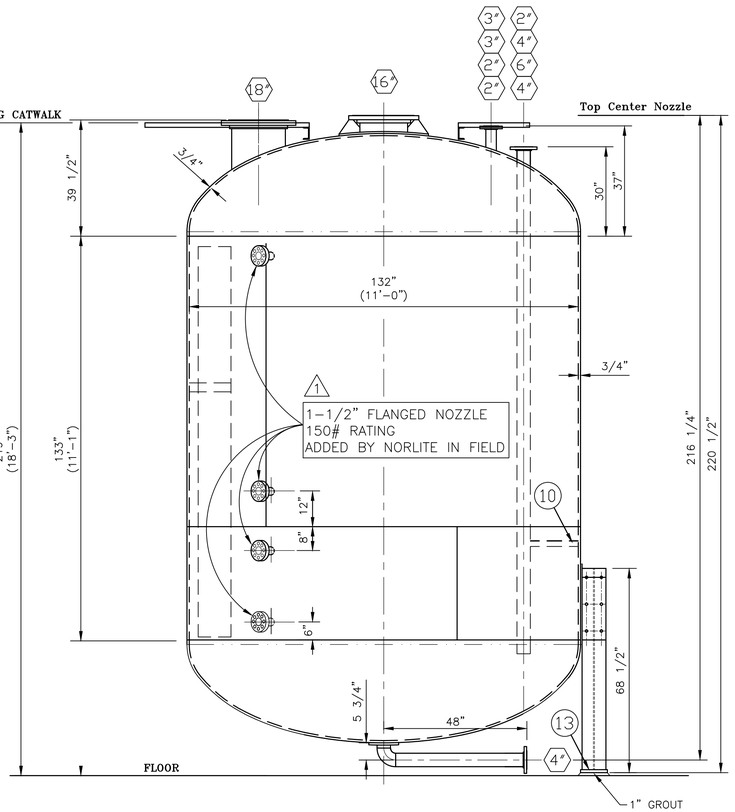
4 STONY BROOK DRIVE, REXFORD, NEW YORK 12148-1608

NORLITE CORPORATION – COHOES, NY

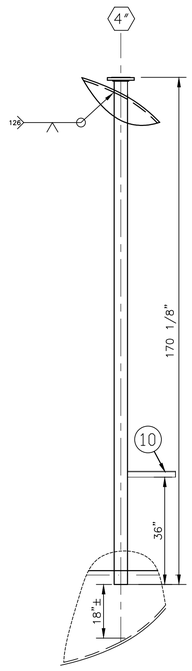
PIPE RACK AND TUNNEL FROM LGF STORAGE TANKS TO KILN

DRAWN BY:	DATE:	DRAWING/FILE REF:
T.V.B.	04/29/02	NY-D-C-3018
ENGINEER:	FILE NAME	DRAWING NO.
H.M.K.	NY003-3018	NY003-3018

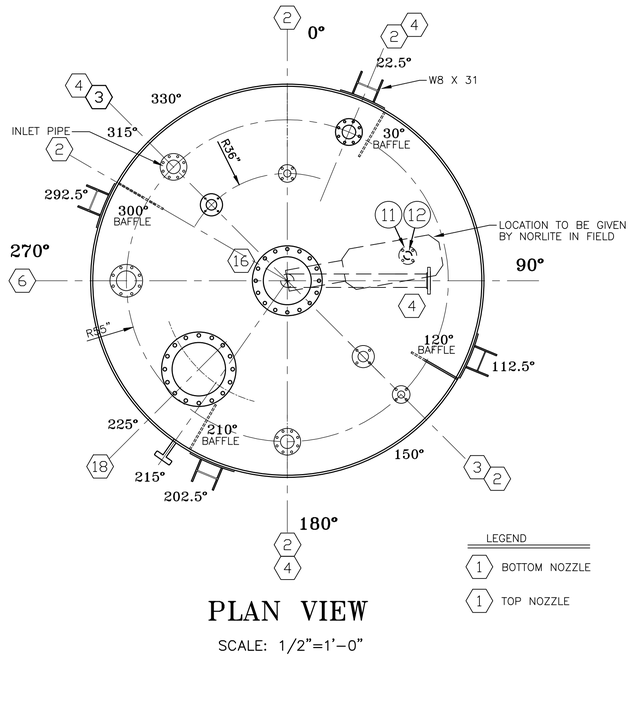


ELEVATION VIEW

SCALE: 1/2"=1'-0"



INLET PIPE



PLAN VIEW

SCALE: 1/2"=1'-0"

LEGEND

1 BOTTOM NOZZLE

1 TOP NOZZLE

NOZZLE SCHEDULE

MARK	QTY	SERVICE	SIZE	RATING	TYPE	NECK	REMARKS	PART No
16	1	AGITATOR	16	150#	RFSO	40		1,2,3,4
4	1	DRAIN	4	150#	RFSO	80		7,8,9

GENERAL NOTES

1. * DESIGN INFORMATION *
DESIGN AND FABRICATED IN ACCORDANCE WITH A.S.M.E. SECTION VIII, DIV. 1

SHELL

	DESIGN PRESSURE	200 PSIG
2	WORKING PRESSURE	50 PSI
	MAX DESIGN TEMPERATURE	200 °F
	MIN. DESIGN TEMPERATURE	−20 °F
	HYDRO TEST PRESSURE	300 PSIG
2	CORROSION ALLOWANCE	0.23 IN.
	CAPACITY FULL	10,785 GAL.

VESSEL WEIGHT EMPTY 22,285 LBS. FULL OF WATER 111,130 LBS.

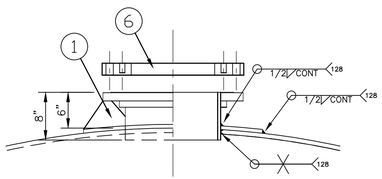
2. ALL FLANGES WILL HAVE BOLT HOLES STRADDLE THE 0°−180° & 90°−270° CENTER LINES, UNLESS OTHERWISE NOTED. PROTECT ALL FLANGE FACES SHIPMENT SHIPMENT.
3. ALL DIMENSIONS ARE IN INCHES, UNLESS OTHERWISE NOTED.
4. ALL REPADS TO HAVE (1) 1/8"NPT TEST HOLE.
5. REPLACE 8" TOP NOZZLE WITH 16" 150# C.S. NOZZLE, W/REPAD AND GUSSETS.
6. SUPPLY 2 1/2" THICK AGITATOR ADAPTER
7. INSTALL AGITATOR BRACKET SUPPORT
8. INSTALL 4" C.S. INTERNAL FEED PIPE FROM AN EXISTING NOZZLE
9. SHORTEN LEGS AND INSTALL A BASE.
10. INSTALL 4" PIPE OUTLET ON BOTTOM OF TANK.
11. HYDRO TANK AT 300PSI
2 12. USING 50 PSI WORKING PRESSURE
2 13. TANK IS ACCEPTABLE FOR VACUUM OPERATION PURSUANT TO ASME UG-99.

PART	QTY	DESCRIPTION	MATERIAL	REMARKS
13	4	1" X 12" X 12" (BASE PLT.)	SA 36	
12	1	2 1/2" 150# RFSO FLANGE	SA 105	
11	1	2 1/2" SCH 40 PIPE X 24"±	SA 53B	
10	1	L2 X 2 X 1/4" X AR (PIPE SUPPORT)	SA 36	
9	1	4" 150# RFSO FLANGE	SA 105	
8	1	4" SCH 80 90° SHORT RAD. ELBOW	SA 105	
7	1	4" SCH 80 PIPE X 48"	SA 53B	
6	1	2 1/2" X 23 3/4" O.D. (AGITATOR SPACER)	SA 516-70	
5	1	4" SCH 40 PIPE X AR (DIP PIPE)	SA 516-70	
4	1	5/8" X 16 1/4" I.D. X 30" O.D.(REPAD)	SA 106B	
3	1	16" 150# RFSO FLANGE	SA 105	
2	1	16" SCH 40 PIPE X AR	SA 106B	
1	4	1/2" X AR (GUSSETS)	SA 36	

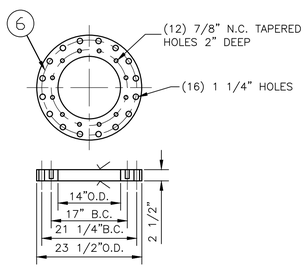
MATERIAL LIST

ORIGINAL NAMEPLATE DATA FOR REFERENCE ONLY.

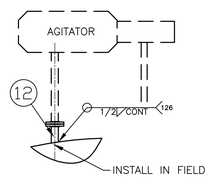
MAXIMUM STORAGE VOLUME: 9,271 GAL.
MAXIMUM VOLUME: 10,663 GAL.



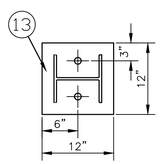
AGITATOR DETAIL



AGITATOR SPACER



AGITATOR SUPPORT



BASE PLATE

FOR PERMIT PURPOSES ONLY

CLIENT APPROVAL: _____ DATE: _____

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
4	UPDATED CONFIGURATION				02/08/14
3	VOLUME NOTES ADDED				7/17/02
2	SUBMIT				10/6/98
1	SUBMIT				6/11/98
0	SUBMIT				2/21/98

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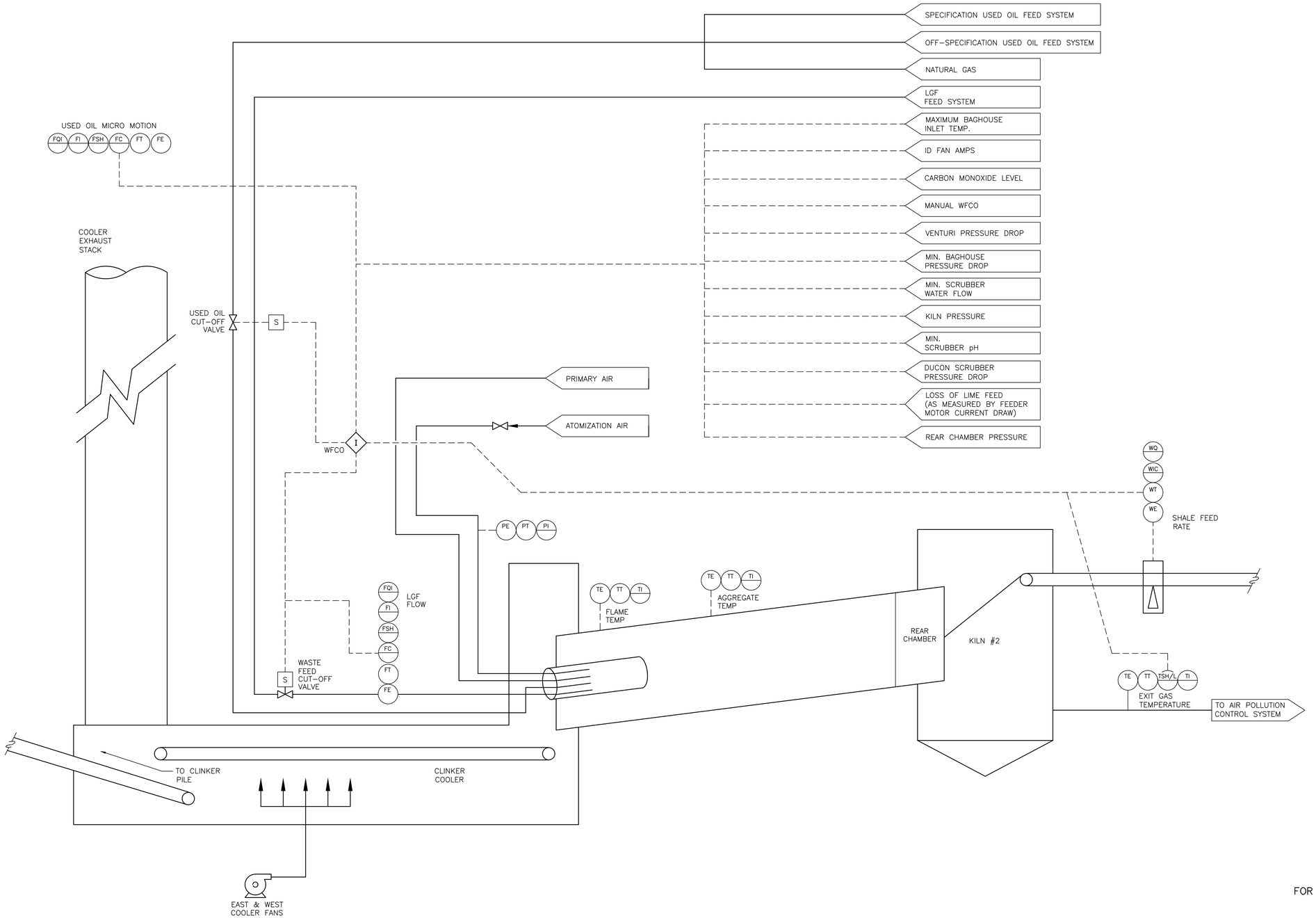
NORLITE CORPORATION – COHOES, NY

TANK VESSEL 200-A

DRAWN BY:	DATE:	DRAWING/FILE REF:
T.V.B.	04/29/02	J-4312-1
ENGINEER:	FILE NAME	DRAWING NO.
H.M.K.	NY003-4312	NY003-4312

THIS DRAWING IS A RE-DRAW OF "AMERICAN BOILER, TANK & WELDING CO. DRAWING 1, JOB NO. J-4312"



FOR PERMIT PURPOSES ONLY

CLIENT APPROVAL: _____ DATE: _____

A ROTARY KILN Norlite EXPANDED SHALE AGGREGATE

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
E	UPDATED CONFIGURATION	T.V.B.			02/20/14
D	UPDATED CONFIGURATION	T.V.B.			7/17/02
C	MANUAL WFCO REVISION	TVB			03/11/00
B	ADDED LOSS OF LIME FEED WFCO	SB			9/20/93
A	ISSUED FOR COMMENTS	JEG			12/11/91

HARVEY M. KING, P.E.
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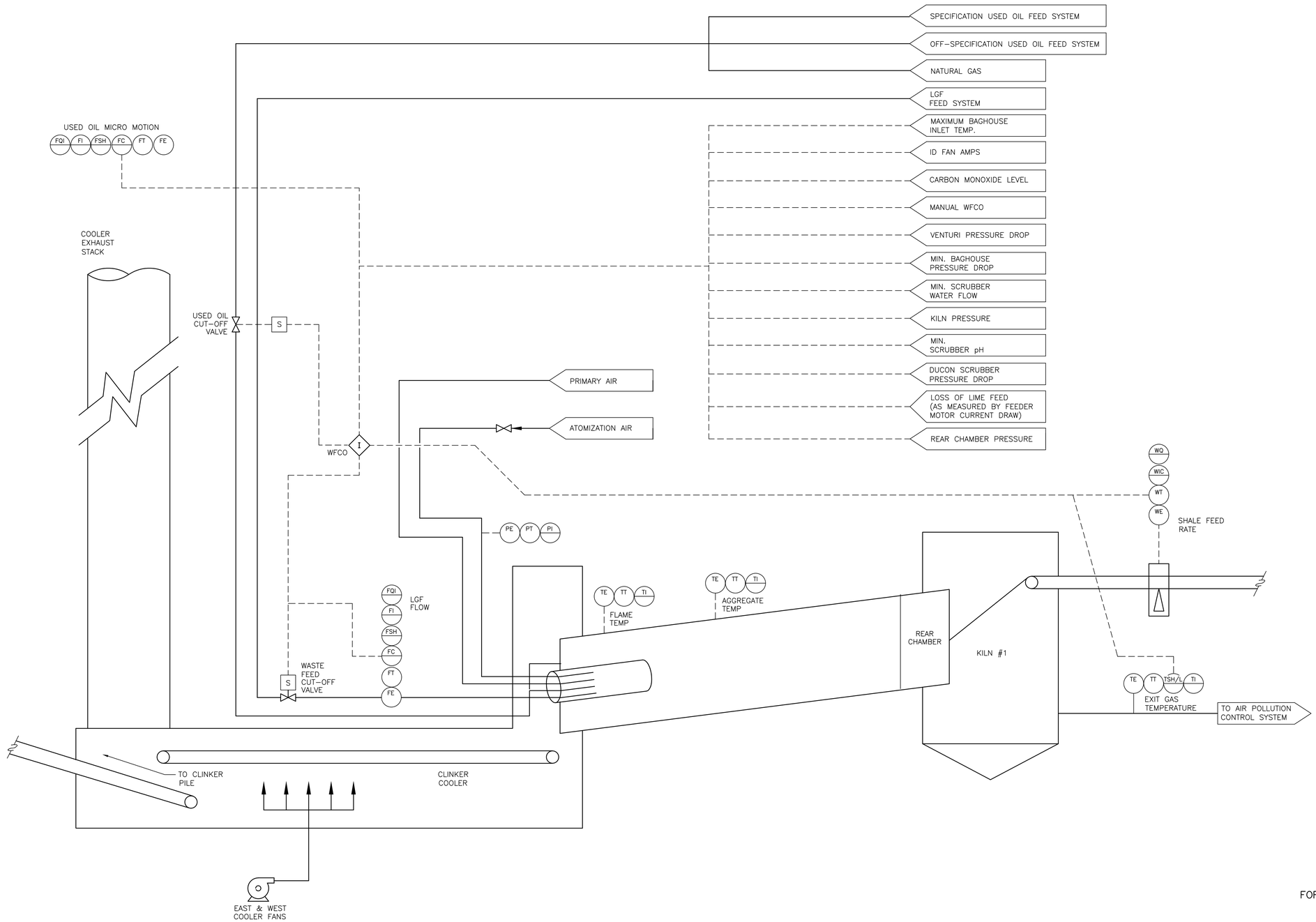
4 STONY BROOK DRIVE, RENKORD, NEW YORK 12148-1608

NORLITE CORPORATION – COHOES, NY

KILN #2
WASTE FEED CUT OFFS

DRAWN BY: T.V.B.	DATE: 04/29/02	DRAWING/FILE REF:	NY-D-D-5001
ENGINEER: H.M.K.	FILE NAME: NY003-5001	DRAWING NO.	NY003-5001



FOR PERMIT PURPOSES ONLY

CLIENT APPROVAL: _____ DATE: _____

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
E	UPDATED CONFIGURATION	T.V.B.			02/20/14
D	UPDATED CONFIGURATION	T.V.B.			7/17/02
C	MANUAL WFCO REVISION	TVB			03/11/00
B	ADDED LOSS OF LIME FEED WFCO	SB			9/20/93
A	ISSUED FOR COMMENTS	JEG			12/11/91

HARVEY M. KING, P.E.
ENVIRONMENTAL ENGINEERS & SCIENTISTS
4 STONY BROOK DRIVE, RENSSELAER, NEW YORK 12144–1608

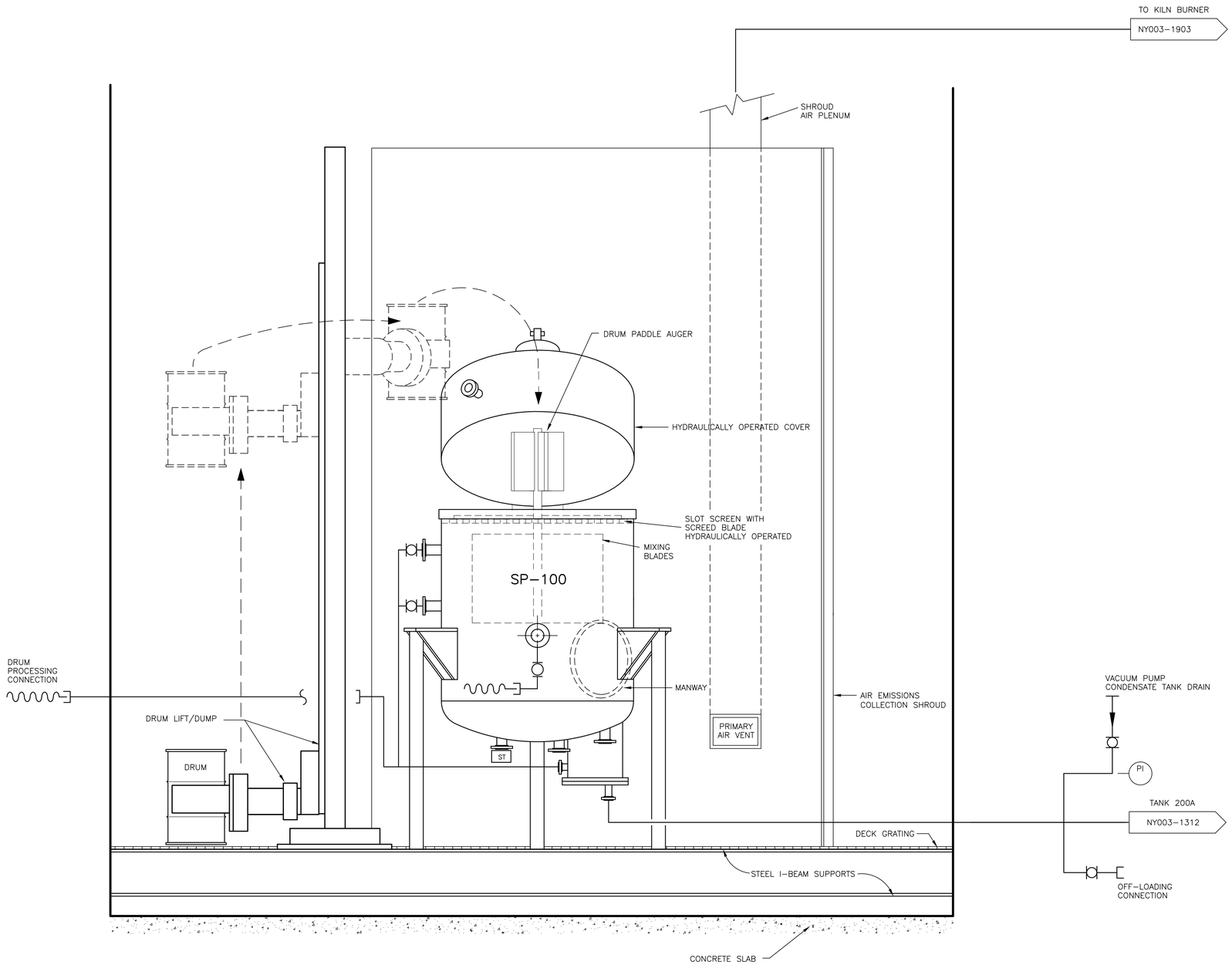
NORLITE CORPORATION – COHOES, NY

KILN #1
WASTE FEED CUT OFFS

DRAWN BY:	DATE:	DRAWING/FILE REF:
T.V.B.	04/29/02	NY–D–D–5006
ENGINEER:	FILE NAME	DRAWING NO.
H.M.K.	NY003–5006	NY003–5006

A ROTARY KILN Norlite EXPANDED SHALE AGGREGATE

INFORMATION PRESENTED ON THIS DRAWING HAS BEEN COMPILED FROM CURRENT FIELD DATA AND ORIGINAL DESIGN DRAWINGS PREPARED BY ENSR CONSULTING & ENGINEERING.



