

S & B Engineers and Constructors, Ltd.
Northeast Operations



Blackline SEA-3 Providence



PROCESS BASIS OF DESIGN



Project # S0080

Revision	Date	Description	By	Checked	Approved
A	02/08/2021	Issued for Approval	MR	SP	BJS



Table of Contents

1. Introduction3

2. Executive Summary.....3

2.1 Phase 1.....4

2.2 Phase 2.....4

2.3 Phase 3.....4

2.4 Phase 4.....4

3. System Description4

4. Design Philosophy and Flow Rate Determination.....5

4.1 HD-5 Propane Specification.....6

4.2 HD-2 Propane Specification.....6

4.3 Vapor Recovery / Compressor System.....7

4.4 LPG Bullet Storage Tanks Volume.....7

4.5 LPG Dehydration & Refrigeration System8

5. Optimization Studies8

5.1 Feasibility of Nitrogen Onsite Production8

5.2 Alternatives to Flaring Disposal of Vapor During Truck Unloading.....8

5.3 Feasibility of Ethane Railcar Unloading for Blending8

5.4 Techno-Economic Evaluation of Railcar Unloading Systems9

5.5 Optional LPG Vaporizer9

5.6 Dehydration and Refrigeration Units – Liquid vs. Air Cooling Options.....9

6. Equipment List.....9

7. Operation Philosophy9

8. Appendices9

1. Introduction

The objective of the project is to provide the operational flexibility to move 600,000 gallons (with maximum of 1,200,000 gallons) of LPG product per day on to truck transports with maximum commercial flexibility on market source via refrigerated storage or rail to Blackline Midstream existing SEA-3 LPG terminal located in Providence, RI. Two cases are evaluated for this estimate as:

- Base Case: 16 Railcars, 4 Corken Miser Unloading Compressors, 6 Bullet Storage Tanks
- Alternate Case: 10 Railcars, 2 Corken Miser Unloading Compressors, 4 Bullet Storage Tanks

2. Executive Summary

The project scope of work is to provide a Conceptual Rail and Site Layout Design and FEED Study Proposal that will allow for the development and integration of new LPG rail offloading operations at the SEA-3 Providence, LLC Propane Terminal ("Sea-3") and ancillary operational improvements to the existing facility operations.

The project will be implemented in different FEL (Front End Loading) phases.

Completion of sufficient engineering and design in order to obtain Total Installed Cost (TIC) estimates for each of the three (3) Project Phases, as well as five (5) Optimization Options.

FEL Engineering Key Elements:

1. Determine site constraints and impact on throughput rates for finalization of a Design Basis.
 - a. Initial basis:
 - i. 20 to 28 MM gallons per six (6) month summer period from rail to truck
 - ii. 16 MM gallons per six (6) month summer period from rail to refrigeration
 - iii. 80 MM gallons per six (6) month winter period from rail and storage to truck
 - b. Determine maximum rail off-loading spots possible within property constraints - anticipated ten (10) to sixteen (16) spots
 - c. Determine new equipment minimum and maximum rates
2. Evaluate the following Optimization Options
 - a. Determine cost/benefit of adding a fourth (4th) lane to existing truck loading vs relocating truck loading and installing five (5) lanes
 - b. Consider relocation or removal of LPG Overfill Tank (122V-0012)
 - c. Determine feasibility of eliminating the existing truck rack flare and recycling vapors to Bullet tanks (considering return of odorized or non-odorized LPG), or sending to emergency flare (F-0001)
 - d. Evaluate existing nitrogen system and identify opportunities for usage improvements
 - i. Determine cost/benefit of adding on-site nitrogen generation in place of or in addition to existing purchasing from Praxair using current basis of use of 1 (one) load per month
 - e. Evaluate the feasibility and flexibility of ethane railcar unloading for blending in new bullets, or in potential new day tank - blend must meet HD-5 specification

The above items were evaluated and the final conclusion for each phases of this project are listed below:

2.1 Phase 1

Completion of warm propane railcar unloading, metering (LACT skid), bullet storage and tie to existing truck loading.

1. Provide new railcar warm propane unloading and transfer to new bullet warm storage.
2. Provide existing (T-0001) cold storage to new bullet warm storage via existing glycol heating.
3. Implement nitrogen system improvements.
4. Provide for ability to blend ethane-rich import from railcars without flaring at boil-off gas compressors.

2.2 Phase 2

Completion of existing truck loading relocation and adding fourth (4th) and fifth (5th) lanes expansion.

1. Provide new bullet to existing and new truck loading via existing and new odorization and metering. Eliminate existing Mercaptan Storage Tank (122VE-OT-1) and locate a new tank in North plant. Include two (2) new YZ injection systems for new truck lanes, and one (1) new YZ injection for transferring from storage tank (T-0001) to bullets.
2. Provide existing (T-0001) storage to new truck loading via existing heating, odorization and metering.
3. Eliminate truck flare (F-0002) and send vent and blowdown from truck loading to emergency flare (F-0001).
4. Remove LPG Overflow Tank (122V-0012) and LPG Reloading Pump (122P-54) and provide new connection to send the truck overflow back to bullet tanks.

2.3 Phase 3

Completion of dehydration and refrigeration Additions.

Provide new bullet to existing storage tank (T-0001) via dehydration and refrigeration.

2.4 Phase 4

Provide a new LACT unit with 600 gpm capacity (with available connection for a second one in future), and piping for export from storage tank (T-0001) or from bullet tanks via railcars.

3. System Description

This design basis summarizes the main design parameters necessary to complete the design.

The project will make the following changes to the current configuration of Sea-3 LPG Terminal:

1. New Warm Railcar Unloading System: this includes additional new rail spurs, 16 or 10 railcar unloading stations with unloading arms at each station, four (4) or two (2) units of Corken Propane Miser Compressor.
2. The inlet and outlet headers to and from the bullet tanks are segregated for possibility of seasonal operation like summer and winter, by importing odorized or unodorized propane via railcars.

3. New on-site Nitrogen Generation Skid: the on-site nitrogen generation skid (provided by vendor) will supplement and back-up the nitrogen usage in the facility, with the major user being the annular space of storage tank (T-0001) cold propane storage tank.
4. New Flare KO Drum with a glycol coil for vaporizing the remaining liquids will be added to the emergency flare (F-0001).
5. New LPG Bullet Storage Tanks and LPG Transfer Pumps: this includes six (6) or four (4) bullet storage tanks and four (4) vertical can transfer pumps, each 750 gpm with VFD, to transfer propane from bullets to truck loading, and to cold propane storage tank (T-0001) via dehydration/refrigeration. Design rate for each truck lane is 600 gpm.
6. New Dehydration System: this includes two (2) new dehydrators, filtration, pumps, electric heater for regeneration, regeneration recirculation pumps and water KO drum. The dehydration system is needed to meet LPG water ppm level necessary for refrigeration and transfer to storage in (T-0001) tank.
7. New Refrigeration Skid: this will refrigerate dry LPG for transfer to storage tank (T-0001).
8. Relocate three (3) existing truck lanes and add two additional truck lanes: this includes new connections from the new LPG bullet storage tanks to the existing and new metering skids and existing flare.
9. Eliminate LPG Overflow Tank (122V-0012) and LPG Reloading Pump (122P-54) and provide new connection to send the truck overflow back to bullet tanks.
10. Utilities:

The following utilities were evaluated for the new additional systems to the facility, considering the availability and capacity of the existing utilities:

- a. Instrument Air: 2 x 100% new instrument air compressor with 250 SCFM capacity each.
- b. Nitrogen: New Nitrogen Generation system with 74 SCFM capacity, utilizing Pressure Swing Adsorption (PSA) with air sourced from new Instrument Air system.
- c. Natural Gas: Available as is, no new usage.
- d. Lube Oil Storage: As required by new propane chiller compressor system.
- e. Condensate Collection: No condensate collection, only a water tote for dehydration unit.
- f. Closed Drain Collection: No new closed drain system.
- g. Wastewater System: No wastewater system.
- h. Stormwater: As required for the new expansion in South plant.
- i. Firewater: New firewater system for new expansion in South plant.
- j. Cooling Water: It's not required. Air cooling is used when needed.

4. Design Philosophy and Flow Rate Determination

The two main LPG (Propane specifications) handled in this facility currently and in the future of this project are HD-2 and HD-5 Propane.

4.1 HD-5 Propane Specification

All of the equipment will be designed to meet HD-5 Propane Specification. HD-5 grade propane is "consumer grade" propane and is the most widely sold and distributed grade of propane in the U.S. market. HD-5 is the highest-grade propane available to consumers in the United States and is what propane companies ordinarily sell to their customers. This propane is suitable and recommended for engine fuel use. HD-5 spec propane consists of:

- Minimum of 90% propane
- Maximum of 5% propylene
- Other gases constitute the remainder (ethane, iso-butane, butane, methane, etc.)

HD-5 Propane product quality must meet the specification outlined below: (See next page)

C3			
As per GPA Standard 2140-97 HD-5 Spec			
Specification	Min	Max	Test Method
Vapor Pressure		208 psig at 100°F 1434 kPa at 37.8°C	ASTM D-1267
Propane	90.0 Liq. Vol. %		ASTM D-2163
Propylene		5.0 Liq. Vol. %	ASTM D-2163
Butanes & Heavier		2.5 Liq. Vol. %	ASTM D-2163
Corrosion		Copper Strip of IB	ASTM D-1838 (Note A)
Total Sulfur		123 ppmw	ASTM D-2784
Volatile Residue Max Temp. at 95% evaporation		-37.0°F -38.3°C	ASTM D-1837
Residual matter On evaporation of 100ml		0.05 ml	ASTM D-2158
Residual matter Oil stain observation		Pass	ASTM D-2158 (Note B)
Moisture content -Freeze valve test		Pass	GPA Propane Dryness Test (Cobalt Bromide) or D-2713

4.2 HD-2 Propane Specification

The other Propane specification used in this facility is HD-2 with the following details:

- Minimum of 90% propane
- Maximum of 5% propylene
- 2% ethane
- Other gases constitute the remainder (iso-butane, butane, methane, etc.)

HD-2 Propane product quality must meet the specification outlined below (next page):

C3			
HD-2 Marine Propane (2.0% Ethane, 30 ppm Sulfur)			
Component	Min	Max	Test Method
Ethane		2.0 Liq. Vol.%	ASTM D-2163
Propylene		5.0 Liq. Vol.%	ASTM D-2163
Propane	90.0 Liq. Vol.%		ASTM D-2163
Butanes & Heavier		2.5 Liq. Vol.%	ASTM D-2163
Vapor Pressure @100° F		208 psig	ASTM D-1267 or D-2598
Residual Matter (residue)		0.05 ml. (Note C)	ASTM D-2158
Residual Matter (oil stain)		Pass (Note B)	ASTM D-2158
Copper Strip Corrosion		No. 1	ASTM D-1838
Volatile Sulfur		30 ppm wt.	ASTM D-5623 or D-6667
Water		30 ppm wt.	ASTM D-5454

4.3 Vapor Recovery / Compressor System

For unloading operation of rail cars and transferring the liquid to the bullet tanks, a liquid transfer and vapor recovery are required to collect the displaced vapors and help empty the rail car.

A cost benefit analysis was performed between application of Corken FD891 and Propane Miser T791. Application of Propane Miser T791 is selected for this project. For Base Case with 16 railcars, 4 Propane Miser units, and for Alternate Case with 10 railcars, 2 Propane Miser units are considered. Propane Miser T791 is a 2-stage unloading compressor system which can recover the remaining propane and its vapor from the railcars down to near zero psig pressure.

The Current requirement as a design point is to unload maximum of 16 railcars in 24 hours, assuming 22 working hours.

4.4 LPG Bullet Storage Tanks Volume

The LPG Bullet Storage tanks are horizontal bullet tanks. To determine the volume of the tanks the following are considered:

- i. 20 to 28 MM gallons per six (6) month summer period from rail to truck
- ii. 16 MM gallons per six (6) month summer period from rail to refrigeration
- iii. 80 MM gallons per six (6) month winter period from rail and storage to truck

These volumes are based on addition of 16 or 10 railcar unloading spots, with capacity of each railcar about 30,000 gallons.

Each LPG Bullet Storage tank will be designed to have a nominal volume of 90,000 gallons, with effective volume of about 76,000 gallons.

Each LPG Bullet Storage tank will be equipped with a PSV venting to flare, sized for emergency relief in case of open pool fire.

4.5 LPG Dehydration & Refrigeration System

LPG rail off-loading to bullets and bullets to refrigerated storage will be designed for minimal capital investment constrained by minimum of (480,000 gallons per day) to transports. For this we will assume 16 MM gallons per six (6) month period in the summer to fill the storage tank (T-0001), which is equivalent of about 72 gpm continuous, with 125 gpm taken as the basis of design for dehydration and refrigeration system.

The dehydration system is utilizing two (2) mole sieve beds, with a pump and spare for regeneration loop, electric heater for regeneration gas, air cooler and water separator and tote.

5. Optimization Studies

The following optimization and feasibility studies are ongoing to determine the scope of this project:

5.1 Feasibility of Nitrogen Onsite Production

It was determined that onsite generation of nitrogen utilizing PSA method with air supplied to it by new instrument air compressor is a viable option for this facility expansion.

5.2 Alternatives to Flaring Disposal of Vapor During Truck Unloading

A flare study was performed for new equipment and any system impacted by this expansion. It was determined that the vent and blowdown from truck loading (and railcar unloading) be routed to the emergency flare F-0001. Existing flare F-0002 will be removed, with its loads tied into F-0001.

5.3 Feasibility of Ethane Railcar Unloading for Blending

For unloading and blending of the LPGs from the rail cars, the ethane content (or the RVP of LPGs) should be taken into account to avoid flaring from the Refrigerated Tank (T-0001) via boil-off gas compressor inlet. The phase envelope of the propane blends were developed and provided to Blackline. The phase envelope will help determine if flaring is expected at the boil-off compressors based on ethane content of the imported propane from railcars.

Given the design temperature of the Refrigerated Tank (T-0001) as -50 °F, high concentration of ethane should be avoided in imported propane from railcars in order not to exceed this minimum design temperature of the storage tank (T-0001) to lower values.

The inlet and outlet headers to and from the bullet storage tanks were split to 3+3 bullets for base case (or 2+2 for alternate case). This will provide flexibility to segregate odorized or unodorized propane (or other acceptable products) in seasonal operation of winter and summer.

It was determined that blending off-spec propane imported via railcar to make spec product is not an economically feasible option. It would require sampling and testing of each railcar content, measurement of flow for blending, and blending in a segregated bullet tank. Therefore the ethane blending as described above is not considered in the basis of this estimate.

5.4 Techno-Economic Evaluation of Railcar Unloading Systems

A cost benefit analysis was performed for application of Corken FD891 compressor and Propane Miser T791 compressor system. The Propane Miser T791 was recommended and selected for this project.

5.5 Optional LPG Vaporizer

Based on demand, frequency of operation and capacity of existing and new equipment, no additional LPG vaporizer is considered for this project.

5.6 Dehydration and Refrigeration Units – Liquid vs. Air Cooling Options

For dehydration and refrigeration of LPGs from bullet tanks to refrigerated tank (T-0001), it was determined that air cooler systems will be used.

6. Equipment List

There is an equipment list for the existing equipment on site which is now developed further for the required equipment for the scope of this project.

7. Operation Philosophy

An operation philosophy for the new systems will be developed in future phase of this project to address the key operational parameters and envelopes for each system. This operation philosophy can be used for developing detailed control narratives and procedures.

8. Appendices

Additional documents and references are available in project documentation to support the information in this basis of design.

ENVIRONMENTAL LAND USAGE RESTRICTION

This Declaration of Environmental Land Usage Restriction ("Restriction") is made on this 28th day of April, 2015 by ProvPort, Inc., and its successors and/or assigns (hereinafter, the "Grantor").

WITNESSETH:

WHEREAS, the Grantor, ProvPort, Inc., is the Owner in fee simple of certain real property identified as City of Providence Tax Assessor's Plat 56, Lots 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, and 364 of the City of Providence, Rhode Island (the "Property"), more particularly described in Exhibit A (Property Survey) which is attached hereto and made a part hereof;

WHEREAS, the Property (identified in the Property Survey which is attached hereto as Exhibit A, Figure 1, also clarified in Exhibit A, Figure 2, and is made a part hereof) has been determined to contain soil and/or groundwater which is contaminated with certain Hazardous Materials and/or petroleum in excess of applicable residential or industrial/commercial Direct Exposure Criteria, pursuant to the Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases ("Remediation Regulations");

WHEREAS, the Grantor and the Department have determined that the environmental land use restrictions set forth below are consistent with the regulations adopted by the Rhode Island Department of Environmental Management ("Department") pursuant to R.I.G.L. § 23-19.14-1 and that this restriction shall be a Conservation Restriction pursuant to R.I.G.L. § 34-39-1 et. seq. and shall not be subject to the 30 year limitation provided in R.I.G.L. § 34-4-21;

WHEREAS, the Department's written approval of this Restriction is contained in the document entitled: Remedial Approval Letter issued pursuant to the Remediation Regulations;

WHEREAS, to prevent exposure to or migration of Hazardous Substances and to abate hazards to human health and/or the environment, and in accordance with the Remedial Approval Letter, the Grantor desires to impose certain restrictions upon the use, occupancy, and activities of and at the Property;

WHEREAS, the Grantor believes that this Restriction will effectively protect public health and the environment from such contamination; and

WHEREAS, the Grantor intends that such restrictions shall run with the land and be binding upon and enforceable against the Grantor and the Grantor's successors and assigns.

NOW, THEREFORE, Grantor agrees as follows:

A. Restrictions Applicable to the Property: In accordance with the Remedial Approval Letter, the use, occupancy and activity of and at the Property is restricted as follows:

- i. No unrestricted residential use of the Property shall be permitted that is contrary to Department approvals and restrictions contained herein;
- ii. No groundwater at the Property shall be used as potable water;
- iii. No soil at the Property shall be disturbed in any manner without written permission of the Department's Office of Waste Management, except as permitted in the Soil Management Plan (SMP) approved by the Department in a written approval dated [DATE], and attached hereto as Exhibit B;
- iv. Humans engaged in activities at the Property shall not be exposed to soils containing Hazardous Materials and/or petroleum in concentrations exceeding the applicable Department approved Direct Exposure Criteria set forth in the Remediation Regulations;
- v. No new proposed fully-enclosed structures or buildings, including buildings meant for human occupancy, or any structure in which potential explosive conditions due to the methane buildup could occur, shall be constructed at the Property, without written permission of the Department's Office of Waste Management, except as permitted in the SMP contained in Exhibit B and attached hereto; and
- vi. The engineered controls at the Property described in the SMP contained in Exhibit B attached hereto shall not be disturbed and shall be properly maintained to prevent humans engaged in industrial/commercial activity from being exposed to soils containing Hazardous Materials and/or petroleum in concentrations exceeding the applicable Department-approved industrial/commercial Direct Exposure Criteria in accordance with the Remediation Regulations.

B. No action shall be taken, allowed, suffered, or omitted at the Property if such action or omission is reasonably likely to:

- i. Create a risk of migration of Hazardous Materials and/or petroleum;
- ii. Create a potential hazard to human health or the environment; or
- iii. Result in the disturbance of any engineering controls utilized at the Property, except as permitted in the Department-approved SMP contained in Exhibit B.

C. Emergencies: In the event of any emergency which presents a significant risk to human health or to the environment, including but not limited to, maintenance and repair of utility lines or a response to emergencies such as fire or flood, the application of Paragraphs A (iii.-

vi) and B above may be suspended, provided such risk cannot be abated without suspending such Paragraphs and the Grantor complies with the following:

- i. Grantor shall notify the Department's Office of Waste Management in writing of the emergency as soon as possible but no more than three (3) business days after Grantor's having learned of the emergency. (This does not remove Grantor's obligation to notify any other necessary state, local or federal agencies.);
- ii. Grantor shall limit both the extent and duration of the suspension to the minimum period reasonable and necessary to adequately respond to the emergency;
- iii. Grantor shall implement reasonable measures necessary to prevent actual, potential, present and future risk to human health and the environment resulting from such suspension;
- iv. Grantor shall communicate at the time of written notification to the Department its intention to conduct the Emergency Response Actions and provide a schedule to complete the Emergency Response Actions;
- v. Grantor shall continue to implement the Emergency Response Actions, on the schedule submitted to the Department, to ensure that the Property is remediated in accordance with the Remediation Regulations (or applicable variance) or restored to its condition prior to such emergency. Based upon information submitted to the Department at the time the ELUR was recorded pertaining to known environmental conditions at the Property, emergency maintenance and repair of utility lines shall only require restoration of the Property to its condition prior to the maintenance and repair of the utility lines; and
- vi. Grantor shall submit to the Department, within ten (10) days after the completion of the Emergency Response Action, a status report describing the emergency activities that have been completed.

D. Release of Restriction; Alterations of Subject Area: The Grantor shall not make, or allow or suffer to be made, any alteration of any kind in, to, or about any portion of the Property inconsistent with this Restriction unless the Grantor has received the Department's prior written approval for such alteration. If the Department determines that the proposed alteration is significant, the Department may require the amendment of this Restriction. Alterations deemed insignificant by the Department will be approved via a letter from the Department. The Department shall not approve any such alteration and shall not release the Property from the provisions of this Restriction unless the Grantor demonstrates to the Department's satisfaction that Grantor has managed the Property in accordance with applicable regulations.

E. Notice of Lessees and Other Holders of Interests in the Property: The Grantor, or any future holder of any interest in the Property, shall cause any lease, grant, or other transfer of any interest in the Property to include a provision expressly requiring the lessee, grantee, or transferee to comply with this Restriction. The failure to include such provision shall not

affect the validity or applicability of this Restriction to the Property.

- F. Enforceability:** If any court of competent jurisdiction determines that any provision of this Restriction is invalid or unenforceable, the Grantor shall notify the Department in writing within fourteen (14) days of such determination.
- G. Binding Effect:** All of the terms, covenants, and conditions of this Restriction shall run with the land and shall be binding on the Grantor, its successors and assigns, and each Owner and any other party entitled to control, possession or use of the Property during such period of Ownership or possession.
- H. Inspection & Non-Compliance:** It shall be the obligation of the Grantor, or any future holder of any interest in the Property, to provide for annual inspections of the Property for compliance with the ELUR in accordance with Department requirements.

A representative of the property owner with direct knowledge of past and present conditions of the Property (the "Representative"), or a qualified environmental professional will, on behalf of the Grantor or future holder of any interest in the Property, evaluate the compliance status of the Property on an annual basis. Upon completion of the evaluation, the Representative or environmental professional will prepare and simultaneously submit to the Department and to the Grantor or future holder of any interest in the Property an evaluation report detailing the findings of the inspection, and noting any compliance violations at the Property. If the Property is determined to be out of compliance with the terms of the ELUR, the Grantor or future holder of any interest in the Property shall submit a corrective action plan in writing to the Department within ten (10) days of receipt of the evaluation report, indicating the plans to bring the Property into compliance with the ELUR, including, at a minimum, a schedule for implementation of the plan.

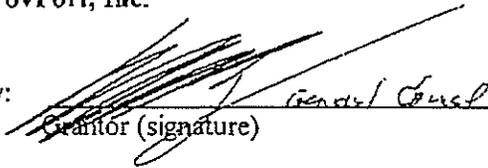
In the event of any violation of the terms of this Restriction, which remains uncured more than ninety (90) days after written notice of violation, all Department approvals and agreements relating to the Property may be voided at the sole discretion of the Department.

- I. Terms Used Herein:** The definitions of terms used herein shall be the same as the definitions contained in Section 3 (DEFINITIONS) of the Remediation Regulations.

IN WITNESS WHEREOF, the Grantor has hereunto set (his/her) hand and seal on the day and year set forth above.

ProvPort, Inc.

By:


Grantor (signature)

William G. Brady, General Counsel
Grantor (typed name)

STATE OF RHODE ISLAND
COUNTY OF PROVIDENCE

In PROVIDENCE, in said County and State, on the 28 day of APRIL, 2015,
before me Personally appeared WILLIAM G. BODDY, to me known and known by me to be the
party executing the foregoing instrument and (he/she) acknowledged said instrument by
(him/her) executed to be (his/her) free act and deed.

Notary Public: Beverly Motta Norton

My Comm. Expires: 3/27/2017

#47864

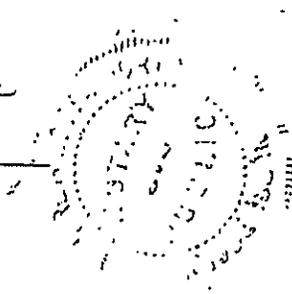
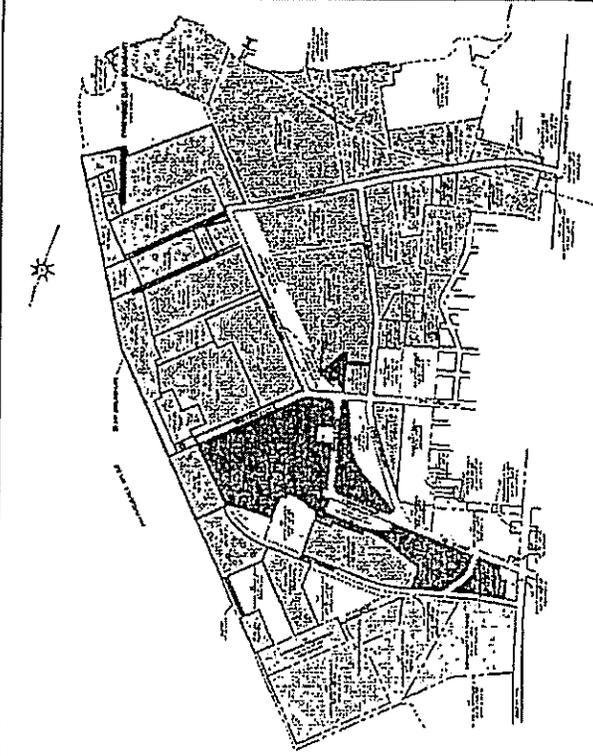


EXHIBIT A
 Figure 2. Property and ELUR Boundary



PROG 2-
 CERTIFICATION



- 1. [Symbol] Proposed Property
- 2. [Symbol] Proposed ELUR Boundary
- 3. [Symbol] Existing ELUR Boundary
- 4. [Symbol] Other

EXISTING ADJUSTMENTS

NO.	DESCRIPTION	DATE
1
2
3
4
5
6
7
8
9
10

UNAPPROVED

3 METERS 1,000 FEET

HAYDEN ENGINEERING CO. 1000 ... SACRAMENTO, CALIFORNIA	
DATE	...
PROJECT	...
CLIENT	...
SCALE	...
BY	...
CHECKED	...
APPROVED	...

Exhibit B
Soil Management Plan
Port of Providence
Terminal Road, Providence, Rhode Island
Assessor's Plat 56, Lots 350, 351, 352, 353, 354,
355, 356, 357, 358, 359, 360, 361, 362, 363 and 364

This Soil Management Plan (SMP) has been prepared to establish procedures that will be followed should future construction/maintenance activities at the above listed parcels of the Port of Providence property (the Property) require the need to manage soils excavated from the subsurface or when existing site surfaces / Rhode Island Department of Environmental Management (Department)-approved engineered controls (asphalt, concrete, landscaping and/or foundations) are disturbed. The plan serves to supplement, and will be initiated by, the Department notification requirement established by the Environmental Land Use Restriction (ELUR) for the Property.

This SMP applies to the above listed parcels and supersedes the SMP recorded in the land evidence records of the City of Providence for a portion of the Property by Glen Falls Lehigh Cement Company in August 2007.

Background

The Property, located at the Port of Providence on Terminal Road in Providence, Rhode Island, is operated as a multimodal port facility, a portion of which is constructed over land that was formerly a municipal landfill. The Property was found to contain levels of metals, polynuclear aromatic hydrocarbons, petroleum hydrocarbons and polychlorinated biphenyls (PCBs) in excess of the RIDEM Residential and/or Industrial/Commercial Direct Exposure Criteria during several site investigations performed at the property. The Department approved remedy included the following:

- Maintenance of Department approved engineered controls including existing asphalt pavement, concrete, and building foundations; and
- Maintenance of existing Department approved engineered controls previously constructed over portions of the Property; and
- Implementation of an ELUR to restrict future Property uses to Industrial / Commercial use and to maintain the integrity of the engineered controls.

The regulated site soils are covered with Department approved engineered controls, consisting of building foundations, asphalt pavement, concrete and landscaping in order to prevent direct exposure to regulated soils.

Applicable Area

This SMP and affiliated ELUR, which limits activity at the Property to restricted Industrial/Commercial use, pertain to the entire Property. See attached site Figures 1A, 1B and 2.

Soil Management

The risk of direct exposure of humans to contaminated soil is the primary concern at the Property. Individuals engaged in activities at the Property may be exposed through incidental ingestion, dermal contact, or inhalation of vapors or entrained soil particles if proper precautions are not taken. Therefore, the following procedures will be followed to minimize or eliminate the potential of exposure.

During site work, the appropriate precautions will be taken to restrict unauthorized access to the Property.

During all site/earth work, dust suppression (i.e. watering, etc) techniques must be employed at all times. If it is anticipated due to the nature of the contaminants of concern that odors may be generated during Property activities, air monitoring and means to control odors will be utilized, as appropriate (i.e. odor-suppressing foam, etc). Best management practices also include the managing and minimizing of the migration and/or surface run-off of hazardous materials at the Property during the remedial and/or future Property surface disturbances. This should be achieved via the installation of hay bales, silt fencing and any other appropriate measures during the entire duration of site/earth work.

In the event that an unexpected observation or situation arises during site work, such activities will immediately stop. Workers will not attempt to handle the situation themselves but will contact the appropriate authority for further direction.

In the event that certain soils on the Property were not previously characterized, these soils are presumed to be regulated until such time that it is demonstrated to the Department, through sampling and laboratory analysis that they are not regulated. (For example, presumptive remedies or locations of previously inaccessible soil.)

If excess soil is generated / excavated from the Property, the soil is to remain on the Property for analytical testing, to be performed by a qualified environmental professional, in order to determine the appropriate disposal and/or management options. The soil must be placed on and covered with a minimum of 6-mil polyethylene/plastic sheeting during the entire duration of its staging and secured with appropriate controls to limit the loss of the cover and protect against storm-water and / or wind erosion (i.e. hay bales, silt fencing, rocks, etc.).

Excavated soils will be staged and temporarily stored in a designated area of the Property. Within reason, the storage location will be selected to limit the unauthorized access to the materials (i.e., away from public roadways/walkways). No regulated soil will be stockpiled on the Property for greater than 60 days without prior Department approval.

In the event that stockpiled soils pose a risk or threat of leaching hazardous materials, a proper leak-proof container (i.e. drum or lined roll-off) or secondary containment will be utilized.

Soils excavated from the Property, which are to be disposed of off the Property, may not be re-used as fill on residential property. Excavated fill material shall not be re-used as fill on commercial or industrial properties unless it meets the Department's Method 1 Residential Direct Exposure Criteria for all constituents listed in Table 1 of the Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (Remediation Regulations). Soil must be sampled and analyzed, by a qualified environmental professional, at a frequency of one sample per 500 cubic yards for all constituents. Copies of the laboratory analysis results shall be maintained by the Property owner and included in the annual inspection report for the Property, or the closure report if applicable. In the event that the soil does not meet any of these criteria, the material must be properly managed and disposed of off the Property at a licensed facility.

Property soils, which are to be disposed of off-Property, must be done so at a licensed facility in accordance with all local, state, and federal laws. Copies of the material shipping records associated with the disposal of the material shall be maintained by the Property owner and included in the annual inspection report for the Property.

Best soil management practices should be employed at all times and regulated soils should be segregated into separate piles (or cells or containers) as appropriate based upon the results of analytical testing, when multiple reuse options are planned (i.e. reuse on the Property, reuse at a Department approved Industrial/Commercial property, or disposal at a Department approved licensed facility).

All non-disposable equipment used during the soil disturbance activities will be properly decontaminated as appropriate prior to removal from the Property. All disposable equipment used during the soil disturbance activities will be properly containerized and disposed of following completion of the work. All vehicles utilized during the work shall be properly decontaminated as appropriate prior to leaving the Property.

At the completion of site work, all exposed soils are required to be recapped with Department-approved engineered controls (2 feet of clean fill or equivalent: building foundations, 4 inches of pavement/concrete underlain with 6 inches of clean fill, and/or 1 foot of clean fill underlain with a geotextile liner) consistent or better than the Property surface conditions prior to the work that took place. These measures must also be consistent with the Department-approved ELUR recorded on the Property.

Any clean fill material brought on the Property is required to meet the Department's Method 1 Residential Direct Exposure Criteria or be designated by an Environmental Professional as Non-Jurisdictional under the Remediation Regulations. All clean fill, including sub-grade material and loam, imported to the Property must be sampled prior to delivery and placement. Clean fill and loam must be sampled for arsenic at a frequency of one sample per 500 cubic yards. One-quarter of the total number of compliance samples of clean fill and loam will be sampled for volatile organic compounds (VOC), semi-volatile organic compounds (SVOC), total metals (Priority Pollutant 13), and total petroleum hydrocarbons (TPH). All soil that is to be utilized on the Property must meet the Residential Direct Exposure Criteria or be certified to be Non-Jurisdictional. The Annual Inspection Report for the Property, or Closure Report if applicable, should include either analytical sampling results from the fill demonstrating compliance or alternatively include written certification by an Environmental Professional that the fill is not jurisdictional.

Worker Health and Safety

To ensure the health and safety of on-site workers, persons involved in the excavation and handling of the material on the Property are required to wear a minimum of Level D personal protection equipment, including gloves, work boots and eye protection. Workers are also required to wash their hands with soap and water prior to eating, drinking, smoking, or leaving the Property.

Department Approval

In accordance with Section A iii of the ELUR, no soil at the Property is to be disturbed in any manner without prior written permission of the Department's Office of Waste Management, except for minor inspections, maintenance, and landscaping activities that do not disturb the contaminated soil at the Property. As part of the notification process, the Property owner shall provide a brief written description of the anticipated Property activity involving soil excavation. The notification should be submitted to the Department no later than 60 days prior to the proposed initiation of the start of Property activities. The description shall include an estimate of the volume of soil to be excavated, a list of the known and anticipated contaminants of concern, a site figure clearly identifying the proposed areas to be excavated and/or disturbed, the duration of the project and the proposed disposal location of the soil.

In accordance with Section A v of the ELUR, no new proposed fully-enclosed buildings or structures, or any structure in which potential explosive conditions due to the methane buildup could occur, shall be constructed at the property without prior written permission of the Department's Office of Waste Management. As part of the notification process, the Property owner shall provide a brief written description of the characterization and evaluation of soil gas conditions in the area of the proposed new fully-enclosed building or structure in which potential explosive conditions due to the methane buildup could occur. If soil gas quality indicates the potential for risk to human health and the environment, or potentially explosive conditions, then the design parameters of the new fully-enclosed

building shall include active measures to address and/or mitigate the potential migration pathway of soil gas volatilization to indoor air, or the design parameters of the new enclosed structure in which potential explosive conditions due to the methane buildup could occur shall include active measures to address and/or mitigate the potential buildup of methane. The notification should be submitted to the Department no later than (60) sixty days prior to the proposed initiation of the start of site activities.

Following written Notification, the Department will determine the post-closure reporting requirements. Significant disturbances of regulated soil will require submission of a Closure Report for Department review and approval documenting that the activities were performed in accordance with this SMP and the Department-approved ELUR. Minor disturbances of regulated soil may be documented through the annual certification submitted in accordance with Section H (Inspection & Non-Compliance) of the Department-approved ELUR. The Department will also make a determination regarding the necessity of performing Public Notice to abutting property owners/tenants concerning the proposed activities. Work associated with the Notification will not commence until written Department approval has been issued. Once Department approval has been issued, the Department will be notified a minimum of two (2) days prior to the start of activities at the Property. Shall any significant alterations to the Department approved plan be necessary, a written description of the proposed deviation; will be submitted to the Department for review and approval prior to initiating such changes.

RECEIVED:

Providence
Received for Record
Jun 02, 2015 at 10:53A
Document Num: 00118448
John A Murshy
Recorder of Deeds



Wilcox & Barton INC.

CIVIL • ENVIRONMENTAL • GEOTECHNICAL

STORMWATER MANAGEMENT PLAN

**ProvPort, Inc.
Providence, Rhode Island**

RIPDES Authorization No.: RIR50Q054

Prepared for:

Waterson Terminal Services, LLC
35 Terminal Road
Providence, Rhode Island 02905
Contact: Mr. Stephen Curtis

Prepared by:

Wilcox & Barton, Inc.
#1B Commons Drive, Unit 12B
Londonderry, New Hampshire 03053
Contact: Mr. David Foss, CPG, LSP

Date: July 2019

Wilcox & Barton, Inc. Project No. WTSL0004

WWW.WILCOXANDBARTON.COM

1 (888) 777-5805

CERTIFICATION

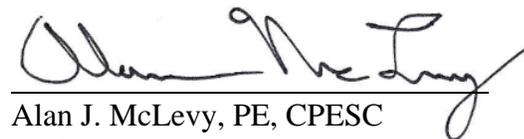
The following personnel have prepared and/or reviewed this report for accuracy, content, and quality of presentation.

Document Title: Stormwater Management Plan
ProvPort, Inc., Providence, Rhode Island
RIPDES Authorization No.: RIR50Q054

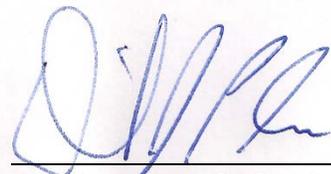
Date/Version: July 2019



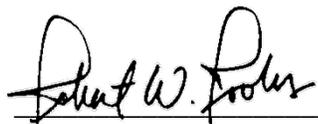
Meghan E. Toft
Project Engineer



Alan J. McLevy, PE, CPESC
Senior Engineer



David JP Foss, CPG, LSP
Senior Vice President



Robert W. Rooks, PE
Principal Engineer

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	Facility Location and Description.....	1
1.2	Revisions to the Stormwater Management Plan.....	3
2.0	DESCRIPTION OF POTENTIAL POLLUTANT SOURCES.....	4
2.1	Drainage Areas and Site Description.....	4
2.1.1	Drainage Areas.....	4
2.1.2	Site Description.....	7
2.2	Summary of Potential Pollutant Sources.....	8
2.2.1	Inventory of Exposed Materials.....	8
2.2.2	Methods and Locations of Storage.....	8
2.2.3	Material Loading/Unloading Operations and Tank Locations.....	8
2.2.4	Roof Areas.....	9
2.2.5	Outdoor Storage Activities.....	9
2.2.6	Outdoor Manufacturing or Processing Activities.....	10
2.2.7	Vehicle Maintenance Activities.....	10
2.2.8	Dust or Particle Generating Processes.....	11
2.2.9	On-Site Waste Disposal Practices.....	11
2.3	Allowable Non-Stormwater Discharges.....	11
2.4	Significant Leaks and Spills.....	11
2.5	Existing Stormwater Monitoring Data.....	12
3.0	NON-STRUCTURAL BEST MANAGEMENT PRACTICES.....	12
3.1	Good Housekeeping.....	12
3.2	Minimizing Exposure.....	12
3.3	Preventive Maintenance.....	13
3.4	Spill Prevention and Response Procedures.....	13
3.5	Employee Training.....	13
3.6	Routine Facility Inspections.....	14
3.7	Maintenance.....	14
4.0	STRUCTURAL BEST MANAGEMENT PRACTICES.....	14
4.1	Sediment and Erosion Control.....	14
4.2	Management of Runoff.....	14
4.3	Maintenance.....	15
5.0	CERTIFICATIONS.....	16
5.1	Non-Stormwater Discharges.....	16
5.2	Stormwater Management Plan.....	16
6.0	PLAN IMPLEMENTATION.....	17
6.1	Stormwater Pollution Team.....	17
6.2	Effluent Limitations Monitoring.....	17
6.3	Discharges to Impaired Waters Monitoring.....	17
6.4	Benchmark Monitoring.....	18
6.4.1	Sampling Point Descriptions.....	18
6.4.2	Sampling Requirements.....	19
6.5	Quarterly Visual Monitoring.....	20
6.6	Annual Report.....	21

TABLE OF CONTENTS

6.7	Corrective Actions	22
6.7.1	Level One Corrective Actions – Operational Source Control BMPs	22
6.7.2	Level Two Corrective Actions – Structural Source Control BMPs.....	22
6.7.3	Level Three Corrective Actions – Treatment BMPs	23
6.8	Recommendations.....	23
7.0	ENDANGERED SPECIES	23

Tables

Table 1	Stormwater Discharge Samples – Summary of Analytical Results
Table 2	Stormwater Management Team
Table 3	Analytical Monitoring Program

Figures

Figure 1	Site Location Map
Figure 2	Drainage Plan

Appendices

Appendix A	Notice of Intent and RIPDES Multi-Sector General Permit
Appendix B	SWMP Amendment Log
Appendix C	Inventory of Exposed Materials
Appendix D	Additional MSGP Documentation

1.0 INTRODUCTION

This Stormwater Management Plan (SWMP or Plan) has been prepared for the ProvPort, Inc. (ProvPort) facility located on Terminal Road in Providence, Rhode Island, in accordance with the requirements of the *Rhode Island Pollutant Discharge Elimination System (RIPDES) Multi-Sector General Permit for Storm Water Discharge Associated with Industrial Activity (MSGP)*. A copy of the facility's completed Notice of Intent (NOI) (August 2019) and the MSGP (revised May 2019), are contained in Appendix A.

The location of the facility is depicted on Figure 1 – *Site Location Map*. Features of the facility and surrounding properties are depicted on Figure 2 – *Drainage Plan*. This SWMP has been developed for use by Waterson Terminal Services, LLC to manage and monitor pollutants in stormwater discharged from the site described herein (facility or site). It is intended to address the requirements of the MSGP including:

- A description of the facility, with information on location and activities, a site map, and a description of the stormwater drainage system;
- Identification of potential stormwater contaminants;
- Spill prevention;
- Description of stormwater management controls and various best management practices (BMPs) to reduce pollutants in stormwater discharges;
- Discharge reporting requirements;
- Identification of members of the SWMP team and their responsibilities;
- A description of the facility's monitoring and inspection programs; and
- A description of the implementation schedule and provisions for amendment of the plan.

1.1 Facility Location and Description

The Port of Providence (the port) was constructed at Field's point, on the west side of the Providence River south of downtown Providence, in the 1930s and has been utilized since that time as a deep-water port and maritime support facility. ProvPort was founded in 1994 and owns portions of the port, which is one of two deep-water ports in New England. Waterson Terminal Services, LLC manages the portions of the port owned by ProvPort that are referenced herein as the site or the facility. The facility provides long- and short-term storage of bulk commodities for import and export as well as labor for loading and unloading of cargo vessels. Waterson Terminal Services, LLC operates several storage areas and leases space to industrial tenants. Import and export operations are conducted using six shipping berths located on the eastern side of the site.

This SWMP was developed for ProvPort's operations (loading and unloading of shipments, and storage of import/export materials on land maintained by ProvPort, as well as routine maintenance activities associated with facilities and equipment). Tenants of ProvPort may, depending on their specific activities, have developed and maintain SWMPs specific to their

activities. The following tenants are currently known to maintain SWMPs specific to their industrial activities and therefore stormwater management associated with these properties have been excluded from this plan:

ProvPort Tenants Excluded from SWMP

Tenant	Alternate or Past Business Entity	Sector Category	RIPDES Authorization No.
Univar		C	RIR50C007
Lehigh NE Cement Co		E	RIR50E006
McInnis Cement		E	RIR50E009
Schnitzer Northeast	a.k.a. Metals Recycling, LLC	N	RIR50N003
SEA-3 Terminal		P	RIRNE0306
NEPT South	a.k.a. Citgo	Site-Specific	RIR0023809
NEPT North	a.k.a. Sunoco	Site-Specific	RIR0023817
Morton Salt, Inc.		Q	RIR50C010

The ProvPort property boundary is shown on Figure 2. Grey areas on this figure include those facilities listed above which maintain facility specific SWMPs. SEA-3 Terminal, which is a liquefied petroleum gas (LPG) propane distribution operation, is expected to be operational by the end of 2019 and will maintain its own SWMP. This portion of the ProvPort property was historically leased by Enterprise Products & Terminal (Enterprise) and has been closed for a long-term period. The portion of the ProvPort property that is leased by Morton Salt, Inc. was formerly included in the ProvPort SWMP, but now it operates under a facility specific SWMP. Portions of the ProvPort property that are leased by Grimaldi Lines and LGL for storage and exporting of used cars are included in this SWMP. Lot 288, a property owned by the City of Providence that ProvPort has developed for additional export storage used by Grimaldi Lines and LGL is also included in this SWMP.

In general, the ProvPort facility is bordered to the east by the Providence River (RI0007020E-01B) and to the west by Terminal Road, Fields Point Drive and Save the Bay Road. The Save the Bay facility is located to the south of ProvPort and Johnson and Wales University is located to the west. The covered salt storage area operated by Morton Salt, Inc. is located to the west of the Narragansett Bay Commission (NBC) property, which is surrounded by ProvPort to the north, east, and south. The facility is in the Seekonk River-Providence River Watershed (010900040901).

ProvPort operations include loading and unloading of vessels at six different berths (identified as Berths 1-6 on Figure 2), temporary and long-term cargo storage, and fueling, maintenance and washing of onsite vehicles and equipment. The main bulk commodities stored onsite include approximately 100,000 tons of salt (covered), 20,000 tons of aluminum oxide (covered), and 2,000 tons of copper slag. There is a smaller stockpile of approximately 200 tons of aluminum dregs that is stored on the dock apron for short term storage. The quantity of each material stored varies during the year, based on seasonal use and throughput.

The facility’s Standard Industrial Classification (SIC) is 4491 (Water Transportation Facilities – Marine Cargo Handling). Classification under the current SIC code indicates the facility has potential for exposure of materials and activities to stormwater, and point discharges of



stormwater from the site, and therefore continues to be subject to the RIPDES MSGP. This SWMP was prepared for the facility in accordance with the requirements of Sector Q (Water Transportation). An NOI for the facility was submitted to the Rhode Island Department of Environmental Management (RIDEM) in August 2019 to obtain coverage under the MSGP issued on May 3, 2019. A copy of the NOI and the MSGP are included in Appendix A.

As noted above and depicted on Figure 2, multiple industrial tenants are co-located on ProvPort property and are included within the scope of this SWMP. The tenant operations are briefly described as follows:

- Mid-American Salt currently occupies the former Ace Warehouse Building and is expected to vacate the building in early- to mid-2020. Plans are in place to demolish the building in the summer of 2020. Mid-American Salt currently stores, mixes, and bags salt inside the building.
- Grimaldi Lines and LGL consolidate vehicles for export to off-site salvaging operations. On-site operations include staging and loading of vehicles. No salvaging or scrap recycling activities are conducted on site.

The facility is serviced with water from the City of Providence in the Providence Water District and by the NBC for sanitary wastewater disposal. The eastern portions of New York Avenue and Harborside Boulevard are owned by the City of Providence but are within the facility. Fields Point Drive and Seaview Drive are also owned by the City of Providence and are entirely within the facility. The portions of New York Avenue and Harborside Drive within the facility and all of Fields Point Drive and Seaview Drive are plowed and swept by Waterson Terminal Services, LLC. The infrastructure within these streets is owned by the City of Providence.

1.2 Revisions to the Stormwater Management Plan

As a matter of policy, this Plan should be reviewed at least annually, and when appropriate. In accordance with the MSGP, the SWMP shall be revised under the following conditions:

- ProvPort receives notification from RIDEM that the Plan does not meet one or more of the minimum requirements of the MSGP. After such notification from RIDEM, the Plan will be amended and submitted to RIDEM with a written certification that the requested changes have been made. Unless otherwise indicated by RIDEM, the necessary changes will be made to the Plan within thirty (30) days after such notification.
- A change in the design, construction, operation, or maintenance at the facility that has a significant effect on the potential for the discharge of stormwater pollutants to the waters of the State; a release of reportable quantities of hazardous substances and/or oil; or if the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with industrial activity. Changes shall be noted in the SWMP and submitted to RIDEM within thirty (30) days of the date of the Plan amendments.
- A determination during inspections, monitoring, or investigations by the permittee or by local, State, or Federal officials that the SWMP is ineffective in eliminating or

significantly minimizing stormwater pollutants or is otherwise not achieving the general objectives of controlling pollutants in stormwater discharges from the facility.

Records showing the dates of all SWMP modifications, including the name of the person authorizing each change and a brief summary of all changes will be maintained in Appendix B.

2.0 DESCRIPTION OF POTENTIAL POLLUTANT SOURCES

2.1 Drainage Areas and Site Description

2.1.1 Drainage Areas

Drainage at the ProvPort facility is shown on Figure 2. Waterson Terminal Services, LLC performs industrial activities within 9 distinct drainage areas. The Drainage Plan depicts the stormwater discharge locations, outlines of the drainage areas, existing stormwater conveyance structures, areas where potential pollutant materials are stored and potentially exposed to precipitation, and loading/unloading areas. Drainage improvements along the dock edges are being designed and proposed, but a schedule for implementation has not been established. The SWMP and Drainage Plan will be modified as necessary after any improvements are made.

Drainage Area 1

This area encompasses roughly 15 acres in the northern portion of the site and includes Berths 1, 2, and a portion of 3 as well as the southern corner of the covered aluminum oxide storage tent. Activities in this area include temporary storage of vehicles, storage of aluminum oxide in a covered tent, and loading, unloading, and temporary storage of materials on the dock aprons. Dry cement is unloaded from ships in Berths 1, 2, and 3 directly into series of aboveground and underground piping. Cement in is exposed when ship holds are opened. Waterson Terminal Services, LLC does not use or process the materials for any industrial activities or produce finished products at the facility. Temporarily stockpiled materials in this drainage area include:

- **Copper Slag** – Material is typically stored near Berths 5 and 6 but may be temporarily stored in Berths 2 and 3. The material is currently shipped from Japan and primarily used by paint manufacturers as a non-skid material in paint coating products. The material is occasionally used by shipyards as an abrasive for removing paint and rust from vessels. Drainage booms will be placed around temporary piles.
- **Aluminum Oxide** – Material is shipped from China as gravel-sized particles and is typically used in manufacturing of sandpaper and grinding wheels. It is trucked from the port to customers throughout New England.
- **Aluminum Dregs** – Material typically stored in Berth 4 but may be temporarily stockpiled in Berths 2 and 3. Drainage booms will be placed around temporary piles.
- **Road Salt** – Material is typically stored in Drainage Areas 4 and 8 but may be temporarily stockpiled Berths 2 and 3. Drainage booms will be placed around temporary piles.

The quantities of these products vary with time, but the material management methods and procedures do not.

The ProvPort office, located at 35 Terminal Road, is in the northern end of this drainage area. The northern side of the storage area along New York Avenue and the former Marine Terminal Building (McInnis Cement building), as well as the side immediately adjacent to Berth 3 along the southern side of the McInnis Cement building, are surrounded by a series of concrete blocks lined with drainage booms. Drainage booms are also located along the fence line on the southern side of the drainage area that borders the McInnis Cement property. Stormwater in this area drains east toward the Providence River via sheet flow and discharges over the dock. Stormwater overtops the rail lines on the eastern side of the area periodically during larger rainfalls and drains via sheet flow to the river. Drainage booms along the majority of the perimeter of the dock are designed to prevent sediment and potential pollutants in the sheet flow water from entering the River.

Drainage Area 2

This area encompasses approximately 4.5 acres including the northern portion of the covered aluminum oxide storage tent and a relatively flat area adjacent to Schnitzer Metals and McInnis Cement. Main activities in this area are bulk storage of the aluminum oxide. A row of concrete blocks lined with drainage booms are located between the McInnis Cement building and the covered aluminum oxide storage tent but the drainage booms are no longer needed now that coal is no longer stored in the area. The area drains to a series of catch basins within the concrete apron on the northern side of the McInnis Cement building. One of the catch basins that was damaged was recently rebuilt and is now protected by drainage booms and raised paving. A plan is in place to install sediment filter inserts into these catch basins. These catch basins connect to the storm drain line located on Field Point Road and ultimately discharge via a submerged municipal stormwater outfall (001/002) to the Providence River.

Drainage Area 3

This area encompasses roughly 9.8 acres and includes Berth 4 and portions of Berths 3 and 5 along the eastern portion of the site. This area is primarily used for import and export activities, and temporary storage of materials, including aluminum dregs, on the dock aprons. Aluminum dreg is a byproduct of the aluminum refining process and is shipped to the facility from China as large gravel-sized to small stone-sized particles. The material is shipped out periodically and delivered by railcar to Canada for further refining and extraction of metals.

Scrap metal from the Schnitzer Metals facility is loaded and unloaded in this area. Metals loaded onto trucks at the Schnitzer facility are transported to the dock apron at Berth 4, where they are dumped onto a skip pan, lifted by crane, and dropped within the vessel hold of a ship. This area receives some stormwater from Sea View Drive that is not captured by the storm drains located along the roads and drains via sheet flow into the area. Stormwater from this drainage area drains over the dock via sheet flow.

Lehigh Cement unloads dry cement from ships in Berth 3 through series of underground and aboveground piping. Cement is exposed when the ship holds are opened.

Drainage Area 4

This area encompasses the southern portion of Berth 5, the southernmost dock area (Berth 6) and a portion of the paved lot leased by Grimaldi Lines and LGL (Lot 364). This 5.7-acre area is mostly used for vehicles storage prior to export but is also used for import and export activities and temporary storage of materials on the dock aprons. A stockpile of copper slag is typically stored on the western side of this drainage area. The material is currently shipped from Japan and primarily used by paint manufacturers as a non-skid material in paint coating products. The material is occasionally used by shipyards as an abrasive for removing paint and rust from vessels. A covered road salt storage pile surrounded by drainage booms is located in the southern corner of the area. Water from this drainage area drains over the dock via sheet flow.

Drainage Area 5

This approximately 9.1-acre area is located in the southern end of the Port. This area is primarily paved and is leased by Grimaldi Linea and LGL and is used for vehicle storage prior to export. Stormwater in this area drains east where it is treated by a pair of detention basins that discharge to the river via a culvert (Lot 288 Outfall 001).

Drainage Area 6

This approximately 2.7-acre undeveloped area is a vegetated buffer forming the southern and eastern edges of the site. Stormwater generated from this area drains via sheet flow to a grassy swale and landscaped area or overland to the Providence River. No industrial activity occurs in this area.

Drainage Area 7

This roughly 4.9-acre area is located in the southwestern portion of the site and is generally used as a staging point for vehicle storage. Vehicles are stored here before being moved to Drainage Areas 4 and 5 prior to being loaded out by ship. Stormwater in this area drains via sheet flow to a catch basin located at the corner of Harborside Boulevard and Fields Point Drive. This catch basin is connected to the municipal drainage system in Harborside Boulevard and discharges to the Providence River via the submerged municipal outfall 003 located in line with Harborside Boulevard.

Drainage Area 8

This area currently consists of the Mid-American Salt building. Stormwater generated in this area consists of roof drainage from the 2.8-acre building and is collected and drained into the municipal system in Harborside Boulevard via 6-inch plastic piping. That system ultimately discharges to the Providence River via the submerged municipal outfall 003 located in line with Harborside Boulevard. Bulk salt is stored inside the east portion of the building and is mixed and

bagged inside the west portion of the building. The Mid-American Salt building is fully contained and stormwater does not contact pollutants in this drainage area.

Drainage Area 9

The Maintenance Building (Lot 322) and the lot to the west of the Mid-American Salt building comprise this drainage area. The land between the Mid-American Salt building and the Maintenance Building is primarily covered by deteriorating asphalt pavement but contains areas with gravel surfaces and asphalt and concrete pavement in fair condition. Areas around the Maintenance Building are either covered by asphalt pavement or gravel surfaces. The exterior areas are largely vacant or not in active use while others are used to store vehicles and heavy equipment.

Six full or partially-silted catch basins between the Mid-American Salt building and the Maintenance Building connect to the drainage system in Harborside Boulevard that ultimately discharge to the Providence River via the submerged municipal outfall 003 located in line with Harborside Boulevard. Because one of the catch basins is damaged and all are partially or completely full with sediment and debris, this area experiences ponding during rain events. If the ponded water overtops in this drainage area, it flows toward the municipal catch basins in Harborside Boulevard and Sea View Drive which ultimately discharge through outfall 003. There is some storage of gravel, trucks, and various pieces of equipment in this area.

2.1.2 Site Description

The portion of the facility covered in this SWMP includes three buildings: the office building at 35 Terminal Road (Drainage Area 1), the Mid-American Salt building (Drainage Area 8), and the Maintenance Building (Drainage Area 9). Site surfaces consist of paved drives and parking lots surrounding the buildings, the paved dock area, and the gravel area within the drainage dike surrounding the LPG tank (Drainage Area 3).

As noted on Figure 2, multiple “excluded” tenants are located on ProvPort property. The majority of these facilities maintain facility-specific RIPDES approvals and SWMPs. The SEA-3 Terminal LPG facility maintains a site-specific SWMP and has, therefore, been excluded from the ProvPort SWMP. The portion of the facility, formerly leased by Enterprise, historically maintained one 19.3 million-gallon LPG storage tank located between the Univar property and Lehigh Cement property is currently empty and inert. SEA-3 Terminal is expected to be operational by the end of 2019. This facility is contained by a dike that retains runoff within the drainage area. The drainage dike has a gravel bottom which has some capacity for infiltration. A sump collects runoff which cannot be readily infiltrated from this area and conveys it south over the containment dike to an adjacent catch basin which is connected to the NBC sewer system.

Most of the site is relatively flat with gradual downward slopes to the east and south, toward the Providence River. The portion of the site subject to this SWMP consists of approximately 67 acres of the approximately 100-acre ProvPort property. Site acreage was determined from property lines given on the survey from Waterman Engineering referenced in Figure 2. An estimated 60 acres of the site is impervious, consisting largely of building roofs and asphalt

pavement. The remaining portion of the site consists of the eastern portion of the gravel-lined LPG facility secondary containment dike and the vegetated areas covering Drainage Area 6. Based on runoff coefficients 0.7 for gravel and 0.9 for impervious surfaces, the weighted runoff coefficient for the site is approximately 0.89.

2.2 Summary of Potential Pollutant Sources

2.2.1 Inventory of Exposed Materials

An inventory of materials and equipment stored or handled with potential exposure to stormwater is contained in Appendix C.

2.2.2 Methods and Locations of Storage

Methods and locations of materials stored with the potential for exposure to stormwater are listed in Appendix C. Locations of potential pollutant sources are shown on Figure 2. Some outdoor storage areas are covered (e.g. the aluminum oxide storage area and salt storage area) while some outdoor storage areas are not (e.g. copper slag and aluminum dregs). Vehicle maintenance materials (antifreeze, lubricants, etc.) are stored and handled inside the Maintenance Building.

2.2.3 Material Loading/Unloading Operations and Tank Locations

ProvPort maintains six berths along the dock where barges and ships park for material loading and unloading. Berth 1 is the northernmost berth located adjacent to the main ProvPort office building and Berth 6 is the southernmost berth located just north of Lot 288 Outfall 001. Berths 1 and 2 are generally used for small project cargo vessels and serve as barge dockage areas. Berths 1 and 2 are mainly used for barge or vessel import of McInnis Cement. Berths 3, 4, and 5 are used for foreign and domestic scrap export and import. Depending on berth availability, import may occur on any of the six berths. Onsite machinery transports imported items to onsite short- or long-term storage areas. Bulk deliveries of salt, copper slag, aluminum slag, and aluminum oxide are transported to their respective stockpile areas and materials are added to or removed from these stockpiles as needed. Materials temporarily stored along the loading docks are surrounded with temporary berms.

The Lehigh Cement and McInnis Cement companies transport materials from ships to their facilities via a series of underground and above ground piping located in Berths 1, 2, and 3. Dry cement is exposed when the ship holds are opened. Scrap metal from the Schnitzer facility is also loaded and unloaded in this area. Metals loaded onto trucks at the Schnitzer facility are transported to the dock apron at Berth 4 where they are dumped onto a skip pan that is lifted by crane and dropped into the vessel's hold. These tenants maintain facility-specific SWMPs for their individual operations. The potential exists for leaks from cement piping or tracking of metal dust from the Schnitzer facility.

Vehicle maintenance supplies are unloaded inside the Maintenance Building located at the western end of Sea View Drive. Only one container of each material (e.g. antifreeze, motor oil, brake fluid) is used at a time. Less than ten 55-gallon drums of oils and antifreeze are stored in

the Maintenance Building and these containers are stored on a plastic secondary containment pallet within the building. A private contractor removes waste oil from this area. A spill kit is kept in the Maintenance Building. Retail volumes of paints and solvents are stored in the basement of the main office building for maintenance activities.

Waterson Terminal Services, Inc. equipment is also stored inside of the Maintenance Building and vehicle maintenance activities occur inside of the Maintenance Building or off site by contracted vendors. Materials and equipment in this area are stored indoors and are not exposed to stormwater.

2.2.4 Roof Areas

Roofing materials on the Mid-American Salt building in Drainage Area 8 consist of ethylene propylene diene monomer (EPDM) rubber. Roof drains from the Mid-American Salt building are piped to the municipal drainage system located on Sea View Drive via 6-inch plastic piping and ultimately discharges to the Providence River.

The ProvPort office building is located within Drainage Area 1. Down spouts from this building discharge to the ground adjacent to the building, and runoff sheet flows to the east within Drainage Area 1.

Downspouts from the Maintenance Building in Drainage Area 9 discharge to the ground adjacent to the building and runoff either infiltrates gravel or deteriorating asphalt areas, ponds in the area of silted in catch basins on the east side of the drainage area, or flows into Harborside Boulevard and towards the east.

2.2.5 Outdoor Storage Activities

Outdoor storage consists of a covered salt pile, a covered aluminum oxide pile, uncovered aluminum oxide dreg and copper slag piles, vehicles for export, and temporary storage of import and export materials. Most of the site, with the exception of Drainage Area 6, is used for either long-term storage or for short-term storage and handling associated with import/export along the shipping berths.

Approximately 2,000 tons of copper slag and up to 100,000 tons of road salt (covered) are stored in stockpiles in Drainage Area 4. Vehicles for export are stored in the open paved areas in the southern portion of the site (Drainage Areas 4, 5, and 7) and in the northern portion of the site (Drainage Area 1). Approximately 20,000 tons of aluminum oxide (covered) are stored in Drainage Areas 1 and 2 and 200 tons of aluminum oxide dregs are stored in Drainage Area 3. Temporary storage of other import and export materials may occur in Drainage Areas 1 and 3 along the dock and berthing areas.

Outdoor storage areas are identified on Figure 2. Methods and locations of materials stored with the potential for exposure to stormwater are listed in Appendix C. Pollutants that may be associated with outdoor storage include metals, semi-volatile organic compounds (SVOC), petroleum hydrocarbons, oil and grease, and suspended solids.

2.2.6 Outdoor Manufacturing or Processing Activities

No manufacturing or processing activities take place outdoors at this facility.

2.2.7 Vehicle Maintenance Activities

The on-site vehicle fleet consists of approximately 30 vehicles. Only equipment associated with on-site activities is maintained at the facility. Vehicle maintenance work is performed inside the Maintenance Building located on the western end of Sea View Drive. Mechanics are responsible for topping off motor fluids, oil changes, parts replacement, welding repairs, painting, and dismantling damaged vehicles. These activities are performed indoors, and no stormwater exposure occurs in this area. Floor drains inside of the Maintenance Building area connected to an oil/water separator that discharges to the municipal sewer system. An outside vendor maintains the oil/water separator. The potential for stormwater pollution is limited to incidental outdoor spills from deliveries and transfers, metal cutting, vehicle exhaust, and potential airborne materials from building exhausts.

Vehicle Washing Activities

Waterson Terminal Services, Inc. washes vehicles and equipment in a designated wash bay inside the Maintenance Building using heated water and degreasers and detergents as needed. Wash water is collected by an oil and water separator, which is vacuumed out periodically and connects to the municipal sewer. Waste from the oil and water separator is recovered by a qualified vendor, properly handled and tracked, and transported for disposal/recycling.

Waterson Terminal Services, Inc. performs occasional vehicle washing at the western side of Drainage Area 3. Washing is completed within containment booms around the washing area to prevent contaminated water from exiting the washing area. Wash water does not include chemicals, soaps, detergents, steam, or heated water. The washing process is restricted to the outside of vehicles (i.e., no engines, transmissions, undercarriages, or truck beds) and is not used to remove accumulated industrial materials, paint residues, heavy metals or any other potentially hazardous materials from the vehicle surfaces. The wash water generally remains within the area.

During storm events, water in this area can flow over the containment boom system to the dock and drain via sheet flow toward the Providence River. It is facility policy that vehicles are washed only during dry weather. Possible pollutants resulting from this activity may include total suspended solids (TSS), volatile organic compounds (VOCs), surfactants, and petroleum hydrocarbons.

Vehicle Fueling Activities

A private contractor fuels the facility's two cranes utilized on the dock and the facility's 1,500-gallon diesel fuel tank truck. Cranes and the tank truck remain within the facility. Fleet vehicles within the facility are refueled using the tank truck. The fuel vendor and the tank truck are equipped with spill kits should a spill occur. A 100-gallon fuel tank is kept on a truck that is stored inside the Maintenance Building and is used for minor refueling of vehicles.

2.2.8 Dust or Particle Generating Processes

Point sources of air pollutant emissions at the facility include dusts from the material stockpile areas. Dust towers are used along the dock to control fugitive dust from loading and unloading operations. Drainage booms along the dock to prevent sediment in onsite water from entering the Providence River, while allowing high-level overflows of water from which sediment has settled. These drainage booms are inspected during weekly site inspections and are replaced as needed. The booms are also observed daily during loading and unloading operations on the respective shipping berths.

Vehicle access areas are paved, minimizing dust generation from the ground surface. A water truck is used for wetting down streets and dock aprons. A street sweeper is used weekly site wide, and daily in heavily trafficked areas. Areas where loading and unloading of ships occur are swept immediately after cargo operations are completed. This practice removes material which could form fugitive dust. Street sweepings are stored in waste containers and disposed of off site by a disposal contractor.

2.2.9 On-Site Waste Disposal Practices

Trash containers for housekeeping are located throughout the site. Waste from smaller plastic containers is consolidated into dumpsters. A private contractor removes the solid waste from the dumpsters for off-site disposal.

Waterson Terminal Services, LLC accumulates waste automotive fluids (derived from on-site vehicle maintenance) inside the Maintenance Building (mentioned above) and retains a waste contractor to remove these materials, as well as used oil filters.

On-site waste activities may result in suspended solids, nutrients, metals, chemical oxygen demand (COD), and petroleum hydrocarbons in stormwater.

2.3 Allowable Non-Stormwater Discharges

Part I.B.2. of the RIPDES MSGP lists allowable non-stormwater discharges. No allowable non-stormwater discharges were observed during recent site visits.

2.4 Significant Leaks and Spills

There has not been a release in excess of reportable quantities at the facility in the last five years. Significant leaks and spills are defined in the RIPDES regulations as including but not being limited to "releases of oil or hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (40 CFR 110.6 and 40 CFR 117.21) or Section 102 of CERCLA (40 CFR 302.4)." If a release in excess of a reportable quantity occurs, the RIDEM Office of Water Resources must be notified immediately to fulfill the reporting requirements of 40 CFR 117 and 40 CFR 302. Table 117.3 in 40 CFR Chapter I Part 117.3 provides a list of reportable quantities for various substances. A list of any future significant spills or leaks will be

maintained in the log provided in Appendix D. This log includes information about spill locations, materials, quantity released, and response procedures.

2.5 Existing Stormwater Monitoring Data

The facility is required to perform quarterly visual stormwater monitoring, benchmark monitoring, and impaired waters monitoring as discussed further in Section 6. Waterson Terminal Services, Inc. will maintain documentation of stormwater related inspection activities on site for a minimum of five years. Stormwater monitoring data collected during the term of this permit will be summarized and included in an Annual Report. Stormwater monitoring data from 2018 is included in Table 1 - *Stormwater Discharge Samples – Summary of Analytical Results*.

3.0 NON-STRUCTURAL BEST MANAGEMENT PRACTICES

3.1 Good Housekeeping

Good housekeeping practices are employed at the facility to provide a clean and orderly work environment. This contributes to a reduction in stormwater pollution from activities at the facility and the possibility of accidental spills or leaks. Good housekeeping practices employed at the facility include:

- Pathways and walkways are maintained and containers and drums are stored such that they do not protrude into pathways.
- Drums which are in active use are staged on supports equipped with secondary containment to limit migration of spills.
- Paved areas are swept weekly site wide, and daily in heavily trafficked areas. Areas of ship activity are swept immediately after cargo operations are completed. The scrap metals tenant is responsible for conducting daily sweeping and debris removal during transfer operations under their own SWMP.
- Storage tanks are inspected and monitored on a regular basis.
- Litter and debris are picked up on a regular basis.
- Incidental spills are promptly cleaned/removed (for large uncontrolled spills, a spill contractor will be notified).

3.2 Minimizing Exposure

Material management practices reduce or eliminate contact of materials with stormwater. At a minimum, the following material management practices are implemented at the facility:

- Tanks and containers are clearly labeled as to their contents and classification and are stored in designated areas with secondary containment as appropriate.

- Vehicle maintenance activities are conducted indoors at the Maintenance Building or at offsite locations by vendors. The use of petroleum products is generally conducted indoors at the Maintenance Building.
- Containers are properly sealed during transport. If materials need to be stored outdoors, such materials will be covered to the extent practical to minimize exposure to precipitation.
- Bulk quantities of materials (salt etc.) will be promptly transported to their long-term storage locations (which are equipped with stormwater control measures) to minimize contact with stormwater.

3.3 Preventive Maintenance

Preventive maintenance at the facility involves inspecting, testing, maintaining, and repairing facility equipment and systems to avoid breakdowns or failures that may result in discharges of pollutants to surface waters and visual inspection of areas that could generate spills or leaks. Drainage booms on the shipping berths and the structural controls around various stockpiles are routinely inspected and repairs or replacements are performed as warranted to control runoff from the site. Routine dust control activities occur to prevent the escape of fugitive dust.

The facility maintains a maintenance inspection checklist that is completed periodically to ensure proper function of all equipment. This inspection will be completed in addition to or as part of the routine facility inspection, as discussed in Section 6.

3.4 Spill Prevention and Response Procedures

All potential pollutants are stored in secondary containment (other than the bulk commodity stockpile areas). On-site spill response equipment is maintained near all storage tank areas. Facility personnel will respond only to incidental spills involving materials that employees routinely handle. Employees are trained regularly on spill response and prevention. The facility's safety plan further addresses spill prevention and response procedures. The site also maintains an Emergency Action Plan. Companies and vendors that are arranged by vessels for bunkering have specific spill prevention plans.

3.5 Employee Training

Waterson Terminal Services, Inc. will conduct annual training for employees whose activities could impact the quality of stormwater runoff from the site and for employees that work in areas where materials or equipment are exposed to stormwater. Stormwater training may be combined with other health, safety, or emergency response training programs. The training will consist of a review of the stormwater program, including the objectives of the MSGP and SWMP, potential pollutant sources, spill response, stormwater outfalls, and BMPs.

Although some activities are not performed at the facility, training will include the following items: used oil management, spent solvent management, disposal of spent abrasives, disposal of vessel wastewaters, spill prevention and control, fueling procedures, general good housekeeping

practices, painting and blasting procedures and used battery management in accordance with Part VIII.Q. of the MSGP.

Appendix D contains a sample attendance sheet for employee training sessions.

3.6 Routine Facility Inspections

Qualified facility personnel will conduct routine facility inspections of areas where industrial materials or activities are exposed to stormwater and at least quarterly. In accordance with Part VIII.Q. of the MSGP, routine facility inspections include inspection of pressure washing areas, material storage areas, engine maintenance and repair areas, material handling areas, dry dock areas, and general yard areas. The inspections will also include an evaluation of existing stormwater BMPs, including drainage booms located along the majority of the length of the docks and around stockpiles.

Drainage booms are inspected weekly and during ship loading and unloading to determine if replacement is necessary. Any deficiencies identified during the inspections will be addressed as soon as practicable, but not later than within 14 calendar days of the inspection. The results of routine facility inspections and corrective actions taken in response to any identified deficiencies will be documented and maintained on site with the SWMP. At least once per calendar year, the routine facility inspection must be conducted during a period when a stormwater discharge is occurring. The findings of the routine facility inspection will be included in the Annual Report. Appendix D provides forms for the Routine Facility Inspections.

3.7 Maintenance

Non-Structural BMPs identified in this section shall be maintained by appropriate means (e.g. spill response supplies available and personnel trained, etc.).

4.0 STRUCTURAL BEST MANAGEMENT PRACTICES

4.1 Sediment and Erosion Control

The site is relatively flat and there is little potential for erosion. There are very few unpaved areas on that would be subject to sedimentation and erosion, and those areas primarily consist of grassy riverfront areas outside of the industrial areas. Riprap slope protection is provided along slopes of some of the containment dikes. Paved areas of the facility are swept on a regular basis to remove sand and debris (weekly site wide, daily in high-traffic areas, and immediately following cargo operations).

4.2 Management of Runoff

The facility practices good housekeeping and material handling practices, which contribute to a reduction in stormwater pollution.

Drainage booms (also referred to as “filter socks”) run along the majority of the length of the dock to prevent potentially contaminated runoff from entering the Providence River. The booms allow suspended solids to settle out of stormwater prior to discharge to the Providence River. There are also drainage booms located along the fence line between Schnitzer Metals Recycling and Drainage Area 1 to minimize migration of pollutants onto the site. Drainage booms are also used around the outdoor vehicle washing area. The booms are visually inspected weekly and during loading and offloading procedures and are replaced as needed to maintain their intended performance.

Exterior uncovered stockpiles are surrounded by booms during periods of inactivity in order to prevent erosion and transport across the dock area. The covered salt pile in Drainage Area 4 is also surrounded by drainage booms. These booms are temporarily removed and replaced when material is added or removed from the stockpiles or when otherwise manipulating the piles.

Temporary stockpiles on the dock are relocated to their permanent storage locations as quickly as is feasible in order to create space for other loading and unloading activities, and thus are not maintained in an unprotected state on the dock for extended periods of time (typically less than two weeks).