ELEVATION VIEW

(LOOKING EAST)

SCALE: NONE

FOR PERMIT PURPOSES ONLY

CLIENT APPROVAL: _____ DATE: _____

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
1	UPDATED CONFIGURATION	TVB			02/08/14
0	RELEASED FOR NYSDEC SUBMITTAL	RJS			1/15/92

HARVEY M. KING, P.E.
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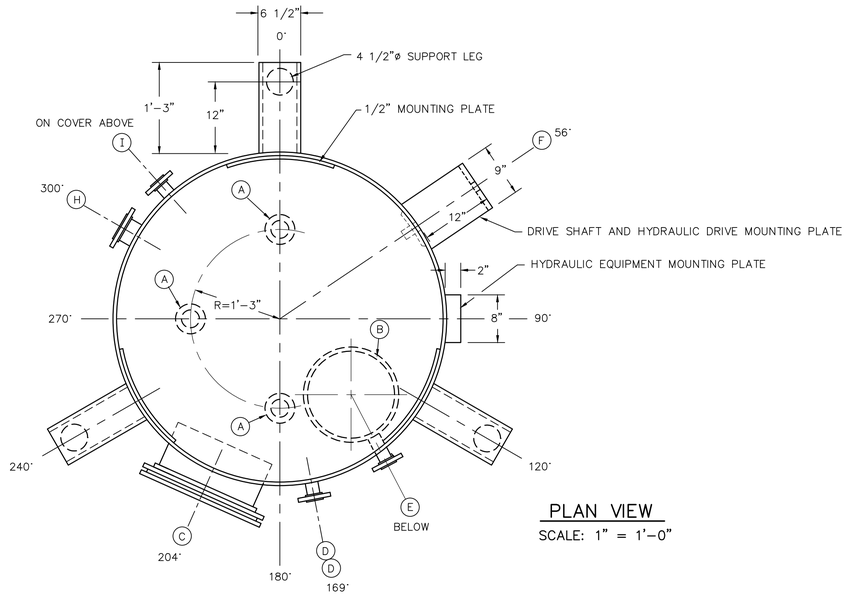
NORLITE CORPORATION – COHOES, NY

PIPING & INSTRUMENTATION DIAGRAM
DISPERSION/MIXING TANK
(SP–100)

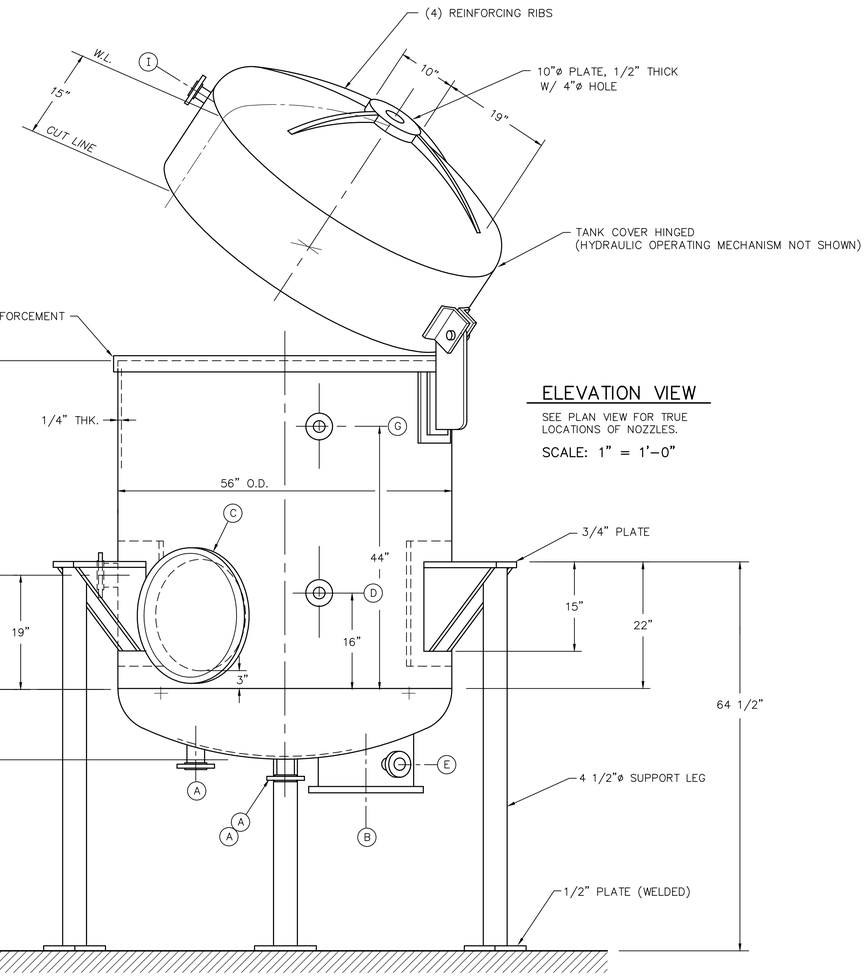
DRAWN BY:	DATE:	DRAWING/FILE REF:
T.V.B.	04/29/02	NY–D–D–5010
ENGINEER:	FILE NAME	DRAWING NO.
H.M.K.	NY003–5010	NY003–5010

A ROTARY KILN Norlite EXPANDED SHALE AGGREGATE



PLAN VIEW

SCALE: 1" = 1'-0"



ELEVATION VIEW

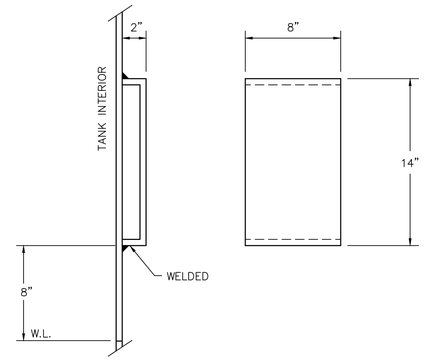
SEE PLAN VIEW FOR TRUE LOCATIONS OF NOZZLES.

SCALE: 1" = 1'-0"

NOZZLE SCHEDULE

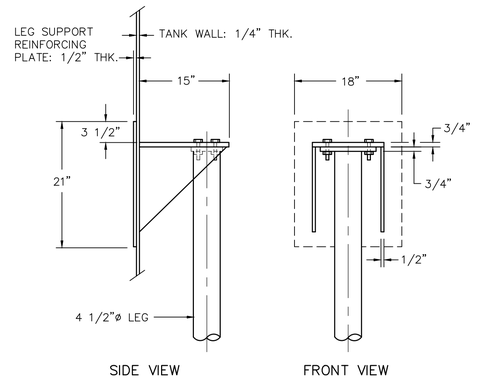
MARK	QUANTITY	SIZE	ASA RATING	SCH.	SERVICE
A	3	3"	150 P.S.I.	40	NONE
B	1	16"	150 P.S.I.	40	GRINDER, VACUUM OUT
C	1	22"	150 P.S.I.	40	MANWAY
D	2	2"	150 P.S.I.	40	VACUUM OUT
E	1	2"	150 P.S.I.	40	VACUUM OUT
F	1	1 1/2"	150 P.S.I.	40	DRIVE SHAFT
G	1	2"	150 P.S.I.	40	VACUUM OUT
H	1	4"	150 P.S.I.	40	VACUUM IN
I	1	1"	150 P.S.I.	40	NONE

MAXIMUM STORAGE VOLUME: 527 GAL.
MAXIMUM VOLUME: 623 GAL.



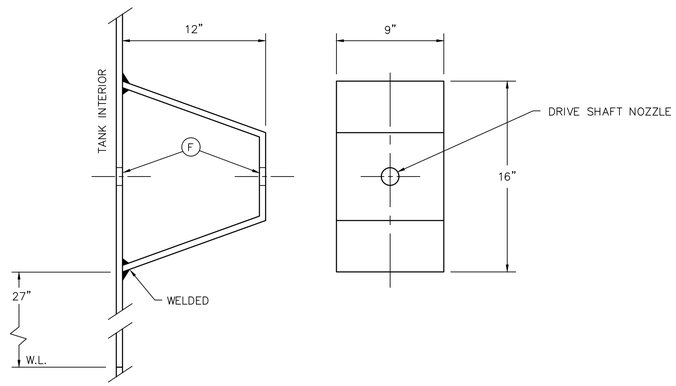
HYDRAULIC PUMP MOUNTING PLATE DETAIL

SCALE: 1" = 6"



LEG SUPPORT DETAIL

SCALE: 1" = 1'-0"



DRIVE SHAFT AND HYDRAULIC DRIVE MOUNTING PLATE DETAIL

SCALE: 1" = 6"

FOR PERMIT PURPOSES ONLY

CLIENT APPROVAL: _____ DATE: _____

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE

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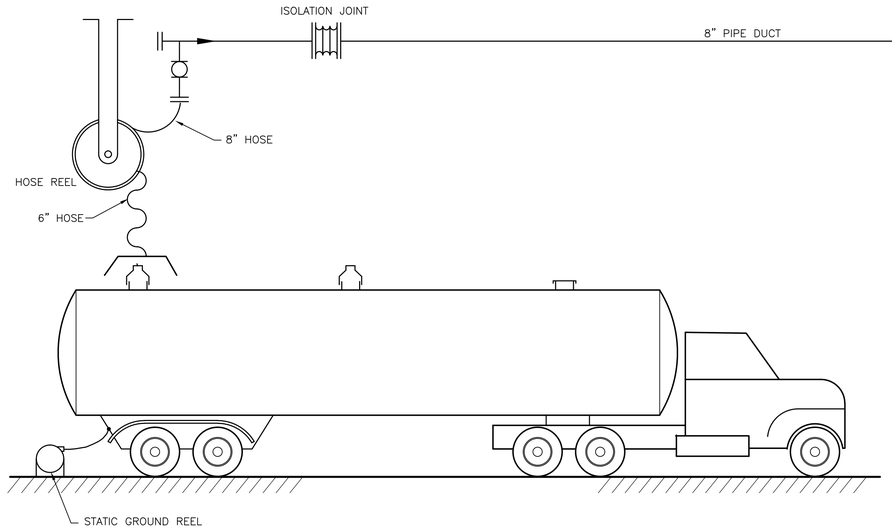
ENVIRONMENTAL ENGINEERS & SCIENTISTS
4 STONY BROOK DRIVE, REXFORD, NEW YORK 12148-1608

NORLITE CORPORATION – COHOES, NY

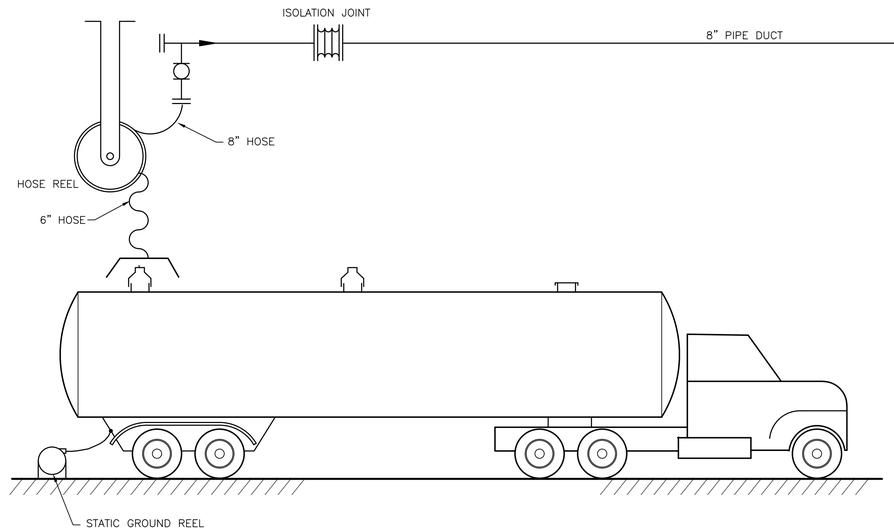
DISPERSION/MIXING TANK
(SP-100)

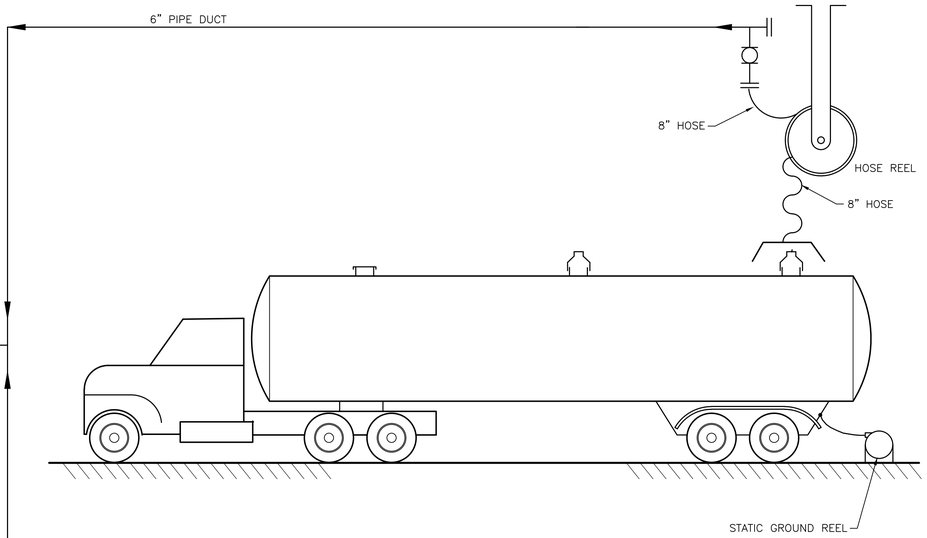
DRAWN BY:	DATE:	DRAWING/FILE REF:
T.V.B.	04/29/02	
ENGINEER:	FILE NAME	DRAWING NO.
H.M.K.	NY003-5011	NY003-5011

A ROTARY KILN
Norlite
EXPANDED SHALE AGGREGATE

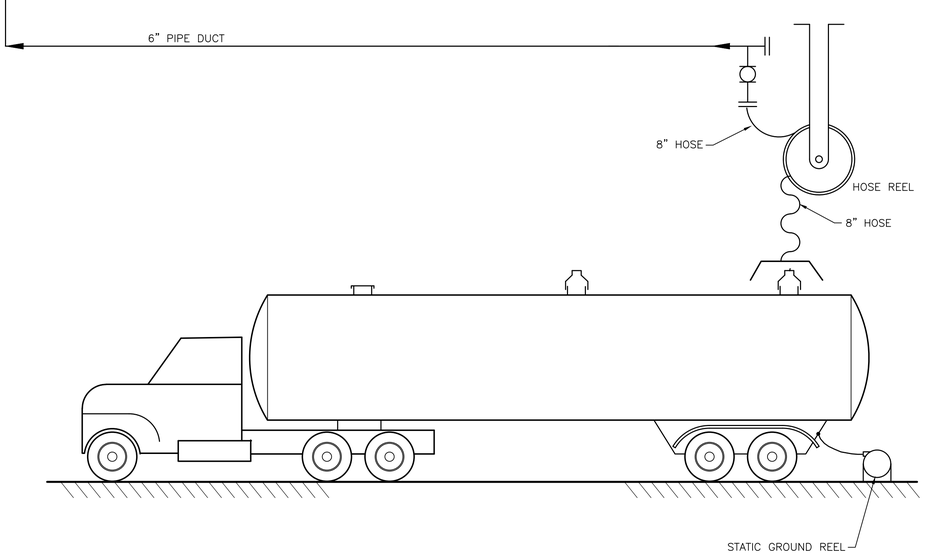


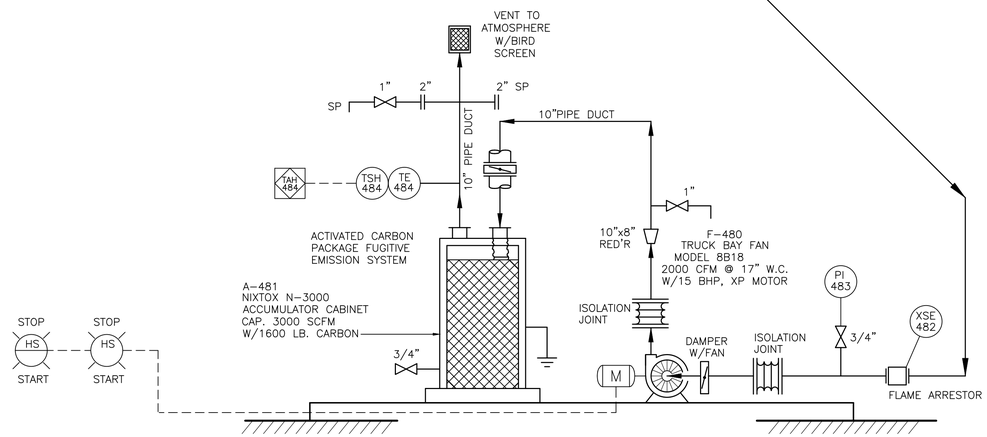
TRUCK UNLOADING AREA 1





TRUCK UNLOADING AREA 2





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.

CLIENT APPROVAL: _____ DATE: _____

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
D	UPDATED CONFIGURATION	T.V.B.			02/08/14
C	UPDATED CONFIGURATION	T.V.B.			7/17/02
B	GENERAL REVISION	RJS	A.L.	A.L.	12-11-92
A	ISSUED FOR PERMIT	DC	A.L.	J.R.	10/28/92

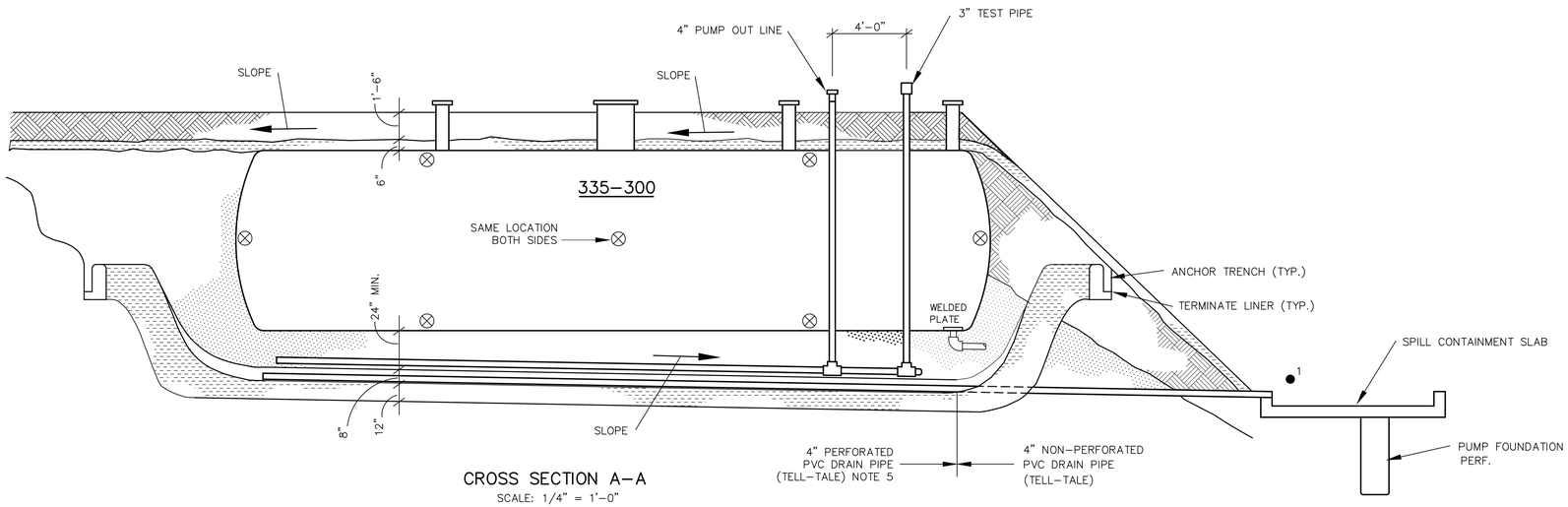
HARVEY M. KING, P.E.
ENVIRONMENTAL ENGINEERS & SCIENTISTS
4 STONY BROOK DRIVE, REXFORD, NEW YORK 12148-1608

NORLITE CORPORATION – COHOES, NY

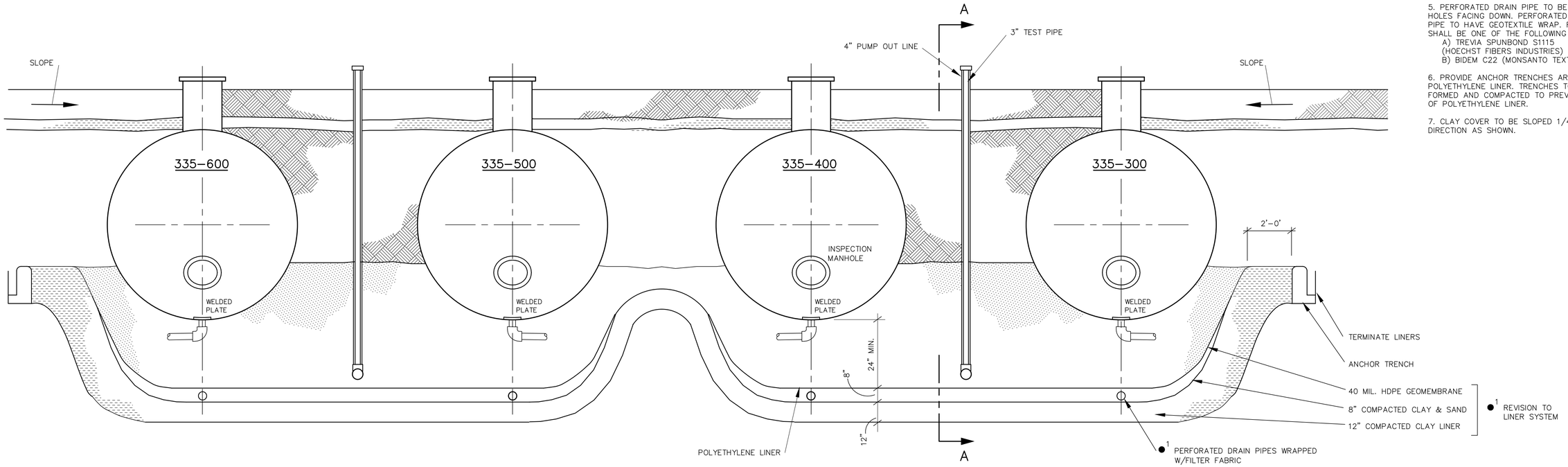
PIPING & INSTRUMENTATION DIAGRAM TRUCK FUGITIVE EMISSIONS SYSTEM

DRAWN BY:	DATE:	DRAWING/FILE REF:
T.V.B.	04/29/02	NY003-D5317
ENGINEER:	FILE NAME	DRAWING NO.
H.M.K.	NY003 5317	NY003-5317

A ROTARY KILN Norlite EXPANDED SHALE AGGREGATE



CROSS SECTION A–A
SCALE: 1/4" = 1'–0"



ELEVATION LOOKING WEST
SCALE: 3/8" = 1'–0"

● REVISION TO LINER SYSTEM (7/24/85)

THE CONSTRUCTION SEQUENCE IS AS FOLLOWS.