4.3 Maintenance

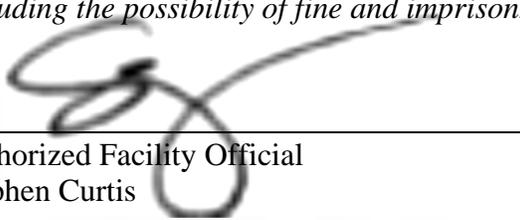
Structural BMPs described above shall be maintained in effective operating condition. Drainage booms will be inspected during weekly inspections and daily during routine loading and offloading procedures. If inspections identify BMPs that are not operating effectively, maintenance will be performed before the next anticipated storm event, or as necessary to maintain the continued effectiveness of stormwater controls. If maintenance prior to the next anticipated storm event is impracticable, maintenance must be scheduled within fourteen (14) days.

5.0 CERTIFICATIONS

5.1 Non-Stormwater Discharges

On December 27, 2019, Wilcox & Barton, Inc. personnel performed a visual inspection of the facility to identify potential non-stormwater discharges. Based on this evaluation and discussions with Waterson Terminal Services, Inc. personnel, the facility does not have non-stormwater discharges to facility storm drains or off-site, other than any allowable non-stormwater discharges as identified in this Plan. All floor drains have been closed or are connected to the sanitary sewer system. The following is a certification that the stormwater system contains only allowable discharges as of the date of this Plan.

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 evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Authorized Facility Official
Stephen Curtis

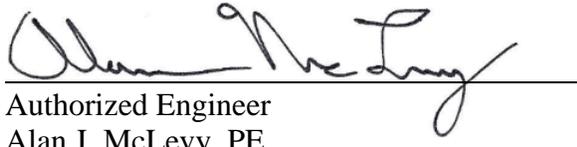
Facility Manager
Title

July 31, 2019
Date

5.2 Stormwater Management Plan

This Plan has been prepared in accordance with good engineering practices. Qualified personnel properly gathered and evaluated information submitted for this Plan. The information in this Plan, to the best of my knowledge, is accurate and complete.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.



Authorized Engineer
Alan J. McLevy, PE

Senior Engineer
Title

July 31, 2019
Date

6.0 PLAN IMPLEMENTATION

6.1 Stormwater Pollution Team

Personnel listed in Table 2 – *Stormwater Management Team* are designated as members of the Stormwater Management Team. The team members, their responsibilities, and contact phone numbers are listed in the table. The Stormwater Management Team is responsible for implementing, maintaining, and revising the SWMP.

6.2 Effluent Limitations Monitoring

Effluent limitations monitoring is not required under Table II-1 of the MSGP.

6.3 Discharges to Impaired Waters Monitoring

The Providence River is listed on RIDEM's 2016 Final 303(d) List of Impaired Waters. The impairments in the Providence River include low dissolved oxygen, nitrogen (total), and fecal coliform. RIDEM has attributed the dissolved oxygen impairment to nutrient loadings (including nitrogen) in the Providence River. Therefore, Waterson Terminal Services, Inc. is responsible for monitoring the Sampling Points described below on a quarterly basis for fecal coliform and total nitrogen. A sampling plan is detailed in Table 3 – *Analytical Monitoring Program*.

Total maximum daily loads (TMDLs) have not been established for these impairments. When TMDLs have not been completed for all listed impairments in a waterbody to which a facility discharges, monitoring of each impairment pollutant must occur at each outfall for all impairments (other than those impairments to a waterbody's biological community for which no pollutant is specified as causing the impairment). Monitoring must occur twice within the January 1 through June 30 period and twice within the July 1 through December 31 period for the first year of permit coverage. Upon completion of sampling, personnel responsible for sampling will submit the samples, along with all appropriate documentation, to the Con-Test Analytical Laboratory (Con-Test) in East Longmeadow, Massachusetts under standard chain of custody documentation for chemical analyses outlined in Table 3. Analytical monitoring results will be maintained with this plan in Table 1 and analytical laboratory reports will be kept on file with a copy of this plan. Analytical monitoring results must be saved and submitted electronically using the NetDMR system available at: <http://www.epa.gov/netdmr>

Monitoring data, including Benchmark Monitoring and Impaired Waters Monitoring, must be submitted no later than 15 days after the last day of the six-month monitoring period.

After two consecutive monitoring periods, if the samples do not contain the pollutant and it is not expected to be present in discharge from the facility, or it is present but the permittee has determined that its presence is caused solely by natural background sources, the permittee should include a notification to this effect in the first annual report, after which the permittee may be allowed to discontinue monitoring.

6.4 Benchmark Monitoring

The RIPDES MSGP requires that analytical monitoring events (i.e. benchmark monitoring) be conducted twice within the January 1 through June 30 period and twice within the July 1 through December 31 period for the first year of permit coverage. If the average of the four first-year monitoring values for any parameter does not exceed the benchmark, sampling may cease for the remainder of the permit term. However, if the average of the four first-year monitoring values for any parameter exceeds the benchmark, semiannual benchmark monitoring must continue and Corrective Actions must be implemented as discussed in Section 6.8. All sample analysis must be consistent with 40 CFR Part 136 analytical methods. The required sampling procedures, as outlined in the MSGP, are paraphrased below.

Benchmark monitoring parameters specified under Section Q (Water Transportation Facilities) of the RIPDES MSGP are provided in Table 3. The Section Q benchmarks are established for the following parameters:

- Total aluminum;
- Total iron;
- Total lead; and
- Total zinc.

In addition to these parameters, the MSGP requires benchmark monitoring of total suspended solids (TSS) and oil and grease for all sectors. Because scrap metal is transported through the site to the Schnitzer Materials facility, selected sample points will be assessed for COD, polychlorinated biphenyls (PCBs), and oil and grease, as required for operating under Sector N (scrap recycling and waste recycling facilities). These additional parameters will be compared to the Sector N benchmarks.

Analytical monitoring locations, frequencies, parameters and associated benchmark values are summarized in Table 3.

6.4.1 Sampling Point Descriptions

There is a total of nine discharge points from the nine drainage areas at the Site. Several of the discharge points are considered “substantially identical outfalls.” The following five sampling points will be sampled during benchmark monitoring events and the remaining discharge points will be considered “substantially identical” to the sampling points described below and will not be separately sampled. Analytical monitoring locations, frequencies, parameters, and associated benchmark values are summarized in Table 2. Sampling will occur at the following locations and are depicted on the Figure 2:

Sampling Point 1: This sampling point receives stormwater flow from Drainage Area 1, which includes Berths 1, 2, and a portion of 3 in the northern portion of the site, as well as surrounding paved areas. Activities in this area include some of the major import and export activities at the port, unloading, and temporary storage of materials on the dock aprons. Samples will be

collected at a low point along the dock that experiences ponding, after water has passed through the drainage booms. This sampling point is subject to Sector Q benchmark monitoring parameters.

Sampling Point 2: This sampling point receives stormwater flow from Drainage Area 2. This drainage area includes the covered aluminum oxide storage tent and surrounding paved areas. Samples will be collected at one of the three catch basins located east of the covered aluminum oxide storage tent. This sampling point is subject to Sector Q benchmark monitoring parameters.

Sampling Point 3: This sampling point receives stormwater flow from Drainage Area 3 which includes Berths 3, 4, and a portion of 5 along the eastern portion of the site. Activities in this area include some import and export activities at the port, unloading, and temporary storage of materials on the dock aprons. Scrap metal from Schnitzer metals is loaded and unloaded in this area, making this area subject to Sector N benchmark monitoring parameters. Samples will be collected at a low point along the dock that experiences ponding, after water has passed through the drainage booms. This sampling point is subject to Sector Q and N benchmark monitoring parameters.

Sampling Point 4: This sampling point receives stormwater flow from Drainage Area 4, and is considered to be a substantially identical outfall for Drainage Areas 5 and 7. These drainage areas include the southernmost dock area (Berth 6) and the paved lots leased by Grimaldi Lines and LGL (Lot 364 and Lot 288). A covered road salt storage pile is in the southern corner of Drainage Area 4. These areas are mostly used for storage of vehicles for export. Runoff from Drainage Area 5 is treated by a series of detention basins and Drainage Area 7 is mostly used as an access point for the vehicle storage occurring in Lot 364. Therefore, runoff from Drainage Area 4 has the highest potential to entrain contaminants related to the activities being performed in these areas. Samples will be collected at a low point along the dock that experiences ponding, after water has passed through the drainage booms. This sampling point is subject to Sector Q benchmark monitoring parameters.

Sampling Point 5: This Sampling Point receives stormwater flow from Drainage Area 9 which includes the area located behind the Mid-American Salt building. There is some storage of gravel, trucks, and various pieces of equipment in this area. This area has six partially silted catch basins that connect to the series of catch basins along Harborside Boulevard and Sea View Drive. Because these catch basins are damaged, this area experiences ponding during rain events. Samples will be collected from one of the catch basins if water is observed to be flowing into a functioning catch basin. This sampling point is subject to Sector Q benchmark monitoring parameters.

6.4.2 Sampling Requirements

For each monitoring event, at least one grab sample must be collected from each sampling point described above. The RIPDES MSGP requires that analytical monitoring events (i.e. benchmark monitoring) be conducted twice within the January 1 through June 30 period and twice within the July 1 through December 31 period for the first year of permit coverage. After the first year,

time sampling frequency may be adjusted. Sampling will commence no earlier than the effective date of the permit. All samples must be consistent with 40 CFR Part 136 analytical methods.

Benchmark samples must be taken during a storm event with at least 0.1 inch of precipitation and must occur no less than 72 hours after any previous storm event of 0.1 inches of precipitation or greater. A grab sample will be collected from the monitoring locations during the first 30 minutes of discharge. If it is not practicable to take the sample during the first 30 minutes, the sample can be collected during the first hour of discharge if documentation is provided that explains the reasons for which sampling during the first 30 minutes was impracticable.

Upon completion of sampling, personnel responsible for sampling will submit the samples under proper chain-of-custody documentation to Con-Test for chemical analyses. Analytical monitoring results will be maintained with this plan in Table 1 and laboratory reports will be maintained on file with this plan. Analytical monitoring results must be saved and submitted electronically using the NetDMR system available at: <http://www.epa.gov/netdmr>

The monitoring data, including Benchmark Monitoring and Impacted Waters Monitoring, must be submitted no later than 15 days after the last day of the six-month monitoring period.

6.5 Quarterly Visual Monitoring

In accordance with Part IV.B.1. of the MSGP, Waterson Terminal Services, Inc. will perform and document a visual examination of the stormwater discharges subject to the MSGP at least twice in each of the following six-month periods, during every year of permit coverage:

- January 1 through June 30; and
- July 1 through December 31.

The examinations must be made during daylight hours and consist of a grab sample collected within the first 30 minutes of runoff or snowmelt discharge, or if impractical during the first 60 minutes. The person performing the examination must document observations of:

- Color, odor, clarity;
- Floating, settled, and suspended solids;
- Foam;
- Oil sheen; and
- Other obvious indicators of stormwater pollution.

The samples must be collected from discharge resulting from a storm event greater than 0.1 inches in magnitude and at least 72 hours from the previously measurable storm event. The 72-hour storm interval is waived when the preceding measurable storm did not yield a measurable discharge, or if it can be documented that less than a 72-hour interval is representative for local storm events during the sampling period. If no qualifying storm event resulted in runoff from the facility during a monitoring period, visual monitoring is excused for

that period provided that monitoring records demonstrate that no qualifying storm event occurred that resulted in stormwater runoff during that period.

A copy of the quarterly visual assessment report form is provided in Appendix D. Completed forms must be maintained on file with this Plan. The findings of the quarterly visual assessment will be included in an Annual Report. The report form should include the examination date and time, examination personnel, the nature of the discharge (i.e., runoff or snow melt), visual quality of the stormwater discharge, and probable sources of any observed stormwater pollution.

6.6 Annual Report

An Annual Report will be prepared by January 30 for each year of permit coverage containing information gathered from the past calendar year. The report will include the following information:

- Facility name;
- RIPDES permit number;
- Contact person name, title, and phone number;
- A summary of the previous calendar year's Routine Facility Inspection (see Section 3.6);
- A summary of the previous calendar year's Quarterly Visual Assessment (see Section 6.5);
- A summary of the previous calendar year's Benchmark Monitoring (see Section 6.4); and
- A summary of the previous calendar year's Corrective Action(s).

The report will be submitted electronically to RIDEM using NetDMR, accessible at the following location: <https://epanet.zendesk.com/hc/en-us/sections/115003867248-How-To->

If corrective actions have not yet been completed at the time of submission of this Annual Report, the status of any outstanding corrective actions will be described. The Annual Report will also include a description of any incidents of noncompliance in the past year. If there were no incidents of noncompliance, a statement that the facility is in compliance with the permit will be included in the Annual Report.

After collection of one year of samples, the average of the four monitoring values for all parameters will be compared to their respective benchmark values. The results of this comparison will require one of the following scenarios for any parameter analyzed:

- If average monitoring values for any parameter does not exceed the benchmark, then monitoring of that parameter need not occur for the remainder of the permit term.
- If average monitoring values for any parameter exceeds the benchmark, the facility can investigate whether the exceedance of the benchmark is attributable solely to the presence of that pollutant in the natural background. The facility will not be required to perform

corrective actions or additional benchmark monitoring if the supporting rationale is available to attribute exceedances to natural background.

- If average monitoring values for any parameter exceeds the benchmark, then Corrective Actions must be implemented (see Section 6.7).

6.7 Corrective Actions

Corrective Actions must be implemented based on the exceedance of benchmark(s) or if any of the following conditions are observed during an inspection in accordance with Section III of the MSGP:

- A required control measures is not being properly operated/maintained; or
- Whenever a Quarterly Visual Monitoring assessment shows evidence of stormwater pollution.

A summary of any Corrective Actions implemented will be provided in the Annual Report, including a detailed description of SWMP revisions, any alterations or modifications to the existing BMPs, and any additional BMPs for each benchmark exceedance. The following sections outline the different levels of Corrective Actions.

6.7.1 Level One Corrective Actions – Operational Source Control BMPs

If the average of the four monitoring events for any parameter exceeds the applicable benchmark in the first year of benchmark monitoring, the following corrective actions must be completed within fourteen calendar days of receiving the fourth monitoring event results:

- Review the SWMP and ensure that it is fully compliant with the MSGP;
- Conduct an inspection investigating the cause of the benchmark exceedance and evaluate potential industrial pollutant sources related to the exceedance; and
- Make appropriate revisions to the SWMP and implement additional Operational Source Control BMPs.

6.7.2 Level Two Corrective Actions – Structural Source Control BMPs

If the average of the four monitoring events for any parameter exceeds the applicable benchmark in the second year of benchmark monitoring, the following corrective actions must be completed as soon as possible, but no later than six months following the second benchmark year:

- Review the SWMP and ensure that it is fully compliant;
- Make appropriate revisions to the SWMP to include additional Structural Source Control BMPs to address benchmark exceedances; and
- Fully implement the SWMP and Structural Source Control BMPs as soon as possible.

6.7.3 Level Three Corrective Actions – Treatment BMPs

If the average of the four monitoring events for any parameter exceeds the applicable benchmark and after Level Two Corrective Actions have been fully implemented and completed, the following corrective actions must be completed:

- Review the SWMP and ensure that it is fully compliant;
- Submit a Level Three Corrective Action Report within 90 days following the monitoring year that triggered this corrective action, including an Industrial Activity Demonstration and/or a Non-Industrial Pollutant Source Demonstration (detailed in MSGP Parts III.A.3.b.1. and III. A.3.b.2);
- Make appropriate revisions to the SWMP to include modifications/alterations to the existing Treatment BMPs and/or installation of additional Treatment BMPs to address benchmark exceedances; and
- Fully implement the SWMP and Treatment BMPs as soon as possible.

6.8 Recommendations

Recommendations to address issues identified during quarterly visual monitoring and annual comprehensive site compliance evaluations shall be documented in the Routine Facility Inspection Report in Appendix D. The Plan recommendations will be reviewed and updated as necessary.

7.0 ENDANGERED SPECIES

The facility is not located within or does not discharge to a natural heritage area of any state-listed rare species based on the RIDEM “Environmental Resources Map” located at <http://www.dem.ri.gov/maps/>.

TABLES

TABLE 1
Stormwater Discharge Samples - Summary of Analytical Results
ProvPort
Terminal Road, Providence, Rhode Island
RIPDES Authorization No. RIR50Q054

Outfall Laboratory Sample Identification Date Quarter	MSGP Benchmark Values †	1				2				3			
		18D1181-01	18F0110-01	18I0816-01	18L1142-01	18D1181-02	18F0110-02	18I0816-02	18L1142-02	18D1181-03	18F0110-03	18I0816-03	18L1142-03
		4/25/2018	6/4/2018	9/18/2018	12/21/2018	4/25/2018	6/4/2018	9/18/2018	12/21/2018	4/25/2018	6/4/2018	9/18/2018	12/21/2018
		1	2	3	4	1	2	3	4	1	2	3	4
Total Metals by EPA Method 6010 or 6020													
Aluminum	0.75	2.3	3.4	3.3	18	2.5	7.3	30	11	2.0	1.4	44	2.4
Iron	1.0	5.9	8.5	7.6	45	6.7	19	59	21	5.9	5.8	180	8.5
Lead	0.21	0.033	0.081	0.068	0.39	0.073	0.26	0.61	0.22	0.068	0.10	2.2	0.13
Zinc	0.09	0.20	0.37	0.29	1.1	0.29	0.92	2.4	0.79	0.27	0.29	9.5	0.32
Copper	1.0	--	--	--	--	--	--	--	--	0.076	0.150	2.5	0.21
Polychlorinated Biphenyls (PCBs) by EPA Method 8082													
Aroclor 1016 (µg/L)	0.434	--	--	--	--	--	--	--	--	0.20 U	0.20 U	0.20 U	0.20 U
Aroclor 1221 (µg/L)	100	--	--	--	--	--	--	--	--	0.20 U	0.20 U	0.20 U	0.20 U
Aroclor 1232 (µg/L)	0.387	--	--	--	--	--	--	--	--	0.20 U	0.20 U	0.20 U	0.20 U
Aroclor 1242 (µg/L)	0.289	--	--	--	--	--	--	--	--	0.20 U	0.20 U	0.20 U	0.20 U
Aroclor 1248 (µg/L)	0.2544	--	--	--	--	--	--	--	--	0.20 U	0.20 U	0.20	0.20 U
Aroclor 1254 (µg/L)	100	--	--	--	--	--	--	--	--	0.20 U	0.20 U	0.15 J	0.20 U
Aroclor 1260 (µg/L)	0.477	--	--	--	--	--	--	--	--	0.20 U	0.20 U	0.20 U	0.20 U
Chemical Oxygen Demand (COD) by EPA Method 410.4													
COD	120	--	--	--	--	--	--	--	--	470	700 J	1,500 J	710
Total Suspended Solids (TSS) by Method SM21-22 2540D													
TSS	50	--	290 J	--	--	--	590	--	--	130	110	2,800	270
Oil & Grease by EPA Method 1664B													
Oil & Grease	15	--	--	--	--	--	--	--	--	2.8 U	3.5	27	10
Total Nitrogen by Method SM21-22 4500 or SM19-22 4500													
Total Nitrogen	0.5	--	0.64	--	--	--	1.3	--	--	--	0.23	--	--
Conventional Chemistry Parameters by EPA Method 150.1													
pH (Standard Units)	6.0 - 9.0	--	7.62	--	--	--	8.21	--	--	--	7.70	--	--
Microbiology by SM 9221E													
Fecal Coliform (MPN/100mL)	10	--	920	--	--	--	130	--	--	--	4	--	--

All results are in milligrams per liter (mg/L) unless otherwise noted.

- U Not detected at or above the listed laboratory reporting limit.
- J Estimated concentration.
- Sample not collected/analyzed for this compound.
- bold** Detected concentration exceeds Multi-Sector General Permit (MSGP) Benchmark Value.
- bold italics** Not detected; laboratory reporting limit exceeds MSGP Benchmark Value.
- † Table 2 - Analytical Monitoring Program - Stormwater Management Plan - ProvPort - October 2017.



TABLE 1
Stormwater Discharge Samples - Summary of Analytical Results
ProvPort
Terminal Road, Providence, Rhode Island
RIPDES Authorization No. RIR50Q054

Outfall Laboratory Sample Identification Date Quarter	MSGP Benchmark Values †	4				5				6			
		18D1181-04	18F0110-04	18I0816-04	18L1142-04	18D1181-05	18F0110-05	18I0816-05	18L1142-05	18D1181-06	18F0110-06	18I0816-06	18L1142-06
		4/25/2018	6/4/2018	9/18/2018	12/21/2018	4/25/2018	6/4/2018	9/18/2018	12/21/2018	4/25/2018	6/4/2018	9/18/2018	12/21/2018
		1	2	3	4	1	2	3	4	1	2	3	4
Total Metals by EPA Method 6010 or 6020													
Aluminum	0.75	2.5	2.1	2.1	12	11	0.36	5.5	21	1.8	8.8	1.9	0.16
Iron	1.0	5.6	3.9	5.7	41	31	2.9	11	54	3.8	17	2.8	0.29
Lead	0.21	0.039	0.029	0.047	0.32	0.35	0.011	0.15	0.67	0.015	0.033	0.037	0.0019
Zinc	0.09	0.14	0.13	0.21	1.2	1.3	0.034	0.40	2.6	0.038	0.13	0.076	0.11
Copper	1.0	--	--	--	--	--	--	--	--	--	--	--	--
Polychlorinated Biphenyls (PCBs) by EPA Method 8082													
Aroclor 1016 (µg/L)	0.434	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1221 (µg/L)	100	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1232 (µg/L)	0.387	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1242 (µg/L)	0.289	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1248 (µg/L)	0.2544	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1254 (µg/L)	100	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1260 (µg/L)	0.477	--	--	--	--	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD) by EPA Method 410.4													
COD	120	--	--	--	--	--	--	--	--	--	--	--	--
Total Suspended Solids (TSS) by Method SM21-22 2540D													
TSS	50	--	--	--	--	--	--	--	--	--	--	--	--
Oil & Grease by EPA Method 1664B													
Oil & Grease	15	--	--	--	--	--	--	--	--	--	--	--	--
Total Nitrogen by Method SM21-22 4500 or SM19-22 4500													
Total Nitrogen	0.5	--	0.41	--	--	--	0.39	--	--	--	8.6	--	--
Conventional Chemistry Parameters by EPA Method 150.1													
pH (Standard Units)	6.0 - 9.0	--	--	--	--	--	--	--	--	--	--	--	--
Microbiology by SM 9221E													
Fecal Coliform (MPN/100mL)	10	--	>1,600	--	--	--	17	--	--	--	11	--	--

All results are in milligrams per liter (mg/L) unless otherwise noted.

- U Not detected at or above the listed laboratory reporting limit.
- J Estimated concentration.
- Sample not collected/analyzed for this compound.
- bold** Detected concentration exceeds Multi-Sector General Permit (MSGP) Benchmark Value.
- bold italics* Not detected; laboratory reporting limit exceeds MSGP Benchmark Value.
- † Table 2 - Analytical Monitoring Program - Stormwater Management Plan - ProvPort - October 2017.



Table 2 – Stormwater Management Team
ProvPort, Inc.
Providence, Rhode Island
September 2014

Plan Supervisor	<p>Name: Waterson Terminal Services, LLC (Chris Waterson) Title: General Manager Phone Number: (401) 461-9900 Responsibility: Overall responsibility for development, implementation, maintenance, and revision of the Plan</p>
Plan Manager	<p>Name: Waterson Terminal Services, LLC (Stephen Curtis) Title: Facility Manager and Facility Security Officer Phone Number: (401) 461-9900 Responsibilities: Conducts required inspections, monitoring, and reporting</p>



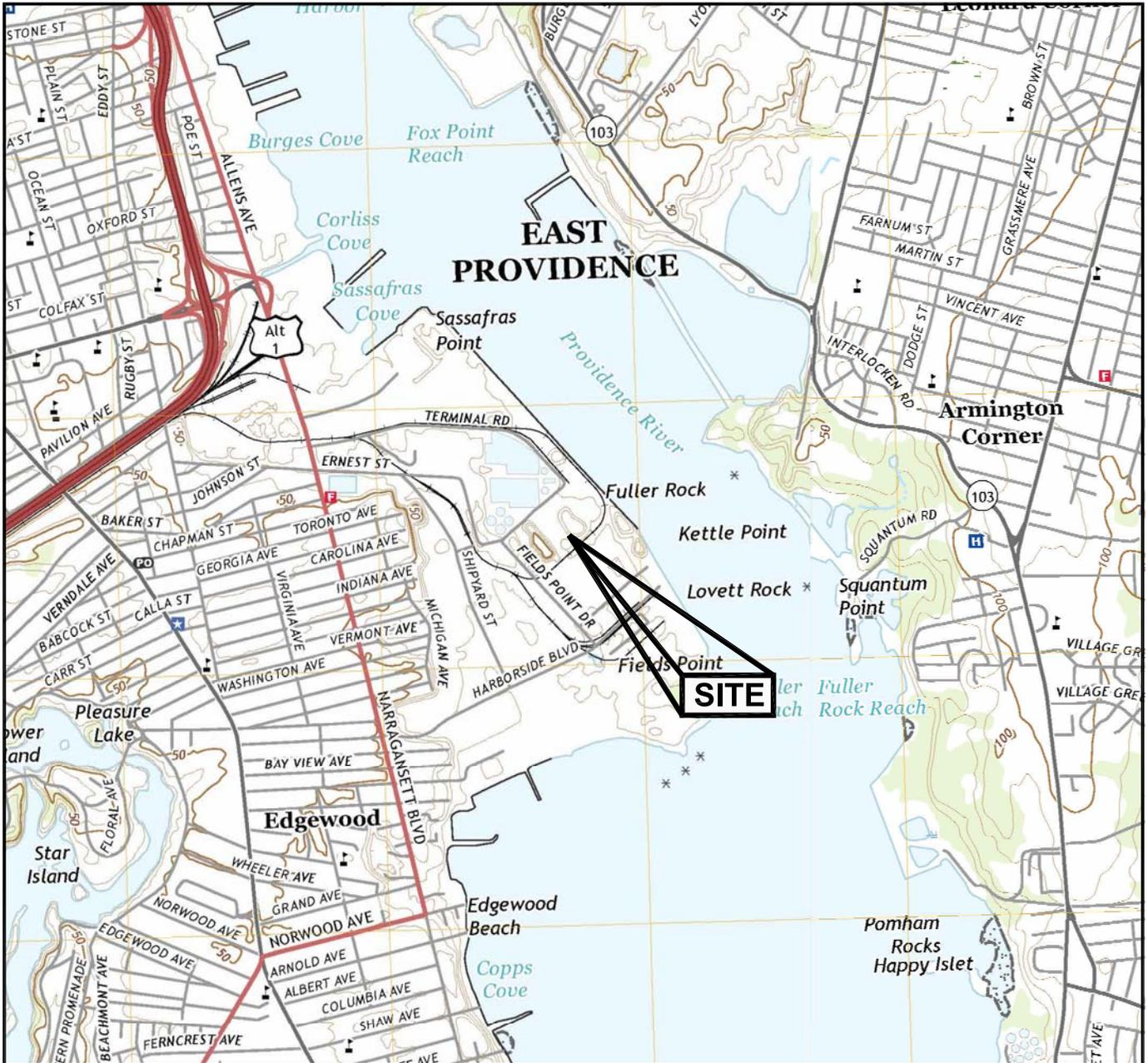
Table 3 – Analytical Monitoring Program
ProvPort, Inc.
Providence, Rhode Island
May 2019

Benchmark Monitoring				
Monitoring Locations	Frequency	Pollutant of Concern	MSGP Sector	Benchmark Monitoring Cutoff Concentration
Sampling Points 1-5	Quarterly, year 1	Total Aluminum	Q	0.75 mg/L
Sampling Points 1-5	Quarterly, year 1	Total Iron	Q	1.0 mg/L
Sampling Points 1-5	Quarterly, year 1	Total Lead	Q	0.21 mg/L
Sampling Points 1-5	Quarterly, year 1	Total Zinc	Q	0.09 mg/L
Sampling Point 3	Quarterly, year 1	COD	N	120 mg/L
Sampling Point 3	Quarterly, year 1	TSS	N	100 mg/L
Sampling Point 3	Quarterly, year 1	Oil & Grease	N	15 mg/L
Sampling Point 3	Quarterly, year 1	Total Copper	N	0.0048 mg/L
Sampling Point 3	Quarterly, year 1	PCBs (1016, 1221, 1232, 1242, 1248, 1254, 1260)	N	1016 – 0.000434 mg/L 1221 – 0.10 mg/L 1232 – 0.000387 mg/L 1242 – 0.000289 mg/L 1248 – 0.002544 mg/L 1254 – 0.10 mg/L 1260 – 0.000477 mg/L
Sampling Points 1-5	Quarterly, year 1	Total Suspended Solids (TSS)	All	100 mg/L
Sampling Points 1-5	Quarterly, year 1	Oil & Grease (O&G)	All	15 mg/L

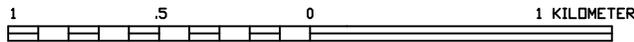
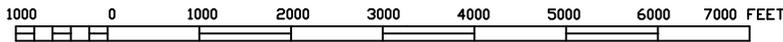
Impaired Waters Monitoring			
Monitoring Locations	Frequency	Pollutant of Concern	Benchmark Monitoring Cutoff Concentration
Sampling Points 1-5	Quarterly, year 1	Fecal Coliform	10 MPN/100 mL
Sampling Points 1-5	Quarterly, year 1	Total Nitrogen	0.5 ppm



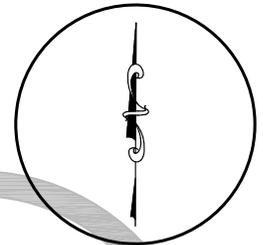
FIGURES



SCALE: 1:24,000



CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

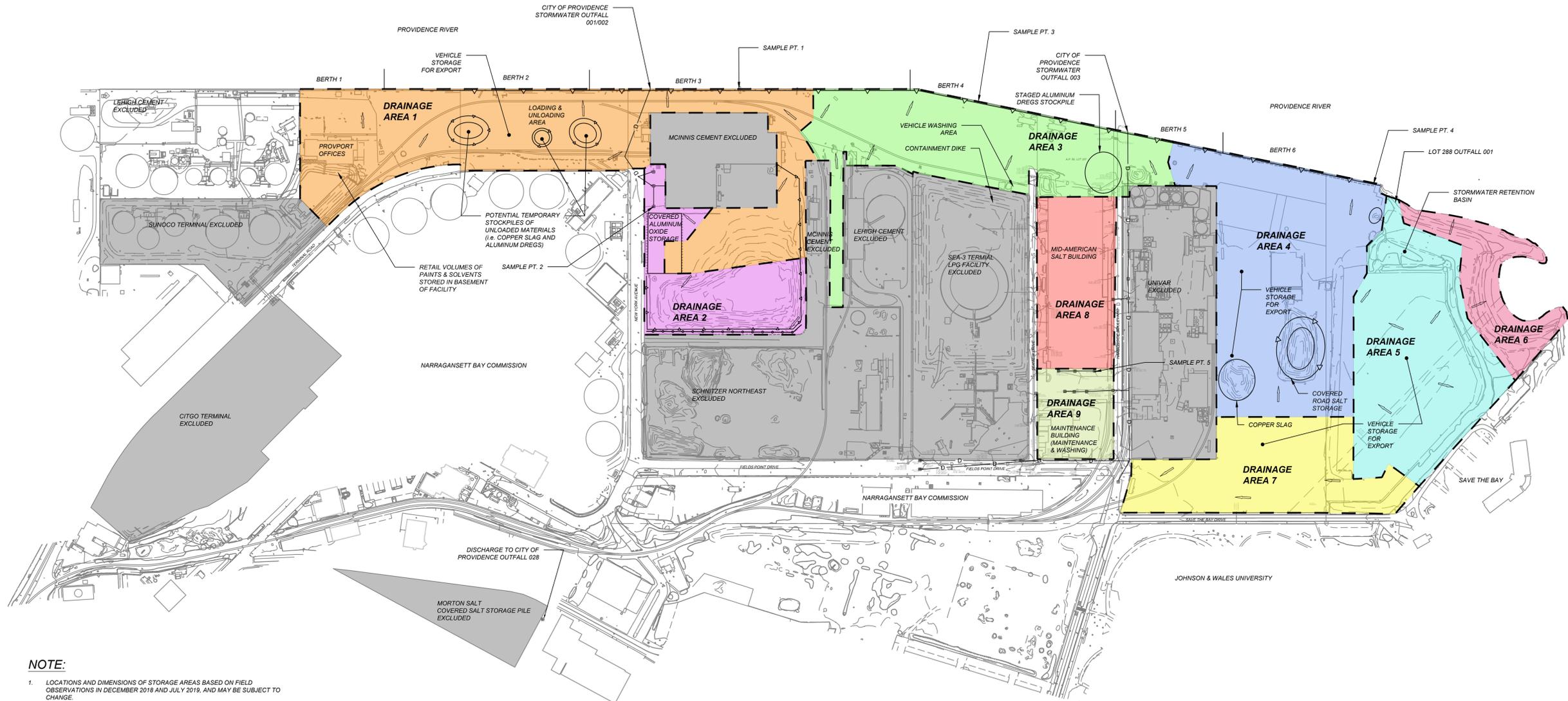


DATE July 2, 2019	SCALE As shown	FILE WTSL0004_Site Location Map
APPROVED BY DJPF	DRAWN BY MET	REVISED
CLIENT Waterson Terminal Services, LLC.	JOB NUMBER WTSL0004	
LOCATION ProvPort Providence, Rhode Island	MAP SOURCE Providence, RI USGS QUAD 2018	

Wilcox & Barton INC.
CIVIL · ENVIRONMENTAL · GEOTECHNICAL

SITE LOCATION MAP

Figure 1



NOTE:

1. LOCATIONS AND DIMENSIONS OF STORAGE AREAS BASED ON FIELD OBSERVATIONS IN DECEMBER 2018 AND JULY 2019, AND MAY BE SUBJECT TO CHANGE.
2. REFER TO FACILITY SPECIFIC SWMPs FOR AREAS EXCLUDED FROM THIS PLAN.

MAP REFERENCES:

1. EXISTING FEATURES ARE BASED UPON A MAP ENTITLED "ADMINISTRATIVE SUBDIVISION, PORT OF PROVIDENCE, RHODE ISLAND, TERMINAL ROAD, NEW YORK AVENUE, FIELDS POINT AVE., SHIPYARD STREET, & HARBORSIDE BOULEVARD, FEB 12, 2019, SHEETS 1 AND 2 OF 2, SU-1 AND SU-2, PREPARED FOR PROV. PORT INC., TERMINAL ROAD, PROVIDENCE, RHODE ISLAND, PREPARED BY WATERMAN ENGINEERING CO, PROVIDENCE, RI."
2. MAPPING WAS COLLECTED FROM ARIEL PHOTOGRAPHY USING DIGITAL TERRAIN MAPPING METHODS, PHOTO TAKEN NOV 4 2018 (1 2520) AND COMPILATION DATE FEB 19, 2019 BY WATERSON ENGINEERING COMPANY, PROVIDENCE, RHODE ISLAND.
3. STORMWATER INFRASTRUCTURE BASED ON CITY OF PROVIDENCE GIS MAPPING, ACCESSED JANUARY 2017.

GRAPHIC SCALE



LEGEND

- CATCH BASIN
- STORMWATER DRAIN PIPE
- PROPERTY LINE
- EXISTING CONTOURS
- RAILROAD TRACKS
- DRAINAGE AREA BOUNDARY
- DIRECTION OF SURFACE FLOW
- FILTER BOOMS
- CONCRETE BLOCKS
- HAY BALE
- DRAINAGE AREA 1
- DRAINAGE AREA 2
- DRAINAGE AREA 3
- DRAINAGE AREA 4
- DRAINAGE AREA 5
- DRAINAGE AREA 6
- DRAINAGE AREA 7
- DRAINAGE AREA 8
- DRAINAGE AREA 9
- EXCLUDED AREAS

Wilcox & Barton INC.
CIVIL • ENVIRONMENTAL • GEOTECHNICAL

#1B COMMONS DRIVE, UNIT 12B
LONDONDERRY, NH 03053
603-369-4190
www.wilcoxandbarton.com

REVISION HISTORY	Issued For
1.	

ALL DOCUMENTS PREPARED BY WILCOX & BARTON, INC. ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY WILCOX & BARTON, INC. FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO WILCOX & BARTON, INC. OWNER SHALL INDEMNIFY AND HOLD HARMLESS WILCOX & BARTON, INC. FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

Waterson Terminal Services, LLC
35 Terminal Road
Providence, Rhode Island

PROVPORT
TERMINAL ROAD

Drainage Plan

1" = 200'	Date	07/24/2019
Drafted By	Checked By	Project Mgr
GAG	AJM	DJPF
Project Number		WTSL0004
Sheet Number		Figure 2

APPENDIX A

**Notice of Intent
and
RIPDES Multi-Sector General Permit (Included with Site Copy)**



**Multi-Sector General Permit
Rhode Island Pollutant Discharge Elimination System
Storm Water Discharge Associated
with Industrial Activity
(excluding Construction Activity)**

Effective Date:
May 3, 2019



RIR500000

Valid ONLY in accordance with Part I.C.

Expiration Date:
May 2, 2024

**Rhode Island Department of Environmental Management
Office of Water Resources
Permitting Section
RIPDES Program**

**MULTI-SECTOR GENERAL PERMIT
RHODE ISLAND POLLUTANT DISCHARGE ELIMINATION SYSTEM
STORM WATER DISCHARGE ASSOCIATED WITH INDUSTRIAL ACTIVITY
(Revised 4/2019)**

PLEASE READ THIS PERMIT CAREFULLY!

To require coverage under this permit, two conditions must be met. The first is that the facility must meet at least one of the conditions in the definition of "storm water discharge associated with industrial activity" (see Title 250 RICR-150-10-1 § 1.4(A)(111)). The second is that the discharge of storm water associated with industrial activity must be a point source (see Title 250 RICR-150-10-1 § 1.4(A)(78) for the definition of a point source), which discharges directly to a surface water body and/or a municipal separate storm sewer system. If both of these conditions are met, then the facility needs to seek coverage under this permit or an individual or alternative general permit. "Point source" means any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel, or other floating craft, from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture.

I. GENERAL COVERAGE UNDER THIS PERMIT

I.A. Permit Coverage. This permit applies to all areas of the State of Rhode Island.

I.B. Eligibility

I.B.1. Allowable Storm Water Discharges. Except storm water discharges identified under Part I.B.3., this permit may cover the following all new and existing discharges composed entirely of storm water:

I.B.1.a. Discharges associated with industrial activity, as defined in Title 250 RICR-150-10-1 § 1.4(A)(111), from the "sectors" of industry based on Standard Industrial Classification (SIC) codes and Industrial Activity Codes as described in Table B-1 of Appendix B of this permit, and that are specifically identified by outfall or discharge location in the Storm Water Management Plan. References to "sectors" in this permit (e.g., sector-specific monitoring requirements, etc.) refer to sectors listed in the above referenced Table B-1 of Appendix B.

Co-located Activities. If the facility has co-located industrial activities on-site that are described in a sector(s) other than the primary sector, the operator of the facility must comply with all other applicable sector-specific conditions found in Part VIII for the co-located industrial activities. The extra sector-specific requirements are applied only to those areas of the facility where the extra-sector activities occur. An activity at a facility is not considered co-located if the activity, when considered separately, does not meet the description of a category of industrial activity covered by the storm water regulations, and identified by this permit's SIC code list.

If runoff from co-located activities commingles, the operator of the facility must monitor the discharge as per the requirements of all applicable sectors (regardless of the actual location of the discharge). If the operator of the facility complies with all applicable requirements from all applicable sections of Part VIII for the co-located industrial activities, the discharges from these co-located activities are authorized by this permit.

I.B.1.b. Discharges designated by the Director as needing a stormwater permit as provided in Sector AD.

I.B.1.c. Discharges that are not otherwise required to obtain RIPDES permit authorization but are commingled with discharges that are authorized under this permit.

I.B.1.d. Discharges from facilities subject to any of the national stormwater-specific effluent limitations guidelines listed in Table I-1.

Table I-1. Stormwater-Specific Effluent Limitations Guidelines

Regulated Discharge	40 CFR Section	MSGP Sector	New Source Performance Standard (NSPS)	New Source Date
Discharges resulting from spray down or intentional wetting of logs at wet deck storage areas	Part 429, Subpart I	A	Yes	1/26/81
Runoff from phosphate fertilizer manufacturing facilities that comes into contact with any raw materials, finished product, by-products or waste products (SIC 2874)	Part 418, Subpart A	C	Yes	4/8/74
Runoff from asphalt emulsion facilities	Part 443, Subpart A	D	Yes	7/28/75
Runoff from material storage piles at cement manufacturing facilities	Part 411, Subpart C	E	Yes	2/20/74
Mine dewatering discharges at crushed stone, construction sand and gravel, or industrial sand mining facilities	Part 436, Subparts B, C, and D	J	No	N/A
Runoff from hazardous waste and non-hazardous waste landfills	Part 445, Subparts A and B	K, L	Yes	2/2/00
Runoff from coal storage piles at steam electric generating facilities	Part 423	O	Yes	11/19/82 (10/8/74) ¹
Runoff containing urea from airfield pavement deicing at existing and new primary airports with 1,000 or more annual non-propeller aircraft departures	Part 449	S	Yes	6/15/12

I.B.2. Allowable Non-Storm Water Discharges. Below in Part I.B.2.a. are the only non-stormwater discharges authorized under this permit for all sectors provided that all discharges comply with the effluent limits set forth in Parts II. and VIII. Also allowed for all sectors are discharges of stormwater listed above in Part I.B.1. or authorized non-stormwater discharges in Part I.B.2. mixed with a discharge authorized by a different RIPDES permit and/or a discharge that does not require RIPDES permit authorization. All other non-stormwater discharges requiring RIPDES permit coverage except those specifically listed in Part I.B.2. are not authorized by this permit. If non-stormwater discharges requiring RIPDES permit coverage other than those specifically authorized in Part I.B.2., including sector-specific non-stormwater discharges that are listed in Part VIII. as

¹ NSPS promulgated in 1974 were not removed via the 1982 regulation; therefore wastewaters generated by Part 423-applicable sources that were New Sources under the 1974 regulations are subject to the 1974 NSPS.

prohibited (a non-exclusive list provided to raise awareness of contaminants or sources of contaminants characteristic of certain sectors), will be discharged, such non-stormwater discharges are not authorized by this permit and must either be eliminated or covered under another RIPDES permit

I.B.2.a. Allowable non-storm water discharges under this permit are limited to the following discharges from:

- firefighting activities;
- fire hydrant flushings;
- routine external building washdown/ power wash water that does not use detergents or hazardous cleaning products (such as those containing bleach, hydrofluoric acid, muriatic acid, sodium hydroxide, nonylphenols);
- lawn watering;
- uncontaminated ground water; springs;
- air conditioning condensate;
- potable waterline flushings; irrigation drainage;
- foundation or footing drains where flows are not contaminated with process materials, such as solvents, or contaminated by contact with soils, where spills or leaks of toxic or hazardous materials has occurred;
- water sprayed for dust control or at a truck load wet-down station
- incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of the facility, but NOT intentional discharges from the cooling tower (e.g., "piped" cooling tower blowdown or drains);
- uncontaminated utility vault dewatering; dechlorinated water line testing water; hydrostatic test water that does not contain any treatment chemicals and is not contaminated with process chemicals;
- discharges from washing of vehicles provided: chemicals, soaps, detergents, hazardous cleaning products (such as those containing bleach, hydrofluoric acid, muriatic acid, sodium hydroxide, nonylphenols), steam, or heated water are not used; cleaning is restricted to the outside of the vehicle (e.g., no engines, transmissions, undercarriages, or truckbeds); or washing is not used to remove accumulated industrial materials, paint residues, heavy metals or any other potentially hazardous materials from surfaces; and
- discharges from washing of marine vessels provided chemicals, soaps, detergents, hazardous cleaning products (such as those containing bleach, hydrofluoric acid, muriatic acid, sodium hydroxide, nonylphenols), steam, or heated water are not used and the washing is not used to remove topside or bottom paint; marine growth, or other potentially hazardous materials from vessels.

If any of these discharges may reasonably be expected to be present and to be mixed with storm water discharges, they must be specifically identified and addressed in the facility's Storm Water Management Plan. (SWMP)

I.B.3. Limitations on Coverage. The following storm water discharges are not authorized by this permit:

I.B.3.a. Storm Water discharges associated with industrial activity mixed with other discharges,

- unless the other discharge is authorized by a different RIPDES permit; the other discharge does not require a RIPDES permit authorization; and/or the other discharge is identified in Part I.B.2. of this permit;
- I.B.3.b. Storm water discharges associated with industrial activity from facilities with existing effluent guideline limitations for storm water under 40 CFR Subchapter N, except the stormwater discharges identified in Table I-1 that also meet all other eligibility requirements and the Director determines the storm water discharge is eligible for coverage under this permit;
 - I.B.3.c. Stormwater discharges associated with industrial activity with an existing individual permit or an alternative general permit for storm water discharge(s) or which are issued a permit in accordance with Part X.T. of this permit;
 - I.B.3.d. Storm water discharges previously covered by an individual permit or an alternative general permit that has expired or been terminated at the request of the permittee where:
 - I.B.3.d.1. the previous permit contained numeric limitations developed for the storm water component of the discharge, which are more stringent than the numeric effluent guidelines required by this permit, for the purpose of this paragraph benchmarks are not considered effluent limitations
 - I.B.3.d.2. any specific BMPs for storm water required under the previous permit are not included in the SWMP required under Part V. of this permit; or
 - I.B.3.d.3. the previous permit contained additional chemical analysis of parameters for monitoring of significant materials exposed to storm water, that are not required by this permit, and the significant materials remain at the facility.
 - I.B.3.e. Storm water discharges that the Director of the Department of Environmental Management has found to be or may reasonably be expected to be contributing to a violation of water quality standards;
 - I.B.3.f. Storm water discharges associated with industrial activity from facilities where any RIPDES permit has been or is in the process of being denied, terminated, or revoked by the Director (other than in a replacement permit issuance process). Upon request, the Director may waive this exclusion if operator of the facility has since passed to a different owner/operator and new circumstances at the facility justify a waiver;
 - I.B.3.g. Storm water discharges associated with construction activity including, but not limited to; clearing, grading, excavation, and filling; where total land disturbance is equal to or greater than one (1) acre, and where storm water runoff discharges into the waters of the State;
 - I.B.3.h. Storm water discharges associated with industrial activity that may adversely affect a listed, or a proposed to be listed, endangered or threatened species or its critical habitat;
 - I.B.3.i. Discharges prohibited under Title 250 RICR-150-10-1 § 1.6;
 - I.B.3.j. Storm water associated with industrial activity discharging into any water for which a Total Maximum Daily Load (TMDL) has been either established or approved by the EPA or a water quality determination has been made by the Department, unless the storm water discharges are consistent with that TMDL or the provisions of the water quality determination;
 - I.B.3.k. New Discharges to Water Quality Impaired Waters. If the permittee is a new discharger the permittee is not eligible for coverage under this permit to discharge to an "impaired water", as defined in Appendix A unless the permittee:
 - I.B.3.k.1. prevents all exposure to stormwater of the pollutant(s) for which the waterbody is impaired, and retains documentation of procedures taken to prevent exposure onsite with the SWMP; or

- I.B.3.k.2. documents that the pollutant(s) for which the waterbody is impaired is not present at the site or is not present at levels above natural background, and retains documentation of this finding with the SWMP; or
- I.B.3.k.3. at the time of submitting the NOI, provides to the RIPDES Program data to support a showing that the discharge is not expected to cause or contribute to an exceedance of a water quality standard, and retain such data onsite with the SWMP. To do this, the permittee must provide data and other technical information to the Department sufficient to demonstrate:
 - I.B.3.k.3.i. For discharges to waters without an EPA approved or established TMDL or other water quality determination made by the Department, that the discharge of the pollutant for which the water is impaired will meet in-stream water quality criteria at the point of discharge to the waterbody; or
 - I.B.3.k.3.ii. For discharges to waters with an EPA approved or established TMDL or waters with other water quality determination made by the Department, that there are sufficient remaining wasteload allocations in an EPA approved or established TMDL or other water quality determination to allow the facility's discharge and that existing dischargers to the waterbody are subject to compliance schedules designed to bring the waterbody into attainment with water quality standards.

The permittee is eligible under Part I.B.3.k.3. if the permittee documents that the discharge will not contribute to the existing impairment, in which case the permittee must maintain such documentation onsite with the SWMP and submit with the NOI a copy of the documents.

- I.B.3.l. Storm water associated with industrial activity subject to Tier 3 Anti-Degradation Water Quality Standards;
- I.B.3.m. Storm water associated with industrial activity from facilities where any planned physical alterations, operational changes or additions to the permitted facility qualify the facility as a new source or could significantly change the nature or significantly increase the quantity of pollutants discharged, unless authorization is obtained in the same manner as a new discharge;
- I.B.3.n. Storm water discharges associated with industrial activity from facilities engaged in marine wrecking ships for scrap, marine salvaging and ship dismantling as identified in the Standard Industrial Classification Code 4499.

I.C. Authorization.

I.C.1. How to Obtain Authorization.

- I.C.1.a. To be covered under this general permit, owners or operators of storm water discharges associated with industrial activity must:
 - I.C.1.a.1 Submit to the Director a standardized Notice of Intent (NOI) form. All NOIs must be submitted to the Director by hard copy, unless an electronic reporting tool becomes available during the period covered under this permit. Upon review of the NOI, the Director may deny coverage under this permit at any time and require submittal of an application for an individual or an alternative general permit.
 - I.C.1.a.2 Meet the Eligibility requirements of Part I.B. of this permit.
 - I.C.1.a.3 Select, design, install, and implement control measures in accordance with Parts II.A. and II.B. to meet numeric and non-numeric effluent limits.

I.C.1.a.4. Develop or update, as applicable, a Stormwater Management Plan (SWMP) according to the requirements of Part V. of this permit.

I.C.1.b. To be covered under this permit, the permittee must submit to the Director a complete and accurate NOI by the deadline applicable to the facility presented in Part I.C.2. The NOI certifies to the Department that you are eligible for coverage according to Part I.B. of this permit and provides information on the industrial activities and related discharges.

The permittee must complete the development of a SWMP or update the facility's existing SWMP consistent with Parts V and VIII, prior to submitting the NOI for coverage under this permit. If the permittee chooses to post the SWMP on the Internet per Part V.H., the permittee must include the URL on the NOI form and this URL must directly link to the SWMP (not just the corporate or facility homepage). If the permittee does not post the SWMP online, the permittee must electronically submit the SWMP as part of the NOI.

I.C.2. Deadlines for Requesting Authorization.

I.C.2.a. Facilities discharging storm water associated with industrial activity which were authorized under the previous general permit issued on August 15, 2013, that intend to obtain coverage under this general permit; shall submit an NOI within ninety (90) days of the effective date of this permit.

I.C.2.b. Facilities with discharges of storm water associated with industrial activity which commence after the effective date of this permit, the NOI must be submitted sixty (60) days prior to the commencement of such discharge.

I.C.2.c. Facilities with discharges of storm water associated with industrial activity which commenced after August 14, 2018 and before the effective date of this permit, the NOI must be submitted within sixty (60) days of the effective date of this permit.

I.C.2.d. Facilities with discharges of storm water associated with industrial activity which commenced before August 14, 2018 and were not authorized under the previous MSGP, the NOI must be submitted immediately.

I.C.3. Granting of Authorization.

I.C.3.a. Existing Discharges. Facilities discharging storm water associated with industrial activity, which were authorized under the previous general permit issued on August 15, 2013 and have submitted a complete NOI within ninety (90) days of the effective date of this permit, shall be automatically granted authorization to discharge upon departmental receipt of a complete NOI. Unless notified by the Director to the contrary, owners or operators who submit such notification are authorized to discharge under the terms and conditions of this permit.

I.C.3.b. New Discharges. For facilities which commence to discharge storm water associated with industrial activity after August 14, 2018, authorization will be granted sixty (60) days after the submittal of a complete NOI, unless otherwise notified by the Director in writing. Regardless of whether the NOI was actually reviewed by this department, or it became approved because of this department's failure to act within sixty (60) days, the permittee is still responsible for upholding all permit conditions and any other applicable state or Federal regulations. The permittee must immediately begin complying with the applicable benchmark monitoring requirements under Part VI.B. as if the permittee was in the first year of permit coverage.

I.C.3.c. Other Existing Discharges. For facilities discharging storm water associated with industrial activity, which commenced discharges before August 14, 2018 and were not authorized under the previous general permit issued in August 15, 2013 or did not submit a timely application in accordance to Part I.C.3.a., authorization will be granted sixty (60) days after the submittal of a complete NOI, unless otherwise notified by the Director in writing. Regardless of whether

the NOI was actually reviewed by this department, or it became approved because of this department's failure to act within sixty (60) days, the permittee is still responsible for upholding all permit conditions and any other applicable state or Federal regulations.

I.C.4. Continuation of this Permit. If this permit is not re-issued or replaced prior to the expiration date, it will be administratively continued in accordance to Title 250 RICR-150-10-1 § 1.13 and remain fully effective and enforceable. If the stormwater discharges from the facility were authorized to discharge under this permit prior to the expiration date, any discharges authorized under this permit will automatically remain covered by this permit until the earliest of:

I.C.4.a. The authorization for coverage under a reissued permit or a replacement of this permit following the timely and appropriate submittal of a complete NOI requesting authorization to discharge under the new permit and compliance with the requirements of the new permit; or

I.C.4.b. The submittal of a Notice of Termination; or

I.C.4.c. Issuance or denial of an individual permit for the facility's discharges; or

I.C.4.d. A formal permit decision by the Director not to reissue this general permit, at which time the Director will identify a reasonable time period for covered dischargers to seek coverage under an alternative general permit or an individual permit. Coverage under this permit will cease at the end of this time period.

I.D. Termination of Coverage.

I.D.1. To terminate permit coverage owners and/or operators of facilities must submit to the Director a complete Notice of Termination (NOT) when discharge(s) of storm water associated with industrial activity no longer occurs at the facility or the discharges are authorized under an individual or alternative general permit for all discharges required to be covered by a RIPDES permit. At that point, coverage under this permit is terminated. At a minimum, the following information is required in the NOT to terminate coverage under this permit:

- Owner's name, mailing address, and telephone number;
- Operator's name, mailing address, and telephone number;
- Name and location of the facility;
- RIPDES storm water permit number; and
- Certification that storm water discharge associated with industrial activity no longer takes place on-site or the discharges are authorized under a RIPDES individual or alternative general permit.

I.D.2. The permittee must submit a Notice of Termination within 30 days after one or more of the following conditions have been met:

- A new owner or operator has taken over responsibility for the facility; or
- Operations have ceased at the facility, there are not or no longer will be discharges of stormwater associated with industrial activity from the facility, and you have already implemented necessary sediment and erosion controls as required by Part II.A.2.e.;
- You are a Sector G, H, or J facility and you have met the applicable termination requirements; or
- The permittee has obtained coverage under an individual or alternative general permit for all discharges required to be covered by a RIPDES permit, unless the Director has required that the

permittee obtains such coverage under authority of Part I.G.1., in which case coverage under this permit will terminate automatically.

I.D.3. The permittee must submit the NOT to the Director by hard copy, unless an electronic reporting tool becomes available during the period covered under the permittee's permit coverage.

I.E. Conditional Exclusion for No Exposure. Facilities where industrial materials and activities are protected by a storm-resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff, and the discharges satisfy the conditions of Title 250 RICR-150-10-1 § 1.32(H), may be exempted from the requirement for a RIPDES permit if the permittee submits a complete and accurate RIPDES "No Exposure" certification to the Department. The permittee is no longer required to have a permit upon submission of a complete and accurate No Exposure Certification (NEC) to the Department. If the permittee is no longer required to have permit coverage because of a no exposure exclusion and the permittee has submitted a NEC form to the Department, the permittee must also submit a NOT. The permittee must submit a No Exposure Certification form to the DEM once every five years. The permittee must submit the NEC to the Director by hard copy, unless an electronic reporting tool is available. If, at any time, the industrial activity is modified such that materials are exposed to stormwater, the facility must submit a permit application and comply with all pertinent sections of this general permit.

I.F. No Discharge Notice of Non-Applicability. Operators of facilities engineered and constructed to contain discharges of stormwater associated with industrial activity; located in basins or other physical locations so that there will be no discharge of industrial stormwater to waters of the State; or where the industrial stormwater discharges to a Combined Sewer Overflow (CSO) system, should claim no discharge. Operators of facilities with No Discharge should submit a RIPDES No Discharge Certification (NDC) to the Director by hard copy, unless an electronic reporting tool is available.

I.G. Alternative Permits.

I.G.1. Requiring Coverage under an Alternative Permit. The Director may require the permittee to apply for and/or obtain authorization to discharge under either an individual RIPDES permit or an alternative RIPDES general permit in accordance with Title 250 RICR-150-10-1 §§ 1.33 and 1.55. Any interested person may petition the Department to take action under this paragraph. If the Director requires the permittee to apply for an individual RIPDES permit, the Department will notify the permittee in writing that a permit application is required. This notification will include a brief statement of the reasons for this decision and will provide application information. In addition, if the permittee is an existing discharger authorized to discharge under this permit, the notice will set a deadline to file the permit application, and will include a statement that on the effective date of the individual RIPDES permit, or the alternative general permit as it applies to the facility, coverage under this general permit will terminate. The Director may grant additional time to submit the application if the permittee requests it. If the permittee is covered under this permit and fails to submit an individual RIPDES permit application as required by the Department, then the applicability of this permit to the permittee is terminated at the end of the day specified by the Department as the deadline for application submittal. The Department may take appropriate enforcement action for any unpermitted discharge.

I.G.2. Permittee Requesting Permit Coverage under an Alternative Permit. The permittee may request to be excluded from coverage under this general permit by applying for an individual permit. In such a case, the permittee must submit an individual permit application in accordance with the requirements of 40 CFR 122.26(c)(1)(ii), with reasons supporting the request, to the Department. The request may be granted by issuance of an individual permit or authorization of coverage under an alternative general permit if the reasons are adequate to support the request.

When an individual RIPDES permit is issued to the permittee or the permittee is authorized to discharge under an alternative RIPDES general permit, the authorization to discharge under this permit is terminated on the effective date of the individual permit or the date of authorization of coverage under the alternative general permit.

I.H. Severability. Invalidation of a portion of this permit does not necessarily render the whole permit invalid.

The Department's intent is that the permit is to remain in effect to the extent possible; in the event that any part of this permit is invalidated, the Department will advise the regulated community as to the effect of such invalidation.

- I.I. Transfer of Permits. Owners and/or operators of facilities proposing transfer of a permit must notify the Department in writing by certified mail of such proposed action. All transfers must meet the requirements of Title 250 RICR-150-10-1 § 1.23.
- I.J. Failure to Notify. Owners or operators, who fail to notify the Director of their intent to be covered under a general permit and discharge storm water associated with industrial activity to waters of the State or to a separate storm sewer system without a RIPDES permit, are in violation of Chapter 46-12 of the Rhode Island General Laws and the Clean Water Act and may be subject to legal enforcement action for any unpermitted discharges.

II. CONTROL MEASURES AND EFFLUENT LIMITS.

In the technology-based limits included in Parts II.A. and VIII, the term "minimize" means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practice. The term "infeasible" means not technologically possible or not economically practicable and achievable in light of best industry practices.

II.A. Control Measures. The permittee must select, design, install, and implement control measures (including best management practices) to minimize pollutant discharges that address the selection and design considerations in Part II.A.1., meet the non-numeric effluent limits in Part II.A.2., and meet limits contained in applicable effluent limitations guidelines in Part II.A.3. The selection, design, installation, and implementation of these control measures must be in accordance with good engineering practices and manufacturer's specifications. Note that the permittee may deviate from such manufacturer's specifications where a justification can be provided for such deviation and include documentation of this rationale in the part of the SWMP that describes control measures, consistent with Part V.F.5. If the permittee finds that the control measures are not achieving their intended effect of minimizing pollutant discharges to meet applicable water quality standards or any of the other non-numeric effluent limits in this permit, the permittee must modify these control measures per the corrective action requirements in Part III. Regulated stormwater discharges from the facility include stormwater run-on that commingles with stormwater discharges associated with industrial activity at the facility.

II.A.1. Control Measure Selection and Design Considerations. The permittee must consider the following when selecting and designing control measures:

- preventing stormwater from coming into contact with polluting materials is generally more effective, and less costly, than trying to remove pollutants from stormwater;
- using control measures in combination is more effective than using control measures in isolation for minimizing pollutants in the stormwater discharge;
- assessing the type and quantity of pollutants, including their potential to impact receiving water quality, is critical to designing effective control measures that will achieve the limits in this permit;
- minimizing impervious areas at the facility and infiltrating runoff onsite (including bioretention cells, green roofs, and pervious pavement, among other approaches) can reduce runoff and improve groundwater recharge and stream base flows in local streams, although care must be taken to avoid ground water contamination;
- attenuating flow using open vegetated swales and natural depressions can reduce in-stream impacts of erosive flows;
- conserving and/or restoring of riparian buffers will help protect streams from stormwater runoff

and improve water quality; and

- using treatment interceptors (e.g., swirl separators and sand filters) may be appropriate in some instances to minimize the discharge of pollutants.

II.A.2. Non-Numeric Technology-Based Effluent Limits (BPT/BAT/BCT). The permittee must comply with the following non-numeric effluent limits (except where otherwise specified in Part VIII.) as well as any sector-specific non-numeric effluent limits in Part VIII.

II.A.2.a. Minimize Exposure. The permittee must minimize the exposure of manufacturing, processing, and material storage areas (including loading and unloading, storage, disposal, cleaning, maintenance, and fueling operations) to rain, snow, snowmelt, and runoff in order to minimize pollutant discharges, by either locating these industrial materials and activities inside or protecting them with storm resistant coverings (although significant enlargement of impervious surface area is not recommended). Unless infeasible, the permittee must also:

- Use grading, berming, or curbing to prevent runoff of contaminated flows and divert run-on away from these areas;
- Locate materials, equipment, and activities so that leaks are contained in existing containment and diversion systems (confine the storage of leaky or leak-prone vehicles and equipment awaiting maintenance to protected areas);
- Clean up spills and leaks promptly using dry methods (e.g., absorbents) to prevent the discharge of pollutants;
- Store leaky vehicles and equipment indoors or, if stored outdoors, use drip pans and absorbents;
- Use spill/overflow protection equipment;
- Drain fluids from equipment and vehicles that will be decommissioned, and, for any equipment and vehicles that will remain unused for extended periods of time, inspect at least monthly for leaks;
- Perform all vehicle and/or equipment cleaning operations indoors, under cover, or in bermed areas that prevent runoff and run-on and also that capture any overspray; and
- Ensure that all washwater drains to a proper collection system (i.e., not the stormwater drainage system).

The discharge of vehicle and equipment washwater, including tank cleaning operations, is not authorized by this permit. These wastewaters must be covered under a separate RIPDES permit, discharged to a sanitary sewer in accordance with applicable industrial pretreatment requirements, or disposed of otherwise in accordance with applicable law.

Note: Industrial materials do not need to be enclosed or covered if stormwater runoff from affected areas does not discharge pollutants to receiving waters or if discharges are authorized under another RIPDES permit.

II.A.2.b. Good Housekeeping. The permittee must keep clean all exposed areas that are potential sources of pollutants. The permittee must perform good housekeeping measures in order to minimize pollutant discharges, including but not limited to, the following:

- Sweep or vacuum at regular intervals;
- Store materials in appropriate containers;

- Keep all dumpster lids closed when not in use. For dumpsters and roll off boxes that do not have lids and could leak, ensure that discharges have a control (e.g., secondary containment, treatment). Consistent with Part I.B.2. above, this permit does not authorize dry weather discharges from dumpsters or roll off boxes;
- Minimize the potential for waste, garbage and floatable debris to be discharged by keeping exposed areas free of such materials, or by intercepting them before they are discharged.

II.A.2.c. Maintenance. The permittee must regularly inspect, test, maintain, and repair all industrial equipment and systems to avoid situations that may result in leaks, spills, and other releases of pollutants in stormwater discharged to receiving waters. The permittee must maintain all control measures that are used to achieve the effluent limits required by this permit in effective operating condition, as well as all industrial equipment and systems, in order to minimize pollutant discharges. This includes:

- Performing inspections and preventive maintenance of stormwater drainage, source controls, treatment systems, and plant equipment and systems that could fail and result in contamination of stormwater.
- Diligently maintaining nonstructural control measures (e.g., keep spill response supplies available, personnel appropriately trained).
- Inspecting and maintaining baghouses at least quarterly to prevent the escape of dust from the system and immediately removing any accumulated dust at the base of the exterior baghouse. *
- Cleaning catch basins when the depth of debris reaches two-thirds (2/3) of the sump depth and keeping the debris surface at least six inches below the lowest outlet pipe. *

If the permittee finds that the control measures are in need of routine maintenance, the permittee must conduct the necessary maintenance immediately in order to minimize pollutant discharges. If the permittee finds that the control measures need to be repaired or replaced, the permittee must immediately take all reasonable steps to prevent or minimize the discharge of pollutants until the final repair or replacement is implemented, including cleaning up any contaminated surfaces so that the material will not be discharged during subsequent storm events. Final repairs/replacement of stormwater controls should be completed as soon as feasible but must be no later than the timeframe established in Parts III.A. and III.B.3. for corrective actions, i.e., within 14 days or, if that is infeasible, no longer than 45 days. If a control measure was never installed, was installed incorrectly or not in accordance with Parts II. and VIII., or is not being properly operated or maintained, you must conduct corrective action as specified in Part III.

Note: In this context, the term “immediately” requires you to, on the same day you identify that a control measure needs to be maintained, take all reasonable steps to minimize or prevent the discharge of pollutants until a permanent solution is installed and made operational. However, if a problem is identified at a time in the work day when it is too late to take action, the initiation of action must begin no later than the following work day

II.A.2.d. Spill Prevention and Response Procedures. The permittee must minimize the potential for leaks, spills and other releases that may be exposed to stormwater and develop plans for effective response to such spills if or when they occur. At a minimum, the permittee must:

- Plainly labeling containers (e.g., “Used Oil,” “Spent Solvents,” “Fertilizers and Pesticides,” etc.) that could be susceptible to spillage or leakage to encourage proper handling and facilitate rapid response if spills or leaks occur;
- Implement procedures for material storage and handling, including the use of secondary containment and barriers between material storage and traffic areas, or a similarly effective

means designed to prevent the discharge of pollutants from these areas;

- Implement procedures and develop training for expeditiously stopping, containing, and cleaning up leaks, spills, and other releases. Employees who may cause, detect, or respond to a spill or leak must be trained in these procedures and have necessary spill response equipment available. If possible, one of these individuals should be a member of the stormwater pollution prevention team (see Part V.F.1.);
- Keep spill kits on-site, located near areas where spills may occur or where a rapid response can be made; and
- Notify appropriate facility personnel, emergency response agencies, and regulatory agencies. Where a leak, spill, or other release containing a hazardous substance or oil requires the activation of the facility's response plan, the permittee must notify the Department and take appropriate action to stop or minimize a release of Hazardous Material posing an Imminent Hazard and/or any on-going spill of Hazardous Material at the time of discovery. Local requirements may necessitate reporting spills or discharges to local emergency response, public health, or drinking water supply agencies. Contact information must be in locations that are readily accessible and available. Measures for cleaning up hazardous material spills or leaks must be consistent with applicable RCRA regulations at 40 CFR Part 264 and 40 CFR Part 265.

II.A.2.e. Erosion and Sediment Controls. The permittee must stabilize exposed areas and contain runoff using structural and/or non-structural control measures to minimize onsite erosion and sedimentation, and the resulting discharge of pollutants. Among other actions the permittee must take to meet this limit, the permittee must place flow velocity dissipation devices at discharge locations and within outfall channels where necessary to minimize channel and streambank erosion and scour in the immediate vicinity of discharge points. The permittee must also use structural and non-structural control measures to minimize the discharge of sediment. The permittee must identify the polymers and/or chemicals used as part of the controls and their purpose in the facility's SWMP.

II.A.2.f. Management of Runoff. The permittee must divert, infiltrate, reuse, contain, or otherwise reduce stormwater runoff, to minimize pollutants in the discharges. In selecting, designing, installing, and implementing appropriate control measures, the permittee is encouraged to consult the DEM's and EPA's internet-based resources relating to runoff management, including the RI Design and Installation Standards Manual (www.dem.ri.gov/pubs/regs/regs/water/swmanual.pdf) and the sector-specific Industrial Stormwater Fact Sheets (<https://www.epa.gov/npdes/industrial-stormwater-fact-sheet-series>)

II.A.2.g. Salt Storage Piles or Piles Containing Salt. The permittee must enclose or cover storage piles of salt, or piles containing salt, used for deicing or other commercial or industrial purposes, including maintenance of paved surfaces. The permittee must implement appropriate measures (e.g., good housekeeping, diversions, containment) to minimize exposure resulting from adding to or removing materials from the pile. Piles do not need to be enclosed or covered if stormwater runoff from the piles is not discharged or if discharges from the piles are authorized under another RIPDES permit. In accordance with Title 250 RICR-150-05-3 § 3.8(F), new facilities or new locations for the temporary or permanent storage of road salt or salt/sand mixtures is prohibited where the groundwater is classified GAA or GA unless the storage is within a weatherproof structure if the pile is larger than 100 cubic yards, otherwise a secured, durable, waterproof covering is sufficient; on an impermeable base; and runoff from the operational area around the salt or salt/sand storage is controlled by best management practices.

II.A.2.h. Sector Specific Non-Numeric Effluent Limits. The permittee must achieve any additional non-numeric limits stipulated in the relevant sector-specific section(s) of Part VIII.

II.A.2.i. Employee Training. The permittee must train all employees who work in areas where industrial

materials or activities are exposed to stormwater, or who are responsible for implementing activities necessary to meet the conditions of this permit (e.g., inspectors, maintenance personnel), including all members of the Pollution Prevention Team. Training must cover both the specific control measures used to achieve the effluent limits in this Part, and monitoring, inspection, planning, reporting, and documentation requirements in other parts of this permit. Training must be conducted at least annually (or more often if employee turnover is high). Training must ensure that the following personnel understand the requirements of this permit and their specific responsibilities with respect to those requirements:

- Personnel who are responsible for the design, installation, maintenance, and/or repair of controls (including pollution prevention measures);
- Personnel responsible for the storage and handling of chemicals and materials that could become contaminants in stormwater discharges;
- Personnel who are responsible for conducting and documenting inspections and monitoring as required in Parts IV. and VI.; and
- Personnel who are responsible for taking and documenting corrective actions as required in Part III.

Personnel must be trained in at least the following if related to the scope of their job duties (e.g., only personnel responsible for conducting inspections need to understand how to conduct inspections):

- An overview of what is in the SWMP;
- Spill response procedures, good housekeeping, maintenance requirements, and material management practices;
- The location of all controls on the site required by this permit, and how they are to be maintained;
- The proper procedures to follow with respect to the permit's pollution prevention requirements; and
- When and how to conduct inspections, record applicable findings, and take corrective actions

II.A.2.j. Non-Stormwater Discharges. The permittee must evaluate for the presence of non-stormwater discharges. Any non-stormwater discharges not explicitly authorized in Part I.B.2. or covered by a RIPDES permit must be eliminated. If not covered under a separate RIPDES permit, wastewater, wash water and any other unauthorized non-stormwater must be discharged to a sanitary sewer in accordance with applicable industrial pretreatment requirements, or otherwise disposed of appropriately.

II.A.2.k. Dust Generation and Vehicle Tracking of Industrial Materials. The permittee must minimize generation of dust and off-site tracking of raw, final, or waste materials.

II.A.3. Numeric Effluent Limitations Based on Effluent Limitations Guidelines. If the facility is in an industrial category subject to one of the effluent limitations guidelines identified in Table II-1 (see Part VI.B.2.a.), the permittee must meet the effluent limits referenced in Table II-1. below:

Table II-1. Applicable Effluent Limitations Guidelines		
Regulated Activity	40 CFR Part/Subpart	Effluent Limit
Discharges resulting from spray down or intentional wetting of logs at wet deck storage areas	Part 429, Subpart I	See Part VIII.A.7.
Runoff from phosphate fertilizer manufacturing facilities that comes into contact with any raw materials, finished product, by-products or waste products (SIC 2874)	Part 418, Subpart A	See Part VIII.C.4.
Runoff from asphalt emulsion facilities	Part 443, Subpart A	See Part VIII.D.4.
Runoff from material storage piles at cement manufacturing facilities	Part 411, Subpart C	See Part VIII.E.5.
Mine dewatering discharges at crushed stone, construction sand and gravel, or industrial sand mining facilities	Part 436, Subparts B, C, or D	See Part VIII.J.9.
Runoff from hazardous waste landfills	Part 445, Subpart A	See Part VIII.K.6.
Runoff from non-hazardous waste landfills	Part 445, Subpart B	See Part VIII.L.10.
Runoff from coal storage piles at steam electric generating facilities	Part 423	See Part VIII.O.8.
Runoff containing urea from airfield pavement deicing at existing and new primary airports with 1,000 or more annual non-propeller aircraft departures	Part 449	See Part VIII.S.8.

II.B. Water Quality-Based Effluent Limitations

- II.B.1. Water Quality Standards. Discharges must be controlled as necessary to meet applicable water quality standards. RIPDES expects that compliance with the other conditions in this permit will control discharges as necessary to meet applicable water quality standards. If at any time the permittee becomes aware, or the Director determines, that the discharge causes or contributes to an exceedance of applicable water quality standards, the permittee must take corrective action as required in Part III.B., document the corrective actions as required in Parts III.B.4. and VII.D., and report the corrective actions to RIPDES as required in Parts III and VII.D.