1. SCALP MOST OF THE SAND NOW RESTING ON THE GEOMEMBRANE, AND ALL OF THE CLAY ALONG THE SIDE SLOPES. STOCKPILE AS MUCH OF THE SAND AS POSSIBLE FOR LATER USE. A THIN LAYER OF SAND SHOULD REMAIN OVER THE CLAY TO PROVIDE A CLEAN FIRM WORKING SURFACE.

2. LOWER THE GRADE OF THE EXISTING COLLECTION PIPE BY HAND TRENCHING.

3. MOISTEN AND COMPACT THE SOILS INTO A SMOOTH, UNIFORMLY THICK LAYER. SAND MAY BE ADDED TO THE SURFACE TO SUPPLEMENT THAT WHICH IS LOST IN THE CLAY VOIDS.

4. INSTALL THE UPPER 40 MIL. GEOMEMBRANE, AND ANCHOR BOTH THE MEMBRANES INTO THE DIKES IN ACCORDANCE WITH PERMIT SPECIFICATIONS.

5. LAY A COLLECTION PIPE ON TOP OF THE GEOMEMBRANE. THE PIPE WILL BE WRAPPED IN GEOTEXTILE FILTER FABRIC.

6. TRENCH BOTH PIPES THROUGH THE IMPOUNDMENT SIDE SLOPES, AND INSTALL A SEEPAGE COLLAR AT THE MEMBRANE PENETRATIONS IN ACCORDANCE WITH GEOMEMBRANE MANUFACTURER RECOMMENDATIONS. RECOMPACT DIKE MATERIALS TO SPECIFIED DENSITY.

7. COVER THE UPPER MEMBRANE WITH TAMPED SAND UP TO FINAL DESIGN GRADE.

NOTES:

1. EXCAVATION, CLAY LINER AND POLYETHYLENE LINER TO BE SLOPED 1/4" PER FT. IN DIRECTION AS SHOWN.

2. ⊗ THICKNESS TEST LOCATIONS (8).

3. POLYETHYLENE LINER CONTINUOUS UNDER FOUR TANKS 335–300, 335–400, 335–500 & 335–600.

4. THE SECONDARY CONTAINMENT WITHIN THE POLYETHYLENE LINER IS 30,415 GAL.

REQUIRED CONTAINMENT:
100% LARGEST TANK VOLUME = 27,903 GALS.

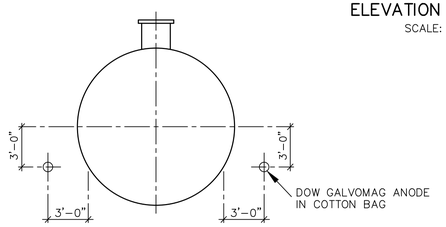
5. PERFORATED DRAIN PIPE TO BE INSTALLED WITH HOLES FACING DOWN. PERFORATED SECTIONS OF PIPE TO HAVE GEOTEXTILE WRAP. FILTER FABRIC SHALL BE ONE OF THE FOLLOWING FABRICS:
   A) TREVIA SPUNBOND S1115 (HOECHST FIBERS INDUSTRIES)
   B) BIDEM C22 (MONSANTO TEXTILE CO.)

6. PROVIDE ANCHOR TRENCHES AROUND EDGES OF POLYETHYLENE LINER. TRENCHES TO BE PROPERLY FORMED AND COMPACTED TO PREVENT SLIPPAGE OF POLYETHYLENE LINER.

7. CLAY COVER TO BE SLOPED 1/4" PER FT. IN DIRECTION AS SHOWN.

LEGEND

SHALE | SAND | CLAY



ANODE LOCATION DETAIL
(TYPICAL)

DRAWING REFERENCE:

DRAWING #9 "LGF (LOW GRADE FUEL) SYSTEM, TANK FOUNDATION". PREPARED BY STETSON-DALE, PC FOR NORLITE CORPORATION. DATED 02/24/84, LAST REVISED 10/10/85.

A ROTARY KILN Norlite EXPANDED SHALE AGGREGATE

DRAWING REFERENCE:

THIS DRAWING IS TAKEN FROM THE ORIGINAL DESIGN DRAWINGS AND ILLUSTRATES THE SECONDARY CONTAINMENT DESIGN DETAILS. THE DEPICTION OF TANKS 335–300 THROUGH 335–600 REPRESENT TYPICAL PLACEMENT BUT DO NOT PRESENT ACCURATE FINAL PIPING OR TANK MODIFICATION DETAILS. REFER TO APPROPRIATE DRAWINGS AND PIPING AND INSTRUMENTATION DRAWINGS FOR CURRENT DETAILS

FOR PERMIT PURPOSES ONLY

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
10	UPDATED CONFIGURATION	T.V.B.			02/08/14
9	REFERENCE NOTE ADDED	T.V.B.			4/28/04
8	UPDATED CONFIGURATION	T.V.B.			7/17/02
7	MISC. NOTES MODIFIED	TVB			03/08/00
6	LINER MODIFICATION	JEE			10/10/85
5	REVISED LINER	DMB			07/30/85
4	REVISED LINER	JEE			07/24/85
3	LINER MODIFICATION	MJB			10/16/84
2	LINER MODIFICATION	MJB			10/12/84
1	LINER MODIFICATION	DMB			06/29/84

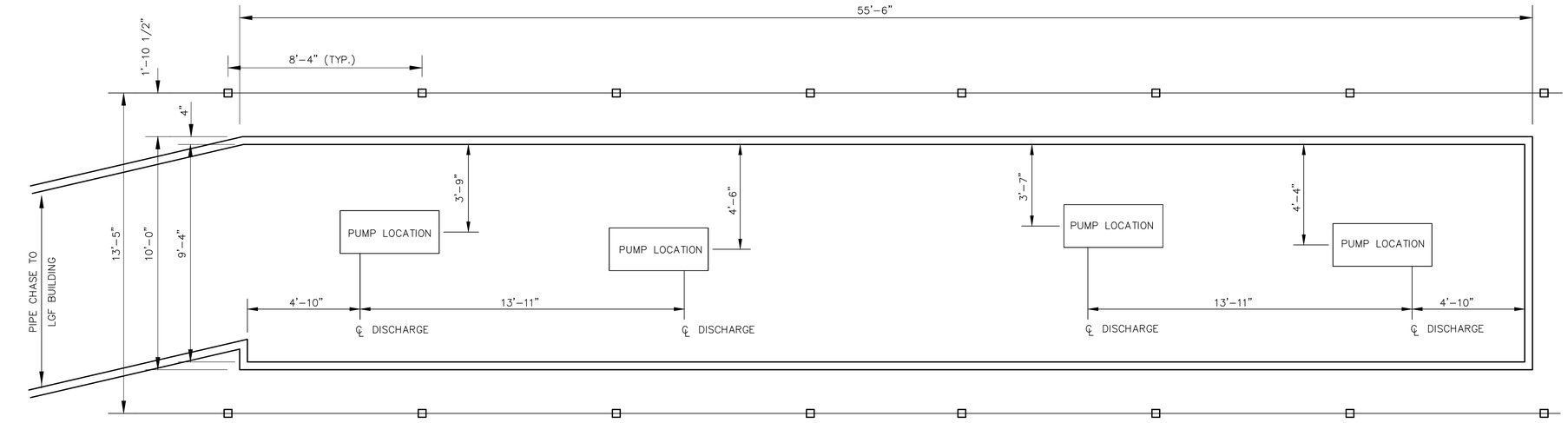
CLIENT APPROVAL: _____ DATE: _____

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

NORLITE CORPORATION – COHOES, NY

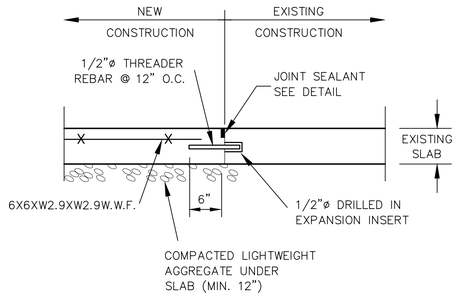
LGF TANKS
SECONDARY CONTAINMENT
DESIGN DETAILS

DRAWN BY:	DATE:	DRAWING/FILE REF:
T.V.B.	04/29/02	HMK–09–99–09
ENGINEER:	FILE NAME	DRAWING NO.
H.M.K.	NY003–5430	NY003–5430



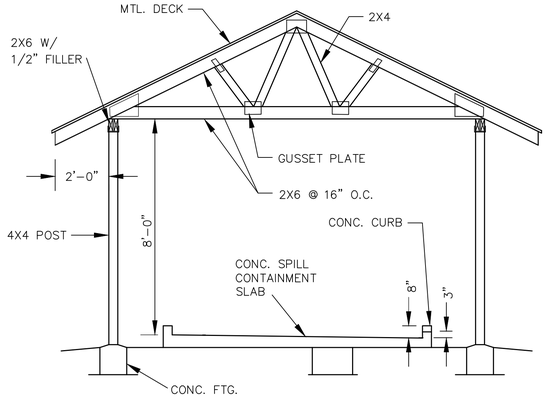
PLAN VIEW – PUMP CONTAINMENT SLAB

SCALE: 3/8" = 1'–0"



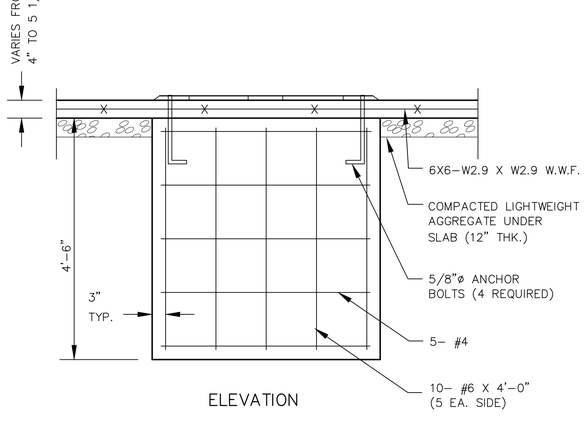
SLAB JOINT DETAIL

SCALE: 1" = 1'–0"



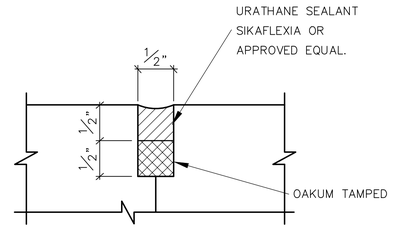
END ELEVATION (LOOKING NORTH)

SCALE: 3/8" = 1'–0"



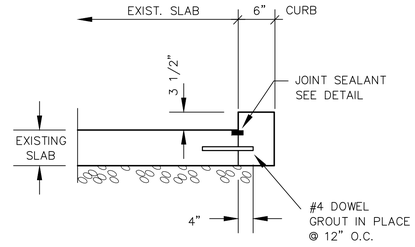
PUMP FOUNDATION DETAIL

SCALE: 3/4" = 1'–0"



TYPICAL JOINT SEALANT DETAIL

SCALE: FULL



EXISTING SLAB & CURB DETAIL

SCALE: 1" = 1'–0"

FOR PERMIT PURPOSES ONLY

DRAWING REFERENCE:
DRAWING #10 "SPILL CONTAINMENT SLAB & STRUCTURAL DETAILS".
PREPARED BY STETSON–DALE, PC FOR NORLITE CORPORATION.
DATED 02/24/84, LAST REVISED 06/29/84.

A ROTARY KILN Norlite EXPANDED SHALE AGGREGATE

CLIENT APPROVAL: _____ DATE: _____

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
2	UPDATED CONFIGURATION	T.V.B.			7/17/02
1	CONTAINMENT SLAB REVISED	TVB	HMK		3/11/00

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NORLITE CORPORATION – COHOES, NY

LGF TANKS
PUMP CONTAINMENT SLAB & STRUCTURAL DETAILS

DRAWN BY:	DATE:	DRAWING/FILE REF:
T.V.B.	04/29/02	HMK–10–99–10
ENGINEER:	FILE NAME	DRAWING NO.
H.M.K.	NY003–5431	NY003–5431

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"

PI PSE AGITATOR LI 1/2" SP TT 24"ø MANWAY

0C-001-10"-CS150 TO LGF BUILDING SUMP

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

2 REVISION NOTE #2

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

PCV

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-001-2"

FSV XCV

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

PUMP CONTAINMENT SLAB

LGF BUILDING

PIPE CHASE / DRAIN TO LGF BUILDING

TU-008-3" TU-016-3" LGF-001-2"

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	DWN	ENG.	CHK	DATE
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: _____

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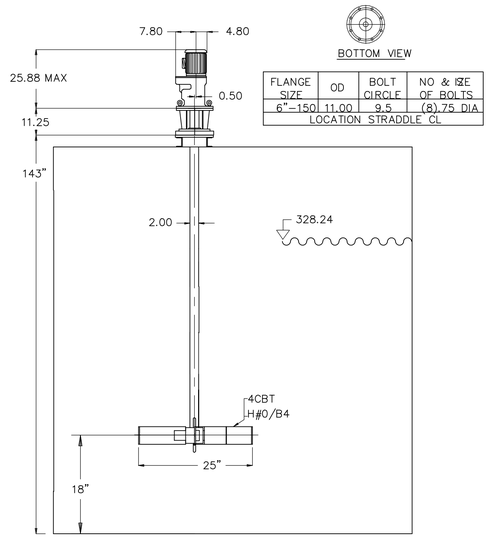
NORLITE CORPORATION – COHOES, NY

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

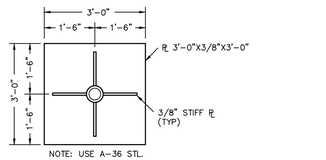
DRAWN BY: T.V.B.	DATE: 04/29/02	DRAWING/FILE REF:	DRAWING #6 & #7
ENGINEER: H.M.K.	FILE NAME: NY003-5432-J	DRAWING NO.:	NY003-5432



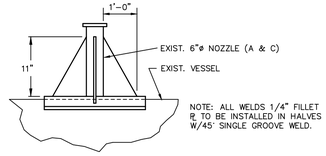
AGITATOR DETAIL
SCALE: NONE

BOTTOM VIEW

FLANGE SIZE	OD	BOLT CIRCLE	NO & SIZE OF BOLTS
6"-150	11.00	9.5	(8).75 DIA
LOCATION STRADDLE CL			



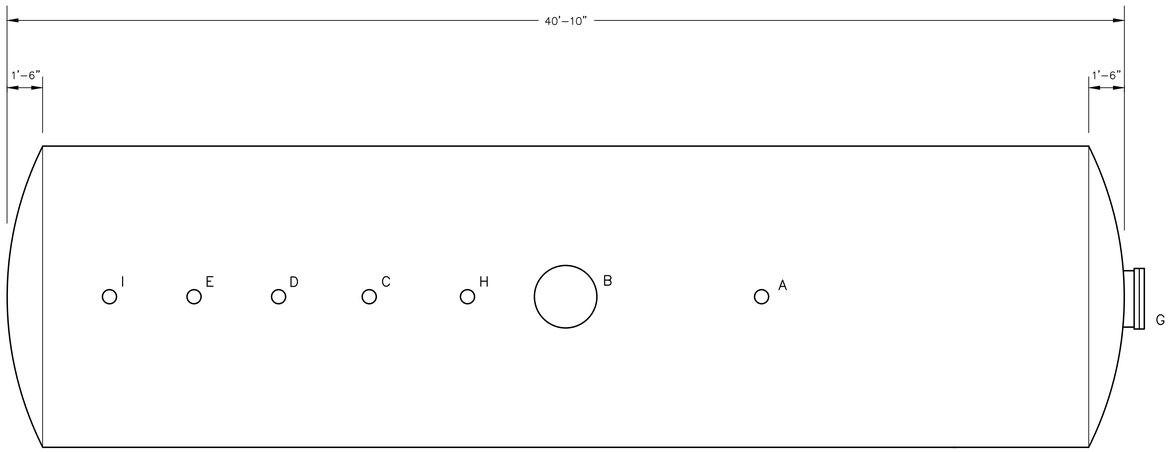
PLAN



ELEVATION

PART REFERENCE: DWG: WA-94152-C-03
BY WESTFALL ASSOC., CONSULTING ENGINEERS
225 NORTH GRENBUSH RD, TROY, NY 12180

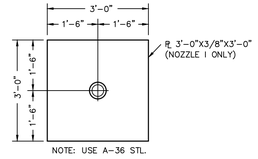
NOZZLE UPGRADE DETAIL
SCALE: NONE



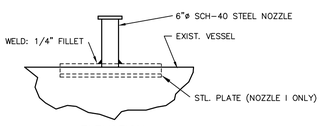
PLAN VIEW

TOP VIEW

FLANGE SIZE	OD	BOLT CIRCLE	NO & SIZE OF BOLTS
6"-150#	11.00	9.5	(8).75 DIA
LOCATION STRADDLE CL			



PLAN



ELEVATION

NEW 6"ø NOZZLES (H & I)
SCALE: NONE

NOZZLE INSTALLATION MODIFICATIONS

ID.	DIAMETER	PROJECTION	FUNCTION
A	6"	12"	AGITATOR
B	24"	24"	LGF SUCTION/FILL LINE TEMPERATURE TRANSMITTER RECIRCULATION LINE TANK VENT
C	6"	12"	AGITATOR
D	6"	24"	RUPTURE DISK/OVERFLOW
E	6"	24"	N_2 INLET / PRESSURE INDICATOR
F	4"	UNKNOWN	SEALED
G	UNKNOWN	UNKNOWN	INSPECTION MANHOLE (SEALED)
H	6"	24"	LEVEL TRANSMITTER
I	6"	24"	UNLOADING AREA FILL LINE / RECIRCULATION FROM KILN BURNERS

NOZZLE SCHEDULE (ORIGINAL)

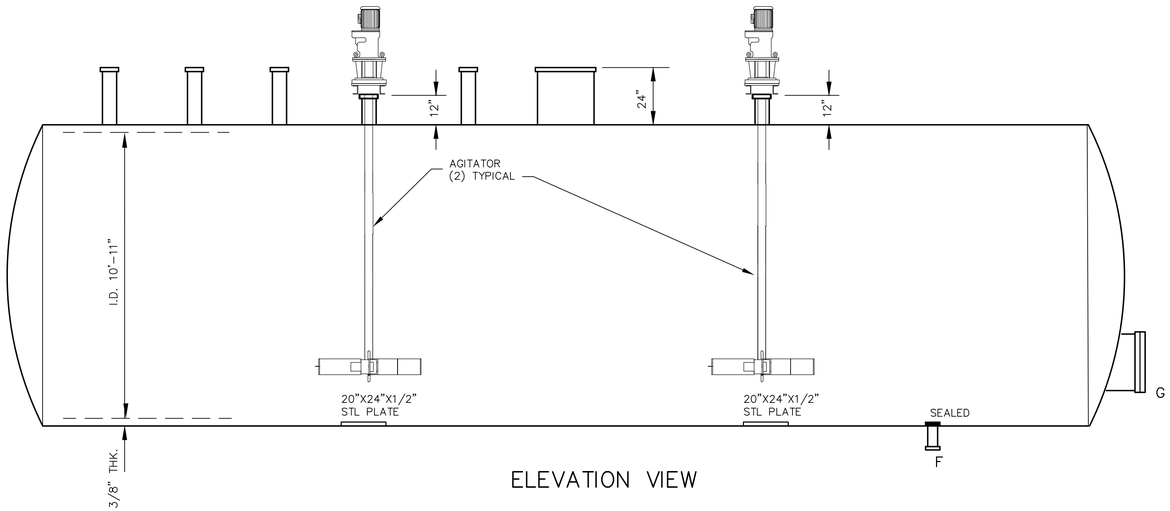
ID.	DIAMETER	PROJECTION	FUNCTION
A	6"	24"	TANK VENT
B	24"	24"	RECIRCULATION / TEMPERATURE TRANSMITTER
C	6"	24"	LEVEL TRANSMITTER
D	6"	24"	RUPTURE DISK / OVERFLOW
E	6"	24"	N_2 INLET / PRESSURE INDICATOR
F	4"	UNKNOWN	LGF SUCTION / FILL
G	UNKNOWN	UNKNOWN	INSPECTION MANHOLE

MAXIMUM STORAGE VOLUME: 26,682 GAL.
MAXIMUM VOLUME: 27,903 GAL.

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.



ELEVATION VIEW

SCALE: NONE

ALL DIMENSIONS SHOWN ON THIS DRAWING WERE SUPPLIED BY NORLITE CORPORATION AND REFERENCE DRAWINGS.