Additionally, the Director may impose additional water quality-based limitations on a site-specific basis, or require the permittee to obtain coverage under an individual permit, if information in the NOI, required reports, or from other sources indicates that the discharges are not controlled as necessary to meet applicable water quality standards. This provision also applies to situations where the Department determines that the discharge is not controlled as necessary to meet water quality standards in a downstream water segment, even if the discharge is to a receiving water that is not specifically identified on a Section 303(d) list.

- II.B.2. Discharges to Water Quality Impaired Waters. If a facility discharges to a waterbody which is water quality impaired, the permittee must implement control measures as follows:

- II.B.2.a. If the facility discharges to a waterbody which is water quality impaired due to: bacteria/pathogens (Enterococcus or Fecal Coliform), Aluminum, Lead, Cadmium, Zinc, Copper, Iron, Turbidity, Total Suspended Solids, Chloride, Dissolved Oxygen, Total Nitrogen, Total Phosphorous, and/or Total Organic Carbon; the permittee must implement the following operational and structural source controls:

- Sweep impervious surfaces (i.e., roads, parking lots) at a minimum frequency of once per quarter, unless safety concerns due to extended periods of snow/ice cover make sweeping impracticable, in which case sweeping shall be completed as soon as conditions allow it. If the permittee is unable to sweep quarterly, the permittee must document and include in the SWMP records the reasons why quarterly sweeping was not completed. The

permittee must increase the sweeping frequency and use more efficient sweeping technologies when necessary;

- Keep all exposed areas free of solid waste, garbage, and floatable debris. Solid waste, garbage and floatable debris must be stored and disposed of in such way that prevents exposure;
- Implement other pollution prevention and stormwater BMPs as appropriate; and

In addition to the above control measures, if the facility discharges to a waterbody which is water quality impaired due to bacteria/pathogens (Enterococcus or Fecal Coliform), the permittee must also implement the following additional source controls:

- Use all reasonable methods to deter rodents, birds, and other animals from feeding/nesting/roosting at the facility;
- Install structural source control BMPs to address on-site activities and sources that could cause bacterial/pathogen contamination (e.g., dumpsters, compost piles, food waste and animal products).
- Inspect catch basins and other stormwater BMPs once per quarter and perform at least one dry weather inspection of the stormwater system to identify and eliminate sewer cross-connections.

II.B.2.b. Existing Discharges to Impaired Waters with an EPA approved or established TMDL or other water quality determination made by the Department. If the facility discharges to an impaired water with an EPA approved or established TMDL or other water quality determination made by the Department., the Department will inform the permittee if any additional limits or controls are necessary for the discharge to be consistent with the assumptions of any available wasteload allocation in the TMDL or the provisions of other water quality determination, or if coverage under an individual permit is necessary in accordance with Part I.G.

II.B.2.c. New Discharge to an Impaired Water. If the authorization to discharge under this permit relied on Part I.B.3.k. for a new discharge to an impaired water, the permittee must implement and maintain any control measures or conditions on the site that enabled the facility to become eligible under Part I.B.3.k., and modify such measures or conditions as necessary pursuant to Part III. corrective actions.

II.B.3. Tier 2 Antidegradation Requirements for New or Increased Dischargers. If the permittee is a new discharger, or an existing discharger required to notify the Department of an increased discharge consistent with Part VII.F. (i.e., a “planned changes” report), and the facility discharges directly to waters designated by the State as Tier 2 or Tier 2.5 for antidegradation purposes under 40 CFR 131.12(a), the Director may notify the permittee that additional analyses, control measures, or other permit conditions are necessary to comply with the applicable antidegradation requirements, or notify the permittee that an individual permit application is necessary in accordance with Part I.G.1.

III. CORRECTIVE ACTIONS

III.A. Corrective Actions Based on Exceedance of Benchmark(s)

III.A.1. Level One Corrective Actions - Operational Source Control BMPs. Following the completion of the first benchmark(s) monitoring year if the average of the required 4 benchmark monitoring results exceeds an applicable benchmark value, and the permittee determines that exceedance of the benchmark is not attributable solely to the presence of that pollutant in the natural background, the permittee must complete Level One Corrective Actions for each parameter exceeded in accordance with the following:

- III.A.1.a. Following the completion of the first year of benchmark(s) monitoring, if the average of the required four monitoring events exceeds an applicable benchmark, the permittee must complete the corrective actions described in Parts III.A.1.a.1., III.A.1.a.2. and III.A.1.a.3. within fourteen (14) calendar days of receipt of the fourth monitoring results. If it is infeasible to complete the corrective action within 14 calendar days, the permittee must document why it is infeasible to complete the corrective action within the 14-day timeframe. The permittee must also identify the schedule for completing the work, which must be done as soon as practicable after the 14-day timeframe but no longer than 45 calendar days after discovery.
- III.A.1.a.1. Review the SWMP and ensure that it fully complies with Parts II. and VIII. of this permit.
- III.A.1.a.2. Conduct an inspection to investigate the cause of the exceedance and to evaluate industrial pollutant sources at the facility that are or may be related to the Benchmark exceedance(s).
- III.A.1.a.3. Make appropriate revisions to the SWMP and implement additional Operational Source Control BMPs with the goal of achieving the applicable benchmark value(s) in future discharges.
- III.A.1.b. Summarize the Level One Corrective Actions in the Annual Report, include detailed description of the SWMP revisions, any alterations or modifications to the existing BMPs, and any additional BMPs for each Benchmark Exceedance.
- III.A.2. Level Two Corrective Actions – Structural Source Control BMPs. Following the completion of the second year of benchmark(s) monitoring if the average of the required 4 benchmark(s) monitoring results exceeds an applicable benchmark the permittee must complete Level 2 Corrective Action for each parameter exceeded in accordance with the following:
- III.A.2.a. Review the SWMP and ensure that it fully complies with Parts II. and VIII. of this permit.
- III.A.2.b. Make appropriate revisions to the SWMP to include additional Structural Source Control BMPs with the goal of achieving the applicable benchmark value(s) in future discharges.
- III.A.2.c. Fully implement the SWMP and Structural Source Control BMPs as soon as possible but no later than six months following the second benchmark monitoring year.
- III.A.2.c.1. If installation of Structural Source Control BMPs within six months is not feasible, the permittee may request an extension for the construction of the Structural Source Control BMPs.
- III.A.2.c.2. If the permittee determines that installation of Structural Source Control BMPs is not necessary to prevent future benchmark exceedance(s), the permittee may request a waiver from this requirement by submitting to the Director a detailed explanation and technical basis for the request, no later than 30 days following the end of the second benchmark monitoring year.
- III.A.2.c.3. The Director will approve or deny the extension or waiver request within 60 days of receipt of a complete request.
- III.A.2.d. For benchmark monitoring conducted prior to the full implementation and construction of Structural Source Control BMPs associated with Level 2 corrective actions, benchmark exceedances (for the same parameter) do not count towards additional Level 2 Corrective Actions.
- III.A.2.e. Summarize the Level 2 Corrective Actions in the Annual Report, include a detailed description of the SWMP revisions, any alterations or modifications to the existing BMPs, and any additional BMPs for each Benchmark Exceedance.

III.A.3. Level Three Corrective Actions – Treatment BMPs. If the average of the 4 benchmark(s) monitoring results, conducted after level 2 corrective actions have been fully implemented and completed, exceeds an applicable benchmark the permittee must complete Level Three Corrective Actions for each parameter exceeded, in accordance with the following:

III.A.3.a. Review the SWMP and ensure that it fully complies with Parts II. and VIII. of this permit.

III.A.3.b. Within 90 days following the monitoring year that triggered Level Three Corrective Actions and prior to the construction of treatment BMPs, unless a waiver from this requirement is granted in accordance with Parts III.A.3.c.2. and III.A.3.c.3., the permittee must submit a Level Three Corrective Action Report that includes one or more of the following demonstrations:

III.A.3.b.1. Industrial Activity Demonstration. This demonstration must include the following, as applicable:

III.A.3.b.1.i. A description of the industrial pollutant sources and corresponding industrial pollutants that are or may be related to the Benchmark exceedance(s);

III.A.3.b.1.ii. An evaluation of all pollutant sources associated with industrial activity that are or may be related to the Benchmark exceedance(s);

III.A.3.b.1.iii. A description of how monitoring, assessment or evaluation information was (or will be) used to determine whether existing treatment BMPs will be modified/enhanced, or if new/additional treatment BMPs will be installed.

III.A.3.b.1.iv. A description and evaluation of the proposed modifications/enhancements to existing treatment BMPs or new/additional treatment BMPs as applicable, which must include at a minimum: a summary of the treatment alternatives considered and why the proposed option was selected; basic design data, including characterization of stormwater influent, and sizing calculations of the treatment units; a description of the treatment process and operation, including a flow diagram; and the expected removal efficiency and stormwater discharge reductions;

III.A.3.b.1.v. A schedule for the completion of all proposed modifications/enhancements to existing treatment BMPs and/or installation of additional treatment BMPs; and

III.A.3.b.1.vi. Operation and Maintenance Plan (O&M Plan) of all proposed treatment BMPs. The O&M Plan must be included in the SWMP within 30 days of completion of construction of the treatment BMPs;

III.A.3.b.2. Non-Industrial Pollutant Source Demonstration. This demonstration must include the following, as applicable:

III.A.3.b.2.i. A statement that the permittee has determined that the exceedance of the Benchmark is attributable solely to the presence of non-industrial pollutant sources. The pollutant may also be present due to industrial activities, in which case the permittee must demonstrate that the pollutant contribution from the industrial activities by itself does not result in a Benchmark exceedance. The sources shall be identified as either run-on from adjacent properties, aerial deposition, or as generated by on-site non-industrial sources;

III.A.3.b.2.ii. A statement that the permittee has identified and evaluated all potential pollutant sources that may have commingled with storm water associated with the permittee's industrial activity and may be contributing to the Benchmark exceedance;

- III.A.3.b.2.iii. A description of any on-site industrial pollutant sources and corresponding industrial pollutants that are contributing to the Benchmark exceedance;
 - III.A.3.b.2.iv. An assessment of the relative contributions of the pollutant from (1) storm water run-on to the facility from adjacent properties or non-industrial portions of the permittee's property or from aerial deposition and (2) the storm water associated with the facility's industrial activity;
 - III.A.3.b.2.v. A summary of all existing BMPs for that parameter; and
 - III.A.3.b.2.vi. An evaluation of all on-site/off-site analytical monitoring data demonstrating that the Benchmark exceedances are caused by pollutants in storm water run-on to the facility from adjacent properties, non-industrial portions of the permittee's property or from aerial deposition.
- III.A.3.c. Make appropriate revisions to the SWMP to include modifications/alterations to the existing treatment BMPs and/or installation of additional Treatment BMPs with the goal of achieving the applicable benchmark value(s) in future discharges. Fully implement the SWMP and modifications/enhancements of existing BMPs and/or construction of additional Treatment BMPs as necessary, as soon as possible but no later than six months following the Level 3 benchmark monitoring year, unless:
- III.A.3.c.1. Installation of Treatment BMPs within six months is not feasible, in which case the permittee may request an extension for the construction of the Treatment Control BMPs.
 - III.A.3.c.2. The permittee determines that modifications/alteration of existing treatment BMPs or installation of Treatment BMPs is not feasible or necessary to prevent future benchmark exceedance(s), in which case the permittee may request a waiver from this requirement by submitting to the Director a detailed explanation and technical basis for the request, no later than 30 days following the end of the level 3 benchmark monitoring year.
 - III.A.3.c.3. The Director will approve or deny the extension or waiver request within 60 days of receipt of a complete request. If the waiver is approved the permittee will not be required to submit a Level Three Corrective Action Report under Part III.A.3.b.
- III.A.3.d. Summarize the Level Three Corrective Actions in the Annual Report, include information on how monitoring, assessment or evaluation information was (or will be) used to determine whether existing treatment BMPs will be modified/enhanced, or if new/additional treatment BMPs will be installed.

III.B. Corrective Actions Requiring SWMP Review

- III.B.1. The permittee must review and revise the SWMP to ensure effluent limits are met, when any of the following conditions occur or are detected during an inspection, monitoring or other means, or the Department, EPA or the operator of the MS4 through which the permittee discharges informs the permittee that any of the following conditions have occurred,, the permittee must review and revise, as appropriate, the SWMP (e.g., sources of pollution, spill and leak procedures, non-stormwater discharges, selection, design, installation and implementation of your control measures) so that this permit's effluent limits are met and pollutant discharges are minimized:
- III.B.1.a. A discharge violates a numeric effluent limit;
 - III.B.1.b. The permittee becomes aware, or the Director determines, that the control measures are not stringent enough for the discharge to meet applicable water quality standards or the non-numeric effluent limits in this permit;
 - III.B.1.c. A required control measure was never installed, was installed incorrectly, or not in

accordance with Parts II. and/or VIII., or is not being properly operated or maintained; or

III.B.1.d. Whenever a visual assessment shows evidence of stormwater pollution (e.g., color, odor, floating solids, settled solids, suspended solids, foam).

III.B.2 The permittee must review the SWMP (e.g., sources of pollution, spill and leak procedures, non-stormwater discharges, selection, design, installation and implementation of the control measures) to determine if modifications are necessary to meet the effluent limits in this permit if construction or a change in design, operation, or maintenance at the facility that significantly changes the nature of pollutants discharged in stormwater from the facility, or significantly increases the quantity of pollutants discharged.

III.B.3. Deadlines

III.B.3.a. Immediate Actions The permittee must document the discovery of any of the conditions listed in Parts III.B.1. and III.B.2. within 24 hours of making such discovery. If corrective action is needed, the permittee must immediately take all reasonable steps necessary to minimize or prevent the discharge of pollutants until a permanent solution is installed and made operational, including cleaning up any contaminated surfaces so that the material will not discharge in subsequent storm events.

Note: In this context, the term “immediately” requires you to, on the same day a condition requiring corrective action is found, take all reasonable steps to minimize or prevent the discharge of pollutants until a permanent solution is installed and made operational. However, if a problem is identified at a time in the work day when it is too late to initiate corrective action, the initiation of corrective action must begin no later than the following work day

III.B.3.b. Subsequent Actions. If the permittee determines that additional actions are necessary beyond those implemented pursuant to Part III.B.3.a., the permittee must complete the corrective actions (e.g., install a new or modified control and make it operational, complete the repair) before the next storm event if possible, and within 14 calendar days from the time of discovery of the corrective action condition. If it is infeasible to complete the corrective action within 14 calendar days, the permittee must document why it is infeasible to complete the corrective action within the 14-day timeframe. The permittee must also identify the schedule for completing the work, which must be done as soon as practicable after the 14-day timeframe but no longer than 45 days after discovery.

Where the corrective actions result in changes to any of the controls or procedures documented in the SWMP, the permittee must modify the SWMP accordingly within 14 calendar days of completing corrective action work.

These time intervals are not grace periods, but are schedules considered reasonable for documenting the findings and for making repairs and improvements. They are included in this permit to ensure that the conditions prompting the need for these repairs and improvements are not allowed to persist indefinitely.

III.B.4. The permittee must document the existence of any of the conditions listed in Parts III.B.1. and III.B.2. within 24 hours of becoming aware of such condition. Include the following information in your documentation:

- Description of the condition triggering the need for corrective action review. For any spills or leaks, the following information must be included: a description of the incident including material, date/time, amount, location, and reason for spill, and any leaks, spills or other releases that resulted in discharges of pollutants to waters of the State;
- Date the problem was identified; and

- Description of immediate actions taken pursuant to Part III.B.3.a. to minimize or prevent the discharge of pollutants. For any spills or leaks, include response actions, the date/time clean-up completed, notifications made, and staff involved. Also include any measures taken to prevent the reoccurrence of such releases (see Part II.A.2.d.).

Within 14 days of discovery of any condition listed in Part III.B., the permittee must document the following information:

- The corrective actions taken or to be taken as a result of the conditions listed in Part III.B.1. or III.B.2. (or, for triggering events in Part III.B.2. where you determine that corrective action is not necessary, the basis for this determination);
- Notice of whether SWMP modifications are required as a result of this discovery or corrective action;
- Date when corrective action was initiated; and
- Date corrective action was completed (or is expected to be completed). If applicable, document why it is infeasible to complete the necessary installations or repairs within the 14-day timeframe and document your schedule for installing the controls and making them operational as soon as practicable after the 14-day timeframe (but no longer than 45 days after discovery).

The permittee must submit this documentation in an annual report as required in Part VII.D. and retain a copy onsite with the SWMP as required in Part V.I.

III.C. Effect of Corrective Action. If the event triggering the review is a permit violation (e.g., non-compliance with an effluent limit), correcting it does not remove the original violation. Additionally, failing to take corrective action in accordance with this section is an additional permit violation. The Director will consider the appropriateness and promptness of corrective action in determining enforcement responses to permit violations.

III.D. Substantially Identical Outfalls. If the event triggering corrective action is linked to an outfall that represents other substantially identical outfalls, the permittee's review must assess the need for corrective action for each outfall represented by the outfall that triggered the review or corrective action. Any necessary changes to control measures that affect these other outfalls must also be made before the next storm event if possible, or as soon as practicable following that storm event.

IV. INSPECTIONS

The inspections in Parts IV.A. and IV.B. must be conducted at the facility.

IV.A. Routine Facility Inspections.

IV.A.1. Routine Facility Inspection Procedures. During normal facility operating hours you must conduct inspections of areas of the facility covered by the requirements in this permit, including, but not limited to, the following:

- Areas of the facility where industrial materials or activities are exposed to stormwater;
- Areas identified in the SWMP and those that are potential pollutant sources (see Part V.F.4.);
- Areas where spills and leaks have occurred in the past 3 years; and
- Stormwater control measures used to comply with the effluent limits contained in this permit.

Routine facility inspections must be conducted at least quarterly (i.e., once each calendar quarter) although in many instances, more frequent inspection (e.g., monthly) may be appropriate for some

types of equipment, processes, and control measures or areas of the facility with significant activities and materials exposed to stormwater. The permittee must specify the relevant inspection schedules in the SWMP document as required in Part V.F.6.

These routine inspections must be performed by qualified personnel (as defined in Appendix A), with at least one member of the facility's stormwater pollution prevention team participating. At least once each calendar year, the routine facility inspection must be conducted during a period when a stormwater discharge is occurring. Inspectors must consider the results of visual and analytical monitoring (if any) for the past year when planning and conducting inspections.

During the inspection you must examine or look out for the following:

- Industrial materials, residue or trash that may have or could come into contact with stormwater;
- Leaks or spills from industrial equipment, drums, tanks and other containers;
- Offsite tracking of industrial or waste materials, or sediment where vehicles enter or exit the site;
- Tracking or blowing of raw, final or waste materials from areas of no exposure to exposed areas;
- Control measures needing replacement, maintenance or repair.

During an inspection occurring during a stormwater event or discharge, control measures implemented to comply with effluent limits must be observed to ensure they are functioning correctly. Discharge points, as defined in Appendix A, must also be observed during this inspection. If such discharge locations are inaccessible, nearby downstream locations must be inspected.

IV.A.2. Routine Facility Inspection Documentation. The findings of each routine facility inspection must be documented and this documentation must be maintained onsite with the SWMP as required in Part V.I. The routine facility inspection findings are not to be submitted to the Department, unless specifically requested to do so. At a minimum, the documentation of each routine facility inspection must include the following information:

- The inspection date and time;
- The name(s) and signature(s) of the inspector(s);
- Weather information;
- All observations relating to the implementation of control measures at the facility, including:
 - ❖ A description of any discharges occurring at the time of the inspection;
 - ❖ Any previously unidentified discharges from and/or pollutants at the site;
 - ❖ Any evidence of, or the potential for, pollutants entering the drainage system;
 - ❖ Observations regarding the physical condition of and around all outfalls, including any flow dissipation devices, and evidence of pollutants in discharges and/or the receiving water;
 - ❖ Any control measures needing maintenance, repairs or replacement;

- Any incidents of noncompliance observed; and
- Any additional control measures needed to comply with the permit requirements.

Any corrective action required as a result of a routine facility inspection must be performed consistent with Part III. of this permit.

If the permittee performed a discharge visual assessment required in Part IV.B. during your facility inspection, the permittee may include the results of the assessment with the report required in Part IV.A.2., as long as all components of both types of inspections are included in the report.

IV.A.3. Exceptions to Routine Facility Inspections.

Inactive and Unstaffed Sites. The requirement to conduct routine facility inspections on a quarterly basis does not apply at a facility that is inactive and unstaffed, as long as there are no industrial materials or activities exposed to stormwater. Such a facility is only required to conduct an annual inspection in accordance with the requirements of Part IV.A. To invoke this exception, you must indicate that your facility is inactive and unstaffed on your NOI. If you are already covered under the permit and your facility has changed from active to inactive and unstaffed, you must modify and re-certify your NOI. You must also submit a statement to the Department indicating that the site is inactive and unstaffed, and that there are no industrial materials or activities exposed to stormwater, in accordance with the substantive requirements in 40 CFR 122.26(g)(4)(iii). The statement must be signed and certified in accordance with Part X.G. A copy of the statement must be maintained with the facility's SWMP in accordance with Part V.F.6.b. If circumstances change and industrial materials or activities become exposed to stormwater or the facility becomes active and/or staffed, this exception no longer applies and quarterly facility inspections must immediately resume. If the permittee is not qualified for this exception at the time the permittee is authorized under this permit, but during the permit term the permittee becomes qualified because the facility is inactive and unstaffed, and there are no industrial materials or activities that are exposed to stormwater, then the permittee must include the same signed and certified statement as above and retain it with the records pursuant to Part V.I.

Inactive and unstaffed facilities covered under Sectors G (Metal Mining), H (Coal Mines and Coal Mining-Related Facilities), and J (Non-Metallic Mineral Mining and Dressing), are not required to meet the "no industrial materials or activities exposed to stormwater" standard to be eligible for this exception from routine inspections, consistent with the requirements established in Parts VIII.G.8.d, VIII.H.8.a, and VIII.J.8.a.

IV.B. Quarterly Visual Assessment of Stormwater Discharges.

IV.B.1. Quarterly Visual Assessment Procedures. Twice within the January 1-June 30 monitoring period and twice within the July 1-December 31 monitoring period for the entire permit term, a stormwater sample from each outfall must be collected (except as noted in Part IV.B.3.) and a visual assessment of each of these samples must be conducted. These samples are not required to be collected consistent with 40 CFR Part 136 procedures but should be collected in such a manner that the samples are representative of the stormwater discharge. Each visual assessment of stormwater inspection must be conducted no less than thirty (30) days following the preceding visual assessment of stormwater inspection.

The visual assessment must be made:

- Of a sample in a clean, clear glass, or plastic container, and examined in a well-lit area;
- On samples collected within the first 30 minutes of an actual discharge from a storm event. If it is not possible to collect the sample within the first 30 minutes of discharge, the sample must be collected as soon as practicable after the first 30 minutes and the reason why it was not possible to take samples within the first 30 minutes must be documented. In the case of

snowmelt, samples must be taken during a period with a measurable discharge from the site; and

- For storm events, on discharges that occur at least 72 hours (3 days) from the previous discharge. The 72-hour (3-day) storm interval does not apply if it is documented that less than a 72-hour (3-day) interval is representative for local storm events during the sampling period.

The sample must be visually inspected for the following water quality characteristics:

- Color;
- Odor;
- Clarity;
- Floating solids;
- Settled solids;
- Suspended solids;
- Foam;
- Oil sheen; and
- Other obvious indicators of stormwater pollution.

Whenever the visual assessment shows evidence of stormwater pollution, the permittee must initiate the corrective action procedures in Part III. of this permit

IV.B.2. Quarterly Visual Assessment Documentation. The results of the visual assessments must be documented and maintained onsite with the SWMP as required in Part V.I. The permittee is not required to submit the visual assessment findings to the Department, unless specifically requested to do so. At a minimum, the documentation of the visual assessment must include:

- Sample location(s);
- Sample collection date and time, and visual assessment date and time for each sample;
- Personnel collecting the sample and performing visual assessment, and their signatures;
- Nature of the discharge (i.e., runoff or snowmelt);
- Results of observations of the stormwater discharge;
- Probable sources of any observed stormwater contamination;
- If applicable, why it was not possible to take samples within the first 30 minutes.

Any corrective action required as a result of a quarterly visual assessment must be performed consistent with Part III. of this permit.

IV.B.3. Exceptions to Quarterly Visual Assessments

Adverse Weather Conditions. When adverse weather conditions prevent the collection of samples during the quarter, a substitute sample must be collected during the next qualifying storm event. Documentation of the rationale for no visual assessment for the quarter must be included with the SWMP records as described in Part V.I. Adverse conditions are those that are dangerous or create

inaccessibility for personnel, such as local flooding, high winds, or electrical storms, or situations that otherwise make sampling impractical, such as drought or extended frozen conditions.

Climates with Irregular Stormwater Runoff. If the facility is located in an area where freezing conditions may occur that prevent runoff from occurring for extended periods, then the samples for the quarterly visual assessments may be distributed during seasons when precipitation runoff occurs.

Areas Subject to Snow. In areas subject to snow, one quarterly visual assessment may capture snowmelt discharge, as described in Part VI.A.3., taking into account the exception described above for climates with irregular stormwater runoff.

Inactive and unstaffed sites. The requirement for a quarterly visual assessment does not apply at a facility that is inactive and unstaffed, as long as there are no industrial materials or activities exposed to stormwater. To invoke this exception, a statement must be maintained in the facility's SWMP as required in Part V.F.6.b, indicating that the site is inactive and unstaffed, and that there are no industrial materials or activities exposed to precipitation, in accordance with the substantive requirements in Title 250 RICR-150-10-1 § 1.32(H). The statement must be signed and certified in accordance with Part X.G. If circumstances change and industrial materials or activities become exposed to stormwater or the facility becomes active and/or staffed, this exception no longer applies and the quarterly visual assessments must be immediately resumed. If the permittee is not qualified for this exception at the time the permittee is authorized under this permit, but during the permit term the permittee becomes qualified because the facility is inactive and unstaffed, and there are no industrial materials or activities that are exposed to stormwater, then the permittee must include the same signed and certified statement as above and retain it with the records pursuant to Part V.I.

Inactive and unstaffed facilities covered under Sectors G (Metal Mining), H (Coal Mines and Coal Mining-Related Facilities), and J (Non-Metallic Mineral Mining and Dressing), are not required to meet the "no industrial materials or activities exposed to stormwater" standard to be eligible for this exception from quarterly visual assessment, consistent with the requirements established in Parts VIII.G.8.d, VIII.H.8.a, and VIII.J.8.a.

Substantially identical outfalls. If the facility has two or more outfalls that are believed to discharge substantially identical effluents, as documented in Part V.F.6.b., quarterly visual assessments of the discharge may be conducted at just one of the outfalls and report that the results also apply to the substantially identical outfall(s) provided that the permittee performs visual assessments on a rotating basis of each substantially identical outfall throughout the period of the facility's coverage under this permit. If stormwater contamination is identified through visual assessment performed at a substantially identical outfall, the permittee must assess and modify the control measures as appropriate for each outfall represented by the monitored outfall.

V. STORM WATER MANAGEMENT PLAN REQUIREMENTS

V.A. A Storm Water Management Plan (SWMP) shall be developed for each facility prior to submission of the Notice of Intent (NOI) to be covered by this permit. If the permittee prepared a SWMP for coverage under a previous RIPDES permit, the permittee must review and update the SWMP to implement all provisions of this permit prior to submitting the NOI. The SWMP shall be prepared in accordance with good engineering practices and identify potential sources of pollutants, which may reasonably be expected to affect the quality of storm water discharges associated with industrial activity from the facility. In addition, the Plan shall describe and ensure the implementation of Best Management Practices (BMPs), which are to be used to reduce or eliminate the pollutants in storm water discharges associated with industrial activity at the facility and to assure compliance with the terms and conditions of this permit. The SWMP is intended to document the selection, design, and installation of control measures that are used to meet this MSGP's effluent limits. As distinct from the SWMP, the additional documentation requirements (see Part V.I.) are intended to document the implementation (including inspection, maintenance, monitoring, and corrective action) of the permit requirements.

- V.B. The Plan shall be signed by the owner and operator in accordance with Part X.G. of this permit and retained on-site. Permittees with storm water discharges covered by this permit shall make plans available upon request to the Director or in the case of a storm water discharge associated with industrial activity, which discharges through a municipal separate storm sewer system (MS4) with a RIPDES storm water permit, to the wastewater authority having jurisdiction for the MS4 or sewerage system.
- V.C. If the Plan is reviewed by the Director, he or she may notify the permittee at any time that the Plan does not meet one or more of the minimum requirements of this part. After such notification from the Director, the permittee shall make changes to the Plan and shall submit to the Director a written certification that the requested changes have been made. Unless otherwise provided by the Director, the permittee shall have thirty (30) days after such notification to make the necessary changes.
- V.D. The permittee shall immediately amend the Plan whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to the waters of the State; a release of reportable quantities of hazardous substances and oil; or if the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with industrial activity. Changes must be noted and submitted to this department within thirty (30) days of the date of the amendments.
- V.E. The SWMP for the facility must be prepared before submitting the Notice of Intent for permit coverage. The SWMP must contain all of the following information:
- V.E.1. Stormwater pollution prevention team (see Part V.F.1.);
 - V.E.2. Site description (see Part V.F.2.);
 - V.E.3. Receiving Waters and Wetlands (see Part V.F.3.);
 - V.E.4. Summary of potential pollutant sources (see Part V.F.4.);
 - V.E.5. Description of control measures (see Part V.F.5.);
 - V.E.6. Schedules and procedures (see Part V.F.6.);
 - V.E.7. Permit Eligibility Related to Endangered Species (see Part V.F.7.);
 - V.E.8. Compliance assurance with the terms and conditions of this permit;
 - V.E.9. Signature requirements (see Part V.F.10.)
- V.F. Contents of the SWMP. The SWMP must include the following:
- V.F.1. Pollution Prevention Team. The SWMP must identify the staff individual(s) (by name or title) that comprise the facility's storm water Pollution Prevention Team as well as their individual responsibilities. The Pollution Prevention Team is responsible for overseeing development of the SWMP, any modifications to it, and for implementing and maintaining control measures and taking corrective actions when required. Each member of the stormwater pollution prevention team must have ready access to either an electronic or paper copy of applicable portions of this permit, the most updated copy of your SWMP, other relevant documents or information that must be kept with the SWMP.
 - V.F.2. Site Description. The SWMP must include the following:
 - V.F.2.a. Activities at Facility. Provide a description of the nature of the industrial activities at the facility;
 - V.F.2.b. General Location Map. Provide a topographic map showing the general location of the facility with enough detail to identify the location of the facility and the receiving waters within one

mile of the facility;

V.F.2.c. A legible site map with a suitable scale such as 1"=40', 1"=50', or 1"=100' that supports easy identification of items V.F.2.c.1 through V.F.2.c.14 (If the drainage area(s) is/are very large, the on-site map scale must be no smaller than 1"=100'). At a minimum the site map must include but not be limited to the following:

V.F.2.c.1 boundaries of the property and the size of the property in acres;

V.F.2.c.2. directions of storm water flow (e.g, use arrows to show which ways storm water will flow);

V.F.2.c.3. locations of all surface water bodies, including wetlands, in the immediate vicinity of the facility indicating if any of the waters are impaired and, if so, whether the waters have TMDLs established on them or other water quality determination;

V.F.2.c.4. the location and extent of significant structures and delineation of impervious surfaces;

V.F.2.c.5. locations of all stormwater control measures;

V.F.2.c.6. location of stormwater conveyances including ditches, pipes, and swales;

V.F.2.c.7. locations of storm water inlets and outfalls, with a unique identification code for each outfall (e.g., Outfall 001, 002) indicating if one or more outfalls are being treated as "substantially identical" under Parts III.D., IV.B.3., V.F.6.b.1., and VI.A.1., identify if outfall will be used as a stormwater monitoring point;, and an approximate outline of the area draining to each outfall;

V.F.2.c.8. if applicable, locations of all municipal separate storm sewers (MS4s), where stormwater from the facility discharges to the MS4;

V.F.2.c.9. locations of potential pollutant sources identified under Part V.F.4. and locations where significant materials are exposed to precipitation;

V.F.2.c.10. locations where major spills or leaks identified under Part V.F.4. have occurred;

V.F.2.c.11. location and description of non-storm water discharges;

V.F.2.c.12. locations of the following activities where such activities are exposed to precipitation: fueling stations; vehicle and equipment maintenance and or cleaning areas; loading/unloading areas; locations used for the treatment, storage, or disposal of wastes; liquid storage tanks; processing and storage areas; access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; the location of transfer of substance in bulk; and machinery; and

V.F.2.c.13. location and source of runoff from adjacent property containing significant quantities of pollutants of concern to the facility (an evaluation of how the quality of the storm water running onto the facility impacts the storm water discharges may be included).

V.F.2.d. An estimate of the overall runoff coefficient.

V.F.3. Receiving Waters and Wetlands. The name of the nearest receiving water(s), including intermittent streams, the areal extent and description of wetland that may receive discharges from the facility, impairments and a list of pollutants causing impairments if applicable.

V.F.4. Summary of Potential Pollutant Sources. The permittee must identify each separate area at the facility where industrial materials or activities are exposed to storm water and from which allowable non-stormwater discharges are released. Industrial materials or activities include, but are

not limited to, material handling equipment or activities; industrial machinery; storage, cleaning, fueling and maintenance of vehicles and equipment storage; and raw materials, intermediate products, by-products, final products, or waste products. Material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product or waste product. For each, separate area identified, the description must include:

- V.F.4.a. Activities in Area. A list of the activities (e.g., material storage, loading, access areas equipment fueling and cleaning, cutting steel beams);
- V.F.4.b. Pollutants. A list of the associated pollutant(s) or pollutant parameter(s) (e.g., crankcase oil, iron, biochemical oxygen demand, pH, etc.) associated with each activity. The pollutant list must include all significant materials that have been handled, treated, stored or disposed in a manner to allow exposure to storm water between the time of five (5) years before being covered under this permit and the present;
- V.F.4.c. Method of on-site storage or disposal;
- V.F.4.d. For each area of the facility that generates storm water discharges associated with industrial activity with a reasonable potential for containing significant amounts of pollutants, a prediction of the direction of flow and an estimate of the types of pollutants, which are likely to be present in the storm water discharge.
- V.F.4.e. Spills and Leaks. The permittee must clearly identify areas where potential spills and leaks, which can contribute pollutants to storm water discharges, can occur, and their accompanying drainage points. For areas that are exposed to precipitation or that otherwise drain to a storm water conveyance at the facility to be covered under this permit, the permittee must provide a list of significant spills and leaks of toxic or hazardous pollutants that occurred during the five (5) year period prior to the date of the submission of a Notice of Intent (NOI). The list must be updated if significant spills or leaks occur in exposed areas of the facility during the time the permittee are covered by the permit.

Significant spills and leaks include, but are not limited to, releases of oil or hazardous substances in excess of quantities that are reportable under CWA §311 (see 40 CFR 110.10 and 40 CFR 117.21) or section 102 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Significant spills may also include releases of oil or hazardous substances that are not in excess of reporting requirements.

- V.F.4.f. Non-Stormwater Discharges.
 - V.F.4.f.1. Documentation of Unauthorized Non-Stormwater Discharges. The permittee must document that the facility has been evaluated for the presence of non-stormwater discharges and that all unauthorized discharges have been eliminated. Documentation of the evaluation must be signed and include:
 - V.F.4.f.1.i. The date of any testing and/or evaluation;
 - V.F.4.f.1.ii. Identification of potential significant sources of non-storm water at the site;
 - V.F.4.f.1.iii. A description of the results of any test and/or evaluation for the presence of non-storm water discharges;
 - V.F.4.f.1.iv. A description of the evaluation criteria or testing method used;
 - V.F.4.f.1.v. A list of the outfalls or onsite drainage points that were directly observed during the test; and
 - V.F.4.f.1.vi. The action(s) taken, such as a list of control measures used to eliminate

unauthorized discharge(s), or documentation that a separate RIPDES permit was obtained. For example, a floor drain was sealed, a sink drain was re-routed to sanitary, or a RIPDES permit application was submitted for an unauthorized cooling water discharge

V.F.4.f.2. Allowable Non-Storm Water Discharges

V.F.4.f.2.i. Certain sources of non-storm water are allowable under this permit (see I.B.2 - Allowable Non-Storm Water Discharges). In order for these discharges to be allowed, the SWMP must include:

- identification of each allowable non-storm water source;
- the location where it is likely to be discharged; and
- descriptions of appropriate BMPs for each source.

V.F.4.f.2.ii. Except for flows from fire fighting activities, the permittee must identify in the SWMP all sources of allowable non-storm water that are discharged under the authority of this permit.

V.F.4.f.2.iii. If the permittee includes mist blown from cooling towers amongst the allowable non-storm water discharges, the permittee must specifically evaluate the potential for the discharges to be contaminated by chemicals used in the cooling tower and determine that the levels of such chemicals in the discharges would not cause or contribute to a violation of an applicable water quality standard after implementation of the BMPs the permittee has selected to control such discharges.

V.F.4.g. Salt Storage. The permittee must document the location of any storage piles containing salt and used for deicing or other commercial or industrial purposes.

V.F.4.h. Sampling Data. The permittee must provide a summary of all stormwater discharge sampling data collected at the facility during the previous permit term. New dischargers and new sources must provide a summary of any available stormwater runoff data they may have.