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
6	UPDATED CONFIGURATION	T.V.B.			02/08/14
5	UPDATED CONFIGURATION	T.V.B.			06/25/05
4	UPDATED CONFIGURATION	T.V.B.			06/08/04
3	TANK PIPING MODIFICATIONS	T.V.B.			05/07/04
2	AGGITATOR SYSTEM REVISED	T.V.B.			02/05/04
1	UPDATED CONFIGURATION	T.V.B.			7/17/02

FOR PERMIT PURPOSES ONLY

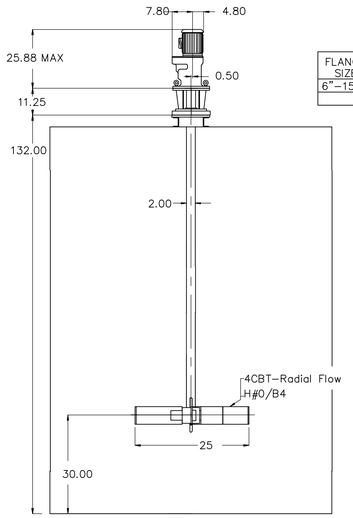
CLIENT APPROVAL: _____ DATE: _____

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

NORLITE CORPORATION – COHOES, NY

LGF TANKS
300, 400, 500

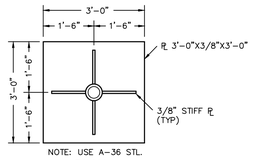
DRAWN BY: T.V.B.	DATE: 04/29/02	DRAWING/FILE REF:	HMK-335-300-04 HMK-335-400-05 HMK-335-500-06
ENGINEER: H.M.K.	FILE NAME: NY003-5433-J	DRAWING NO.	NY003-5433



AGITATOR DETAIL
SCALE: NONE

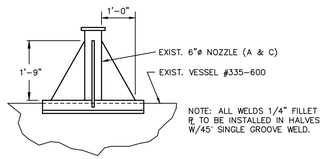
BOTTOM VIEW

FLANGE SIZE	OD	BOLT CIRCLE	NO & SIZE OF BOLTS
6"–150#	11.00	9.5	(8).75 DIA
LOCATION STRADDLE CL			



NOTE: USE A–36 STL.

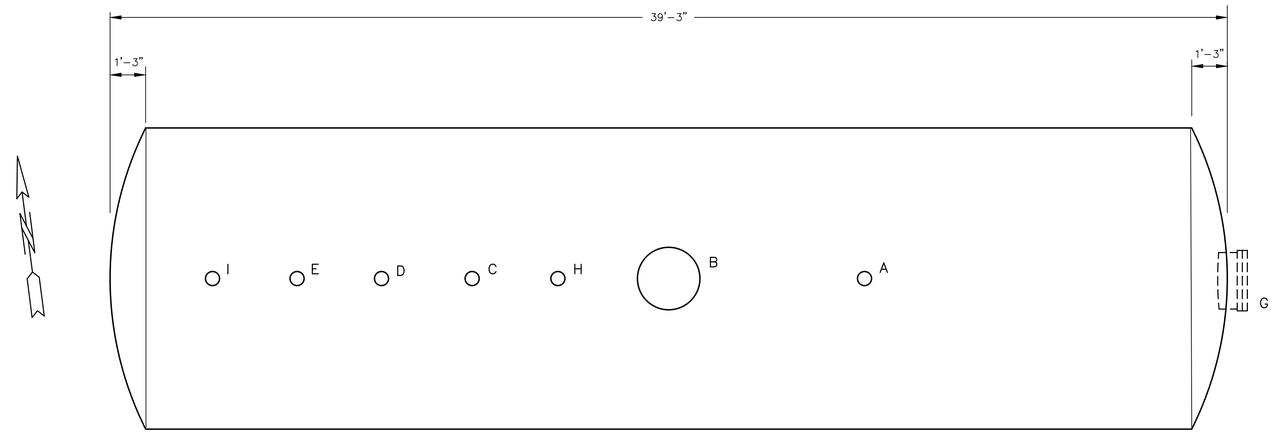
PLAN



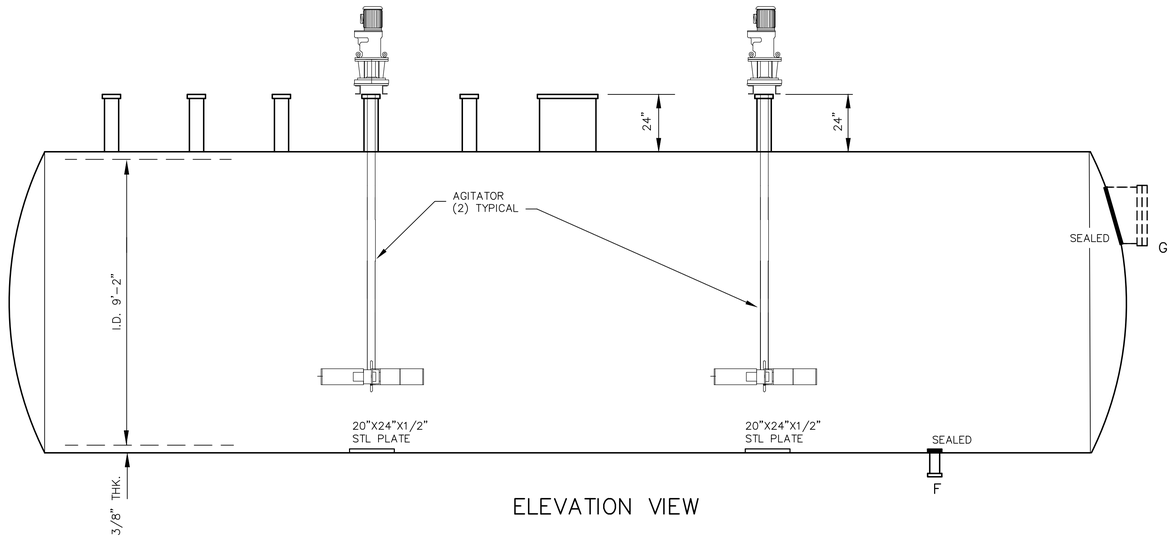
ELEVATION

PART REFERENCE: DWG: WA–94152–C–03
BY WESTFALL ASSOC., CONSULTING ENGINEERS
225 NORTH GRENBUSH RD, TROY, NY 12180

NOZZLE UPGRADE DETAIL
SCALE: NONE



PLAN VIEW



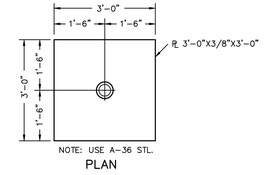
ELEVATION VIEW

NOZZLE INSTALLATION MODIFICATIONS

ID.	DIAMETER	PROJECTION	FUNCTION
A	6"	24"	AGITATOR
B	24"	24"	LGF SUCTION/FILL LINE TEMPERATURE TRANSMITTER RECIRCULATION LINE TANK VENT
C	6"	24"	AGITATOR
D	6"	24"	RUPTURE DISK/OVERFLOW
E	6"	24"	N_2 INLET / PRESSURE INDICATOR
F	4"	UNKNOWN	SEALED
G	UNKNOWN	UNKNOWN	INSPECTION MANHOLE (SEALED)
H	6"	24"	LEVEL TRANSMITTER
I	6"	24"	UNLOADING AREA FILL LINE / RECIRCULATION FROM KILN BURNERS

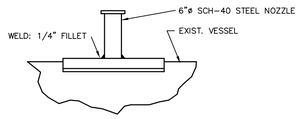
TOP VIEW

FLANGE SIZE	OD	BOLT CIRCLE	NO & SIZE OF BOLTS
6"–150#	11.00	9.5	(8).75 DIA
LOCATION STRADDLE CL			



NOTE: USE A–36 STL.

PLAN



ELEVATION

NEW 6"ø NOZZLE I
SCALE: NONE

NOZZLE SCHEDULE (ORIGINAL)

ID.	DIAMETER	PROJECTION	FUNCTION
A	6"	24"	TANK VENT
B	24"	24"	RECIRCULATION / TEMPERATURE TRANSMITTER
C	6"	24"	LEVEL TRANSMITTER
D	6"	24"	RUPTURE DISK / OVERFLOW
E	6"	24"	N_2 INLET / PRESSURE INDICATOR
F	4"	UNKNOWN	LGF SUCTION/FILL
G	UNKNOWN	UNKNOWN	INSPECTION MANHOLE

MAXIMUM STORAGE VOLUME: 17,974 GAL.
MAXIMUM VOLUME: 18,940 GAL.

DRAWING REFERENCE:
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

ALL DIMENSIONS SHOWN ON THIS DRAWING WERE SUPPLIED BY NORLITE CORPORATION AND REFERENCE DRAWINGS.

FOR PERMIT PURPOSES ONLY

SCALE: NONE

CLIENT APPROVAL: _____ DATE: _____

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
7	UPDATED CONFIGURATION	T.V.B.			02/08/14
6	UPDATED CONFIGURATION	T.V.B.			06/25/05
5	NOZZLE I ADDED	T.V.B.			05/07/04
4	NOZZLE H ADDED	T.V.B.			05/03/04
3	AGGITATOR SYSTEM REVISED	T.V.B.			02/05/04
2	PIPING MODIFICATIONS TO TANK 600	T.V.B.			12/12/03
1	UPDATED CONFIGURATION	T.V.B.			7/17/02

HARVEY M. KING, P.E.
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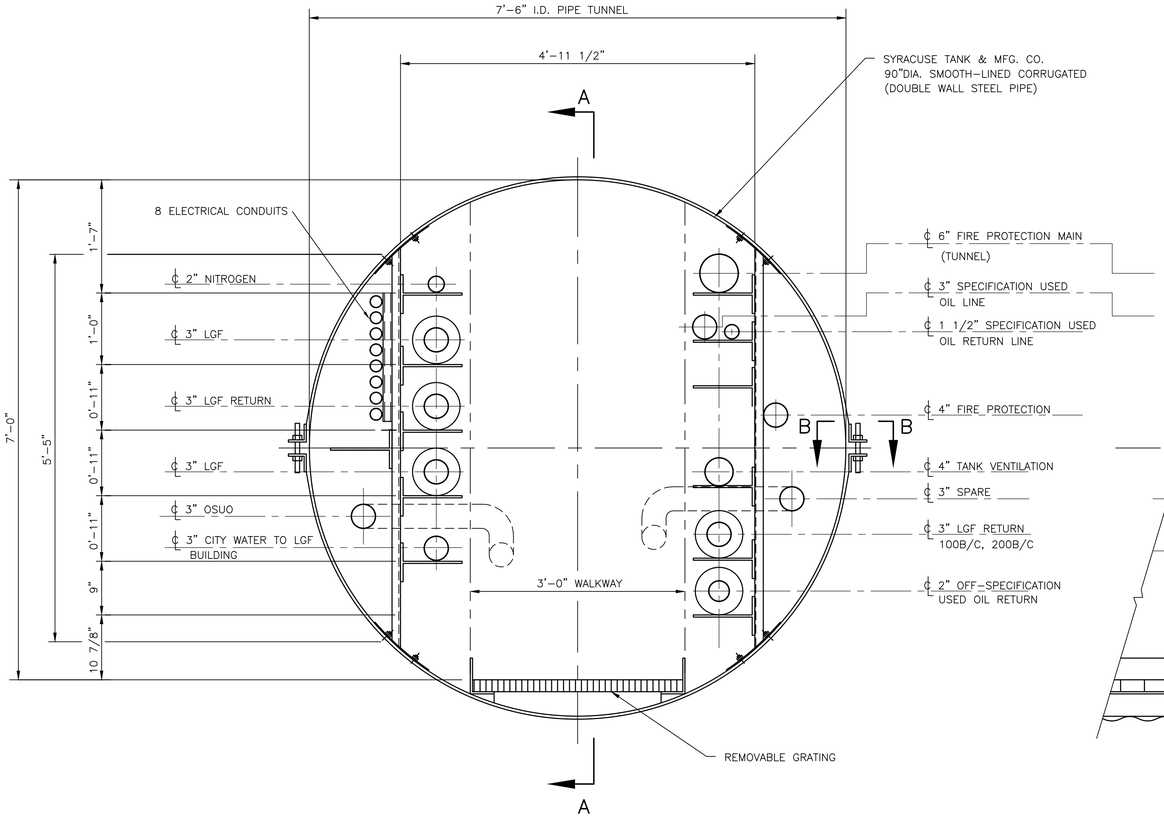
4 STONY BROOK DRIVE, REXFORD, NEW YORK 12148–1608

NORLITE CORPORATION – COHOES, NY

LGF TANK
600

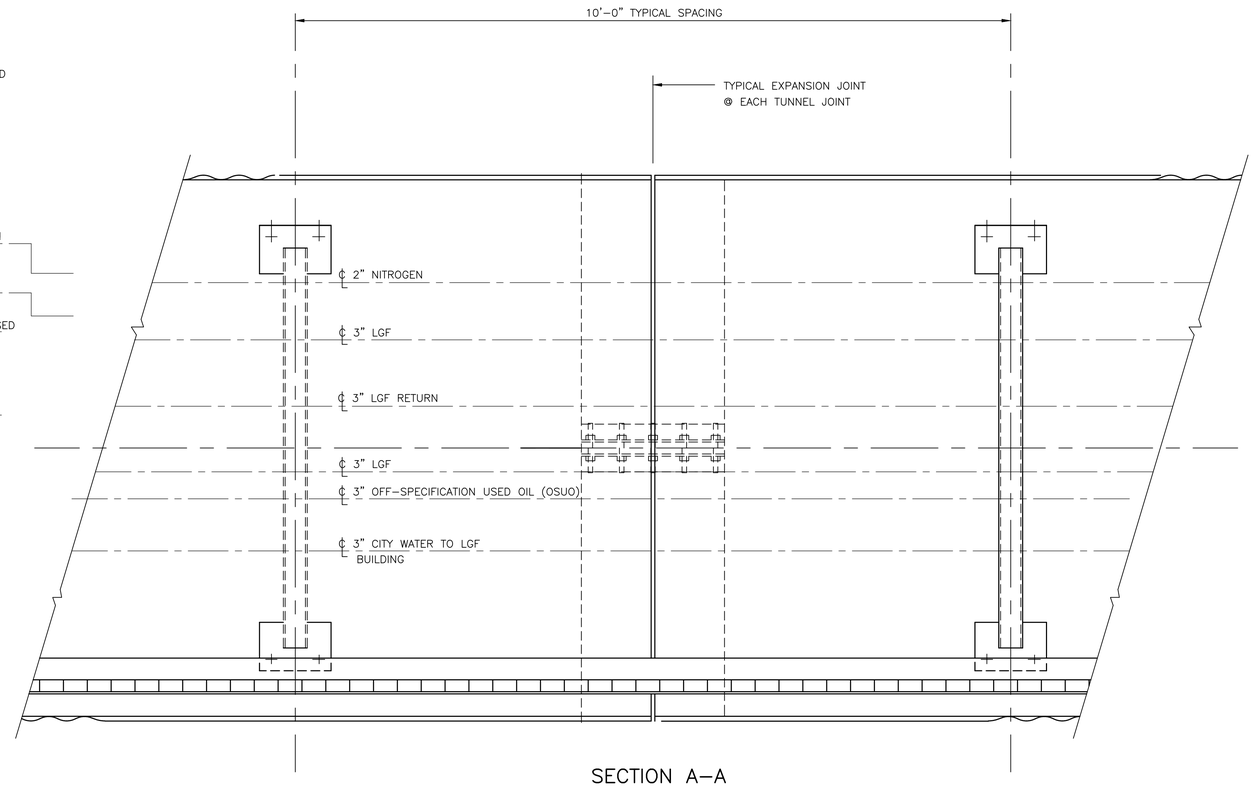
DRAWN BY:	DATE:	DRAWING/FILE REF:
T.V.B.	04/29/02	HMK–335–600–07
ENGINEER:	FILE NAME:	DRAWING NO.
H.M.K.	NY003–5434–J	NY003–5434



TYPICAL ELEVATION

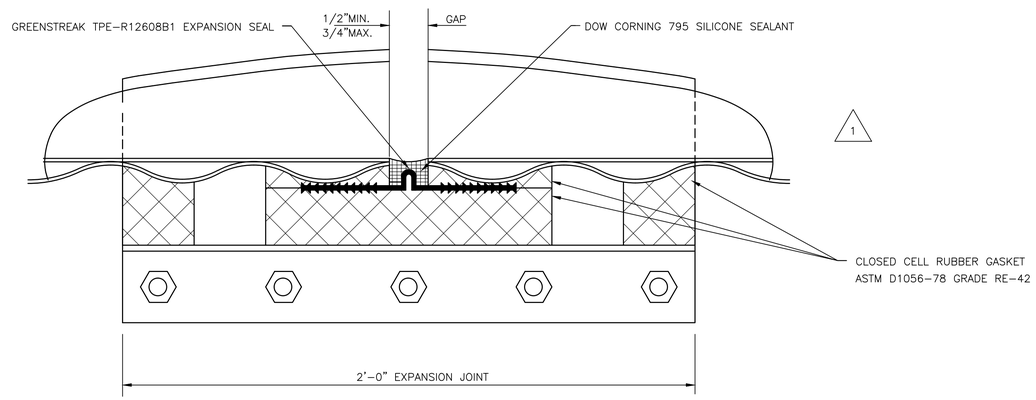
(LOOKING SOUTH TOWARD KILN)

SCALE: 1" = 1'–0"



SECTION A–A

SCALE: 1" = 1'–0"



SECTION B–B

SHOWN NOT TO SCALE
FOR CLARITY

FOR PERMIT PURPOSES ONLY

CLIENT APPROVAL: _____ DATE: _____

A ROTARY KILN
Norlite
EXPANDED SHALE AGGREGATE

INFORMATION PRESENTED ON THIS DRAWING HAS BEEN COMPILED FROM CURRENT FIELD DATA AND ORIGINAL DESIGN DRAWINGS PREPARED BY ENSR CONSULTING & ENGINEERING.

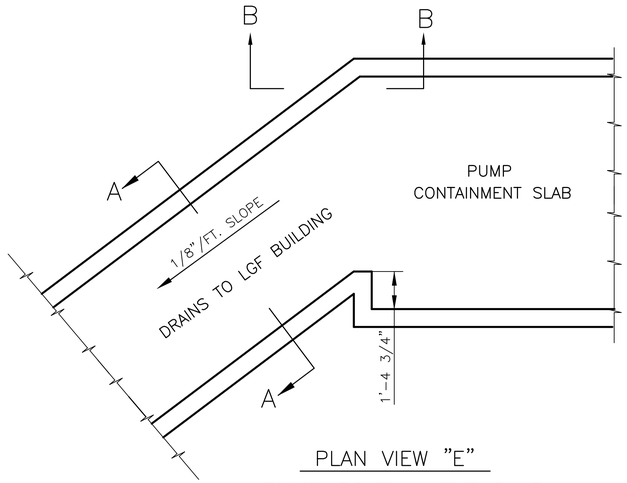
REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
3	UPDATED CONFIGURATION	TVB	HMK		2–8–14
3	UPDATED CONFIGURATION	TVB	HMK		7–15–05
2	UPDATED CONFIGURATION	TVB	HMK		7–17–02
1	SECTION B–B REVISED	MP	JE		1–11–93
0	ISSUED FOR NYSDEC PERMIT	RJS	JE		5–6–92

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

NORLITE CORPORATION – COHOES, NY

SECTIONS & DETAILS LGF PIPE TUNNEL

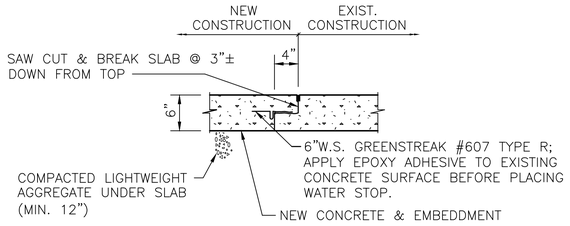
DRAWN BY: T.V.B.	DATE: 04/29/02	DRAWING/FILE REF:	NY003–D6301
ENGINEER: H.M.K.	FILE NAME: NY003–6301	DRAWING NO.	NY003–6301



PLAN VIEW "E"

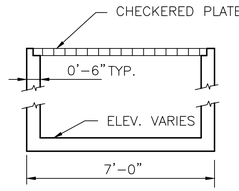
PUMP CONTAINMENT SLAB

SCALE 3/8"= 1'-0"



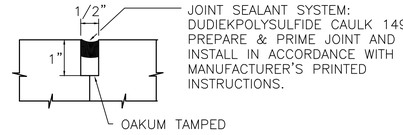
VIEW B-B

SCALE 1"=1'-0"



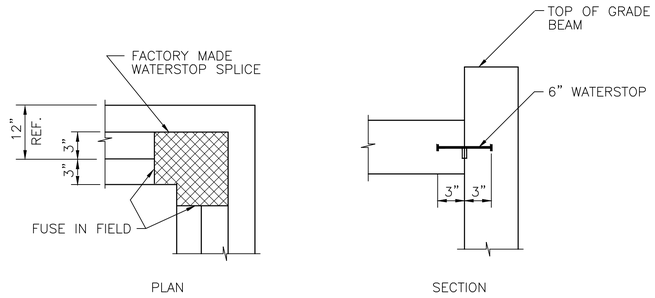
SECTION A-A

SCALE 3/8"=1'-0"



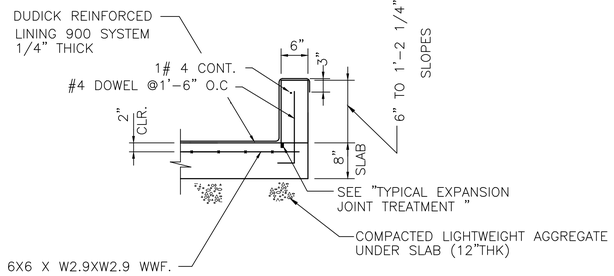
TYPICAL JOINT SEALANT DETAIL

FULL SCALE



TYPICAL CORNER JOINT DETAIL

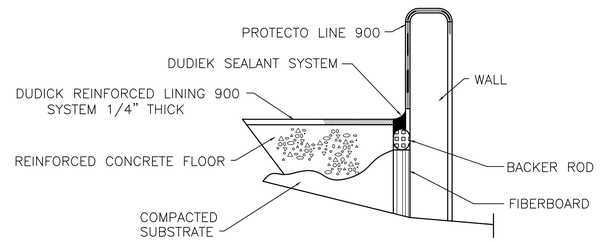
SCALE 1"=1'-0"



SECTION C-C

UNLOADING AREA #1 SLAB & CURB DETAIL

SCALE 1"=1'-0"



TYPICAL EXPANSION JOINT TREATMENT

CONSTRUCTION DETAILS (NY003-2475-1)

TYPICAL CONSTRUCTION DETAILS

FOR PERMIT PURPOSES ONLY

CLIENT APPROVAL: _____ DATE: _____

A ROTARY KILN Norlite EXPANDED SHALE AGGREGATE

INFORMATION PRESENTED ON THIS DRAWING HAS BEEN COMPILED FROM CURRENT FIELD DATA AND ORIGINAL DESIGN DRAWINGS PREPARED BY ENSR CONSULTING & ENGINEERING.