V.F.5. Description of Control Measures to Meet Technology-Based and Water Quality-Based Effluent Limits. The permittee must document the location and type of control measures that have been chosen and/or designed to achieve: the non-numeric effluent limits in Part II.A.2., applicable effluent limits in Part VIII., the numeric effluent limitations guidelines-based limits in Part II.A.3., and the water quality-based effluent limits in Part II.B. Regarding the stormwater control measures, the permittee must also document as appropriate describe how the control measure selection and design addresses considerations in Part II.A.1. This documentation must describe how the control measures at the facility address both the pollutant sources identified in Part V.F.4., and any stormwater run-on that commingles with any discharges covered under this permit.

V.F.6. Schedules and Procedures

V.F.6.a. Pertaining to Control Measures Used to Comply with the Effluent Limits in Part II.A.2. The following must be documented in the SWMP:

- Good Housekeeping (See Part II.A.2.b.) – A schedule for regular pickup and disposal of waste materials, along with routine inspections for leaks and conditions of drums, tanks and containers;
- Maintenance (See Part II.A.2.c.) – Preventative maintenance procedures, including regular inspections, testing, maintenance, and repair of all industrial equipment and systems, and control measures, to avoid situations that may result in leaks, spills, and other releases,

and any back-up practices in place should a runoff event occur while a control measure is off-line;

- Spill Prevention and Response Procedures (See Part II.A.2.d.) – Procedures for preventing and responding to spills and leaks. The permittee may reference the existence of other plans for Spill Prevention Control and Countermeasure (SPCC) developed for the facility under Section 311 of the CWA or BMP programs otherwise required by a RIPDES permit for the facility, provided that the permittee keeps a copy of that other plan onsite and makes it available for review consistent with Part V.H.;
- Erosion and Sediment Control (Part II.A.2.e.) – If polymers and/or other chemical treatments are used as part of the erosion and sediment controls, the permittee must identify the polymers and/or chemicals used and the purpose; and
- Employee Training (Part II.A.2.i.) – The elements of the employee training plan shall include all, but not be limited to, the requirements set forth in Part II.A.2.i. and also the following:
 - The content of the training; The frequency/schedule of training for employees who have duties in areas of industrial activities subject to this permit;
 - A log of the dates on which specific employees received training.

V.F.6.b. Pertaining to Monitoring and Inspections.

V.F.6.b.1. The permittee must document in the SWMP the procedures for conducting the four types of analytical monitoring specified by this permit, where applicable to the facility, including:

- Benchmark monitoring (see Part VI.B.1.);
- Effluent limitations guidelines monitoring (see Part VI.B.2.);
- Impaired waters monitoring (see Part VI.B.3.); and
- Other monitoring as required by the Director (see Part VI.B.4.).

For each type of monitoring, the SWMP must document:

- Locations where samples are collected, including any determination that two or more outfalls are substantially identical;
- Parameters for sampling and the frequency of sampling for each parameter;
- Schedules for monitoring at the facility, including schedule for alternate monitoring periods for climates with irregular stormwater runoff (see Part VI.A.6.);
- Any numeric control values (benchmarks, receiving water hardness, effluent limitations guidelines, TMDL-related requirements, other water quality determination requirements, or other requirements) applicable to discharges from each outfall; and
- Procedures (e.g., responsible staff, logistics, laboratory to be used, etc.) for gathering storm event data, as specified in Part VI.A.

If the permittee is invoking the exception for inactive and unstaffed sites for benchmark monitoring, the permittee must include in the SWMP the information to support this claim as required by Part VI.B.1.f.

The permittee must document the following in the SWMP if the permittee plans to use the substantially identical outfall exception for the quarterly visual assessment requirements in Part IV.B.3. or the benchmark monitoring requirements in Part VI.B.1.:

- Location of each of the substantially identical outfalls;
- Description of the general industrial activities conducted in the drainage area of each outfall;
- Description of the control measures implemented in the drainage area of each outfall;
- Description of the exposed materials located in the drainage area of each outfall that are likely to be significant contributors of pollutants to stormwater discharges;
- An estimate of the runoff coefficient of the drainage areas (low = under 40%; medium = 40 to 65%; high = above 65%); and
- Why the outfalls are expected to discharge substantially identical effluents.

V.F.6.b.2. The permittee must document in the SWMP the procedures for performing, as appropriate, the two types of inspections specified by this permit, including:

- Routine facility inspections (see Part IV.A.); and
- Quarterly visual assessment of stormwater discharges (see Part IV.B.).

For each type of inspection performed, the SWMP must identify:

- Person(s) or positions of person(s) responsible for inspection;
- Schedules for conducting inspections, including tentative schedule for facilities in climates with irregular stormwater runoff discharges (see Part IV.B.3.); and
- Specific items to be covered by the inspection, including schedules for specific outfalls.

If the permittee is invoking the exception for inactive and unstaffed sites relating to routine facility inspections and quarterly visual assessments, the permittee must include in the SWMP the information to support this claim as required by Parts IV.A.3. and IV.B.3.

V.F.7. Permit Eligibility Related to Endangered Species. The permittee must identify in the SWMP if the facility is located within or has a discharge that potentially affect, a listed or proposed to be listed endangered or threatened species or its critical habitat (this information can be found by going to: <http://www.rigis.org/datasets/natural-heritage-areas>. If the Department makes a determination that the discharge may adversely affect a listed or proposed to be listed endangered or threatened species or its critical habitat, the discharge cannot be authorized under this permit and the permittee must submit an application for an individual RIPDES permit that would require appropriate storm water controls or the permittee must eliminate the discharge.

V.F.8. Applicable State or Local Plans. The SWMP must be consistent (and updated as necessary to remain consistent) with applicable State and/or local storm water, waste disposal, sanitary sewer or septic system regulations to the extent these apply to the facility and are more stringent than the requirements of this permit.

V.F.9. Copy of Permit Requirements. The permittee must include a copy of this permit in the SWMP.

V.F.10. Signature Requirements. The permittee must sign the SWMP in accordance with Part X.G., and retain the plan on-site at the facility covered by this permit (see Part VII. for records retention

requirements).

V.G. Maintaining an Updated SWMP. The permittee must modify the SWMP whenever necessary to address any of the triggering conditions for corrective action in Part III.A. and to ensure that they do not reoccur, or to reflect changes implemented when a review following the triggering conditions in Part III.B. indicates that changes to the control measures are necessary to meet the effluent limits in this permit. Changes to the SWMP document must be made in accordance with the corrective action deadlines in Part III. and must be signed and dated in accordance with Part X.G. Changes must be noted and submitted to this department within thirty (30) days of the date of the amendments.

V.H. SWMP Availability. The permittee must retain a complete copy of the current SWMP required by this permit at the facility in an accessible format. A complete SWMP includes any documents incorporated by reference and all documentation supporting permit eligibility pursuant to Part I.B. of this permit, as well as the signed and dated certification page. Regardless of the format, the SWMP must be immediately available to facility employees, EPA, RIDEM, and the operator of an MS4 into which the permittee discharges at the time of an onsite inspection. The current SWMP must also be made available to the public (except any confidential business information (CBI) or restricted information [as defined in Appendix A]), but the permittee must clearly identify those portions of the SWMP that are being withheld from public access; to do so, the permittee must comply with one of the following options:

V.H.1. If the permittee provides a URL in the NOI where the SWMP can be found, and the permittee maintains the current SWMP at this URL, the permittee will have complied with the public availability requirements. To remain current, the permittee must post any SWMP modifications, records and other reporting elements required for the previous year at the same URL as the main body of the SWMP. The SWMP update shall be no later than January 30th as necessary. If the permittee did not provide a SWMP URL in the NOI, the permittee may reopen the NOI at any time subsequent to the original NOI submittal to add a URL where the current SWMP can be found. The permittee is not required to post any confidential business CBI or restricted information (as defined in Appendix A) (such information may be redacted), but the permittee must clearly identify those portions of the SWMP that are being withheld from public access. CBI may not be withheld from those staff cleared for CBI review within RIDEM or EPA.

V.H.2. If the permittee uploads a copy of the current SWMP in the NOI, the permittee will have complied with the public availability requirements. To remain current, the permittee must electronically submit to NeT any SWMP modifications, records and other reporting elements required for the previous year. The SWMP update shall be no later than January 30th following the final routine facility inspection for the year. If the permittee did not electronically submit a copy of the SWMP in the NOI, the permittee may reopen the NOI at any time subsequent to the original NOI submittal to electronically submit a current SWMP. The permittee is not required to post any confidential business CBI or restricted information (as defined in Appendix A) (such information may be redacted), but the permittee must clearly identify those portions of the SWMP that are being withheld from public access. CBI may not be withheld from those staff cleared for CBI review within RIDEM or EPA.

V.I. Additional Documentation Requirements. The permittee is required to keep the following inspection, monitoring, and certification records with the SWMP that together keep the records complete and up-to-date, and demonstrate full compliance with the conditions of this permit:

- A copy of the NOI submitted to the Department along with any correspondence exchanged between the permittee and RIDEM specific to coverage under this permit;
- If issued by the Department, a copy of the acknowledgment letter the permittee receives, assigning the RIPDES permit number;
- A copy of this permit (an electronic copy easily available to SWMP personnel is also acceptable);
- Descriptions and dates of any incidences of significant spills, leaks, or other releases that resulted in discharges of pollutants to waters of the State, through stormwater or otherwise; the circumstances

leading to the release and actions taken in response to the release; and measures taken to prevent the recurrence of such releases (see Part II.A.2.d.);

- Records of employee training, including date training received (see Part II.A.2.i.);
- Documentation of maintenance and repairs of control measures, including the date(s) of regular maintenance, date(s) of discovery of areas in need of repair/replacement, and for repairs, date(s) that the control measure(s) returned to full function, and the justification for any extended maintenance/repair schedules (see Part II.A.2.c.);
- All inspection reports, including the Routine Facility Inspection Reports (see Part IV.A.), the Quarterly Visual Assessment Reports (see Part IV.B.);
- Description of any deviations from the schedule for visual assessments and/or monitoring, and the reason for the deviations (e.g., adverse weather or it was impracticable to collect samples within the first 30 minutes of a measurable storm event) (see Parts IV.B.1., VI.A.4., and VI.B.1.b.);
- Description of any corrective action taken at the facility, including triggering event and dates when problems were discovered and modifications occurred;
- Documentation of any benchmark exceedances and how they were responded to, including either (1) corrective action(s) taken, (2) a finding that the exceedance was due to natural background pollutant levels, or (3) a finding that no further pollutant reductions were technologically available and economically practicable and achievable in light of best industry practice consistent with Part VI.B.1.d.;
- Documentation to support any determination that pollutants of concern are not expected to be present above natural background levels if the facility discharges directly to impaired waters, and that such pollutants were not detected in the facility's discharge or were solely attributable to natural background sources (see Part VI.B.3.); and
- Documentation to support the claim that the facility has changed its status from active to inactive and unstaffed with respect to the requirements to conduct routine facility inspections (see Part IV.A.3.), quarterly visual assessments (see Part IV.B.3.), and/or benchmark monitoring (see Part VI.B.1.).

VI. MONITORING REQUIREMENTS

The permittee must collect and analyze stormwater samples and document monitoring activities consistent with the procedures described in Part VI. and Parts X.G. and X.O., and any additional sector-specific in Part VIII. Refer to Part VII. for reporting and recordkeeping requirements.

VI.A. Monitoring Procedures

VI.A.1. Monitored Outfalls. Applicable monitoring requirements apply to each outfall authorized by this permit, except as otherwise exempt from monitoring as a "substantially identical outfall." If the facility has two or more outfalls that the permittee believes discharge substantially identical effluents, based on the similarities of the general industrial activities and control measures, exposed materials that may significantly contribute pollutants to stormwater, and runoff coefficients of their drainage areas, the permittee may monitor the effluent of just one of the outfalls and report that the results also apply to the substantially identical outfall(s). As required in Part V.F.6.b., the SWMP must identify each outfall authorized by this permit and describe the rationale for any substantially identical outfall determinations. The allowance for monitoring only one of the substantially identical outfalls is not applicable to any outfalls with numeric effluent limitations. The permittee is required to monitor each outfall covered by a numeric effluent limit as identified in Part VI.B.2.

VI.A.2. Comingled Discharges. If discharges authorized by this permit commingle with discharges not

authorized under this permit, any required sampling of the authorized discharges must be performed at a point before they mix with other waste streams, to the extent practicable.

VI.A.3. Measurable Storm Events. All required monitoring must be performed on a storm event that results in an actual discharge from the site ("measurable storm event") that follows the preceding measurable storm event by at least 72 hours (3 days). The 72-hour (3-day) storm interval does not apply if the permittee is able to document that less than a 72-hour (3-day) interval is representative for local storm events during the sampling period. In the case of snowmelt, the monitoring must be performed at a time when a measurable discharge occurs at the site.

For each monitoring event, except snowmelt monitoring, the permittee must identify the date and duration (in hours) of the rainfall event, rainfall total (in inches) for that rainfall event, and time (in days) since the previous measurable storm event. For snowmelt monitoring, the permittee must identify the date of the sampling event. Each monitoring event must be conducted during a measurable storm event that follows the preceding monitoring event by at least thirty (30) days.

VI.A.4. Sample Type. The permittee must take a minimum of one grab sample from a discharge resulting from a measurable storm event as described in Part VI.A.3. Samples must be collected within the first 30 minutes of a measurable storm event. If it is not possible to collect the sample within the first 30 minutes of a measurable storm event, the sample must be collected as soon as practicable after the first 30 minutes and documentation must be kept with the SWMP explaining why it was not possible to take samples within the first 30 minutes. In the case of snowmelt, samples must be taken during a period with a measurable discharge.

VI.A.5. Adverse Weather Conditions. When adverse weather conditions as described in Part IV.B.3. prevent the collection of samples according to the relevant monitoring schedule, the permittee must take a substitute sample during the next qualifying storm event. Adverse weather does not exempt the permittee from having to file a benchmark monitoring report in accordance with the facility's sampling schedule. The permittee must report any failure to monitor as specified in Parts VI.B. and VII.A. indicating the basis for not sampling during the usual reporting period.

VI.A.6. Climates with Irregular Stormwater Runoff. If the facility is located in an area where freezing conditions exist that prevent runoff from occurring for extended periods, required monitoring events may be distributed during seasons when precipitation occurs, or when snowmelt results in a measurable discharge from the site. The permittee must still collect the required number of samples.

VI.A.7. Monitoring Periods. Monitoring requirements in this permit begin January 1, 2020 or the first six-month monitoring interval following the date of authorization, whichever date comes later. For example, if the permittee obtains permit coverage on March 30, 2020, then the first monitoring interval is July 1 - December 31, 2020. This monitoring schedule may be modified in accordance with Part VI.A.6. if the revised schedule is documented with the SWMP and provided to RIDEM with the first monitoring report. If the facility's monitoring is required twice per 6-month interval (e.g., benchmark monitoring), the permittee must monitor at least twice in each of the 6-month intervals (January 1 – June 30, July 1 – December 31) for a minimum of one year. Each monitoring event must be conducted during a measurable storm event that follows the preceding monitoring event by at least thirty (30) days.

VI.A.8. Monitoring for Allowable Non-Stormwater Discharges. The permittee is only required to monitor allowable non-stormwater discharges (as delineated in Part I.B.2.) when they are commingled with stormwater discharges associated with industrial activity.

VI.B. Required Monitoring. This permit includes four types of required analytical monitoring, one or more of which may apply to the discharge:

- Benchmark monitoring (Part VI.B.1.);;
- Annual effluent limitations guidelines monitoring (see Part VI.B.2.);

- Impaired waters monitoring (see Part VI.B.3.); and
- Other monitoring as required by RIDEM (see Part VI.B.4.).

When more than one type of monitoring for the same parameter at the same outfall applies (e.g., total suspended solids once per year for an effluent limit and once per six-month interval for benchmark monitoring at a given outfall), the permittee may use a single sample to satisfy both monitoring requirements.

All required monitoring must be conducted in accordance with the procedures described in Part X.O.4.

VI.B.1. Benchmark Monitoring. This permit stipulates pollutant benchmark concentrations that may be applicable to the discharge. The benchmark concentrations are not effluent limitations; a benchmark exceedance, therefore, is not a permit violation. Benchmark monitoring data are primarily for the permittee’s use to determine the overall effectiveness of the control measures and to assist the permittee in knowing when additional corrective action(s) may be necessary to comply with the effluent limitations in Part II.

Samples must be analyzed consistent with 40 CFR Part 136 analytical methods and using test procedures with quantitation limits at or below benchmark values for all benchmark parameters for which the permittee is required to sample.

VI.B.1.a. Applicability of Benchmark Monitoring.

VI.B.1.a.1 Permittees must monitor for the parameters listed in Table VI-1.

Table VI-1. Benchmarks and Sampling Requirements Applicable to All Facilities	
Parameter	Benchmark Monitoring Concentration
Total Suspended Solids (TSS)	100 mg/L
Oil & Grease (O&G)	15mg/L

VI.B.1.a.2. In addition to the benchmark monitoring requirements listed in Table VI-1. Permittees must monitor any benchmark parameters specified for the industrial sector(s), both primary industrial activity and any co-located industrial activities, applicable to the discharge. The facility’s industry-specific benchmark concentrations are listed in the sector-specific sections of Part VIII. If the facility is in one of the industrial sectors subject to benchmark concentrations that are hardness-dependent, the permittee is required to submit to RIDEM with the first benchmark report a hardness value, established consistent with the procedures in Appendix D, which is representative of the facility’s receiving water.

VI.B.1.b. Benchmark Monitoring Schedule. Benchmark monitoring must be conducted twice within the January 1-June 30 period and twice within the July 1-December 31 period, as identified in Part VI.A.7., for the first year of permit coverage commencing no earlier than the effective date of the permit. Each monitoring event must be conducted during a measurable storm event that follows the preceding monitoring event by at least thirty (30) days. If benchmarks are exceeded after one year (4 benchmark monitoring events) of benchmark monitoring, the permittee must continue semiannual benchmark monitoring in accordance with Part VI.B.1.d.

VI.B.1.c. Data not exceeding benchmarks. After completion of a year of collection of samples, if the average of the 4 monitoring values for any parameter does not exceed the benchmark, the permittee has fulfilled the monitoring requirements for that parameter for the permit term. For averaging purposes, use a value of zero for any individual sample parameter, analyzed

using procedures consistent with Part VI.B.1.a., which is determined to be less than the method detection limit.

VI.B.1.d. Data exceeding benchmarks. After collection of one year of samples, if the average of the 4 monitoring values for any parameter exceeds the benchmark value, the permittee must implement corrective actions, in accordance with Part III.A., unless the permittee determines that exceedance of the benchmark is attributable solely to the presence of that pollutant in the natural background in accordance with Part VI.B.1.e. If the permittee determines that exceedance of the benchmark is attributable solely to the presence of that pollutant in the natural background, the permittee may discontinue sampling in accordance to VI.B.1.e..

VI.B.1.e. Natural background pollutant levels. Following the first 4 semiannual intervals of benchmark monitoring, if the average concentration of a pollutant exceeds a benchmark value, and the permittee determines that exceedance of the benchmark is attributable solely to the presence of that pollutant in the natural background, the permittee is not required to perform corrective action or additional benchmark monitoring provided that:

VI.B.1.e.1 The average concentration of the benchmark monitoring results is less than or equal to the concentration of that pollutant in the natural background;

VI.B.1.e.2 The permittee documents and maintains with the SWMP, as required in Part V.I., the supporting rationale for concluding that benchmark exceedances are in fact attributable solely to natural background pollutant levels. The permittee must include in the supporting rationale:

VI.B.1.e.2.i. A statement that the permittee has determined that the Benchmark exceedance is attributable solely to the presence of the pollutant in the natural background. (The pollutant may also be present due to industrial activities, in which case the permittee must demonstrate that the pollutant contribution from the industrial activities by itself does not result in a Benchmark exceedance);

VI.B.1.e.2.ii. A summary of all data previously collected by the permittee, or other identified data collectors, that describes the levels of natural background pollutants in the facility's storm water discharge; and

VI.B.1.e.2.iii. A summary of any research and published literature that relates the pollutants evaluated at the facility as part of the Natural Background Source Demonstration.

VI.B.1.e.3. The permittee submits to the DEM on the final semiannual benchmark monitoring report the supporting rationale indicating that the benchmark exceedances are attributable solely to natural background pollutant levels.

For the purposes of this permit natural background pollutants include those substances that are naturally occurring in soils or groundwater. Natural background pollutants do not include legacy pollutants from earlier activity on the site, or pollutants in run-on from neighboring sources which are not naturally occurring.

VI.B.1.f. Exception for Inactive and Unstaffed Sites. The requirement for benchmark monitoring does not apply at a facility that is inactive and unstaffed, as long as there are no industrial materials or activities exposed to stormwater. To invoke this exception, the permittee must do the following:

- Maintain a statement onsite with the SWMP stating that the site is inactive and unstaffed, and that there are no industrial materials or activities exposed to stormwater in accordance with the substantive requirements in 40 CFR 122.26(g) and sign and certify the statement in accordance with Part X.G.; and

- If circumstances change and industrial materials or activities become exposed to stormwater or the facility becomes active and/or staffed, this exception no longer applies and the permittee must immediately begin complying with the applicable benchmark monitoring requirements under Part VI.B. as if the permittee was in the first year of permit coverage. The permittee must indicate in the first benchmark monitoring report that the facility has materials or activities exposed to stormwater or has become active and/or staffed.
- If the permittee is not qualified for this exception at the time the permittee is authorized under this permit, but during the permit term the permittee becomes qualified because the facility is inactive and unstaffed, and there are no industrial materials or activities that are exposed to stormwater, then the permittee must notify the Department of this change in the next benchmark monitoring report. The permittee may discontinue benchmark monitoring once notified by the Department, and prepared and signed the certification statement described above concerning the facility's qualification for this special exception.

Note: This exception has different requirements for Sectors G, H, and J (see Part VIII.).

VI.B.2. Effluent Limitations Monitoring

VI.B.2.a. Monitoring Based on Effluent Limitations Guidelines. Table VI-2 identifies the stormwater discharges subject to effluent limitation guidelines that are authorized for coverage under this permit. Beginning January 1, 2020 or the first six-month monitoring interval following the date of discharge authorization, whichever date comes later, the permittee must monitor once per year at each outfall containing the discharges identified in Table VI-2 for the parameters specified in the sector-specific section of Part VIII.

Table VI-2. Required Monitoring for Effluent Limits Based on Effluent Limitations Guidelines

Regulated Activity	Effluent Limit	Monitoring Frequency	Sample Type
Discharges resulting from spray down or intentional wetting of logs at wet deck storage areas	See Part VIII.A.7.	1/year	Grab
Runoff from phosphate fertilizer manufacturing facilities that comes into contact with any raw materials, finished product, by-products or waste products (SIC 2874)	See Part VIII.C.4.	1/year	Grab
Runoff from asphalt emulsion facilities	See Part VIII.D.4.	1/year	Grab
Runoff from material storage piles at cement manufacturing facilities	See Part VIII.E.5.	1/year	Grab
Mine dewatering discharges at crushed stone, construction sand and gravel, or industrial sand mining facilities	See Part VIII.J.9.	1/year	Grab
Runoff from hazardous waste landfills	See Part VIII.K.6.	1/year	Grab
Runoff from non-hazardous waste landfills	See Part VIII.L.10.	1/year	Grab
Runoff from coal storage piles at steam electric generating facilities	See Part VIII.O.8.	1/year	Grab
Runoff containing urea from airfield pavement deicing at existing and new primary airports with 1,000 or more annual non-propeller aircraft departures	See Part VIII.S.8.	1/year	Grab

VI.B.2.b. Substantially Identical Outfalls. The permittee must monitor each outfall discharging runoff from any regulated activity identified in Table VI-2. The substantially identical outfall monitoring provisions are not available for numeric effluent limits monitoring.

VI.B.3. Impaired Waters Monitoring. Permittees must monitor for all pollutants for which the waterbody is impaired as follows:

VI.B.3.a. If the facility discharges to an impaired water, the permittee must monitor for all pollutants for which the waterbody is impaired and for which a standard analytical method exists (see 40 CFR Part 136).

If the pollutant for which the waterbody is impaired is suspended solids, turbidity or sediment /sedimentation, the permittee must monitor for Total Suspended Solids (TSS). If the pollutant for which the waterbody is impaired is expressed in the form of an indicator or surrogate pollutant, the permittee must monitor for that indicator or surrogate pollutant. No monitoring is required when a waterbody's biological communities are impaired but no pollutant, including indicator or surrogate pollutants, is specified as causing the impairment, or when a waterbody's impairment is related to hydrologic modifications, impaired hydrology, or temperature.

VI.B.3.b. Discharges to Impaired Waters Monitoring Schedule. Beginning January 1, 2020 or the first full six-month interval following the date of authorization (as described in Part VI.A.7.), whichever date comes later, the permittee must monitor at least twice in each of the 6-month intervals (January 1 – June 30, July 1 – December 31), for the pollutant causing the impairment, unless the Director informs the permittee otherwise. The permittee must conduct monitoring at each outfall (except substantially identical outfalls) discharging stormwater to impaired waters with and/or without an EPA approved or established TMDL or other water quality determination.

VI.B.3.c. After 2 consecutive monitoring periods (i.e., 12 consecutive months), if the pollutant for which the water is impaired is not present and not expected to be present in the discharge, or it is present but the permittee has determined that its presence is caused solely by natural background sources, the permittee must include a notification to this effect in the monitoring report following the second monitoring period (i.e., cover letter to the monitoring report). After notifying the Department, the permittee may discontinue monitoring unless a TMDL or other water quality determination has specific instructions to the contrary, in which case the permittee must follow those instructions.

To support a determination that the pollutant's presence is caused solely by natural background sources, the permittee must keep the following documentation with the SWMP records, in accordance to Part V.I.:

- An explanation of why the permittee believes that the presence of the pollutant causing the impairment in the discharge is not related to the activities at the facility; and
- Data and/or studies that tie the presence of the pollutant causing the impairment in the discharge to natural background sources in the watershed.

Natural background pollutants include those substances that are naturally occurring in soils or groundwater. Natural background pollutants do not include legacy pollutants from earlier activity on the site, or pollutants in run-on from neighboring sources which are not naturally occurring.

VI.B.3.d. If after one year of monitoring, the pollutant for which the water is impaired is detected and its presence is not caused solely by natural background sources, the permittee must continue monitoring for the pollutant detected for the remainder of the permit term or until the pollutant for which the water is impaired is not detected for 2 consecutive monitoring periods (i.e., 12 consecutive months).

VI.B.4. Additional Monitoring Required by the Director. The Director may notify the permittee of additional discharge monitoring requirements. Any such notice will briefly state the reasons for the monitoring, locations, and parameters to be monitored, frequency and period of monitoring, sample types, and reporting requirements.

VI.C. Follow-up Actions if Discharge Exceeds Numeric Effluent Limit. The permittee must conduct follow-up monitoring within 30 calendar days (or during the next qualifying runoff event, should none occur within 30 days) of implementing corrective action(s) taken pursuant to Part III. in response to an exceedance of a numeric effluent limit contained in this permit. Monitoring must be performed for any pollutant(s) that exceeds the effluent limit. If this follow-up monitoring exceeds the applicable effluent limitation, the permittee must comply with both Parts VI.C.1. and VI.C.2.

VI.C.1. Submit an Exceedance Report. The permittee must submit an Exceedance Report consistent with Part VII.C.

VI.C.2. Continue to Monitor. The permittee must continue to monitor, at least quarterly, until the discharge is in compliance with the effluent limit or until the Department waives the requirement for additional monitoring

VII. REPORTING AND RECORDKEEPING

VII.A. Electronic Reporting Requirement. The permittee must submit all NOIs, NOTs, NOEs, NDCs, Annual Reports, to the Director by hard copy, unless an electronic reporting tool becomes available. Discharge Monitoring Reports (DMRs), must be reported electronically using NeTDMR.

VII.B. Submitting Information. Most information required to be submitted by this permit shall be submitted via NeT, per Part VII.A. NeT allows the permittee to both prepare and submit required information using specific forms, found in the permit's appendices. To access NeT, go to:

<https://epanet.zendesk.com/hc/en-us/sections/115003867248-How-To->

Information required to be submitted to the Department via NeT includes:

- Notice of Intent (Part I.C.);
- No Exposure Certification (Part I.E.);
- No Discharge Certification (Part I.F.);
- Notice of Termination (Part I.D.); and
- Annual Reports (Part VII.D.)

VII.C. Reporting Monitoring Data. All monitoring data collected pursuant to Parts VI.B.1., VI.B.2. and VI.B.3. must be submitted electronically using the NetDMR system available at: www.epa.gov/netdmr, no later than 15 days after the last day of the monitoring period, in accordance with Part VI. If the permittee collects multiple samples in a single six-month period (e.g., due to adverse weather conditions, climates with irregular stormwater runoff, or areas subject to snow), the permittee is required to submit all sampling results no later than 15 days after the last day of the monitoring period. The permittee's monitoring requirements (i.e., parameters required to be monitored and sample frequency) will be prepopulated on the permittee's electronic Discharge Monitoring Report (DMR) form based on the information the permittee reported on the NOI form through NeT.

VII.D. Annual Report

The permittee must submit an Annual Report electronically using NeT, per Part VII.B., by January 30th for each year of permit coverage containing information generated from the past calendar year. The Annual

Report must include the findings from Part IV.A. routine facility inspections and any corrective action documentation as required in Parts III.A. and III.B.. If corrective action(s) is not yet completed at the time of submission of this annual report, the permittee must describe the status of any outstanding corrective action(s). In addition to the information required in Parts III.A. and III.B. and IV.C.2. (Routine Facility Inspection Documentation), the permittee must include the following information with the annual report:

- Facility name
- RIPDES permit number
- Facility physical address
- Contact person name, title, and phone number.
- A summary of the previous calendar year's routine facility inspection documentation required (Part IV.A.2.);
- A summary of the previous calendar year's quarterly visual assessment documentation (see Part IV.B.2. of the permit);
- A summary of the previous calendar year's benchmarks monitoring, that includes monitoring dates and benchmark(s) exceedances;
- A summary of the previous calendar year's corrective action(s) documentation (see Parts III.A. and III.B.). If corrective action is not yet completed at the time of submission of your annual report, you must describe the status of any outstanding corrective action(s). Also describe any incidents of noncompliance in the past year, or if none, provide a statement that you are in compliance with the permit.

VII.E. Exceedance Report for Numeric Effluent Limits

If follow-up monitoring pursuant to Part VI.C. exceeds a numeric effluent limit, the permittee must submit an Exceedance Report to the Department no later than 30 days after receipt of the lab results. The report must include the following:

- RIPDES permit number;
- Facility name, physical address and location;
- Name of receiving water;
- Monitoring data from this and the preceding monitoring event(s);
- An explanation of the situation; what the permittee has done and intends to do (should the corrective actions not yet be complete) to correct the violation; and
- An appropriate contact name and phone number.

VII.F. Additional Reporting

In addition to the reporting requirements stipulated in Part VII., the permittee is also subject to the standard permit reporting provisions.

Where applicable, the permittee must submit the following reports to the Department. If the facility discharges through an MS4, the permittee must also submit these reports to the MS4 operator (identified pursuant to Part V.F.2.).

24-hour reporting - The permittee must report any noncompliance which may endanger health or the environment. Any information must be provided orally within 24 hours from the time the permittee becomes aware of the circumstances;

- 5-day follow-up reporting to the 24-hour reporting - A written submission must also be provided within five days of the time the permittee becomes aware of the circumstances;
- Reportable quantity spills (see Part II.A.2.d.) - The permittee must provide notification, as required under Part II.A.2.d., as soon as the permittee has knowledge of a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity
- Where applicable, the permittee must submit the following reports to the Department:
- Planned changes – The permittee must give notice to the Department as soon as possible of any planned physical alterations, operational changes or additions to the permitted facility that qualify the facility as a new source or that could significantly change the nature or significantly increase the quantity of pollutants discharged. All stormwater controls must be constructed and implemented prior to initiation of discharges from any of the changes described above. These discharges must meet all the requirements under this permit. Applications for these discharges must be submitted and will be authorized in accordance to Part I.C. Once discharges from any of the changes described above occur the permittee must immediately begin complying with the applicable benchmark monitoring requirements under Part VI.B. as if the permittee was in the first year of permit coverage.;
- Anticipated noncompliance) – The permittee must give advance notice to the Department of any planned changes in the permitted facility or activity which the permittee anticipates will result in noncompliance with permit requirements;
- Transfer of ownership and/or operation – The permittee must submit a complete and accurate NOI in accordance with the requirements of Appendix C of this permit and by the deadlines specified in Part I.C.2. All transfers must meet the requirements of Title 250 RICR-150-10-1 § 1.23 in accordance with Part I.I. of this permit.
- Compliance schedules - Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit must be submitted no later than 14 days following each schedule date;
- Other noncompliance - The permittee must report all instances of noncompliance not reported in the monitoring report (pursuant to Part VII.A.), compliance schedule report, or 24-hour report at the time monitoring reports are submitted; and
- Other information – The permittee must promptly submit facts or information if the permittee becomes aware that the permittee failed to submit relevant facts in the NOI, or that the permittee submitted incorrect information in the NOI or in any report

VII.G. Recordkeeping. The permittee must retain copies of the SWMP (including any modifications made during the term of this permit), additional documentation requirements pursuant to Part V.I. (including documentation related to corrective actions taken pursuant to Part III.), all reports and certifications required by this permit, monitoring data, and records of all data used to complete the NOI to be covered by this permit, for a period of at least 3 years from the date that coverage under this permit expires or is terminated.

VII.H. How to submit Reports. Any reports required in Parts VI. and VII. must be submitted, to the Director by hard copy, unless an electronic reporting tool becomes available.

VIII. SECTOR-SPECIFIC REQUIREMENTS FOR INDUSTRIAL ACTIVITY

The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply

to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.A. Subpart A – Sector A – Timber Products.

The permittee must comply with Part VIII. sector-specific requirements associated with the facility's primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.A.1. Covered Stormwater Discharges. The requirements in Subpart A apply to stormwater discharges associated with industrial activity from Timber Products facilities as identified by the SIC Codes specified under Sector A in Table B-1 of Appendix B of the permit.

VIII.A.2. Limitation on Coverage.

VIII.A.2.a. *Prohibition of Discharges.* (See also Part I.B.3.) Not covered by this permit: stormwater discharges from areas where there may be contact with the chemical formulations sprayed to provide surface protection. These discharges must be covered by a separate RIPDES permit.

VIII.A.2.b. *Authorized Non-Stormwater Discharges.* (See also Part I.B.2.) Also authorized by this permit, provided the non-stormwater component of the discharge is in compliance with the requirements in Part II.A.2. (Non-Numeric Effluent Limits): discharges from the spray down of lumber and wood product storage yards where no chemical additives are used in the spray-down waters and no chemicals are applied to the wood during storage.

VIII.A.3. Additional Technology-Based Effluent Limits.

VIII.A.3.a. *Good Housekeeping.* (See also Part II.A.2.b.) In areas where storage, loading and unloading, and material handling occur, perform good housekeeping to limit the discharge of wood debris, minimize the leachate generated from decaying wood materials, and minimize the generation of dust.

VIII.A.4. Additional SWMP Requirements.

VIII.A.4.a. *Drainage Area Site Map.* (See also Part V.F.2.c.) Document in the SWMP where any of the following may be exposed to precipitation or surface runoff: processing areas, treatment chemical storage areas, treated wood and residue storage areas, wet decking areas, dry decking areas, untreated wood and residue storage areas, and treatment equipment storage areas.

VIII.A.4.b. *Inventory of Exposed Materials.* (See also Part V.F.4.b.) Where such information exists, if the facility has used chlorophenolic, creosote, or chromium-copper-arsenic formulations for wood surface protection or preserving, document in the SWMP the following: areas where contaminated soils, treatment equipment, and stored materials still remain and the management practices employed to minimize the contact of these materials with stormwater runoff.

VIII.A.4.c. *Description of Stormwater Management Controls.* (See also Part V.F.5.) Document measures implemented to address the following activities and sources: log, lumber, and wood product storage areas; residue storage areas; loading and unloading areas; material handling areas; chemical storage areas; and equipment and vehicle maintenance, storage, and repair areas. If the facility performs wood surface protection and preservation activities, address the specific control measures, including any BMPs, for these activities.

VIII.A.5. Additional Inspection Requirements. See also Part IV.A. If the facility performs wood surface protection and preservation activities, inspect processing areas, transport areas, and treated wood

storage areas monthly to assess the usefulness of practices to minimize the deposit of treatment chemicals on unprotected soils and in areas that will come in contact with stormwater discharges

VIII.A.6. Sector Specific Benchmarks. Table VIII.A-1 identifies benchmarks that apply to the specific subsectors of Sector A. These benchmarks apply to both the primary industrial activity and any co-located industrial activities, which describe the site activities.