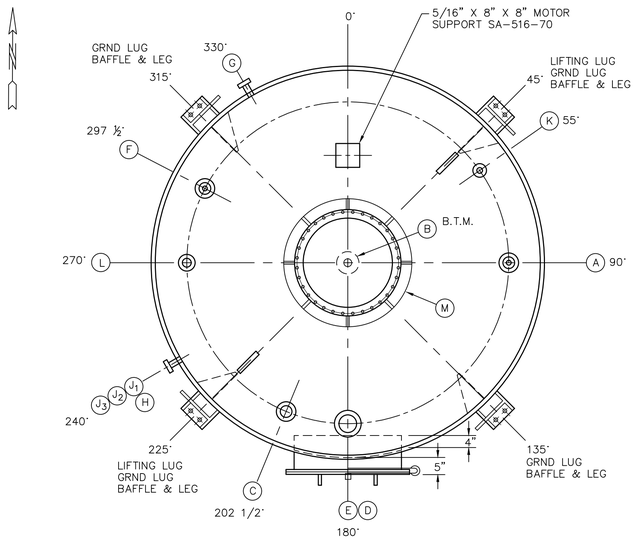
REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
3	UPDATED CONFIGURATION	T.V.B.			7/17/02
2	DEC COMMENT REV. SUBMITTAL	DC	KP		6/30/92
1	DEC COMMENT REV. SUBMITTAL	KRG	KP		3/26/92
0	RELEASED FOR NYSDEC SUBMITTAL	RJS	JE		1-17-92

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

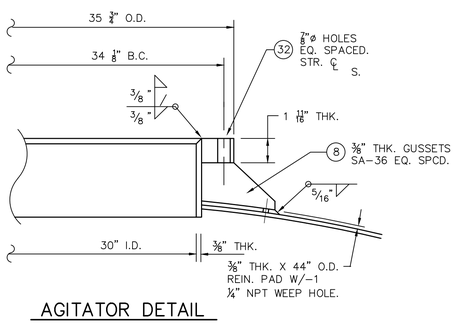
NORLITE CORPORATION – COHOES, NY

DETAILS & SECTIONS
FUEL SYSTEM STRUCTURES

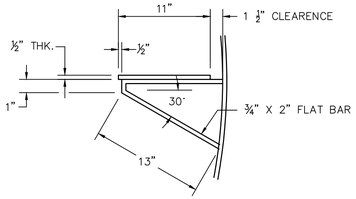
DRAWN BY: T.V.B.	DATE: 04/29/02	DRAWING/FILE REF:	NY-D-L-7006 R1
ENGINEER: H.M.K.	FILE NAME NY003-7006	DRAWING NO.	NY003-7006



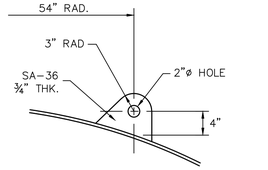
PLAN VIEW



AGITATOR DETAIL



BAFFLE DETAIL



LIFTING LUG DETAIL (2) REQ'D

NOZZLE SCHEDULE					
MARK	QUANTITY	SIZE	ASA RATING	SCH.	SERVICE
A	1	4"	150# SLIP ON W/RF	40	INLET W/2 1/2" DIP PIPE
B	1	2 1/2"	150# PAD W/FF	1 5/8"	DRAIN DWG A-92023-2
C	1	4"	150# SLIP ON W/RF	40	CON'T. LEVEL
D	1	6"	150# SLIP ON W/FF	40	RUPTURE DISC
E	1	36"	DWG A-92023-1	3/8"	MANWAY W/DAVIT
F	1	4"	150# SLIP ON W/RF	40	PUMP SUCTION 2 1/2" DIP PIPE
G	1	1"			SAMPLE
H	1	1 1/2"			TEMPERATURE
J1, J2, J3	3	1 1/2"			LEVEL
K	1	2"			N2 IN/EMISSION OUT
L	1	3"			N2 SPARE
M	1	30" I.D.	150# SLIP ON W/FF	3/8"	MIXER SUPPORT

ORIGINAL NAMEPLATE DATA FOR REFERENCE ONLY.

MAXIMUM STORAGE VOLUME: 8,613 GAL.
MAXIMUM VOLUME: 9,491 GAL.
(FOR VOLUME OF REPLACEMENT TANK 200A SEE DRAWING NY003-4312)

NOTES:

1) CONSTRUCTION TO COMPLY WITH ASME CODE SECTION VIII ED. INCLUDING CERT. & STAMP FOR INSTALLATION IN STATE OF N.Y.

2) NAME PLATE STAMPING:

U
W
RT-3

NATL. BD. _____

CERTIFIED BY

ROBEN MFG. CO. INC.,
LAKEWOOD N.J. 08701

VESSEL MAWP 20 PSI AT 100° F
MIN DESIGN METAL TEMP -5° F AT 20 PSI
JACKET MAWP ___ PSI AT ___° F
MIN DESIGN METAL TEMP ___° F AT ___ PSI
TUBE MAWP ___ PSI AT ___° F
MIN DESIGN METAL TEMP ___° F AT ___ PSI
SERIAL NO.: 92023-1 THRU 3, YEAR: 1992

EQUIPMENT TAG NO'S. TP200A,B,C
OWNER'S NAME: NORLITE CORP. INC.
OWNER'S PO NO. AN-00048
CAPACITY: 7300 GAL. OPER.
SHOP ORDER NO.: --

3) SHELL SIDE
TEST PRESSURE: 30 PSI
CORROSION ALLOW: 1/16"

4) WEIGHTS:
EMPTY: _____ 20,347 LBS.
FULL OF OILY WASTE: FLOODED 158,225 LBS.

5) PAINT: REFER TO NOTE NO. 4
SANDBLAST: YES SP10 NEAR-WHITE BLAST
CLEANING ON EXTERNAL SURFACES.

6) ----

7) STRESS RELIEVE: NO.

8) RADIOGRAPHY: YES SPOT X-RAY REQ'D.

9) SPECIAL TESTS: YES HYDROTEST 1 ½" WP.

10) CUSTOMER INSPECTION: YES.

11) SUPPORT DESIGN PER SEISMIC ZONE 2A.

GENERAL NOTES:

1. ALL BOLT HOLES TO STRADDLE NORTH SOUTH ℄ S

2. VESEL TO BE FREE OF ALL WELD SPLATTER, DIRT, OIL, AND GREASE.

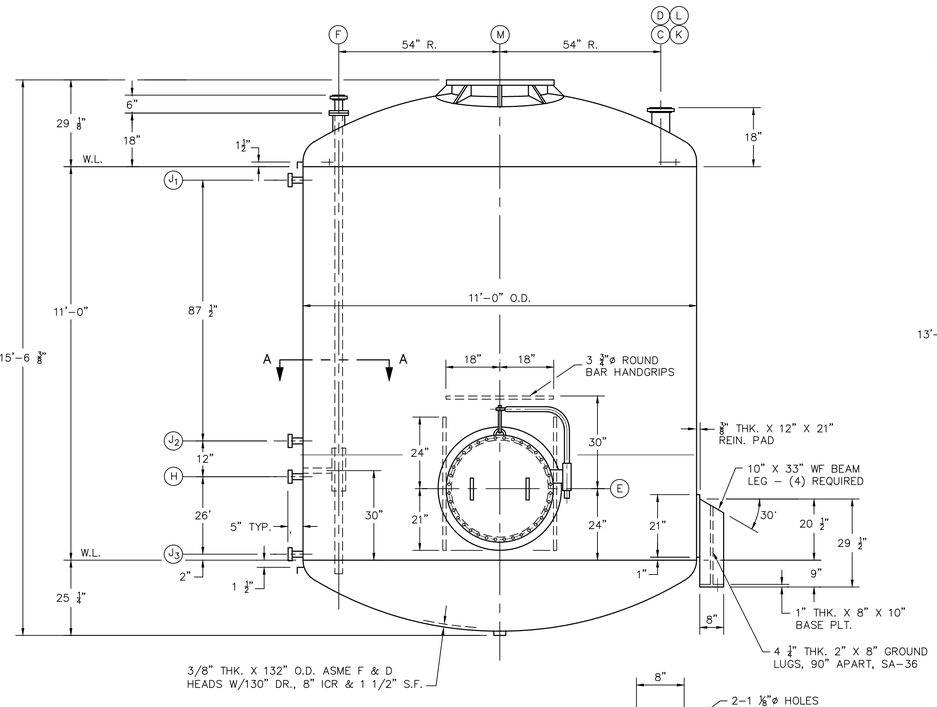
3. COVER AND PLUG ALL OPENINGS FOR SHIPMENT.

4. PAINT EXTERNAL C/S SURFACES W/ 1 COAT OF INORGANIC ZINK PRIMER, 3 MIL DRY FILM THK. MINIMUM W/EPOXY PAINT FINISH COAT OF 5 MIL DRY FILM THK. MINIMUM.
COLOR - MOBIL D-10 SAND BEIGE

5. SEE CUST. SPEC'S. NO.: 15176

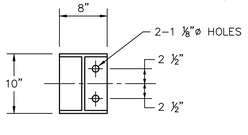
CUSTOMER: AMERICAN NUKEM
P.O. NO. AN-00048
UNITS REQ'D. (3) THREE.

FOR PERMIT PURPOSES ONLY

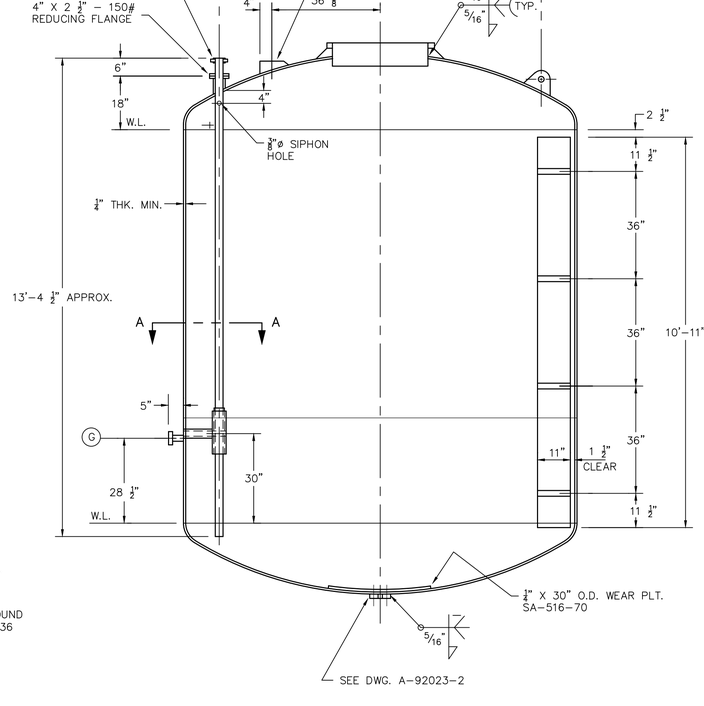


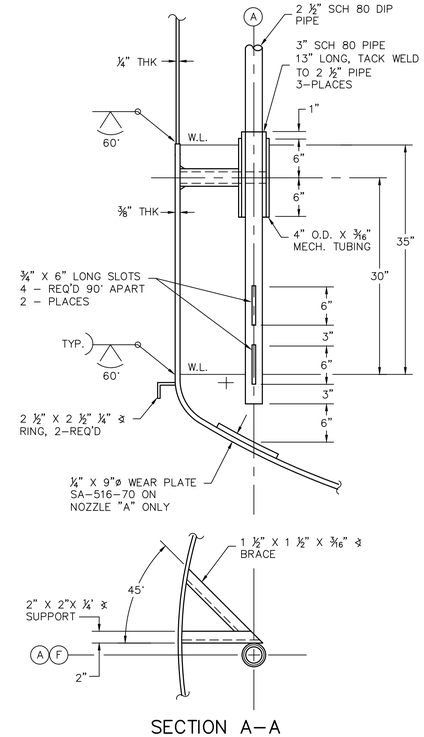
ELEVATION VIEW

SEE PLAN VIEW FOR TRUE LOCATIONS OF NOZZLES.



BASE PLT DETAIL





SECTION A-A
DIP PIPE SLEEVE DETAIL

ASME MATERIAL SPECIFICATIONS												
SHELLS			FACINGS			BONNETS/JACKETS			FACINGS			BOLTING ☒SA-193 GR B7 ☐ SA-325 ☐ SA-320 NUTS ☒SA-194 GR 2M ☐ SA-325 ☐ SA-320	GASKETS: 1/16" THK. ☐ COMPRESSED ASBESTOS ☒TEFLON ☒RUBBER ☐ VITON O-RINGS ☐
PIPE			EXPANSION JOINT			WELD CAPS			FITTINGS				
ROLLED PLATE	ST'L	SA-516-70	INSUL. RING	ST'L	SA-36	FORMED HEADS			COVERS ☐FACED				
BAFFLES	ST'L	SA-516-70	WELD CAPS			PIPE			TUBE SHEETS				
TIE RODS			FORMED HEADS	ST'L	SA-516-70	ROLLED PLATE			TUBES ☐ SEAMLESS ☐ WELDED				
SPACERS			UNIT FLANGES			UNIT FLANGES			B.U. RINGS				
NOZZLE FLG'S	ST'L	SA-105	FITTINGS			NOZZLE FLG'S.			REINF. PADS	ST'L	SA-516-70		
NOZZLE NECKS	ST'L	SA-106-13	SUPPORTS	ST'L	SA-36	NOZZLE NECKS			WEAR PLT	ST'L	SA-516-70		

A ROTARY KILN
Norlite
EXPANDED SHALE AGGREGATE

SCALE: 1/2" = 12"

THIS DRAWING IS A RE-DRAW OF ROBEN MFG. CO., INC. DRAWING D-92023-1 DATED 02/05/92, FOR RECORD PURPOSES.

CLIENT APPROVAL: _____ DATE: _____

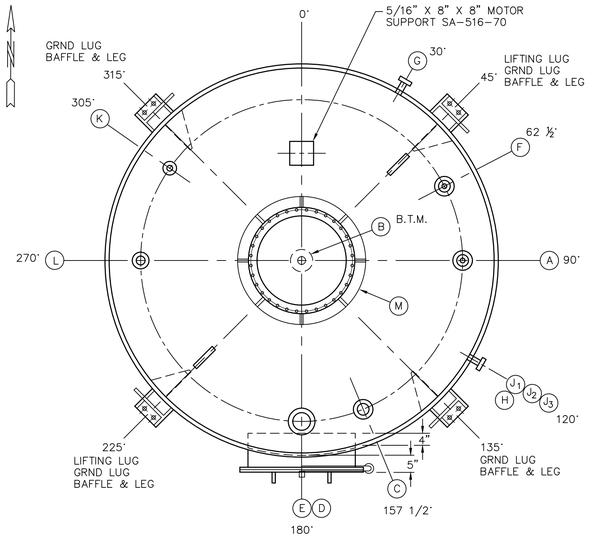
REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
F	VOLUME INFORMATION ADDED	TVB			7/17/02
E	PER PHONE 4/10/92	ALH			4/13/92
D	PER CUST. DWG 3/19/92	ALH			3/25/92
C	PER CUST. DWG 3/6/92	ALH			3/12/92
B	PER CUST. DWG 2/28/92	ALH			3/4/92
A	PER CUST. DWG 2/14/92	ALH			2/21/92

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

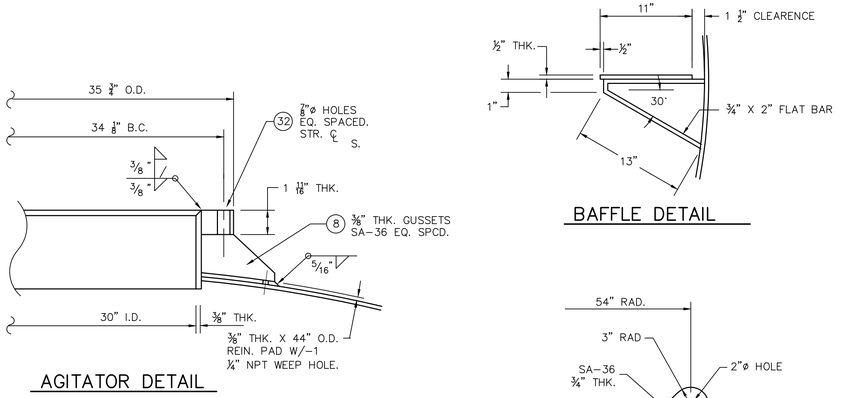
NORLITE CORPORATION - COHOES, NY

132" O.D. HOLDING TANK
ROBEN MFG. CO., INC.
(TANKS 200B, 200C)

DRAWN BY: T.V.B.	DATE: 04/29/02	DRAWING/FILE REF: D-92023-1
ENGINEER: H.M.K.	FILE NAME: NY003-92023-1	DRAWING NO. NY003-92023-1

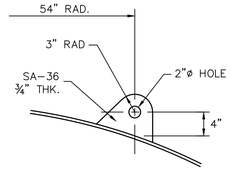


PLAN VIEW



AGITATOR DETAIL

BAFFLE DETAIL



LIFTING LUG DETAIL (2) REQ'D

NOZZLE SCHEDULE

MARK	QUANTITY	SIZE	ASA RATING	SCH.	SERVICE
A	1	4"	150# SLIP ON W/RF	40	INLET W/2 1/2" DIP PIPE
B	1	2 1/2"	150# PAD W/FF	1 5/8"	DRAIN DWG A-92023-2
C	1	4"	150# SLIP ON W/RF	40	CON'T. LEVEL
D	1	6"	150# SLIP ON W/FF	40	RUPTURE DISC
E	1	36"	DWG A-92023-1	3/8"	MANWAY W/DAVIT
F	1	4"	150# SLIP ON W/RF	40	PUMP SUCTION 2 1/2" DIP PIPE
G	1	1"			SAMPLE
H	1	1 1/2"			TEMPERATURE
J1, J2, J3	3	1 1/2"			LEVEL
K	1	2"			N2 IN/EMISSION OUT
L	1	3"			N2 SPARE
M	1	30" I.D.	150# SLIP ON W/FF	3/8"	MIXER SUPPORT

ORIGINAL NAMEPLATE DATA FOR REFERENCE ONLY.

MAXIMUM STORAGE VOLUME: 8,613 GAL.
MAXIMUM VOLUME: 9,491 GAL.

NOTES:

1) CONSTRUCTION TO COMPLY WITH ASME CODE SECTION VIII ED. INCLUDING CERT. & STAMP FOR INSTALLATION IN STATE OF N.Y.

2) NAME PLATE STAMPING:

U
W
RT-3

NATL. BD._____

CERTIFIED BY

ROBEN MFG. CO. INC.,
LAKEWOOD N.J. 08701

VESSEL MAWP 20 PSI AT 100° F
MIN DESIGN METAL TEMP -5° F AT 20 PSI
JACKET MAWP __PSI AT __° F
MIN DESIGN METAL TEMP __° F AT __ PSI
TUBE MAWP ___ PSI AT __° F
MIN DESIGN METAL TEMP __° F AT __ PSI
SERIAL NO.: 92023-4 THRU 6, YEAR: 1992

EQUIPMENT TAG NO'S. TP100A,B,C
OWNER'S NAME: NORLITE CORP. INC.
OWNER'S PO NO. AN-00048
CAPACITY: 7300 GAL. OPER.
SHOP ORDER NO.: --

3) SHELL SIDE
TEST PRESSURE: 30 PSI
CORROSION ALLOW: 1/16"

4) WEIGHTS:
EMPTY: _____ 20,347 LBS.
FULL OF OILY WASTE: FLOODED 158,225 LBS.

5) PAINT: REFER TO NOTE NO. 4
SANDBLAST: YES SP10 NEAR-WHITE BLAST CLEANING ON EXTERNAL SURFACES.

6) ----

7) STRESS RELIEVE: NO.

8) RADIOGRAPHY: YES SPOT X-RAY REQ'D.

9) SPECIAL TESTS: YES HYDROTEST 1 ½" WP.

10) CUSTOMER INSPECTION: YES.

11) SUPPORT DESIGN PER SEISMIC ZONE 2A.

GENERAL NOTES:

1. ALL BOLT HOLES TO STRADDLE NORTH SOUTH ℄ S

2. VESEL TO BE FREE OF ALL WELD SPLATTER, DIRT, OIL, AND GREASE.

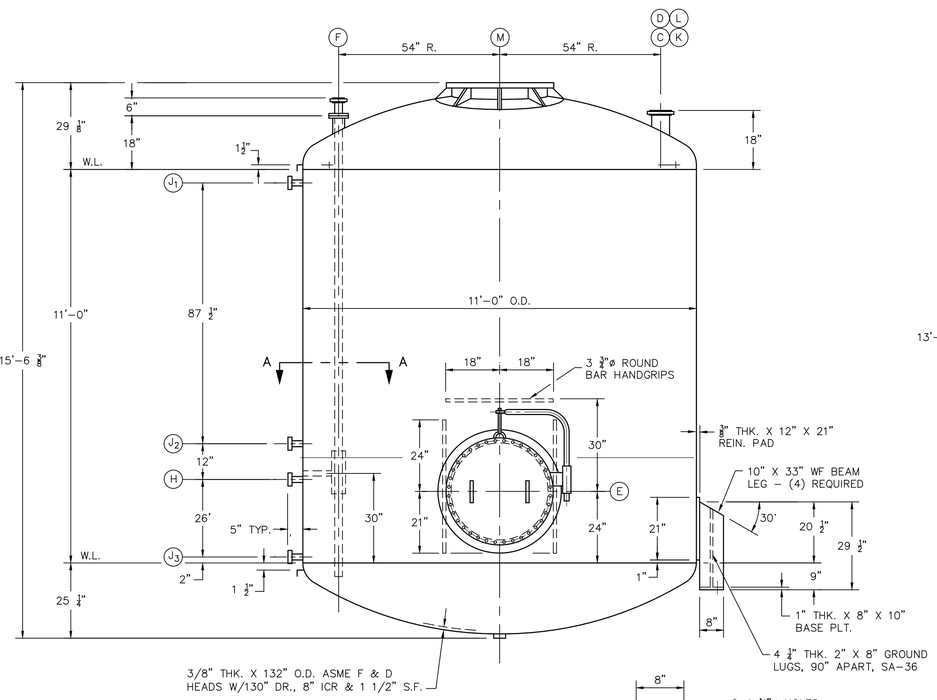
3. COVER AND PLUG ALL OPENINGS FOR SHIPMENT.