Subsector (The permittee may be subject to requirements for more than one sector/subsector)	Parameter	Benchmark Monitoring Concentration
Subsector A1. General Sawmills and Planing Mills (SIC 2421)	Chemical Oxygen Demand (COD)	120.0 mg/L
	Total Suspended Solids (TSS)	100 mg/L
	Total Zinc ¹ (fresh water discharges)	Hardness Dependent
	Total Zinc (salt water discharges)	0.09 mg/L
Subsector A2. Wood Preserving (SIC 2491)	Total Arsenic (fresh water discharges)	0.15 mg/L
	Total Arsenic (salt water discharges)	0.069 mg/L
	Total Copper ¹ (fresh water discharges)	Hardness Dependent
	Total Copper (salt water discharges)	0.0048
Subsector A3. Log Storage and Handling (SIC 2411)	Total Suspended Solids (TSS)	100 mg/L
Subsector A4. Hardwood Dimension and Flooring Mills; Special Products Sawmills, not elsewhere classified; Millwork, Veneer, Plywood, and Structural Wood; Wood Pallets and Skids; Wood Containers, not elsewhere classified; Wood Buildings and Mobile Homes; Reconstituted Wood Products; and Wood Products Facilities not elsewhere classified (SIC 2426, 2429, 2431-2439 (except 2434), 2441, 2448, 2449, 2451, 2452, 2493, and 2499)	Chemical Oxygen Demand (COD)	120.0 mg/L
	Total Suspended Solids (TSS)	100.0 mg/L

¹ The benchmark values of some metals are dependent on water hardness for fresh water discharges. For these parameters, permittees must determine the hardness of the receiving fresh water body (see Appendix D, "Calculating Hardness in Receiving Waters for Hardness Dependent Metals," for methodology), in accordance with Part VI.B.1.a., to identify the applicable 'hardness range' for determining their benchmark value applicable to their facility. The ranges occur in 25 mg/L increments. Hardness Dependent Benchmarks follow in the table below:

Water Hardness Range	Copper (mg/L)	Zinc (mg/L)
0-25 mg/L	0.0038	0.04
25-50 mg/L	0.0056	0.05
50-75 mg/L	0.0090	0.08
75-100 mg/L	0.0123	0.11
100-125 mg/L	0.0156	0.13
125-150 mg/L	0.0189	0.16
150-175 mg/L	0.0221	0.18
175-200 mg/L	0.0253	0.20
200-225 mg/L	0.0285	0.23
225-250 mg/L	0.0316	0.25
250+ mg/L	0.0332	0.26

VIII.A.7. Effluent Limitations Based on Effluent Limitations Guidelines (See also Part VI.B.2.a. of the permit.) Table VIII.A-2 identifies effluent limits that apply to the industrial activities described below. Compliance with these effluent limits is to be determined based on discharges from these industrial activities independent of commingling with any other wastestreams that may be covered under this permit.

Table VIII.A-2 ¹		
Industrial Activity		
Discharges resulting from spray down or intentional wetting of logs at wet deck storage areas	pH	6.0 - 9.0 s.u.
	Debris (woody material such as bark, twigs, branches, heartwood, or sapwood)	No discharge of debris that will not pass through a 2.54-cm (1-in.) diameter round opening

¹Monitor Annually

VIII.B. Subpart B – Sector B – Paper and Allied Products.

The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.B.1. Covered Stormwater Discharges. The requirements in Subpart B apply to stormwater discharges associated with industrial activity from Paper and Allied Products Manufacturing facilities, as identified by the SIC Codes specified under Sector B in Table B-1 of Appendix B of the permit

VIII.B.2. Sector Specific Benchmarks (See also Part VI. of the permit).

Table VIII.B-1.		
Subsector (The permittee may be subject to requirements for more than one sector/subsector)	Parameter	Benchmark Monitoring Concentration
Subsector B1. Paperboard Mills (SIC Code 2631)	Chemical Oxygen Demand (COD)	120 mg/L

VIII.C. Subpart C – Sector C - Chemical and Allied Products Manufacturing, and Refining.

The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.C.1. Covered Stormwater Discharges. The requirements in Subpart C apply to stormwater discharges associated with industrial activity from Chemical and Allied Products Manufacturing, and Refining facilities, as identified by the SIC Codes specified under Sector C in Table B-1 of Appendix B of the permit.

VIII.C.2. Limitations on Coverage

VIII.C.2.a. *Prohibition of Non-Stormwater Discharges.* (See also Part I.B.3.) The following are not covered by this permit: non-stormwater discharges containing inks, paints, or substances (hazardous, nonhazardous, etc.) resulting from an onsite spill, including materials collected in drip pans; washwater from material handling and processing areas; and washwater from drum, tank, or container rinsing and cleaning.

VIII.C.3. Sector Specific Benchmarks. Table VIII.C-1 identifies benchmarks that apply to the specific subsectors of Sector C. These benchmarks apply to both the primary industrial activity and any co-located industrial activities.

Subsector (The facility may be subject to requirements for more than one sector/subsector)	Parameter	Benchmark Monitoring Concentration
Subsector C1. Agricultural Chemicals (SIC 2873-2879)	Nitrate plus Nitrite Nitrogen	0.68 mg/L
	Total Lead ¹ (fresh water discharges)	Hardness Dependent
	Total Lead (salt water discharges)	0.21 mg/L
	Total Iron	1.0 mg/L
	Total Zinc ¹ (fresh water discharges)	Hardness Dependent
	Total Zinc (salt water discharges)	0.09 mg/L
	Phosphorus	2.0 mg/L
Subsector C2. Industrial Inorganic Chemicals (SIC 2812-2819)	Total Aluminum	0.75 mg/ L
	Total Iron	1.0 mg/L
	Nitrate plus Nitrite Nitrogen	0.68 mg/L
Subsector C3. Soaps, Detergents, Cosmetics, and Perfumes (SIC 2841-2844)	Nitrate plus Nitrite Nitrogen	0.68 mg/L
	Total Zinc ¹ (fresh water discharges)	Hardness Dependent
	Total Zinc (salt water discharges)	0.09 mg/L
Subsector C4. Plastics, Synthetics, and Resins (SIC 2821-2824)	Total Zinc ¹ (fresh water discharges)	Hardness Dependent
	Total Zinc (salt water discharges)	0.09 mg/L

¹ The benchmark values of some metals are dependent on water hardness for fresh water discharges. For these parameters, permittees must determine the hardness of the receiving fresh water body (see Appendix D, "Calculating Hardness in Receiving Waters for Hardness Dependent Metals," for methodology), in accordance with Part VI.B.1.a., to identify the applicable 'hardness range' for determining their benchmark value applicable to their facility. The ranges occur in 25 mg/L increments. Hardness Dependent Benchmarks follow in the table below:

Water Hardness Range	Lead (mg/L)	Zinc (mg/L)
0-25 mg/L	0.014	0.04
25-50 mg/L	0.023	0.05
50-75 mg/L	0.045	0.08
75-100 mg/L	0.069	0.11
100-125 mg/L	0.095	0.13
125-150 mg/L	0.122	0.16
150-175 mg/L	0.151	0.18
175-200 mg/L	0.182	0.20
200-225 mg/L	0.213	0.23
225-250 mg/L	0.246	0.25
250+ mg/L	0.262	0.26

VIII.C.4. Effluent Limitations Based on Effluent Limitations Guidelines (See also Part VI.B.2.a. of the permit). Table VIII.C-2 identifies effluent limits that apply to the industrial activities described below. Compliance with these effluent limits is to be determined based on discharges from these industrial activities independent of commingling with any other wastestreams that may be covered under this permit.

Industrial Activity	Parameter	Effluent Limit
Runoff from phosphate fertilizer manufacturing facilities that comes into contact with any raw materials, finished product, by-products or waste products (SIC 2874)	Total Phosphorus (as P)	105.0 mg/L, daily maximum
		35 mg/L, 30-day avg.
	Fluoride	75.0 mg/L, daily maximum
		25.0 mg/L, 30-day avg.

¹ Monitor Annually

VIII.D. Subpart D – Sector D - Asphalt Paving and Roofing Materials and Lubricant Manufacturing. The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.D.1. Covered Stormwater Discharges. The requirements in Subpart D apply to stormwater discharges associated with industrial activity from Asphalt Paving and Roofing Materials and Lubricant Manufacturing facilities, as identified by the SIC Codes specified under Sector D in Table B-1 of Appendix B of the permit.

VIII.D.2. Limitations on Coverage. The following stormwater discharges associated with industrial activity are not authorized by this permit (See also Part I.B.3.):

VIII.D.2.a. Discharges from petroleum refining facilities, including those that manufacture asphalt or asphalt products, that are subject to nationally established effluent limitation guidelines found in 40 CFR Part 419 (Petroleum Refining); or

VIII.D.2.b. Discharges from oil recycling facilities; or

VIII.D.2.c. Discharges associated with fats and oils rendering.

VIII.D.3. Sector Specific Benchmarks. Table VIII.D-1 identifies benchmarks that apply to the specific subsectors of Sector D. These benchmarks apply to both the primary industrial activity and any co-located industrial activities, which describe the site activities.

Subsector	Parameter	Benchmark Monitoring Concentration
Subsector D1. Asphalt Paving and Roofing Materials (SIC 2951, 2952)	Total Suspended Solids (TSS)	100 mg/L

VIII.D.4. Effluent Limitations Based on Effluent Limitations Guidelines (See also Part VI.B.2.a. of the permit). Table VIII.D-2 identifies effluent limits that apply to the industrial activities described below. Compliance with these effluent limits is to be determined based on discharges from these industrial activities independent of commingling with any other wastestreams that may be covered under this permit.

Table VIII.D-2 ¹		
Industrial Activity	Parameter	Effluent Limit
Discharges from asphalt emulsion facilities.	Total Suspended Solids (TSS)	23.0 mg/L, daily maximum 15.0 mg/L, 30-day avg.
	pH	6.0 - 9.0 s.u.
	Oil and Grease	15.0 mg/L, daily maximum 10 mg/L, 30-day avg.

¹ Monitor Annually

VIII.E. Subpart E – Sector E - Glass, Clay, Cement, Concrete, and Gypsum Products. The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.E.1. Covered Stormwater Discharges. The requirements in Subpart E apply to stormwater discharges associated with industrial activity from Glass, Clay, Cement, Concrete, and Gypsum Products facilities, as identified by the SIC Codes specified under Sector E in Table B-1 of Appendix B of the permit.

VIII.E.2. Additional Technology-Based Effluent Limits.

VIII.E.2.a. *Good Housekeeping Measures.* (See also Part II.A.2.b.) With good housekeeping, prevent or minimize the discharge of spilled cement, aggregate (including sand or gravel), kiln dust, fly ash, settled dust, or other significant material in stormwater from paved portions of the site that are exposed to stormwater. Consider sweeping regularly or using other equivalent measures to minimize the presence of these materials. Indicate in the SWMP the frequency of sweeping or equivalent measures. Determine the frequency based on the amount of industrial activity occurring in the area and the frequency of precipitation, but it must be performed at least once a week if cement, aggregate, kiln dust, fly ash, or settled dust are being handled or processed. The permittee must also prevent the exposure of fine granular solids (cement, fly ash, kiln dust, etc.) to stormwater, where practicable, by storing these materials in enclosed silos, hoppers, or buildings, or under other covering.

VIII.E.3. Additional SWMP Requirements.

VIII.E.3.a. *Good Drainage Area Site Map.* (See also Part V.F.2.c.) Document in the SWMP the locations of the following, as applicable: bag house or other dust control device; recycle/sedimentation pond, clarifier, or other device used for the treatment of process wastewater; and the areas that drain to the treatment device.

VIII.E.3.b. *Certification.* (See also Part V.F.4.f.) For facilities producing ready-mix concrete, concrete block, brick, or similar products, include in the non-stormwater discharge certification a description of measures that ensure that process waste waters resulting from washing trucks, mixers, transport buckets, forms, or other equipment are discharged in accordance with RIPDES requirements or are recycled.

VIII.E.4. Sector Specific Benchmarks. Table VIII.E-1 identifies benchmarks that apply to the specific subsectors of Sector E. Table VIII.E-1 identifies effluent limits that apply to the industrial activities described below. Compliance with these effluent limits is to be determined based on discharges from these industrial activities independent of commingling with any other wastestreams that may be covered under this permit.

Table VIII.E-1.		
Subsector (The permittee may be subject to requirements for more than one sector/subsector)	Parameter	Benchmark Monitoring Cutoff Concentration
Subsector E1. Clay Product Manufacturers (SIC 3251-3259, 3261-3269)	Total Aluminum	0.75 mg/L
Subsector E2. Concrete and Gypsum Product Manufacturers (SIC 3271-3275)	Total Suspended Solids (TSS)	100 mg/L
	Total Iron	1.0 mg/L

VIII.E.4. Effluent Limitations Based on Effluent Limitations Guidelines (See also Part VI.B.2.a. of the permit). Table VIII.E-2 identifies effluent limits that apply to the industrial activities described below. Compliance with these effluent limits is to be determined based on discharges from these industrial activities independent of commingling with any other wastestreams that may be covered under this permit.

Table VIII.E-2 ¹		
Industrial Activity	Parameter	Effluent Limit
Discharges from material storage piles at cement manufacturing facilities	Total Suspended Solids (TSS)	50 mg/L, daily maximum
	pH	6.0 - 9.0 s.u.

¹ Monitor Annually

VIII.F. Subpart F – Sector F – Primary Metals. The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.F.1. Covered Stormwater Discharges. The requirements in Subpart F apply to stormwater discharges associated with industrial activity from Primary Metals facilities, as identified by the SIC Codes specified under Sector F in Table B-1 of Appendix B of the permit.

VIII.F.2. Additional Technology-Based Effluent Limits.

VIII.F.2.a. *Good Housekeeping Measures.* (See also Part II.A.2.b.) As part of the good housekeeping program, include a cleaning and maintenance program for all impervious areas of the facility where particulate matter, dust, or debris may accumulate, especially areas where material loading and unloading, storage, handling, and processing occur; and, where practicable, the paving of areas where vehicle traffic or material storage occur but where vegetative or other stabilization methods are not practicable (institute a sweeping program in these areas too). For unstabilized areas where sweeping is not practicable, consider using stormwater management devices such as sediment traps, vegetative buffer strips, filter fabric fence, sediment filtering boom, gravel outlet protection, or other equivalent measures that effectively trap or remove sediment.

VIII.F.3. Additional SWMP Requirements.

VIII.F.3.a. *Drainage Area Site Map.* (See also Part V.F.2.c.) Identify in the SWMP where any of the following activities may be exposed to precipitation or surface runoff: storage or disposal of wastes such as spent solvents and baths, sand, slag and dross; liquid storage tanks and drums; processing areas including pollution control equipment (e.g., baghouses); and storage areas of raw material such as coal, coke, scrap, sand, fluxes, refractories, or metal in

any form. In addition, indicate where an accumulation of significant amounts of particulate matter could occur from such sources as furnace or oven emissions, losses from coal and coke handling operations, etc., and could result in a discharge of pollutants to waters of the United States.

VIII.F.3.b. *Inventory of Exposed Material.* (See also Part V.F.4.b.) Include in the inventory of materials handled at the site that potentially may be exposed to precipitation or runoff, areas where deposition of particulate matter from process air emissions or losses during material-handling activities are possible.

VIII.F.4. Additional Inspection Requirements. (See also Part IV.A.) As part of conducting the quarterly routine facility inspections (Part IV.A.), address all potential sources of pollutants, including (if applicable) air pollution control equipment (e.g., baghouses, electrostatic precipitators, scrubbers, and cyclones), for any signs of degradation (e.g., leaks corrosion, or improper operation) that could limit their efficiency and lead to excessive emissions. Consider monitoring air flow at inlets and outlets (or use equivalent measures) to check for leaks (e.g., particulate deposition) or blockage in ducts. Also inspect all process and material handling equipment (e.g., conveyors, cranes, and vehicles) for leaks, drips, or the potential loss of material; and material storage areas (e.g., piles, bins, or hoppers for storing coke, coal, scrap, or slag, as well as chemicals stored in tanks and drums) for signs of material losses due to wind or stormwater runoff.

VIII.F.5. Sector-Specific Benchmarks (See also Part VI.B.1. of the permit). Table VIII.F-1 identifies benchmarks that apply to the specific subsectors of Sector F. These benchmarks apply to both the primary industrial activity and any co-located industrial activities, which describe the site activities.

Table VIII.F-1.		
Subsector (The permittee may be subject to requirements for more than one sector/subsector)	Parameter	Benchmark Monitoring Cutoff Concentration
Subsector F1. Steel Works, Blast Furnaces, and Rolling and Finishing Mills (SIC 3312-3317)	Total Aluminum	0.75 mg/L
	Total Zinc ¹ (fresh water discharges)	Hardness Dependent
	Total Zinc (salt water discharges)	0.09 mg/L
Subsector F2. Iron and Steel Foundries (SIC 3321-3325)	Total Aluminum	0.75 mg/L
	Total Suspended Solids (TSS)	100 mg/L
	Total Copper ¹ (fresh water discharges)	Hardness Dependent
	Total Copper (salt water discharges)	0.0048 mg/L
	Total Iron	1.0 mg/L
	Total Zinc ¹ (fresh water discharges)	Hardness Dependent
	Total Zinc (salt water discharges)	0.09 mg/L
Subsector F3. Rolling, Drawing, and Extruding of Nonferrous Metals (SIC 3351-3357)	Total Copper ¹ (fresh water discharges)	Hardness Dependent
	Total Copper (salt water discharges)	0.0048 mg/L
	Total Zinc ¹ (fresh water discharges)	Hardness Dependent
	Total Zinc (salt water discharges)	0.09 mg/L
Subsector F4. Nonferrous Foundries (SIC 3363-3369)	Total Copper ¹ (fresh water discharges)	Hardness Dependent
	Total Copper (salt water discharges)	0.0048 mg/L
	Total Zinc ¹ (fresh water discharges)	Hardness Dependent
	Total Zinc (salt water discharges)	0.09 mg/L

¹ The benchmark values of some metals are dependent on water hardness for fresh water discharges. For these parameters, permittees must determine the hardness of the receiving fresh water body (see Appendix D, "Calculating Hardness in Receiving Waters for Hardness Dependent Metals," for methodology), in accordance with Part VI.B.1.a., to identify the applicable 'hardness range' for determining their benchmark value applicable to their facility. The ranges occur in 25 mg/L increments. Hardness Dependent Benchmarks follow in the table below:

Water Hardness Range	Copper (mg/L)	Zinc (mg/L)
0-25 mg/L	0.0038	0.04
25-50 mg/L	0.0056	0.05
50-75 mg/L	0.0090	0.08
75-100 mg/L	0.0123	0.11
100-125 mg/L	0.0156	0.13
125-150 mg/L	0.0189	0.16
150-175 mg/L	0.0221	0.18
175-200 mg/L	0.0253	0.20
200-225 mg/L	0.0285	0.23
225-250 mg/L	0.0316	0.25
250+ mg/L	0.0332	0.26

VIII.G. Subpart G – Sector G – Metal Mining.

VIII.G.1. Covered Stormwater Discharges.

VIII.G.1.a. Covered Discharges from Inactive Facilities. All stormwater discharges.

VIII.G.1.b. Covered Discharges from Active and Temporarily Inactive Facilities. Only the stormwater discharges from the following areas are covered: waste rock and overburden piles if composed entirely of stormwater and not combining with mine drainage; topsoil piles; offsite haul and access roads; onsite haul and access roads constructed of waste rock, overburden, or spent ore if composed entirely of stormwater and not combining with mine drainage; onsite haul and access roads not constructed of waste rock, overburden, or spent ore except if mine drainage is used for dust control; runoff from tailings dams or dikes when not constructed of waste rock or tailings and no process fluids are present; runoff from tailings dams or dikes when constructed of waste rock or tailings and no process fluids are present, if composed entirely of stormwater and not combining with mine drainage; concentration building if no contact with material piles; mill site if no contact with material piles; office or administrative building and housing if mixed with stormwater from industrial area; chemical storage area; docking facility if no excessive contact with waste product that would otherwise constitute mine drainage; explosive storage; fuel storage; vehicle and equipment maintenance area and building; parking areas (if necessary); power plant; truck wash areas if no excessive contact with waste product that would otherwise constitute mine drainage; unreclaimed, disturbed areas outside of active mining area; reclaimed areas released from reclamation requirements prior to December 17, 1990; and partially or inadequately reclaimed areas or areas not released from reclamation requirements.

VIII.G.1.c. Covered Discharges from Exploration and Construction of Metal Mining and/or Ore Dressing Facilities. All stormwater discharges.

VIII.G.1.d. Covered Discharges from Facilities Undergoing Reclamation. All stormwater discharges.

VIII.G.2. Limitations on Coverage.

VIII.G.2.a. *Prohibition of Stormwater Discharges.* Stormwater discharges not authorized by this permit: discharges from active metal mining facilities that are subject to effluent limitation guidelines for the Ore Mining and Dressing Point Source Category (40 CFR Part 440).

NOTE: Stormwater runoff from these sources are subject to 40 CFR Part 440 if they are mixed with other discharges subject to Part 440. In this case, they are not eligible for coverage under this permit. Discharges from overburden/waste rock and overburden/waste rock-related areas are not subject to 40 CFR Part 440 unless they: (1) drain naturally (or are intentionally diverted) to a point source; and (2) combine with "mine drainage" that is otherwise regulated under the Part 440 regulations. For such sources, coverage under this permit would be available if the discharge composed entirely of stormwater does not combine with other sources of mine drainage that are not subject to 40 CFR Part 440, and meets the other eligibility criteria contained in Part I.B. of the permit. Permit applicants bear the initial responsibility for determining if they are eligible for coverage under this permit, or must seek coverage under another RIPDES permit. Permit applicants should contact the Department for assistance to determine the nature and scope of the "active mining area" on a mine-by-mine basis, as well as to determine the appropriate permitting mechanism for authorizing such discharges.

VIII.G.2.b. *Prohibition of Non-Stormwater Discharges.* Not authorized by this permit: drainage, and contaminated springs or seeps discharging from waste rock dumps that do not directly result from precipitation events (see also the Standard Limitations on Coverage in Part I.B.3.).

VIII.G.3. Definitions. The following definitions are not intended to supersede the definitions of active and

inactive mining facilities established by 40 CFR 122.26(b)(14)(iii).

- VIII.G.3.a. *Mining operation* - Consists of the active and temporarily inactive phases, and the reclamation phase, but excludes the exploration and construction phases.
 - VIII.G.3.b. *Exploration phase* - Entails exploration and land disturbance activities to determine the viability of a site. The exploration phase is not considered part of "mining operations".
 - VIII.G.3.c. *Construction phase* - Includes the building of site access roads and removal of overburden and waste rock to expose mineable minerals. The construction phase is not considered part of "mining operations".
 - VIII.G.3.d. *Active phase* - Activities including the extraction, removal or recovery of metal ore. For surface mines, this definition does not include any land where grading has returned the earth to a desired contour and reclamation has begun. This definition is derived from the definition of "active mining area" found at 40 CFR 440.132(a). The active phase is considered part of "mining operations".
 - VIII.G.3.e. *Reclamation phase* - Activities undertaken, in compliance with applicable mined land reclamation requirements, following the cessation of the "active phase", intended to return the land to an appropriate post-mining land use in order to meet applicable Federal and State reclamation requirements. The reclamation phase is considered part of "mining operations".
 - VIII.G.3.f. *Active metal mining facility* - A place where work or other activity related to the extraction, removal, or recovery of metal ore is being conducted. For surface mines, this definition does not include any land where grading has returned the earth to a desired contour and reclamation has begun. This definition is derived from the definition of "active mining area" found at 40 CFR 440.132(a).
 - VIII.G.3.g. *Inactive metal mining facility* - A site or portion of a site where metal mining and/or milling occurred in the past but is not an active facility as defined above, and where the inactive portion is not covered by an active mining permit issued by the applicable State or Federal agency. An inactive metal mining facility has an identifiable owner / operator. Sites where mining claims are being maintained prior to disturbances associated with the extraction, beneficiation, or processing of mined materials and sites where minimal activities are undertaken for the sole purpose of maintaining a mining claim are not considered either active or inactive mining facilities and do not require a RIPDES industrial stormwater permit.
 - VIII.G.3.h. *Temporarily inactive metal mining facility* - A site or portion of a site where metal mining and/or milling occurred in the past but currently are not being actively undertaken, and the facility is covered by an active mining permit issued by the applicable State or Federal agency.
 - VIII.G.3.i. *Final Stabilization* - A site or portion of a site is "finally stabilized" when it has implemented all applicable Federal and State reclamation requirements.
- VIII.G.4. Technology-Based Effluent Limits for Clearing, Grading, and Excavation Activities. Clearing, grading, and excavation activities being conducted as part of the exploration and construction phase of mining activities are covered under this permit.
- VIII.G.4.a. Management Practices for Clearing, Grading, and Excavation Activities.
 - VIII.G.4.a.1. *Selecting and installing control measures*. For all areas affected by clearing, grading, and excavation activities, the permittee must select, design, install, and implement control measures that meet applicable Part II. effluent limits.
 - VIII.G.4.a.2. *Good Housekeeping*. Litter, debris, and chemicals must be prevented from becoming a pollutant source in stormwater discharges.

VIII.G.4.a.3. *Retention and Detention of Stormwater Runoff.* For drainage locations serving more than one acre, sediment basins and/or temporary sediment traps should be used. At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries (and for side slope boundaries as necessary based on individual site conditions) of the development area unless a sediment basin providing storage for a calculated volume of runoff from a 2-year, 24-hour storm or 3,600 cubic feet of storage per acre drained is provided. The permittee is required to remove sediment from sediment traps or sedimentation ponds when design capacity has been reduced by 50 percent. Due to high sediment discharges from some Sector G facilities, permittees may need to implement a combination of structural BMP approaches to sufficiently decrease discharge of sediment from their facilities.

VIII.G.4.b. Inspection of Clearing, Grading, and Excavation Activities.

VIII.G.4.b.1. *Inspection Frequency.* Inspections must be conducted either at least once every 7 calendar days, or at least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater. Inspection frequency may be reduced to at least once every month if the entire site is temporarily stabilized (pursuant to Part VII.G.4.c.2.), if runoff is unlikely due to winter (e.g., site is covered with snow or ice) or frozen conditions.

VIII.G.4.b.2. *Location of Inspections.* Inspections must include all areas of the site disturbed by clearing, grading, and/or excavation activities and areas used for storage of materials that are exposed to precipitation. Sedimentation and erosion control measures must be observed to ensure proper operation. Discharge locations must be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to waters of the United States, where accessible. Where discharge locations are inaccessible, nearby downstream locations must be inspected to the extent that such inspections are practicable. Locations where vehicles enter or exit the site must be inspected for evidence of significant off-site sediment tracking.

VIII.G.4.b.3. *Inspection Reports.* For each inspection required above, the permittee must complete an inspection report. At a minimum, the inspection report must include the information required in Part IV.A.

VIII.G.4.c. Requirements for Cessation of Clearing, Grading, and Excavation Activities.

VIII.G.4.c.1. *Inspections and Maintenance.* Inspections and maintenance of control measures, including BMPs, associated with clearing, grading, and excavation activities being conducted as part of the exploration and construction phase of a mining operation must continue until final stabilization has been achieved on all portions of the disturbed area, or until the commencement of the active mining phase for those areas that have been temporarily stabilized as a precursor to mining.

VIII.G.4.c.2. *Temporary Stabilization of Disturbed Areas.* Stabilization measures should be initiated immediately in portions of the site where clearing, grading and/or excavation activities have temporarily ceased, but in no case more than 14 days after the clearing, grading and/or excavation activities in that portion of the site have temporarily ceased. In arid, semiarid, and drought-stricken areas, or in areas subject to snow or freezing conditions, where initiating perennial vegetative stabilization measures is not possible within 14 days after mining, exploration, and/or construction activity has temporarily ceased, temporary vegetative stabilization measures must be initiated as soon as practicable. Until temporary vegetative stabilization is achieved, interim measures such as erosion control blankets with an appropriate seed base and tackifiers must be employed. In areas of the site, where exploration and/or construction has permanently ceased prior to active mining, temporary stabilization measures must be implemented to minimize mobilization of sediment or other pollutants until such time as the active mining phase

commences.

VIII.G.4.c.3. *Final Stabilization of Disturbed Areas.* Stabilization measures should be initiated immediately in portions of the site where exploration and/or construction activities have permanently ceased, but in no case more than 14 days after the exploration and/or construction activity in that portion of the site has permanently ceased. In arid, semiarid, and drought-stricken areas, or in areas subject to snow or freezing conditions, where initiating perennial vegetative stabilization measures is not possible within 14 days after mining, exploration, and/or construction activity has permanently ceased, final vegetative stabilization measures must be initiated as soon as possible. Until final stabilization is achieved temporary stabilization measures, such as erosion control blankets with an appropriate seed base and tackifiers, must be used.

VIII.G.5. Additional Technology-Based Effluent Limits.

VIII.G.5.a. *Employee Training.* (See also Part II.A.2.i.) Conduct employee training at least annually at active and temporarily inactive sites.

VIII.G.5.b. *Stormwater Controls.* Apart from the control measures the permittee implements to meet the Part II. effluent limits, consider implementing the following control measures at the site. The potential pollutants identified in Part VIII.G.6.c. shall determine the priority and appropriateness of the control measures selected.

VIII.G.5.b.1. *Stormwater Diversions:* Consider diverting stormwater away from potential pollutant sources. Following are some options: interceptor or diversion controls (e.g., dikes, swales, curbs, or berms); pipe slope drains; subsurface drains; conveyance systems (e.g., channels or gutters, open-top box culverts, and waterbars; rolling dips and road sloping; roadway surface water deflector and culverts); or their equivalents.

VIII.G.5.b.2. *Capping:* When capping is necessary to minimize pollutant discharges in stormwater, identify the source being capped and the material used to construct the cap.

VIII.G.5.b.3. *Treatment:* If treatment of stormwater (e.g., chemical or physical systems, oil and water separators, artificial wetlands) is necessary to protect water quality, describe the type and location of treatment used. Passive and/or active treatment of stormwater runoff is encouraged where practicable. Treated runoff may be discharged as a stormwater source regulated under this permit provided the discharge is not combined with discharges subject to effluent limitation guidelines for the Ore Mining and Dressing Point Source Category (40 CFR Part 440).

VIII.G.5.c. *Certification of Discharge Testing.* (See also Part V.F.4.f.) Test or evaluate all outfalls covered under this permit for the presence of specific mining-related non-stormwater discharges such as seeps or adit discharges, or discharges subject to effluent limitations guidelines (e.g., 40 CFR Part 440), such as mine drainage or process water. Alternatively (if applicable), the permittee may keep a certification with the SWMP consistent with Part VIII.G.6.f.

VIII.G.6. Additional SWMP Requirements.

VIII.G.6.a. *Nature of Industrial Activities.* (See also Part V.F.2.a.) Briefly document in the SWMP the mining and associated activities that can potentially affect the stormwater discharges covered by this permit, including a general description of the location of the site relative to major transportation routes and communities.

VIII.G.6.b. *Site Map.* (See also Part V.F.2.c.) Document in the SWMP the locations of the following (as appropriate): mining or milling site boundaries; access and haul roads; outline of the drainage areas of each stormwater outfall within the facility with indications of the types of discharges from the drainage areas; location(s) of all permitted discharges covered under an individual RIPDES permit, outdoor equipment storage, fueling, and maintenance areas;

materials handling areas; outdoor manufacturing, outdoor storage, and material disposal areas; outdoor chemicals and explosives storage areas; overburden, materials, soils, or waste storage areas; location of mine drainage (where water leaves mine) or other process water; tailings piles and ponds (including proposed ones); heap leach pads; off-site points of discharge for mine drainage and process water; surface waters; boundary of tributary areas that are subject to effluent limitations guidelines; and location(s) of reclaimed areas.

VIII.G.6.c. *Potential Pollutant Sources.* (See also Part V.F.4.) For each area of the mine or mill site where stormwater discharges associated with industrial activities occur, identify the types of pollutants (e.g., heavy metals, sediment) likely to be present in significant amounts. Consider these factors: the mineralogy of the ore and waste rock (e.g., acid forming); toxicity and quantity of chemicals used, produced, or discharged; the likelihood of contact with stormwater; vegetation of site (if any); and history of significant leaks or spills of toxic or hazardous pollutants. Also include a summary of any existing ore or waste rock or overburden characterization data and test results for potential generation of acid rock. If any new data is acquired due to changes in ore type being mined, update the SWMP with this information.

VIII.G.6.d. *Documentation of Control Measures.* Document all control measures that the permittee implements consistent with Part VIII.G.5.b. If control measures are implemented or planned but are not listed in Part VIII.G.5.b. (e.g., substituting a less toxic chemical for a more toxic one), include descriptions of them in the SWMP.

VIII.G.6.e. *Employee Training.* All employee training(s) must be documented in the SWMP.

VIII.G.6.f. *Certification of Permit Coverage for Commingled Non-Stormwater Discharges:* If the permittee is able, consistent with Part VIII.G.5.c above, to certify that a particular discharge composed of commingled stormwater and non-stormwater is covered under a separate RIPDES permit, and that permit subjects the non-stormwater portion to effluent limitations prior to any commingling, retain such certification with the SWMP. This certification must identify the non-stormwater discharges, the applicable RIPDES permit(s), the effluent limitations placed on the non-stormwater discharge by the permit(s), and the points at which the limitations are applied.

VIII.G.7. Additional Inspection Requirements. (See also Part IV.A. and VIII.G.4.b.) Except for areas of the site subject to clearing, grading, and/or excavation activities conducted as part of the exploration and construction phase, which are subject to Part VIII.G.4.b.1., inspect sites at least quarterly unless adverse weather conditions make the site inaccessible. Sites which discharge to waters designated as outstanding waters or waters which are impaired for sediment or nitrogen must be inspected monthly. See Part VIII.G.8.d. for inspection requirements for inactive and unstaffed sites.

VIII.G.8. Monitoring and Reporting Requirements. (See also Part V.I of the permit.)

Note: There are no Part VIII.G.8. monitoring and reporting requirements for inactive and unstaffed sites.

VIII.G.8.a. *Benchmark Monitoring for Active Copper Ore Mining and Dressing Facilities.* Active copper ore mining and dressing facilities, must sample and analyze stormwater discharges for the pollutants listed in Table VIII.G-1.

Table VIII.G-1.		
Subsector (The permittee may be subject to requirements for more than one sector/subsector)	Parameter	Benchmark Monitoring Concentration
Subsector G1. Active Copper Ore Mining and Dressing Facilities (SIC 1021)	Total Suspended Solids (TSS)	100 mg/L
	Nitrate plus Nitrite Nitrogen	0.68 mg/L
	Chemical Oxygen Demand (COD)	120 mg/L

VIII.G.8.b. *Benchmark Monitoring Requirements for Discharges From Waste Rock and Overburden Piles at Active Metal Mining Facilities.* For discharges from waste rock and overburden piles, perform benchmark monitoring once in the first year for the parameters listed in Table VIII.G-2, and twice annually in all subsequent years of coverage under this permit for any parameters for which the benchmark has been exceeded. The permittee is also required to conduct analytic monitoring for the parameters listed in Table VIII.G-3 in accordance with the requirements in Part VIII.G.8.c. The Director may also notify the permittee that the permittee must perform additional monitoring to accurately characterize the quality and quantity of pollutants discharged from waste rock and overburden piles

Table VIII.G-2.		
Subsector (Discharges may be subject to requirements for more than one sector/subsector)	Parameter	Benchmark Monitoring Cutoff Concentration
Subsector G2. Iron Ores; Copper Ores; Lead and Zinc Ores; Gold and Silver Ores; Ferroalloy Ores, Except Vanadium; and Miscellaneous Metal Ores (SIC Codes 1011, 1021, 1031, 1041, 1044, 1061, 1081, 1094, 1099) (Note: when analyzing hardness for a suite of metals, it is more cost effective to add analysis of calcium and magnesium, and have hardness calculated than to require hardness analysis separately)	Total Suspended Solids (TSS)	100 mg/L
	Turbidity	50 NTU
	pH	6.0-9.0 s.u.
	Hardness (as CaCO ₃ ; calc. from Ca, Mg) ¹	no benchmark value
	Total Antimony	0.64 mg/L
	Total Arsenic (fresh water discharges)	0.15 mg/L
	Total Arsenic (salt water discharges)	0.069 mg/L
	Total Beryllium	0.13 mg/L
	Total Cadmium ¹ (fresh water discharges)	Hardness Dependent
	Total Cadmium (salt water discharges)	0.040 mg/L
	Total Copper ¹ (fresh water discharges)	Hardness Dependent
	Total Copper (salt water discharges)	0.0048 mg/L
	Total Iron	1.0 mg/L
	Total Lead ¹ (fresh water discharges)	Hardness Dependent
	Total Lead (salt water discharges)	0.21 mg/L
	Total Mercury	0.0014 mg/L
	Total Nickel ¹ (fresh water discharges)	Hardness Dependent
	Total Nickel (salt water discharges)	0.074 mg/L
	Total Selenium (fresh water discharges)	0.020 mg/L
	Total Selenium (salt water discharges)	0.29 mg/L
	Total Silver ¹ (fresh water discharges)	Hardness Dependent
	Total Silver (salt water discharges)	0.0019 mg/L
	Total Zinc ¹ (fresh water discharges)	Hardness Dependent
Total Zinc (salt water discharges)	0.09 mg/L	

¹ The benchmark values of some metals are dependent on water hardness for fresh water discharges. For these parameters, permittees must determine the hardness of the receiving fresh water body (see Appendix D, "Calculating Hardness in Receiving Waters for Hardness Dependent Metals," for methodology), in accordance with Part VI.B.1.a., to identify the applicable 'hardness range' for determining their benchmark value applicable to their facility. The ranges occur in 25 mg/L increments. Hardness Dependent Benchmarks follow in the table below:

Water Hardness Range	Cadmium (mg/L)	Copper (mg/L)	Lead (mg/L)	Nickel (mg/L)	Silver (mg/L)	Zinc (mg/L)
0-25 mg/L	0.0005	0.0038	0.014	0.15	0.0007	0.04
25-50 mg/L	0.0008	0.0056	0.023	0.20	0.0007	0.05
50-75 mg/L	0.0013	0.0090	0.045	0.32	0.0017	0.08
75-100 mg/L	0.0018	0.0123	0.069	0.42	0.0030	0.11
100-125 mg/L	0.0023	0.0156	0.095	0.52	0.0046	0.13
125-150 mg/L	0.0029	0.0189	0.122	0.61	0.0065	0.16
150-175 mg/L	0.0034	0.0221	0.151	0.71	0.0087	0.18
175-200 mg/L	0.0039	0.0253	0.182	0.80	0.0112	0.20
200-225 mg/L	0.0045	0.0285	0.213	0.89	0.0138	0.23
225-250 mg/L	0.0050	0.0316	0.246	0.98	0.0168	0.25
250+ mg/L	0.0053	0.0332	0.262	1.02	0.0183	0.26

VIII.G.8.c. Additional Analytic Monitoring Requirements for Discharges. From Waste Rock and Overburden Piles at Active Metal Mining Facilities. In addition to the monitoring required in Part VIII.G.8.b. for discharges from waste rock and overburden piles, the permittee must also conduct monitoring for additional parameters based on the type of ore the permittee mines at the site. Where a parameter in Table VIII.G-3 is the same as a pollutant the permittee is required to monitor for in Table VIII.G-2 (i.e., for all of the metals, the permittee must use the corresponding benchmark in Table VIII.G-2 and the permittee may use any monitoring results conducted for Part VIII.G.8.b. to satisfy the monitoring requirement for that parameter for Part VIII.G.8.c. For radium and uranium, which do not have corresponding benchmarks in Table VIII.G-2, there are no applicable benchmarks.) The frequency and schedule for monitoring for these additional parameters is the same as that specified in Part VI.B.1.b.