4. PAINT EXTERNAL C/S SURFACES W/ 1 COAT OF INORGANIC ZINK PRIMER, 3 MIL DRY FILM THK. MINIMUM W/EPOXY PAINT FINISH COAT OF 5 MIL DRY FILM THK. MINIMUM.
COLOR - MOBIL D-10 SAND BEIGE

5. SEE CUST. SPEC'S. NO.: 15176

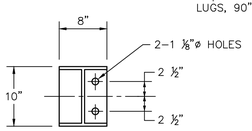
CUSTOMER: AMERICAN NUKEM
P.O. NO. AN-00048
UNITS REQ'D. (3) THREE.

FOR PERMIT PURPOSES ONLY

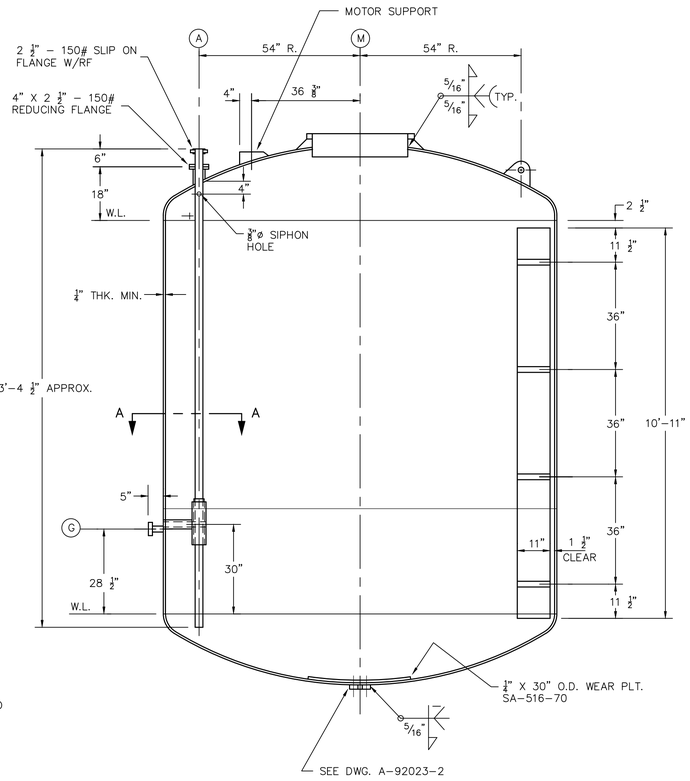


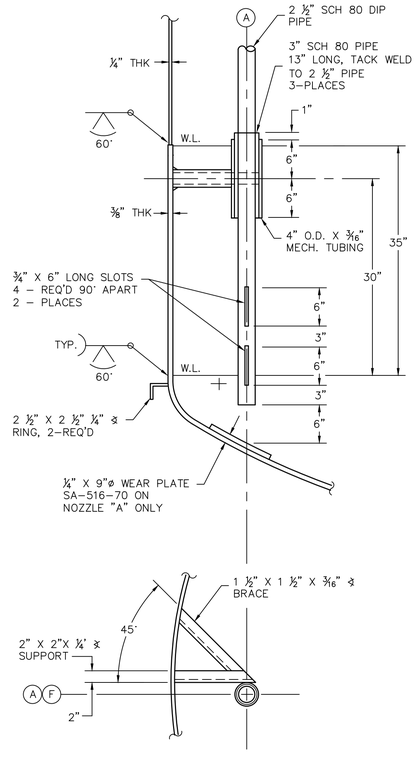
ELEVATION VIEW

SEE PLAN VIEW FOR TRUE LOCATIONS OF NOZZLES.



BASE PLT DETAIL





SECTION A-A
DIP PIPE SLEEVE DETAIL

ASME MATERIAL SPECIFICATIONS

SHELLS			FACINGS			BONNETS/JACKETS			FACINGS			BOLTING	GASKETS: 1/16" THK.
PIPE			EXPANSION JOINT			WELD CAPS			FITTINGS			~~SA-193 GR B7~~	☐ COMPRESSED ASBESTOS
ROLLED PLATE	ST'L	SA-516-70	INSUL. RING	ST'L	SA-36	FORMED HEADS			COVERS ☐FACED			☐ SA-325	~~TEFLON~~
BAFFLES	ST'L	SA-516-70	WELD CAPS			PIPE			TUBE SHEETS			☐ SA-320	~~RUBBER~~
TIE RODS			FORMED HEADS	ST'L	SA-516-70	ROLLED PLATE			TUBES ☐SEAMLESS ☐WELDED			NUTS	☐ VITON
SPACERS			UNIT FLANGES			UNIT FLANGES			B.U. RINGS			~~SA-194 GR 2M~~	O-RINGS
NOZZLE FLG'S	ST'L	SA-105	FITTINGS			NOZZLE FLG'S.			REINF. PADS	ST'L	SA-516-70	☐ SA-325	☐
NOZZLE NECKS	ST'L	SA-106-13	SUPPORTS	ST'L	SA-36	NOZZLE NECKS			WEAR PLT	ST'L	SA-516-70	☐ SA-320	

A ROTARY KILN
Norlite
EXPANDED SHALE AGGREGATE

SCALE: 1/2" = 12"

THIS DRAWING IS A RE-DRAW OF ROBEN MFG. CO., INC. DRAWING D-92023-2 DATED 02/05/92, FOR RECORD PURPOSES.

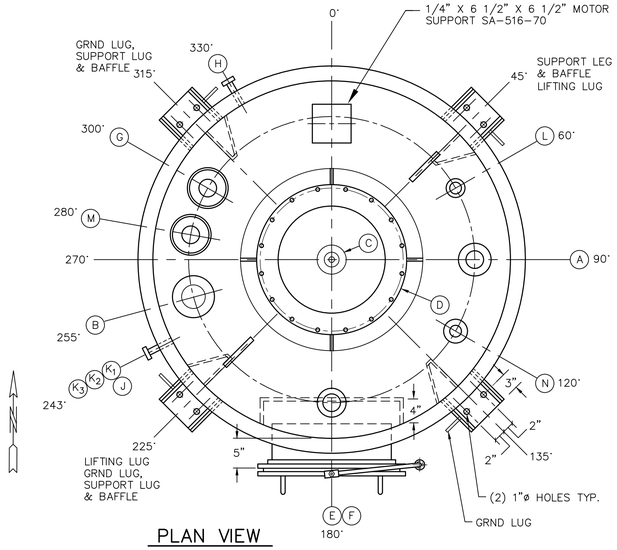
REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
F	VOLUME INFORMATION ADDED	TVB			7/17/02
E	PER PHONE 4/10/92	ALH			4/13/92
D	PER CUST. DWG 3/19/92	ALH			3/25/92
C	PER CUST. DWG 3/6/92	ALH			3/12/92
B	PER CUST. DWG 2/28/92	ALH			3/4/92
A	PER CUST. DWG 2/14/92	ALH			2/21/92

CLIENT APPROVAL: _____ DATE: _____

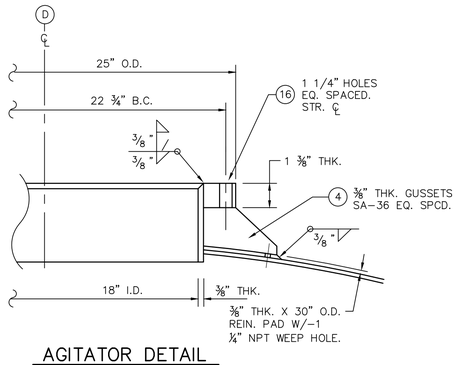
HARVEY M. KING, P.E.
ENVIRONMENTAL ENGINEERS & SCIENTISTS
4 STONY BROOK DRIVE, REXFORD, NEW YORK 12148-1608

NORLITE CORPORATION - COHOES, NY
132" O.D. HOLDING TANK
ROBEN MFG. CO., INC.
(TANKS 100A, 100B, 100C)

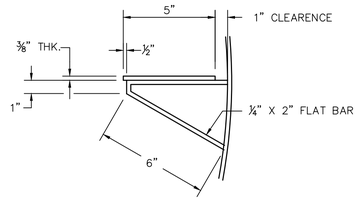
DRAWN BY:	DATE:	DRAWING/FILE REF:
T.V.B.	04/29/02	D-92023-2
ENGINEER:	FILE NAME	DRAWING NO.
H.M.K.	NY003-92023-2	NY003-92023-2



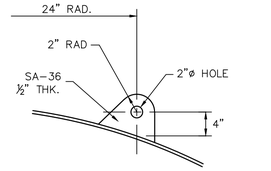
PLAN VIEW



AGITATOR DETAIL



BAFFLE DETAIL



LIFTING LUG DETAIL (2) REQ'D

NOZZLE SCHEDULE					
MARK	QUANTITY	SIZE	ASA RATING	SCH.	SERVICE
A	1	3"	150# SLIP ON W/RF	40	INLET W/2 1/2" DIP PIPE
B	1	4"	150# SLIP ON W/RF	40	CON'T. LEVEL
C	1	2 1/2"	150# PAD W/FF	1 5/8"	DRAIN DWG A-92023-2
D	1	18" I.D.	150# SLIP ON W/FF	3/8"	MIXER SUPORT
E	1	20"	DWG A-92024-1	1/4"	MANWAY W/DAVIT
F	1	3"	150# SLIP ON W/RF	40	RUPTURE DISC
G	1	3"			PUMP SUCTION 2 1/2" DIP PIPE
H	1	1"			SAMPLE
J	1	1 1/2"			TEMPERATURE
K1, K2, K3	3	1 1/2"			LEVEL
L	1	2"			N2 IN
M	1	3"			RECIRC W/2 1/2" DIP PIPE
N	1	2"			N2 OUT

ORIGINAL NAMEPLATE DATA FOR REFERENCE ONLY.

MAXIMUM STORAGE VOLUME: 1,174 GAL.
MAXIMUM VOLUME: 1,266 GAL.

NOTES:

1) CONSTRUCTION TO COMPLY WITH ASME CODE SECTION VIII ED. INCLUDING CERT. & STAMP FOR INSTALLATION IN STATE OF N.Y.

2) NAME PLATE STAMPING:

U
W
RT-3

NATL. BD. _____

CERTIFIED BY

ROBEN MFG. CO. INC.,
LAKEWOOD N.J. 08701

VESSEL MAWP 20 PSI AT 100° F
MIN DESIGN METAL TEMP -5° F AT 20 PSI
JACKET MAWP ___ PSI AT ___° F
MIN DESIGN METAL TEMP ___° F AT ___ PSI
TUBE MAWP ___ PSI AT ___° F
MIN DESIGN METAL TEMP ___° F AT ___ PSI
SERIAL NO.: 92024-1 TO 2, YEAR: 1992

EQUIPMENT TAG NO'S. TP101A, TP101B
OWNER'S NAME: NORLITE CORP. INC.
OWNER'S PO NO. AN-00048
CAPACITY: 1000 GAL. OPER.
SHOP ORDER NO.: --

3) SHELL SIDE
TEST PRESSURE: 30 PSI
CORROSION ALLOW: 1/16"

4) WEIGHTS:
EMPTY: _____ 5,710 LBS.
FULL OF OILY WASTE: FLOODED 25,318 LBS.

5) PAINT: REFER TO NOTE NO. 4
SANDBLAST: YES SP10 NEAR-WHITE BLAST CLEANING ON EXTERNAL SURFACES.

6) ----

7) STRESS RELIEVE: NO.

8) RADIOGRAPHY: YES SPOT X-RAY REQ'D.

9) SPECIAL TESTS: YES HYDROTEST 1 1/2" WP.

10) CUSTOMER INSPECTION: YES.

11) SUPPORT DESIGN PER SEISMIC ZONE 2A.

GENERAL NOTES:

1. ALL BOLT HOLES TO STRADDLE NORTH SOUTH ℄'S

2. VESEL TO BE FREE OF ALL WELD SPLATTER, DIRT, OIL, AND GREASE.

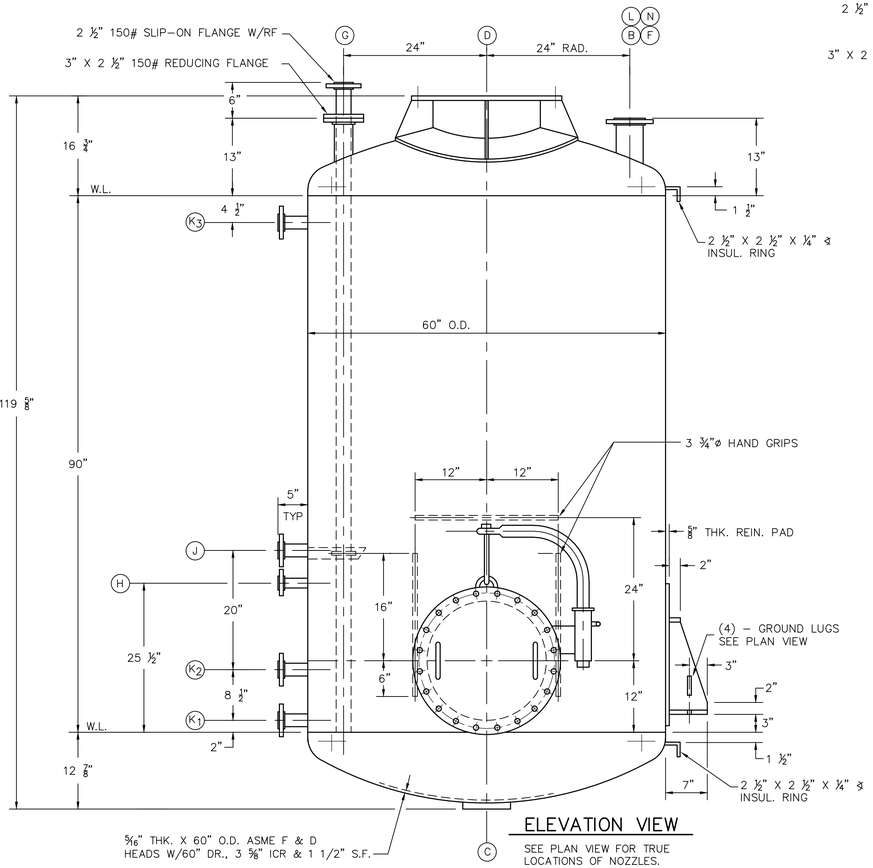
3. COVER AND PLUG ALL OPENINGS FOR SHIPMENT.

4. PAINT EXTERNAL C/S SURFACES W/ 1 COAT OF INORGANIC ZINK PRIMER, 3 MIL DRY FILM THK. MINIMUM W/EPOXY PAINT FINISH COAT OF 5 MIL DRY FILM THK. MINIMUM.
COLOR - MOBIL D-10 SAND BEIGE

5. SEE CUST. SPEC'S. NO.: 15176

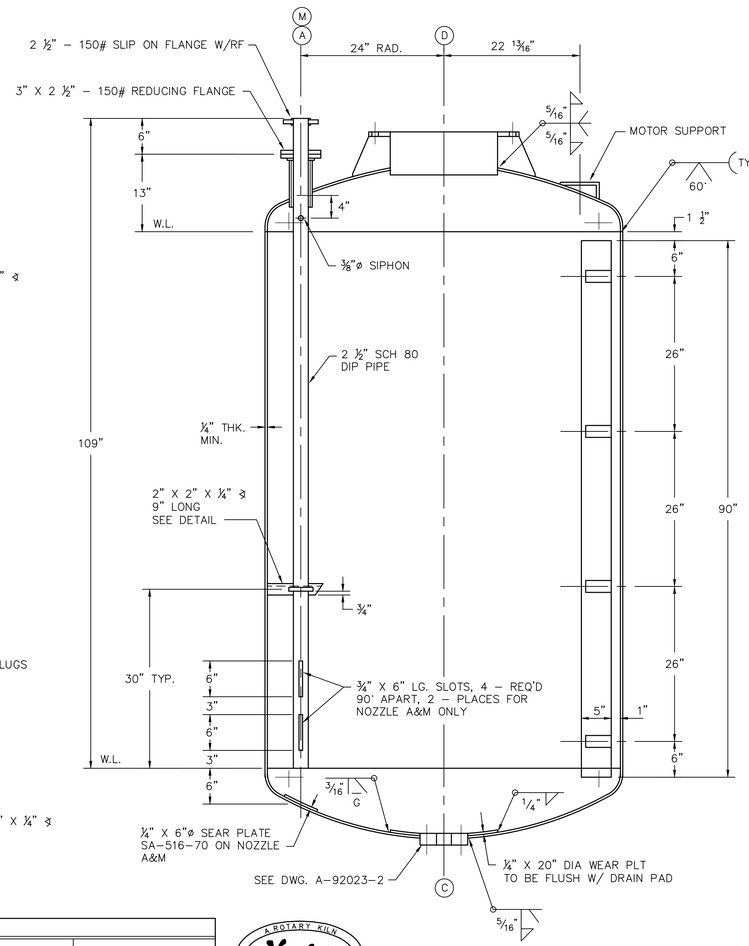
CUSTOMER: AMERICAN NUKEM
P.O. NO. AN-00048
UNITS REQ'D. (2) TWO.

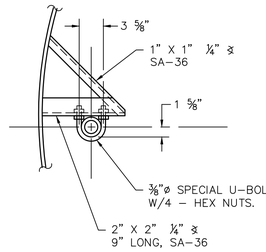
FOR PERMIT PURPOSES ONLY



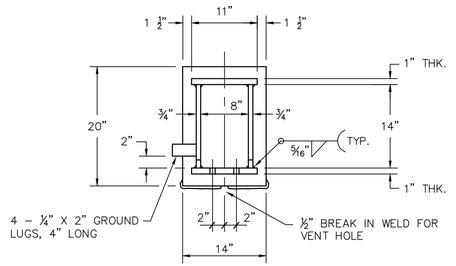
ELEVATION VIEW

SEE PLAN VIEW FOR TRUE LOCATIONS OF NOZZLES.





DIP PIPE SUPPORT DETAIL
3 - REQ'D.



LUG SUPPORT DETAIL
4 - REQ'D.

ASME MATERIAL SPECIFICATIONS												
SHELLS			FACINGS			BONNETS/JACKETS			FACINGS			BOLTING ☒ SA-193 GR B7 ☐ SA-325 ☐ SA-320 NUTS ☒ SA-194 GR 2M ☐ SA-325 ☐ SA-320
PIPE			EXPANSION JOINT			WELD CAPS			FITTINGS			
ROLLED PLATE	ST'L	SA-516-70	INSUL. RING	ST'L	SA-36	FORMED HEADS			COVERS ☐ FACED			
BAFFLES	ST'L	SA-516-70	WELD CAPS			PIPE			TUBE SHEETS			
TIE RODS			FORMED HEADS	ST'L	SA-516-70	ROLLED PLATE			TUBES ☐ SEAMLESS ☐ WELDED			
SPACERS			UNIT FLANGES			UNIT FLANGES			B.U. RINGS			
NOZZLE FLG'S	ST'L	SA-105	FITTINGS			NOZZLE FLG'S.			REINF. PADS	ST'L	SA-36	
NOZZLE NECKS	ST'L	SA-106-13	SUPPORTS	ST'L	SA-36	NOZZLE NECKS			WEAR PLT	ST'L	SA-516-70	

GASKETS: 1/16" THK.
☐ COMPRESSED ASBESTOS
☒ TEFLON
☒ RUBBER
☐ VITON

O-RINGS
☐

A ROTARY KILN
Norlite
EXPANDED SHALE AGGREGATE

SCALE: 1" = 12"

THIS DRAWING IS A RE-DRAW OF ROBEN MFG. CO., INC. DRAWING D-92024-1 DATED 02/10/92, FOR RECORD PURPOSES.

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
E	VOLUME INFORMATION ADDED	TVB			7/17/02
D	WEEP HOLE DELETED 4/29/92	ALH			4/29/92
C	PER CUST. DWG 3/19/92	ALH			3/23/92
B	PER CUST. DWG 3/4/92	ALH			3/9/92
A	PER CUST. DWG 2/21/92	ALH			2/27/92

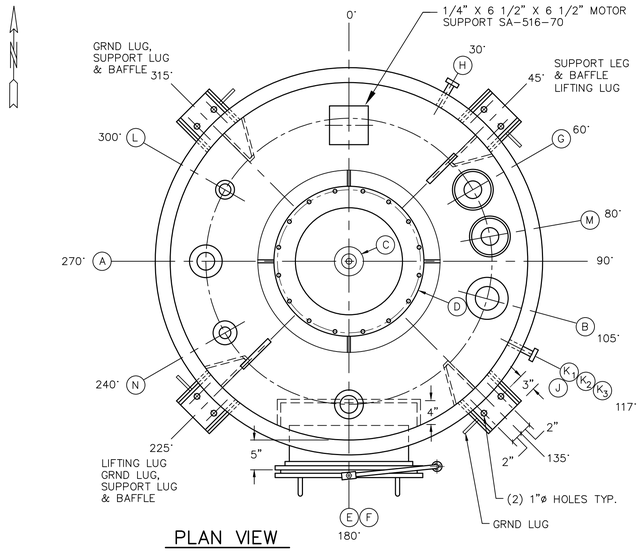
CLIENT APPROVAL: _____ DATE: _____

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

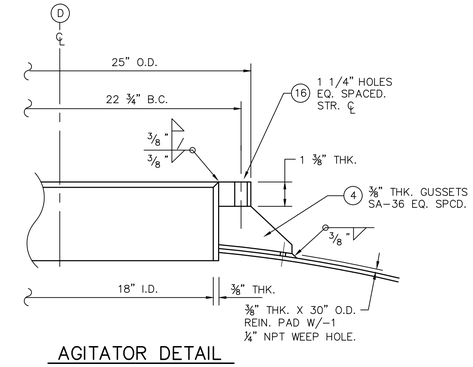
NORLITE CORPORATION - COHOES, NY

60" O.D. EQUALIZATION TANK
ROBEN MFG. CO., INC.
(TANKS 101A, 101B)

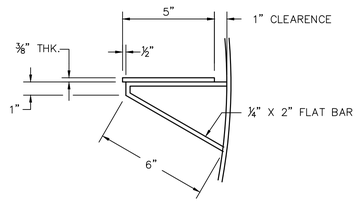
DRAWN BY:	DATE:	DRAWING/FILE REF:
T.V.B.	04/29/02	D-92024-1
ENGINEER:	FILE NAME	DRAWING NO.
H.M.K.	NY003-92024-1	NY003-92024-1



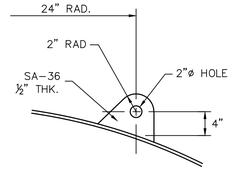
PLAN VIEW



AGITATOR DETAIL



BAFFLE DETAIL

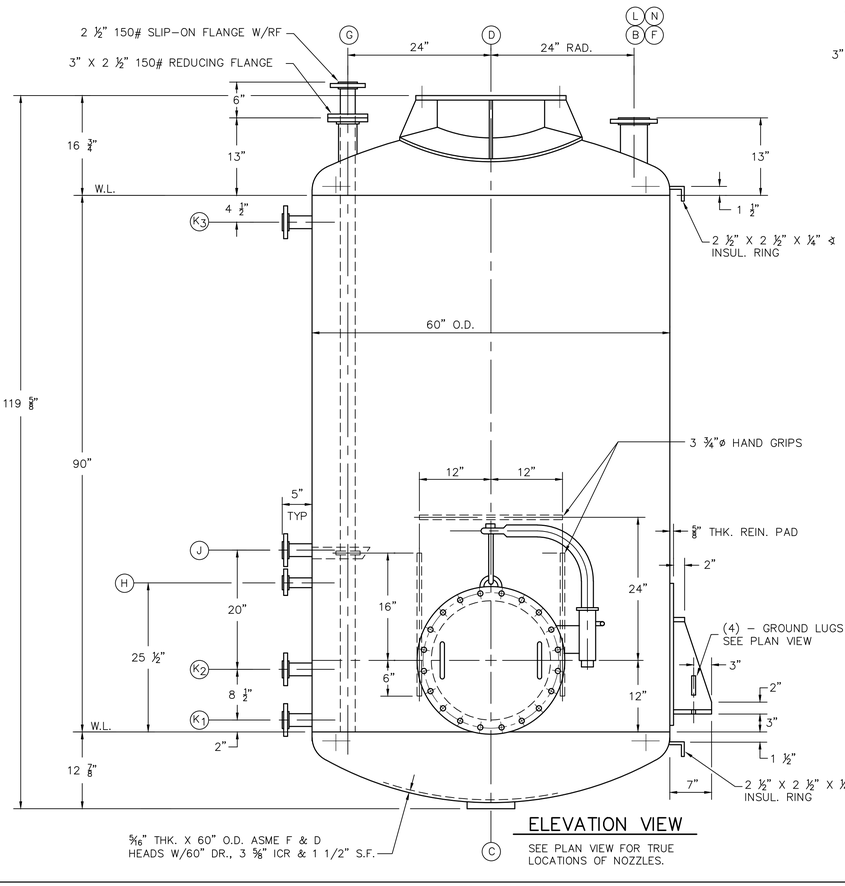


LIFTING LUG DETAIL (2) REQ'D

NOZZLE SCHEDULE					
MARK	QUANTITY	SIZE	ASA RATING	SCH.	SERVICE
A	1	3"	150# SLIP ON W/RF	40	INLET W/2 1/2" DIP PIPE
B	1	4"	150# SLIP ON W/RF	40	CON'T. LEVEL
C	1	2 1/2"	150# PAD W/FF	1 5/8"	DRAIN DWG A-92023-2
D	1	18" I.D.	150# SLIP ON W/FF	3/8"	MIXER SUPORT
E	1	20"	DWG A-92024-1	1/4"	MANWAY W/DAVIT
F	1	3"	150# SLIP ON W/RF	40	RUPTURE DISC
G	1	3"	〃	〃	PUMP SUCTION 2 1/2" DIP PIPE
H	1	1"	〃	〃	SAMPLE
J	1	1 1/2"	〃	〃	TEMPERATURE
K1, K2, K3	3	1 1/2"	〃	〃	LEVEL
L	1	2"	〃	〃	N2 IN
M	1	3"	〃	〃	RECIRC W/2 1/2" DIP PIPE
N	1	2"	〃	〃	N2 OUT

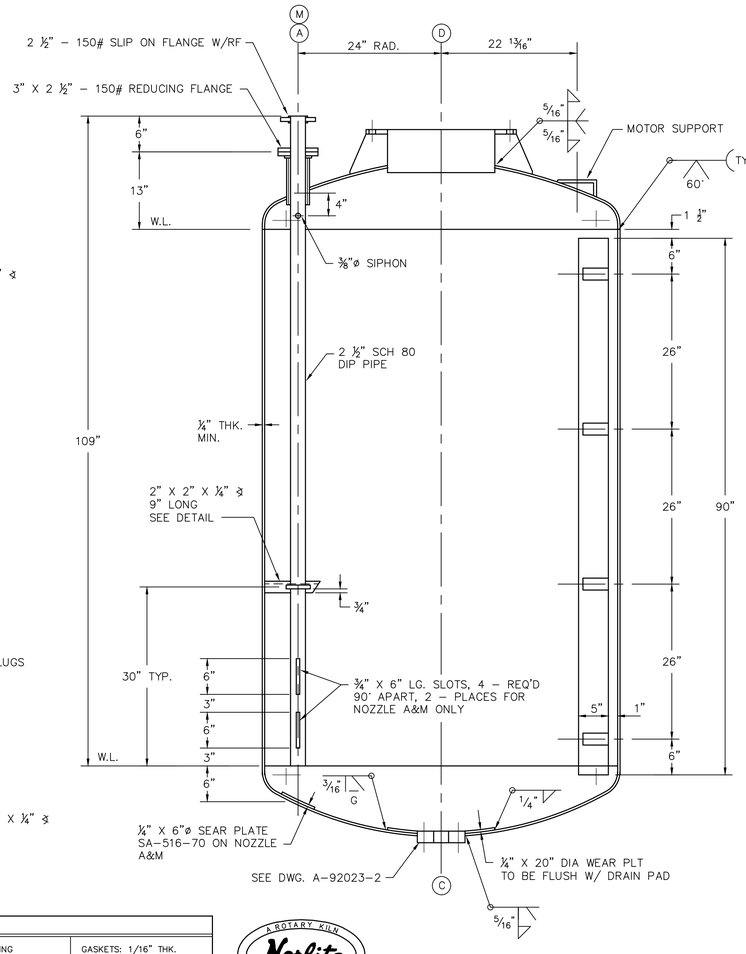
ORIGINAL NAMEPLATE DATA FOR REFERENCE ONLY.

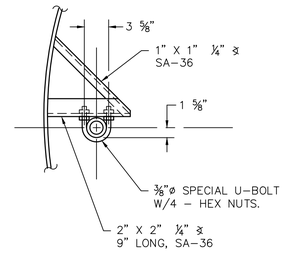
MAXIMUM STORAGE VOLUME: 1,174 GAL.
MAXIMUM VOLUME: 1,266 GAL.



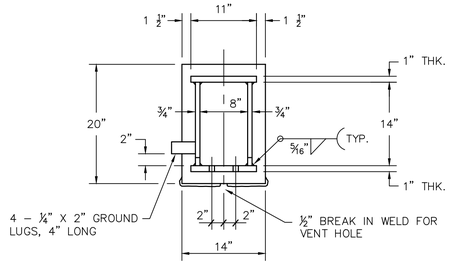
ELEVATION VIEW

SEE PLAN VIEW FOR TRUE LOCATIONS OF NOZZLES.





DIP PIPE SUPPORT DETAIL 3 - REQ'D.



LUG SUPPORT DETAIL 4 - REQ'D.

NOTES:

1) CONSTRUCTION TO COMPLY WITH ASME CODE SECTION VIII ED. INCLUDING CERT. & STAMP FOR INSTALLATION IN STATE OF N.Y.

2) NAME PLATE STAMPING:

U
W
RT-3

NATL. BD. _____

CERTIFIED BY

ROBEN MFG. CO. INC.,
LAKEWOOD N.J. 08701

VESSEL MAWP 20 PSI AT 100° F
MIN DESIGN METAL TEMP -5° F AT 20 PSI
JACKET MAWP ___ PSI AT ___° F
MIN DESIGN METAL TEMP ___° F AT ___ PSI
TUBE MAWP ___ PSI AT ___° F
MIN DESIGN METAL TEMP ___° F AT ___ PSI
SERIAL NO.: 92024-3 TO 4, YEAR: 1992

EQUIPMENT TAG NO'S. TP102A, TP102B
OWNER'S NAME: NORLITE CORP. INC.
OWNER'S PO NO. AN-00048
CAPACITY: 1000 GAL. OPER.
SHOP ORDER NO.: --

3) SHELL SIDE
TEST PRESSURE: 30 PSI
CORROSION ALLOW: 1/16"

4) WEIGHTS:
EMPTY: _____ 5,710 LBS.
FULL OF OILY WASTE: FLOODED 25,318 LBS.

5) PAINT: REFER TO NOTE NO. 4
SANDBLAST: YES SP10 NEAR-WHITE BLAST CLEANING ON EXTERNAL SURFACES.

6) ----

7) STRESS RELIEVE: NO.

8) RADIOGRAPHY: YES SPOT X-RAY REQ'D.

9) SPECIAL TESTS: YES HYDROTEST 1 1/2" WP.

10) CUSTOMER INSPECTION: YES.

11) SUPPORT DESIGN PER SEISMIC ZONE 2A.

GENERAL NOTES:

1. ALL BOLT HOLES TO STRADDLE NORTH SOUTH ℄'S

2. VESEL TO BE FREE OF ALL WELD SPLATTER, DIRT, OIL, AND GREASE.

3. COVER AND PLUG ALL OPENINGS FOR SHIPMENT.

4. PAINT EXTERNAL C/S SURFACES W/ 1 COAT OF INORGANIC ZINK PRIMER, 3 MIL DRY FILM THK. MINIMUM W/EPOXY PAINT FINISH COAT OF 5 MIL DRY FILM THK. MINIMUM.
COLOR - MOBIL D-10 SAND BEIGE

5. SEE CUST. SPEC'S. NO.: 15176

CUSTOMER: AMERICAN NUKEM
P.O. NO. AN-00048
UNITS REQ'D. (2) TWO.

FOR PERMIT PURPOSES ONLY

ASME MATERIAL SPECIFICATIONS												
SHELLS			FACINGS			BONNETS/JACKETS			FACINGS			
PIPE			EXPANSION JOINT			WELD CAPS			FITTINGS			
ROLLED PLATE	ST'L	SA-516-70	INSUL. RING	ST'L	SA-36	FORMED HEADS			COVERS ☐ FACED			
BAFFLES	ST'L	SA-516-70	WELD CAPS			PIPE			TUBE SHEETS			
TIE RODS			FORMED HEADS	ST'L	SA-516-70	ROLLED PLATE			TUBES ☐ SEAMLESS ☐ WELDED			
SPACERS			UNIT FLANGES			UNIT FLANGES			B.U. RINGS			
NOZZLE FLG'S	ST'L	SA-105	FITTINGS			NOZZLE FLG'S.			REINF. PADS	ST'L	SA-36	
NOZZLE NECKS	ST'L	SA-106-13	SUPPORTS	ST'L	SA-36	NOZZLE NECKS			WEAR PLT	ST'L	SA-516-70	

BOLTING
☒ SA-193 GR B7
☐ SA-325
☐ SA-320

NUTS
☒ SA-194 GR 2M
☐ SA-325
☐ SA-320

GASKETS: 1/16" THK.
☐ COMPRESSED ASBESTOS
☒ TEFLON
☒ RUBBER
☐ VITON

O-RINGS
☐

A ROTARY KILN
Norlite
EXPANDED SHALE AGGREGATE

SCALE: 1" = 12"

THIS DRAWING IS A RE-DRAW OF ROBEN MFG. CO., INC. DRAWING D-92024-2 DATED 02/10/92, FOR RECORD PURPOSES.

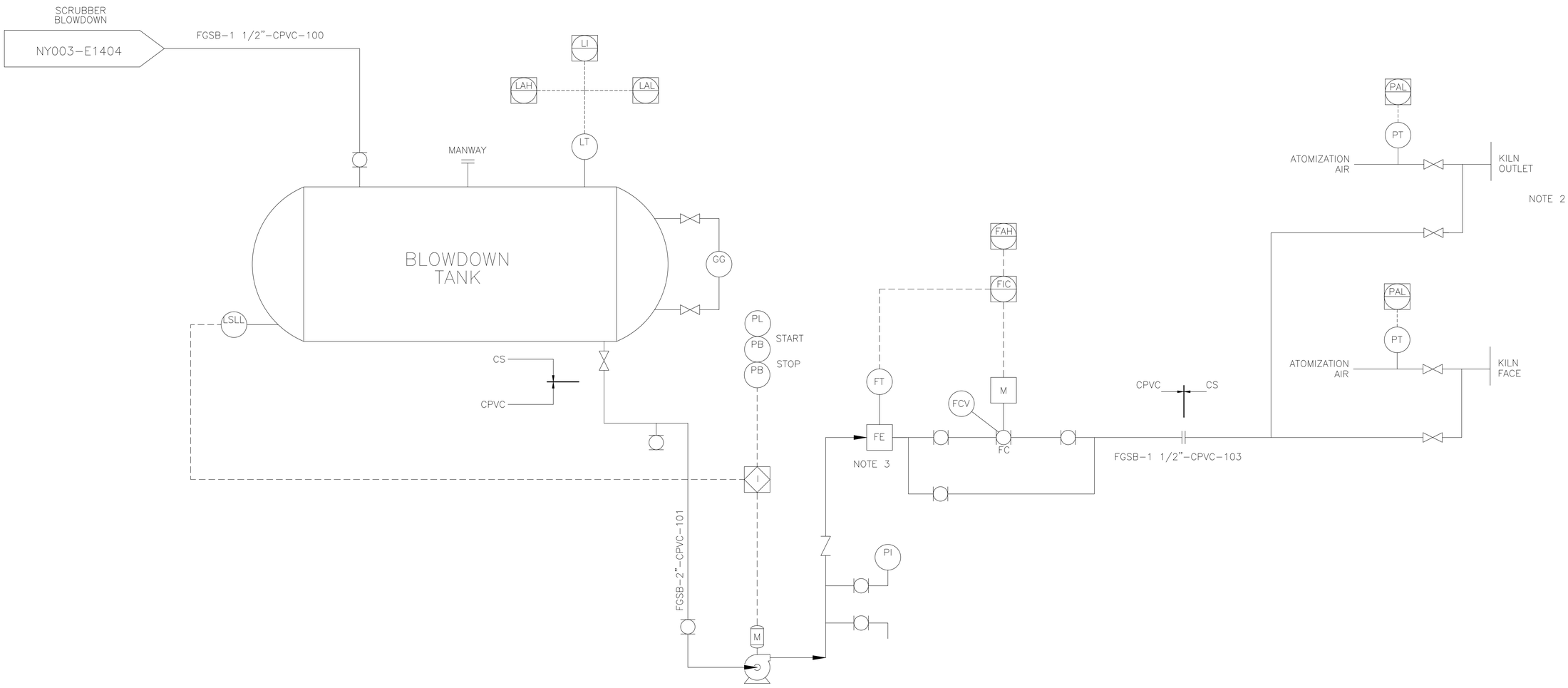
CLIENT APPROVAL: _____ DATE: _____

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

REV.	DESCRIPTION	DWN.	ENG.	CHK	DATE
E	VOLUME INFORMATION ADDED	TVB			7/17/02
D	WEEP HOLE DELETED 4/29/92	ALH			4/29/92
C	PER CUST. DWG 3/19/92	ALH			3/23/92
B	PER CUST. DWG 3/4/92	ALH			3/9/92
A	PER CUST. DWG 2/21/92	ALH			2/27/92

NORLITE CORPORATION - COHOES, NY
60" O.D. EQUALIZATION TANK
ROBEN MFG. CO., INC.
(TANKS 102A, 102B)

DRAWN BY:	DATE:	DRAWING/FILE REF:
T.V.B.	04/29/02	D-92024-2
ENGINEER:	FILE NAME	DRAWING NO.
H.M.K.	NY003-92024-2	NY003-92024-2



BLOWDOWN FEED PUMP

INSTRUMENT DESIGNATIONS

LAH	LEVEL ALARM HIGH
LAL	LEVEL ALARM LOW
LSLL	LEVEL SWITCH LOW LOW
LT	LEVEL TRANSMITTER
GG	GUAGE GLASS
PI	PRESSURE INDICATOR
FE	FLOW ELEMENT
FT	FLOW TRANSMITTER
FIC	FLOW INDICATOR CONTROLLER
FAH	FLOW ALARM HIGH
FCV	FLOW CONTROL VALVE
PT	PRESSURE TRANSMITTER
PAL	PRESSURE ALARM LOW

NOTE:

1. P&ID REPRESENTS KILN #1 CONFIGURATION. KILN #2 CONFIGURATION IS IDENTICAL EXCEPT FOR LINE NUMBERING
2. BLOWDOWN FEED TO KILN OUTLET TO BE LOCATED DOWNSTREAM OF THE KILN BACK END THERMOCOUPLE AND PRIOR TO THE BAGHOUSE
3. BLOWDOWN FEED FLOW RATE TO BE MEASURED USING A "F/P MAGMETER"

CLIENT APPROVAL: _____ DATE: _____

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
A	ISSUED FOR COMMENTS	SE	A.L.		07/22/93

ENVIRONMENTAL SYSTEMS & ENGINEERING
1200 MacArthur Blvd. Mahwah, N.J. 07430
Telephone (201) 818-0900 Fax (201) 818-0038

NORLITE CORPORATION
P & I D
ZERO DISCHARGE SYSTEM

DRAWN BY: EGGLESTON	DATE: 07/22/93	SCALE: 1 = 1 (FULL)	PROJECT NO.: 9514-022
ENGINEER: LUKSIC	CHECKED:	PLOT DATA: 003-EGGLESTON-07/27/93	FILE NAME: NY1001DA
APPROVED:	DATE:	DWG NO.: NY022-D1001	REV.: A

HYDRATED LIME
NY003-E1405

CaDH-3"-CS-4101

DILUTION DAMPER

ATM

NOTE 3

TCV

V

DPIR

DPAH DPSH

DPAL DPSL

DPT

PSL

TI

TT

TE

TSL TAL

TSLL TALL

PDR

DPSL DPSLL

DPSH

DPAL DPALL

DPAH

I WFCO

PDT

PDI

V

WFCO

AAHH AAH AIR

AE CO

AIR AAL AALL

AE O_2

GASES TO FAN
NY003-E1404

TO ATM

EMERGENCY OPEN

PLACE ON WALL

TE

V

TT

V

TSHH TSH TIC TSL

TAHH TAH TAL

TR

I

WFCO

ET-4121

AAH

ASH AI AT AE

SOLIDS

V V V V

TE TS TALH

V V

SFB-4131A

SFB-4131B

SFB-4131C

PAL

PS

V

COMPRESSED AIR

LAHH

LSHH

V

LSH

V

HE

DPI DPI DPSL DPSH

V V V V

I

SHUTDOWN

I

LSL

V

TE TC

CLEANOUT

KY

V

BACKWASH SOLENOID VALVES

NOTE 2

M

SS SAL

V V

MV-4131A

MV-4131B

MV-4131C

HIC

P

PBL

M

CBL-4132B

P

TE

TT

TIR

TSH TAH

TSL TAL

NOTE 1

CVA-3"-CS150-4102

CBL-4132B

PSV

V

PI

V

CVA-3"-CS150-4101

CBL-4132A

PSH

V

PAH

PSL

V

PAL

AIR LEAK

LINE PLUGGING

SHUTDOWN

CVA-3"-CS150-4103

DIVERTER VALVE MVD-4031

HOA

M

ZSA ZSB

ZIA ZIB

A B

CVA-3"-CS150-4104

CVA-3"-CS150-4105

DPAH DPSH DPIR

DPAL DPSL DPT

SCM-4111

OVERFILL STOP

I

LAHH LSHH

LAH LSH

LAL LSL

NOTE 4

FROM KILN #1
NY003-E1501

MA-4111A

MA-4111B

OVERFILL

ATM

BACKWASH SOLENOID VALVES

KY

V

BIN VENT SFV-4031A

BIN VENT SFV-4031B

DPSH DPSL DPI

V V V

EXISTING DUST SILO MB-4031A

EXISTING DUST SILO MB-4031B

POSITION B

POSITION A

PBL

PSV

V

PI

V

NOTE 1

M

SHUTDOWN

CBL-4132A

CVA-3"-CS150-4106

PAL PSL PSH PAH

V V

AIR LEAK

LINE PLUGGING

OVERFILL STOP

CVA-3"-CS150-4107

NY-E-D-5501

TO CLINKER COOLER MULTICLONE HOPPER

V = VENDOR
P = PLANT

NOTES

1. PNEUMATIC BLOWER MOTERS SHALL HAVE A TIME DELAY TO ALLOW PURGING OF LINES.
2. ONE AIRLOCK TO BE OPENED AT ONE TIME. HIGH LEVEL SWITCHES OVERIDE.
3. PROVIDES PERMISSIVE SIGNAL WHEN UNDER NEGATIVE PRESSURE.
4. EITHER LSL SHALL START THE SYSTEM.

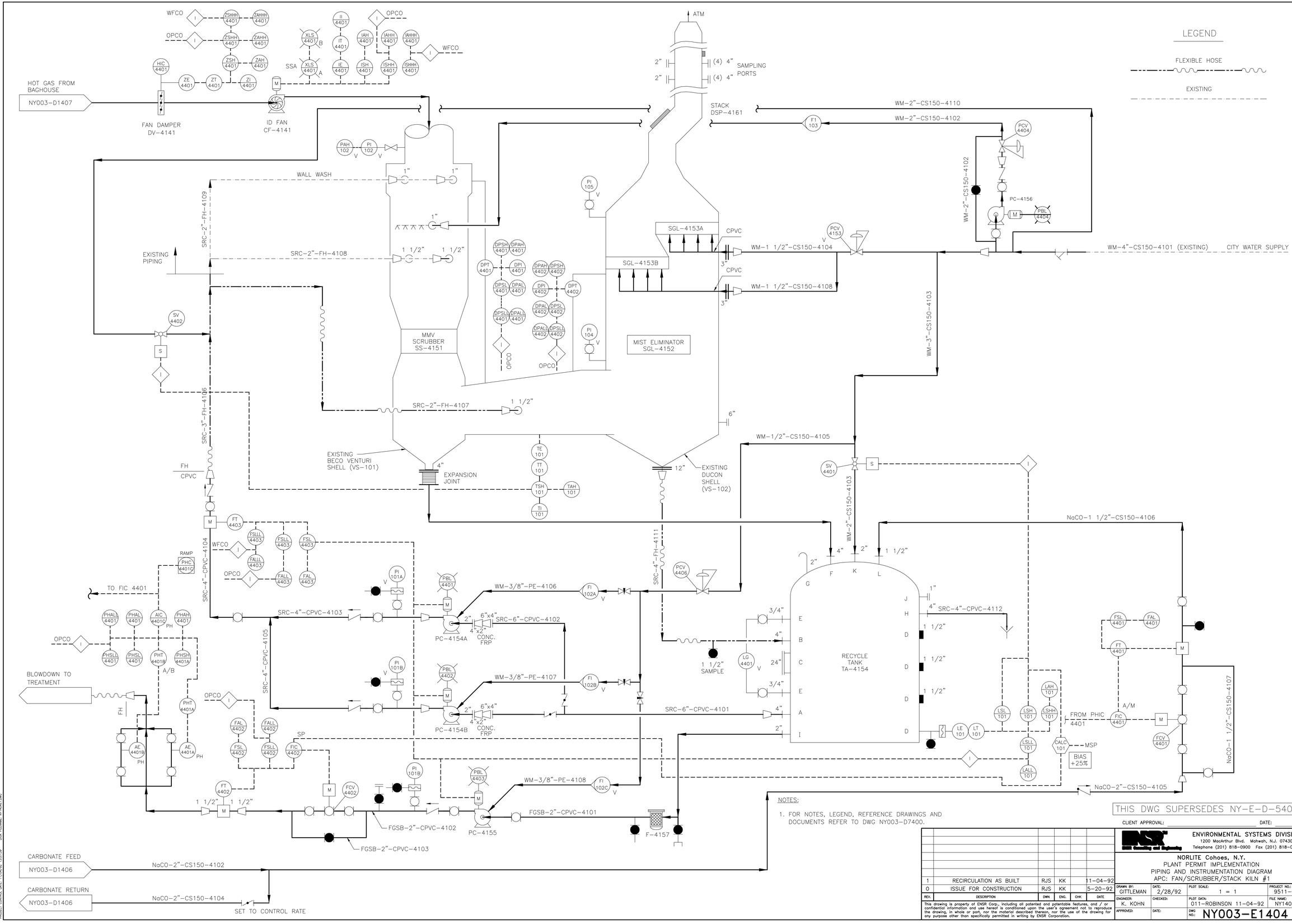
CLIENT APPROVAL: _____ DATE: _____

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
C	ISSUED FOR DESIGN	JSF	KK		3/30/92
B	REV. PER COMMENTS	JO	KK		3/20/92
A	ISSUE FOR REVIEW AND COMMENTS	M.L.	KK		2/21/92

ENSR Consulting and Engineering
ENVIRONMENTAL SYSTEMS DIVISION
1200 MacArthur Blvd. Mahwah, N.J. 07430
Telephone (201) 818-0900 Fax (201) 818-0038

NORLITE Cohoes, N.Y.
PLANT PERMIT IMPLEMENTATION
PIPING AND INSTRUMENTATION DIAGRAM
APC MULTICLONE/HEAT EXCHANGER/BAGHOUSES KILN #1

DRAWN BY: M. LYNCH	DATE: 2/20/92	PLOT SCALE: 1 = 1	PROJECT NO.: 9511-003
ENGINEER: K. KOHN	CHECKED:	PLOT DATA: 005-FLINT-4/8/92	FILE NAME: NY1403EC
APPROVED:	DATE:	DWG NO.: NY003-D1403	REV.: C



NOTES:

1. FOR NOTES, LEGEND, REFERENCE DRAWINGS AND DOCUMENTS REFER TO DWG NY003-D7400.

THIS DWG SUPERSEDES NY-E-D-5404

CLIENT APPROVAL: _____ DATE: _____

REV.	DESCRIPTION	DWN.	ENG.	CHK	DATE
1	RECIRCULATION AS BUILT	RJS	KK		11-04-92
0	ISSUE FOR CONSTRUCTION	RJS	KK		5-20-92

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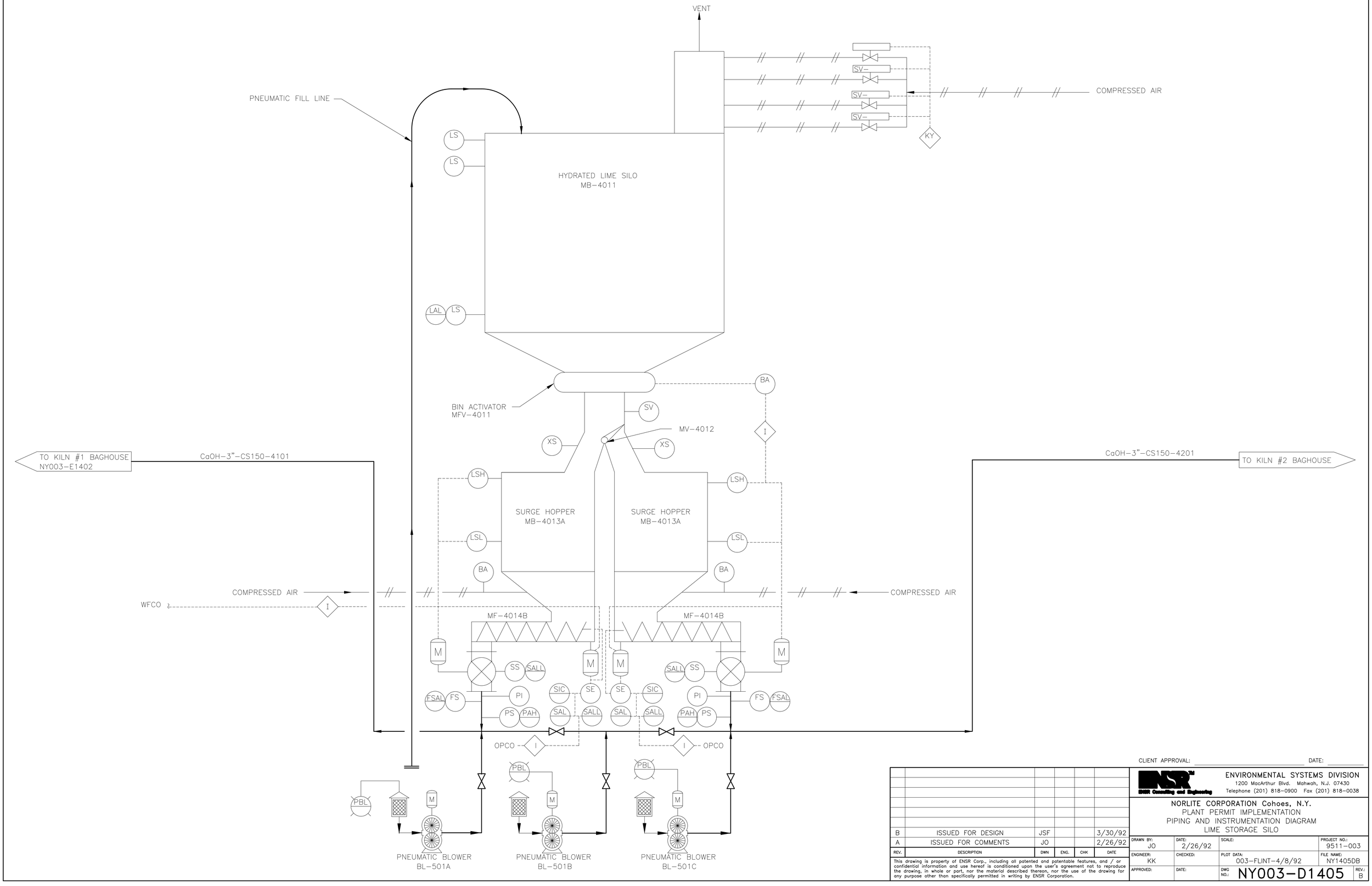
NORLITE Cohoes, N.Y.
PLANT PERMIT IMPLEMENTATION
PIPING AND INSTRUMENTATION DIAGRAM
APC: FAN/SCRUBBER/STACK KILN #1

DRAWN BY: GITTLEMAN	DATE: 2/28/92	PLOT SCALE: 1 = 1	PROJECT NO.: 9511-003
ENGINEER: K. KOHN	CHECKED:	PLOT DATA: 011-ROBINSON 11-04-92	FILE NAME: NY1404E1
APPROVED:	DATE:	DWG NO.: NY003-E1404	REV.: 1

PROJECT CONTROL SPEC: 17/NY92 13573.39 DISK FILENAME: NY1404E1.DWG



CLIENT APPROVAL: _____ DATE: _____

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
B	ISSUED FOR DESIGN	JSF			3/30/92
A	ISSUED FOR COMMENTS	JO			2/26/92

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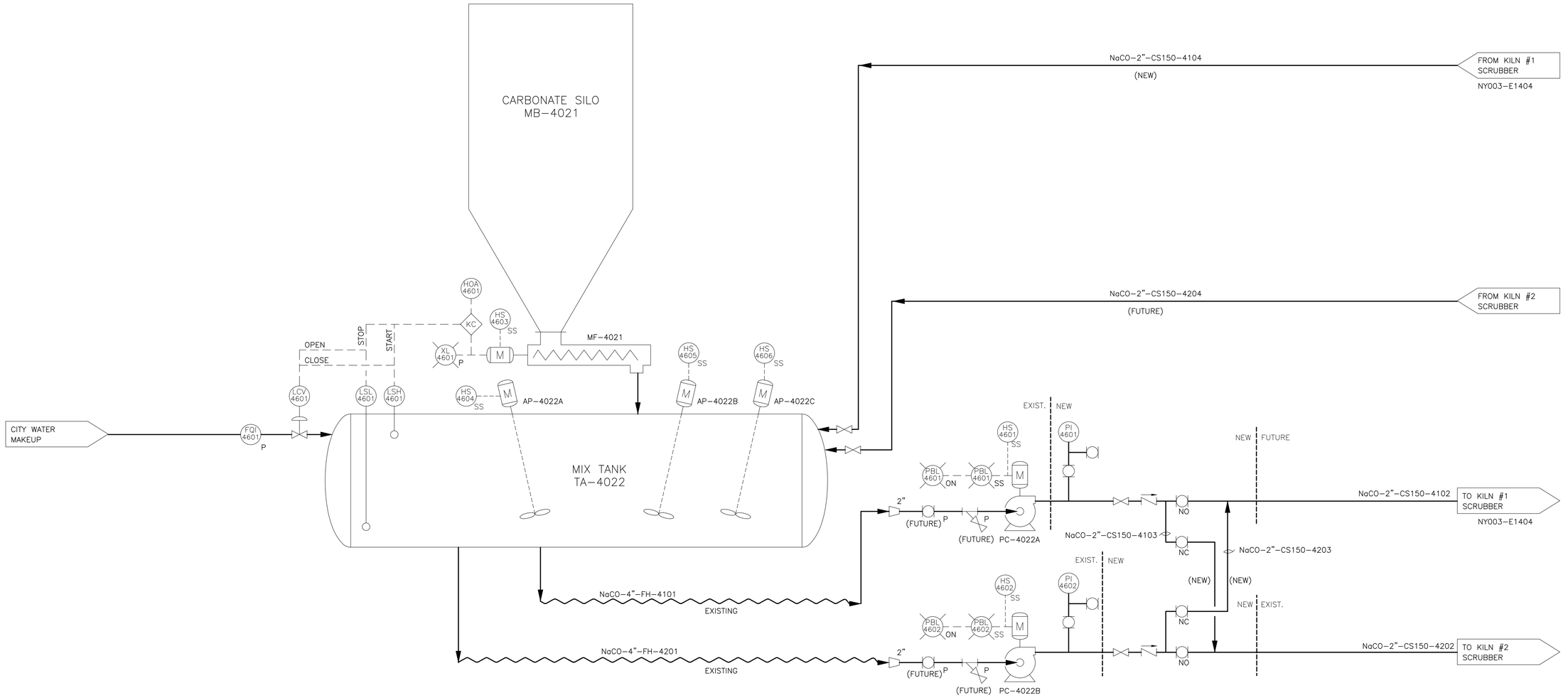
NORLITE CORPORATION Cohoes, N.Y.
PLANT PERMIT IMPLEMENTATION
PIPING AND INSTRUMENTATION DIAGRAM
LIME STORAGE SILO

DRAWN BY: JO	DATE: 2/26/92	SCALE:	PROJECT NO.: 9511-003
ENGINEER: KK	CHECKED:	PLOT DATA: 003-FLINT-4/8/92	FILE NAME: NY1405DB
APPROVED:	DATE:	DWG NO.: NY003-D1405	REV.: B



LEGEND:
P-PLANT SUPPLIED

NOTE:
1 - FOR NOTES, LEGEND, REFERENCE DRAWINGS, AND DOCUMENTS REFER TO DWG NY003-D7400.

THIS DWG. SUPERSEDES NY-D-D-5406

CLIENT APPROVAL: _____ DATE: _____

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
0	ISSUE FOR CONSTRUCTION	RJS	KK		5-20-92

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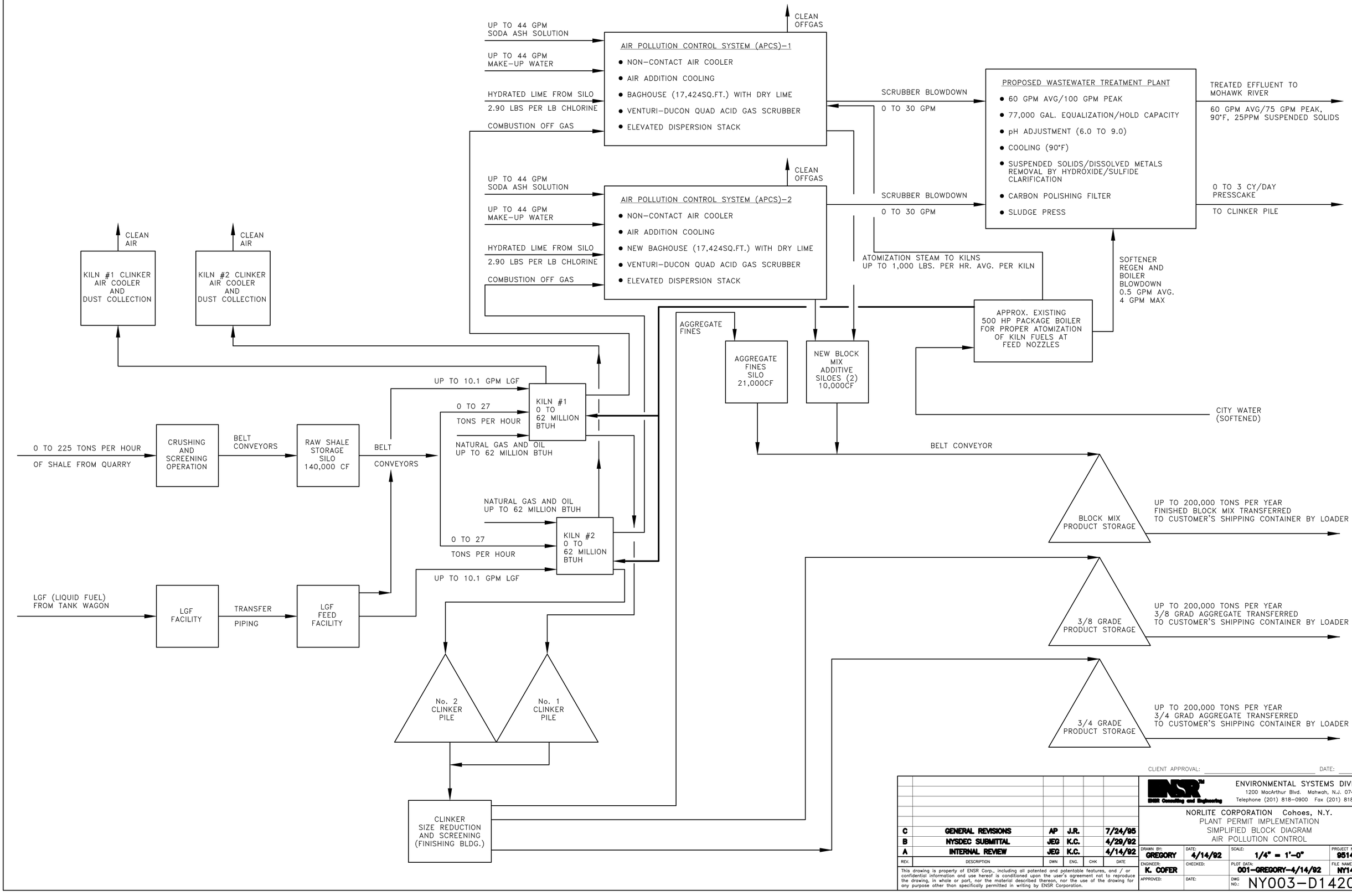
NORLITE CORPORATION Cohoes, N.Y.
PLANT PERMIT IMPLEMENTATION
PIPING AND INSTRUMENTATION DIAGRAM
CARBONATE SILO

DRAWN BY:	DATE:	SCALE:	PROJECT NO.:
JO	2/28/92	1=1	9511-003
ENGINEER:	CHECKED:	PLOT DATA:	FILE NAME:
KK		002-SERCHAK 5-20-92	NY1406E0
APPROVED:	DATE:	DWG NO.: NY003-E1406	REV.: 0



CLIENT APPROVAL: _____ DATE: _____

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
C	GENERAL REVISIONS	AP	J.R.		7/24/95
B	NYSDEC SUBMITTAL	JEG	K.C.		4/29/92
A	INTERNAL REVIEW	JEG	K.C.		4/14/92

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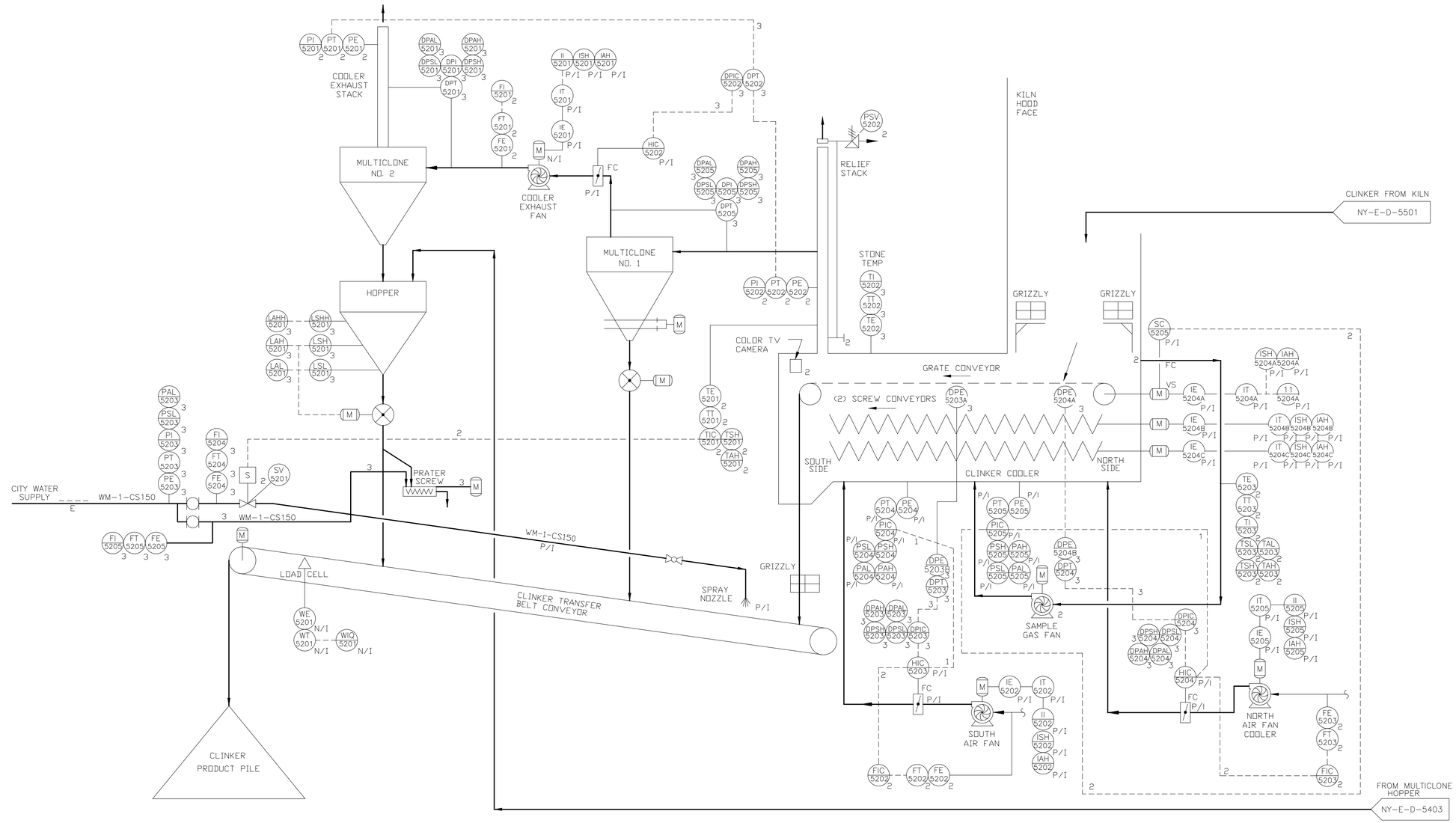
NORLITE CORPORATION Cohoes, N.Y.
PLANT PERMIT IMPLEMENTATION
SIMPLIFIED BLOCK DIAGRAM
AIR POLLUTION CONTROL

DRAWN BY: GREGORY	DATE: 4/14/92	SCALE: 1/4" = 1'-0"		PROJECT NO.: 9514-004
ENGINEER: K. COFER	CHECKED:	PLOT DATA: 001-GREGORY-4/14/92		FILE NAME: NY1420DC
APPROVED:	DATE:	DWG NO.: NY003-D1420		REV.: C



LEGEND
1 = FOR TRIAL BURN
2 = AFTER TRIAL BURN
3 = FUTURE
4 = PROJECT TEAM
5 = NORLITE TEAM

THIS DWG. SUPERSEDES NY-D-D-5502

CLIENT APPROVAL: DATE:

REV.	DESCRIPTION	DWN	ENG.	CHK	DATE
A	INTERNAL REVIEW	RJS	SK		2/25/92

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NORLITE CORPORATION Cohoes, N.Y.
PLANT PERMIT IMPLEMENTATION
PIPING & INSTRUMENTATION DIAGRAM
COOLER OPERATION – KILN #1 (SHT. 1 OF 14)

DRAWN BY:	DATE:	SCALE:	PROJECT NO.:
SERCHAK	2/25/92	1 = 1 (FULL)	9511-003
ENGINEER: KADDEN	CHECKED:	PLOT DATA: 005-GITTLEMAN-5/26/92	FILE NAME: NY1502EB
APPROVED:	DATE:	DWG NO.: NY003-E1502	REV.: B