Supplemental Requirements			
Type of Ore Mined	Pollutants of Concern		
	Total Suspended Solids (TSS)	pH	Metals, Total
Tungsten Ore	X	X	Arsenic, Cadmium (H), Copper (H), Lead (H), Zinc (H)
Nickel Ore	X	X	Arsenic, Cadmium (H), Copper (H), Lead (H), Zinc (H)
Aluminum Ore	X	X	Iron
Mercury Ore	X	X	Nickel (H)
Iron Ore	X	X	Iron (Dissolved)
Platinum Ore			Cadmium (H), Copper (H), Mercury, Lead (H), Zinc (H)
Titanium Ore	X	X	Iron, Nickel (H), Zinc (H)
Vanadium Ore	X	X	Arsenic, Cadmium (H), Copper (H), Lead (H), Zinc (H)
Molybdenum	X	X	Arsenic, Cadmium (H), Copper (H), Lead (H), Mercury, Zinc (H)
Uranium, Radium, and Vanadium Ore	X	X	Chemical Oxygen Demand, Arsenic, Radium (Dissolved and Total), Uranium, Zinc (H)

Note: An "X" indicated for TSS and/or pH means that the permittee is required to monitor for those parameters. (H) indicates that hardness must also be measured when this pollutant is measured.

VIII.G.8.d. Inactive and Unstaffed Sites – Conditional Exemption from No Exposure Requirements for Quarterly Visual Assessments and Routine Facility Inspections. As a Sector G facility, if the permittee is seeking to exercise a waiver from the quarterly visual assessment and routine facility inspection requirements for inactive and unstaffed sites (including temporarily inactive sites), the permittee is conditionally exempt from the requirement to certify that “there are no industrial materials or activities exposed to stormwater” in Part IV.B.3. This exemption is conditioned on the following:

- If circumstances change and the facility becomes active and/or staffed, this exception no longer applies and the permittee must immediately begin complying with the quarterly visual assessment requirements; and
- The Department retains the authority to revoke this exemption and/or the monitoring waiver where it is determined that the discharge causes, has a reasonable potential to cause or contributes to an instream excursion above an applicable water quality standard, including designated uses.

Subject to the two conditions above, if the facility is inactive and unstaffed, the permittee is waived from the requirement to conduct quarterly visual assessments and routine facility inspections and benchmark and impaired waters monitoring. The permittee must still conduct an annual site inspection in accordance with Part IV.A. The permittee is encouraged to inspect the site more frequently where the permittee has reason to believe that severe weather or natural disasters may have damaged control measures or increased discharges.

Table VIII.G-4. Applicability of the Multi-Sector General Permit to Stormwater Runoff From Active Mining and Dressing Sites, Temporarily Inactive Sites, and Sites Undergoing Reclamation	
Discharge/Source of Discharge	Note/Comment
Piles	
Waste rock/overburden	If composed entirely of stormwater and not combining with mine drainage. See note below.
Topsoil	--
Roads constructed of waste rock or spent ore	
Onsite haul roads	If composed entirely of stormwater and not combining with mine drainage. See note below.
Offsite haul and access roads	--
Roads not constructed of waste rock or spent ore	
Onsite haul roads	Except if mine drainage is used for dust control
Offsite haul and access roads	--
Milling/concentrating	
Runoff from tailings dams and dikes when constructed of waste rock/tailings	Except if process fluids are present and only if composed entirely of stormwater and not combining with mine drainage. See Note below.
Runoff from tailings dams/dikes when not constructed of waste rock and tailings	Except if process fluids are present
Concentration building	If stormwater only and no contact with piles
Mill site	If stormwater only and no contact with piles
Ancillary areas	
Office and administrative building and housing	If mixed with stormwater from the industrial area
Chemical storage area	--
Docking facility	Except if excessive contact with waste product that would otherwise constitute mine drainage
Explosive storage	--
Fuel storage (oil tanks/coal piles)	--
Vehicle and equipment maintenance area/building	--
Parking areas	But coverage unnecessary if only employee and visitor-type parking
Power plant	
Truck wash area	Except when excessive contact with waste product that would otherwise constitute mine drainage
Reclamation-related areas	
Any disturbed area (unreclaimed)	Only if not in active mining area
Reclaimed areas released from reclamation requirements prior to Dec. 17, 1990	--
Partially/inadequately reclaimed areas or areas not released from reclamation requirements	--

Note: Stormwater runoff from these sources are subject to the RIPDES program for stormwater unless mixed with discharges subject to 40 CFR Part 440 that are regulated by another permit prior to mixing. Non-stormwater discharges from these sources are subject to RIPDES permitting and may be subject to the effluent limitation guidelines under 40 CFR Part 440. Discharges from overburden/waste rock and overburden/waste rock-related areas are not subject to 40 CFR Part 440 unless: (1) it drains naturally (or is intentionally diverted) to a point source; and (2) combines with "mine drainage" that is otherwise regulated under the Part 440 regulations. For such sources, coverage under this permit would be available if the discharge composed entirely of stormwater does not combine with other sources of mine drainage that are not subject to 40 CFR Part 440, as well as meeting other eligibility criteria contained in Part I.B. of the permit. Permit applicants bear the initial responsibility for determining the applicable technology-based standard for such discharges. The Department recommends that permit applicants contact RIPDES for assistance to determine the nature and scope of the "active mining area" on a mine-by-mine basis, as well as to determine the appropriate permitting mechanism for authorizing such discharges.

VIII.G.9. Termination of Permit Coverage.

VIII.G.9.a. *Termination of Permit Coverage for Sites Reclaimed After December 17, 1990.* A site or a portion of a site that has been released from applicable state or federal reclamation requirements after December 17, 1990, is no longer required to maintain coverage under this permit. If the site or portion of a site reclaimed after December 17, 1990, was not subject to reclamation requirements, the site or portion of the site is no longer required to maintain coverage under this permit if the site or portion of the site has been reclaimed.

VIII.G.9.b. *Termination of Permit Coverage for Sites Reclaimed Before December 17, 1990.* A site or portion of a site that was released from applicable state or federal reclamation requirements before December 17, 1990, or that was otherwise reclaimed before December 17, 1990, is no longer required to maintain coverage under this permit if the site or portion of the site has been reclaimed. A site or portion of a site is considered to have been reclaimed if: (1) stormwater runoff that comes into contact with raw materials, intermediate byproducts, finished products, and waste products does not have the potential to cause or contribute to violations of state water quality standards, (2) soil disturbing activities related to mining at the sites or portion of the site have been completed, (3) the site or portion of the site has been stabilized to minimize soil erosion, and (4) as appropriate depending on location, size, and the potential to contribute pollutants to stormwater discharges, the site or portion of the site has been revegetated, will be amenable to natural revegetation, or will be left in a condition consistent with the post-mining land use.

VIII.H. Subpart H – Sector H – Coal Mines and Coal Mining-Related Facilities. The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.H.1. Covered Storm Water Discharges. The requirements in Subpart H apply to stormwater discharges associated with industrial activity from Coal Mines and Coal Mining-Related facilities as identified by the SIC Codes specified under Sector H in Table B-1 of Appendix B.

VIII.H.2. Limitations on Coverage.

VIII.H.2.a. *Prohibition of Non-Stormwater Discharges.* (See also Part I.B.3.) Not covered by this permit: discharges from pollutant seeps or underground drainage from inactive coal mines and refuse disposal areas that do not result from precipitation events, and discharges from floor drains in maintenance buildings and other similar drains in mining and preparation plant areas.

VIII.H.2.b. *Discharges Subject to Stormwater Effluent Guidelines.* (See also Part I.B.3.b.) Not authorized by this permit: stormwater discharges subject to an existing effluent limitation guideline at 40 CFR Part 434.

VIII.H.3. Definitions. The following definitions are not intended to supersede the definitions of active and inactive mining facilities established by 40 CFR 122.26(b)(14)(iii).

VIII.H.3.a. *Mining operation* - Consists of the active and temporarily inactive phases, and the reclamation phase, but excludes the exploration and construction phases.

VIII.H.3.b. *Exploration phase* - Entails exploration and land disturbance activities to determine the financial viability of a site. The exploration phase is not considered part of “mining operations”.

VIII.H.3.c. *Construction phase* - Includes the building of site access roads and removal of overburden and waste rock to expose mineable coal. The construction phase is not considered part of “mining operations”.

- VIII.H.3.d. *Active phase* - Activities including the extraction, removal or recovery of coal. For surface mines, this definition does not include any land where grading has returned the earth to a desired contour and reclamation has begun. This definition is derived from the definition of "active mining area" found at 40 CFR 434.11(b). The active phase is considered part of "mining operations".
- VIII.H.3.e. *Reclamation phase* - Activities undertaken, in compliance with applicable mined land reclamation requirements, following the cessation of the "active phase", intended to return the land to an appropriate post-mining land use. The reclamation phase is considered part of "mining operations".
- VIII.H.3.f. *Active coal mining facility* - A place where work or other activity related to the extraction, removal, or recovery of coal is being conducted. For surface mines, this definition does not include any land where grading has returned the earth to a desired contour and reclamation has begun. This definition is derived from the definition of "active mining area" found at 40 CFR 434.11(b).
- VIII.H.3.g. *Inactive coal mining facility* - A site or portion of a site where coal mining and/or milling occurred in the past but is not an active facility as defined above, and where the inactive portion is not covered by an active mining permit issued by the applicable State or Federal agency. An inactive coal mining facility has an identifiable owner / operator. Sites where mining claims are being maintained prior to disturbances associated with the extraction, beneficiation, or processing of mined materials and sites where minimal activities are undertaken for the sole purpose of maintaining a mining claim are not considered either active or inactive mining facilities and do not require an RIPDES industrial stormwater permit.
- VIII.H.3.h. *Temporarily inactive coal mining facility* - A site or portion of a site where coal mining and/or milling occurred in the past but currently are not being actively undertaken, and the facility is covered by an active mining permit issued by the applicable State or Federal agency.
- VIII.H.3.i. *Final Stabilization* - A site or portion of a site is "finally stabilized" when it has implemented all applicable Federal and State reclamation requirements.

VIII.H.4. Technology-Based Effluent Limits for Clearing, Grading, and Excavation Activities.

VIII.H.4.a. Management Practices for Clearing, Grading, and Excavation Activities.

- VIII.H.4.a.1. *Selecting and installing control measures.* For all areas affected by clearing, grading, and excavation activities, the permittee must select, design, install, and implement control measures that meet applicable Part II. effluent limits.
- VIII.H.4.a.2. *Good Housekeeping.* Litter, debris, and chemicals must be prevented from becoming a pollutant source in stormwater discharges.
- VIII.H.4.a.3. *Retention and Detention of Stormwater Runoff.* For drainage locations serving more than one acre, sediment basins and/or temporary sediment traps should be used. At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries (and side slope boundaries as necessary based on individual site conditions) of the development area unless a sediment basin providing storage for a calculated volume of runoff from a 2-year, 24-hour storm or 3,600 cubic feet of storage per acre drained is provided. The permittee is required to remove sediment from sediment traps or sedimentation ponds when design capacity has been reduced by 50 percent. Due to high sediment discharges from some Sector H facilities, permittees may need to implement a combination of structural BMP approaches to sufficiently decrease discharge of sediment from their facilities.

VIII.H.4.b. *Inspection of Clearing, Grading, and Excavation Activities.*

VIII.H.4.b.1. *Inspection Frequency.* Inspections must be conducted either at least once every 7 calendar days, or at least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater. Inspection frequency may be reduced to at least once every month if the entire site is temporarily stabilized (pursuant to Part VIII.H.4.c.2.), if runoff is unlikely due to winter (e.g., site is covered with snow or ice) or frozen conditions.

VIII.H.4.b.2. *Location of Inspections.* Inspections must include all areas of the site disturbed by clearing, grading, and/or excavation activities and areas used for storage of materials that are exposed to precipitation. Sedimentation and erosion control measures must be observed to ensure proper operation. Discharge locations must be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to waters of the United States, where accessible. Where discharge locations are inaccessible, nearby downstream locations must be inspected to the extent that such inspections are practicable. Locations where vehicles enter or exit the site must be inspected for evidence of significant off-site sediment tracking.

VIII.H.4.b.3. *Inspection Reports.* For each inspection required above, the permittee must complete an inspection report. At a minimum, the inspection report must include the information required in Part IV.A..

VIII.H.4.c. *Requirements for Cessation of Clearing, Grading, and Excavation Activities.*

VIII.H.4.c.1. *Inspections and Maintenance.* Inspections and maintenance of control measures, including BMPs, associated with clearing, grading, and/or excavation activities being conducted as part of the exploration and construction phase of a mining operation must continue until final stabilization has been achieved on all portions of the disturbed area.

VIII.H.4.c.2. *Temporary Stabilization of Disturbed Areas.* Stabilization measures should be initiated immediately in portions of the site where clearing, grading and/or excavation activities have temporarily ceased, but in no case more than 14 days after the clearing, grading and/or excavation activities in that portion of the site have temporarily ceased. In arid, semiarid, and drought-stricken areas, or in areas subject to snow or freezing conditions, where initiating perennial vegetative stabilization measures is not possible within 14 days after mining, exploration, and/or construction activity has temporarily ceased, temporary vegetative stabilization measures must be initiated as soon as practicable. Until temporary vegetative stabilization is achieved, interim measures such as erosion control blankets with an appropriate seed base and tackifiers must be employed. In areas of the site, where exploration and/or construction has permanently ceased prior to active mining, temporary stabilization measures must be implemented to minimize mobilization of sediment or other pollutants until such time as the active mining phase commences.

VIII.H.4.c.3. *Final Stabilization of Disturbed Areas.* Stabilization measures should be initiated immediately in portions of the site where exploration and/or construction activities have permanently ceased, but in no case more than 14 days after the exploration and/or construction activity in that portion of the site has permanently ceased. In arid, semiarid, and drought-stricken areas, or in areas subject to snow or freezing conditions, where initiating perennial vegetative stabilization measures is not possible within 14 days after mining, exploration, and/or construction activity has permanently ceased, temporary vegetative stabilization measures must be initiated as soon as possible. Until final stabilization is achieved temporary stabilization measures, such as erosion control blankets with an appropriate seed base and tackifiers, must be used.

VIII.H.5. Additional Technology-Based Effluent Limits.

- VIII.H.5.a. *Good Housekeeping Measures.* (See also Part II.A.2.b.) As part of the good housekeeping program, consider using sweepers and covered storage, watering haul roads to minimize dust generation, and conserving vegetation (where possible) to minimize erosion.
- VIII.H.5.b. *Preventive Maintenance.* (See also Part II.A.2.c.) Perform inspections or other equivalent measures of storage tanks and pressure lines of fuels, lubricants, hydraulic fluid, and slurry to prevent leaks due to deterioration or faulty connections.

VIII.H.6. Additional SWMP Requirements.

- VIII.H.6.a. *Other Applicable Regulations.* Most active coal mining-related areas (SIC Codes 1221-1241) are subject to sediment and erosion control regulations of the U.S. Office of Surface Mining (OSM) that enforces the Surface Mining Control and Reclamation Act (SMCRA). OSM has granted authority to most coal-producing states to implement SMCRA through State SMCRA regulations. All SMCRA requirements regarding control of stormwater-related pollutant discharges must be addressed and then documented with the SWMP (directly or by reference).
- VIII.H.6.b. *Site Map.* (See also Part V.F.2.c.) Document in the SWMP where any of the following may be exposed to precipitation or surface runoff: haul and access roads; railroad spurs, sliding, and internal hauling lines; conveyor belts, chutes, and aerial tramways; equipment storage and maintenance yards; coal handling buildings and structures; and inactive mines and related areas; acidic spoil, refuse, or unreclaimed disturbed areas; and liquid storage tanks containing pollutants such as caustics, hydraulic fluids, and lubricants.
- VIII.H.6.c. *Potential Pollutant Sources.* (See also Part V.F.4.) Document in the SWMP the following sources and activities that have potential pollutants associated with them: truck traffic on haul roads and resulting generation of sediment subject to runoff and dust generation; fuel or other liquid storage; pressure lines containing slurry, hydraulic fluid, or other potential harmful liquids; and loading or temporary storage of acidic refuse or spoil.

VIII.H.7. Additional Inspection Requirements.

- VIII.H.7.a. *Inspections of Active Mining-Related Areas.* (See also Part IV.) Except for areas of the site subject to clearing, grading, and/or excavation activities conducted as part of the exploration and construction phase, which are subject to Part VIII.H.4.b.i., perform quarterly inspections of active mining areas covered by this permit, corresponding with the inspections as performed by SMCRA inspectors, of all mining-related areas required by SMCRA. Also maintain the records of the SMCRA authority representative. See Part VIII.H.8.a. for inspection requirements for inactive and unstaffed sites.
- VIII.H.7.b. *Sediment and Erosion Control.* (See also Part II.A.2.e.) As indicated in Part VIII.H.6.a., SMCRA requirements regarding sediment and erosion control measures must be complied with for those areas subject to SMCRA authority, including inspection requirements.
- VIII.H.7.c. *Routine Site Inspections.* (See also Part IV.A.) The inspection program must include inspections for pollutants entering the drainage system from activities located on or near coal mining-related areas. Among the areas to be inspected are haul and access roads; railroad spurs, sliding, and internal hauling lines; conveyor belts, chutes, and aerial tramways; equipment storage and maintenance yards; coal handling buildings and structures; and inactive mines and related areas.

- VIII.H.8. Sector-Specific Benchmarks (See also Part VI. of the permit). Table VIII.H-1 identifies benchmarks that apply to Sector H. These benchmarks apply to both the primary industrial activity and any co-located industrial activities, which describe the site activities.

Table 8.H-1.		
Subsector (The permittee may be subject to requirements for more than one sector/subsector)	Parameter	Benchmark Monitoring Concentration
Subsector H1. Coal Mines and Related Areas (SIC 1221-1241)	Total Aluminum	0.75 mg/L
	Total Iron	1.0 mg/L
	Total Suspended Solids (TSS)	100 mg/L

VIII.H.8.a. Inactive and Unstaffed Sites – Conditional Exemption from No Exposure Requirement for Routine Inspections, Quarterly Visual Assessments, and Benchmark Monitoring. As a Sector H facility, if the permittee is seeking to exercise a waiver from either the quarterly visual assessment or the benchmark monitoring requirements for inactive and unstaffed sites (including temporarily inactive sites), the permittee is conditionally exempt from the requirement to certify that “there are no industrial materials or activities exposed to stormwater” in Parts IV.B.3. and VI.B.1.f., respectively. Additionally, if the permittee is seeking to reduce the required quarterly routine inspection frequency, as is allowed under Part IV.A.3., the permittee is also conditionally exempt from the requirement to certify that “there are no industrial materials or activities exposed to stormwater.” These conditional exemptions are based on the following requirements:

- If circumstances change and the facility becomes active and/or staffed, this exception no longer applies and the permittee must immediately begin complying with the applicable benchmark monitoring requirements as if the permittee was in the first year of permit coverage, and the quarterly visual assessment requirements; and
- The Department retains the authority to revoke this exemption and/or the monitoring waiver where it is determined that the discharge causes, has a reasonable potential to cause or contribute to an instream excursion above an applicable water quality standard, including designated uses.

Subject to the two conditions above, if the facility is inactive and unstaffed, the permittee is waived from the requirement to conduct quarterly visual assessments and routine facility inspections and benchmark and impaired waters monitoring. The permittee must still conduct an annual site inspection in accordance with Part IV.A. The permittee is encouraged to inspect the site more frequently where the permittee has reason to believe that severe weather or natural disasters may have damaged control measures or increased discharges..

VIII.H.9. Termination of Permit Coverage.

VIII.H.9.a. *Termination of Permit Coverage for Sites Reclaimed After December 17, 1990.* A site or a portion of a site that has been released from applicable state or federal reclamation requirements after December 17, 1990, is no longer required to maintain coverage under this permit. If the site or portion of a site reclaimed after December 17, 1990, was not subject to reclamation requirements, the site or portion of the site is no longer required to maintain coverage under this permit if the site or portion of the site has been reclaimed as defined in Part VIII.H.3.

VIII.H.9.b. *Termination of Permit Coverage for Sites Reclaimed Before December 17, 1990.* A site or portion of a site that was released from applicable state or federal reclamation requirements before December 17, 1990, or that was otherwise reclaimed before December 17, 1990, is no longer required to maintain coverage under this permit if the site or portion of the site has been reclaimed. A site or portion of a site is considered to have been reclaimed if: (1) stormwater runoff that comes into contact with raw materials, intermediate byproducts, finished products, and waste products does not have the potential to cause or contribute to violations of state water quality standards, (2) soil disturbing activities related to mining at the sites or portion of the site have been completed, (3) the site or portion of the site has been stabilized to minimize soil erosion, and (4) as appropriate depending on location, size, and

the potential to contribute pollutants to stormwater discharges, the site or portion of the site has been revegetated, will be amenable to natural revegetation, or will be left in a condition consistent with the post-mining land use.

VIII.I. **Subpart I – Sector I – Oil and Gas Extraction.** The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit

VIII.I.1. Covered Storm Water Discharges. The requirements in Subpart I apply to stormwater discharges associated with industrial activity from Oil and Gas Extraction facilities as identified by the SIC Codes specified under Sector I in Table B-1 of Appendix B of the permit.

Discharges of stormwater runoff from field activities or operations associated with oil and gas exploration, production, processing, or treatment operations or transmission facilities are exempt from RIPDES permit coverage unless, in accordance with 40 CFR 122.26(c)(1)(iii), the facility:

- Has had a discharge of stormwater resulting in the discharge of a reportable quantity for which notification is or was required pursuant to 40 CFR 117.21 or 40 CFR 302.6 at anytime since November 16, 1987; or
- Has had a discharge of stormwater resulting in the discharge of a reportable quantity for which notification is or was required pursuant to 40 CFR 110.6 at any time since November 16, 1987; or
- Contributes to a violation of a water quality standard.

Any stormwater discharges that require permit coverage as a result of meeting one of the conditions of 122.26(c)(1)(iii) may be covered under this permit unless otherwise required to obtain coverage under an alternative RIPDES general permit or an individual RIPDES permit as specified in Part X.T.

VIII.I.2. Limitations on Coverage.

VIII.I.2.a. *Stormwater Discharges Subject to Effluent Limitation Guidelines.* This permit does not authorize stormwater discharges from petroleum drilling operations that are subject to nationally established effluent limitation guidelines found at 40 CFR Part 435, respectively.

VIII.I.2.b. *Non-Stormwater Discharges.* Discharges of vehicle and equipment washwater, including tank cleaning operations, are not authorized by this permit. Alternatively, washwater discharges must be authorized under a separate RIPDES permit, or be discharged to a sanitary sewer in accordance with applicable industrial pretreatment requirements.

VIII.I.3. Additional Technology-Based Effluent Limits.

VIII.I.3.a. *Vegetative Controls.* Implement vegetative practices designed to preserve existing vegetation, where attainable, and revegetate open areas as soon as practicable after grade drilling. Consider the following (or equivalent measures): temporary or permanent seeding, mulching, sod stabilization, vegetative buffer strips, and tree protection practices. Begin implementing appropriate vegetative practices on all disturbed areas within 14 days following the last activity in that area.

VIII.I.4. Additional SWMP Requirements.

VIII.I.4.a. *Drainage Area Site Map.* (See also Part V.F.2.c.) Document in the SWMP where any of the following may be exposed to precipitation or surface runoff: Reportable Quantity (RQ) releases; locations used for the treatment, storage, or disposal of wastes; processing areas

and storage areas; chemical mixing areas; construction and drilling areas; all areas subject to the effluent guidelines requirements for “No Discharge” in accordance with 40 CFR 435.32; and the structural controls to achieve compliance with the “No Discharge” requirements.

VIII.I.4.b. *Potential Pollutant Sources.* (See also Part V.F.4.) Also document in the SWMP the following sources and activities that have potential pollutants associated with them: chemical, cement, mud, or gel mixing activities; drilling or mining activities; and equipment cleaning and rehabilitation activities. In addition, include information about the reportable quantity (RQ) release that triggered the permit application requirements: the nature of the release (e.g., spill of oil from a drum storage area), amount of oil or hazardous substance released, amount of substance recovered, date of the release, cause of the release (e.g., poor handling techniques and lack of containment in the area), areas affected by the release (i.e., land and water), procedure to clean up release, actions or procedures implemented to prevent or improve response to a release, and remaining potential contamination of stormwater from release (taking into account human health risks, the control of drinking water intakes, and the designated uses of the receiving water).

VIII.I.4.c. *Erosion and Sedimentation Control.* (See also Part II.A.2.e.) Unless covered by the current Construction General Permit (CGP), the additional documentation requirements for sediment and erosion controls for well drillings and sand/shale mining areas include the following:

VIII.I.4.c.1. *Site Description.* Also include a description in the SWMP of the nature of the exploration activity, estimates of the total area of site and area disturbed due to exploration activity, an estimate of runoff coefficient of the site, a site drainage map, including approximate slopes, and the names of all receiving waters.

VIII.I.4.c.2. *Vegetative Controls.* Document vegetative practices used consistent with Part VIII.I.3.a. in the SWMP.

VIII.I.5. Additional Inspection Requirements. All erosion and sedimentation control measures must be inspected every 7 days.

VIII.J. Subpart J – Sector J – Non- Metallic Mineral Dressing and Mining. The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.J.1. Covered Storm Water Discharges. The requirements in Subpart J apply to stormwater discharges associated with industrial activity from Active and Inactive Non-Metallic Mineral Mining and Dressing facilities as identified by the SIC Codes specified under Sector J in Table B-1 of Appendix B of the permit.

VIII.J.1.a. *Covered Discharges from Inactive Facilities.* All stormwater discharges.

VIII.J.1.b. *Covered Discharges from Active and Temporarily Inactive Facilities.* All stormwater discharges, except for most stormwater discharges subject to the existing effluent limitation guideline at 40 CFR Part 436. Mine dewatering discharges composed entirely of stormwater or uncontaminated ground water seepage from: construction sand and gravel, industrial sand, and crushed stone mining facilities are covered by this permit.

VIII.J.1.c. *Covered Discharges from Exploration and Construction of Non-Metallic Mineral Mining Facilities.* All stormwater discharges.

VIII.J.1.d. *Covered Discharges from Sites Undergoing Reclamation.* All stormwater discharges.

VIII.J.2. Limitations on Coverage. Most stormwater discharges subject to an existing effluent limitation

guideline at 40 CFR Part 436 are not authorized by this permit. The exceptions to this limitation, which are covered by this permit, are mine dewatering discharges composed entirely of stormwater or uncontaminated ground water seepage from construction sand and gravel, industrial sand, and crushed stone mining facilities.

VIII.J.3. Definitions. The following definitions are not intended to supersede the definitions of active and inactive mining facilities established by 40 CFR 122.26(b)(14)(iii).

VIII.J.3.a. *Mining operations* - Consists of the active and temporarily inactive phases, and the reclamation phase, but excludes the exploration and construction phases.

VIII.J.3.b. *Exploration phase* - Entails exploration and land disturbance activities to determine the financial viability of a site. The exploration phase is not considered part of "mining operations".

VIII.J.3.c. *Construction phase* - Includes the building of site access roads and removal of overburden and waste rock to expose mineable minerals. The construction phase is not considered part of "mining operations".

VIII.J.3.d. *Active phase* - Activities including the extraction, removal or recovery of minerals. For surface mines, this definition does not include any land where grading has returned the earth to a desired contour and reclamation has begun. This definition is derived from the definition of "active mining area" found at 40 CFR 440.132(a). The active phase is considered part of "mining operations".

VIII.J.3.e. *Reclamation phase* - Activities undertaken, in compliance with applicable mined land reclamation requirements, following the cessation of the "active phase", intended to return the land to an appropriate post-mining land use. The reclamation phase is considered part of "mining operations".

NOTE: The following definitions are not intended to supersede the definitions of active and inactive mining facilities established by 40 CFR 122.26(b)(14)(iii).

VIII.J.3.f. *Active Mineral Mining Facility* - A place where work or other activity related to the extraction, removal, or recovery of minerals is being conducted. For surface mines, this definition does not include any land where grading has returned the earth to a desired contour and reclamation has begun. This definition is derived from the definition of "active mining area" found at 40 CFR 440.132(a).

VIII.J.3.g. *Inactive Mineral Mining Facility* - A site or portion of a site where mineral mining and/or milling occurred in the past but is not an active facility as defined above, and where the inactive portion is not covered by an active mining permit issued by the applicable State or Federal agency. An inactive mineral mining facility has an identifiable owner / operator. Sites where mining claims are being maintained prior to disturbances associated with the extraction, beneficiation, or processing of mined materials, and sites where minimal activities are undertaken for the sole purpose of maintaining a mining claim are not considered either active or inactive mining facilities and do not require a RIPDES industrial stormwater permit.

VIII.J.3.h. *Temporarily Inactive Mineral Mining Facility* - A site or portion of a site where metal mining and/or milling occurred in the past but currently are not being actively undertaken, and the facility is covered by an active mining permit issued by RIPDES.

VIII.J.3.i. *Final Stabilization* - a site or portion of a site is "finally stabilized" when it has implemented all applicable Federal and State reclamation requirements.

VIII.J.3.j. *Uncontaminated* - Free from the presence of pollutants attributable to industrial activity.

VIII.J.4. Technology-Based Effluent Limits for Clearing, Grading, and Excavation Activities. Clearing,

grading, and excavation activities being conducted as part of the exploration and construction phase of mining activities are covered under this permit.

VIII.J.4.a. *Management Practices for Clearing, Grading, and Excavation Activities.*

- VIII.J.4.a.1. *Selecting and installing control measures.* For all areas affected by clearing, grading, and excavation activities, the permittee must select, design, install, and implement control measures that meet applicable Part II. effluent limits.
- VIII.J.4.a.2. *Good Housekeeping.* (See also Part II.A.2.b.) Litter, debris, and chemicals must be prevented from becoming a pollutant source in stormwater discharges.
- VIII.J.4.a.3. *Retention and Detention of Stormwater Runoff.* For drainage locations serving more than one acre, sediment basins and/or temporary sediment traps should be used. At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries (and for those side slope boundaries deemed appropriate as dictated by individual site conditions) of the development area unless a sediment basin providing storage for a calculated volume of runoff from a 2-year, 24-hour storm or 3,600 cubic feet of storage per acre drained is provided.

VIII.J.4.b. *Inspection of Clearing, Grading, and Excavation Activities.* (See also Part IV.)

- VIII.J.4.b.1. *Inspection Frequency.* Inspections must be conducted either at least once every 7 calendar days or at least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater. Inspection frequency may be reduced to at least once every month if the entire site is temporarily stabilized (pursuant to Part VIII.J.4.c.ii.), if runoff is unlikely due to winter conditions (e.g., site is covered with snow, ice, or the ground is frozen), or construction is occurring during seasonal arid periods in arid areas and semi-arid areas.
- VIII.J.4.b.2. *Location of Inspections.* Inspections must include all areas of the site disturbed by clearing, grading, and/or excavation activities and areas used for storage of materials that are exposed to precipitation. Sedimentation and erosion control measures implemented must be observed to ensure proper operation. Discharge locations must be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to waters of the United States, where accessible. Where discharge locations are inaccessible, nearby downstream locations must be inspected to the extent that such inspections are practicable. Locations where vehicles enter or exit the site must be inspected for evidence of significant off-site sediment tracking.
- VIII.J.4.b.3. *Inspection Reports.* (See also Part IV.A.) For each inspection required above, the permittee must complete an inspection report. At a minimum, the inspection report must include the information required in Part IV.A.

VIII.J.4.c. *Requirements for Cessation of Clearing, Grading, and Excavation Activities.*

- VIII.J.4.c.1. *Inspections and Maintenance.* Inspections and maintenance of control measures, including any BMPs, associated with clearing, grading, and/or excavation activities being conducted as part of the exploration and construction phase of a mining operation must continue until final stabilization has been achieved on all portions of the disturbed area or until the commencement of the active mining phase for those areas that have been temporarily stabilized as a precursor to mining.
- VIII.J.4.c.2. *Temporary Stabilization of Disturbed Areas.* Stabilization measures should be initiated immediately in portions of the site where clearing, grading and/or excavation activities have temporarily ceased, but in no case more than 14 days after the clearing, grading and/or excavation activities in that portion of the site have temporarily ceased. In arid, semiarid, and drought-stricken areas, or in areas subject to snow or freezing conditions,

where initiating perennial vegetative stabilization measures is not possible within 14 days after mining, exploration, and/or construction activity has temporarily ceased, temporary vegetative stabilization measures must be initiated as soon as practicable. Until temporary vegetative stabilization is achieved, interim measures such as erosion control blankets with an appropriate seed base and tackifiers must be employed. In areas of the site, where exploration and/or construction has permanently ceased prior to active mining, temporary stabilization measures must be implemented to minimize mobilization of sediment or other pollutants until such time as the active mining phase commences.

- VIII.J.4.c.3. *Final Stabilization of Disturbed Areas.* Stabilization measures should be initiated immediately in portions of the site where mining, exploration, and/or construction activities have permanently ceased, but in no case more than 14 days after the exploration and/or construction activity in that portion of the site has permanently ceased. In arid, semiarid, and drought-stricken areas, or in areas subject to snow or freezing conditions, where initiating perennial vegetative stabilization measures is not possible within 14 days after mining, exploration, and/or construction activity has permanently ceased, final vegetative stabilization measures must be initiated as soon as possible. Until final stabilization is achieved temporary stabilization measures, such as erosion control blankets with an appropriate seed base and tackifiers must be used.

VIII.J.5. Additional Technology-Based Effluent Limits.

- VIII.J.5.a. *Employee Training.* Conduct employee training at least annually at active and temporarily inactive sites. (See also Part II.A.2.i.).

- VIII.J.5.b. *Stormwater Controls.* Apart from the control measures the permittee implements to meet the Part II. effluent limits, where necessary to minimize pollutant discharges, implement the following control measures at the site. The potential pollutants identified in Part VIII.J.5.c. shall determine the priority and appropriateness of the control measures selected.

- VIII.J.5.b.1. *Stormwater Diversions:* Consider diverting stormwater away from potential pollutant sources. Following are some control measure options: interceptor or diversion controls (e.g., dikes, swales, curbs, or berms); pipe slope drains; subsurface drains; conveyance systems (e.g., channels or gutters, open-top box culverts, and waterbars; rolling dips and road sloping; roadway surface water deflector and culverts); or their equivalents.

- VIII.J.5.b.2. *Capping:* When capping is necessary to minimize pollutant discharges in stormwater, identify the source being capped and the material used to construct the cap.

- VIII.J.5.b.3. *Treatment:* If treatment of stormwater (e.g., chemical or physical systems, oil and water separators, artificial wetlands) is necessary to protect water quality, describe the type and location of treatment used. Passive and/or active treatment of stormwater runoff is encouraged. Treated runoff may be discharged as a stormwater source regulated under this permit provided the discharge is not combined with discharges subject to effluent limitation guidelines for the Mineral Mining and Processing Point Source Category (40 CFR Part 436).

- VIII.J.5.c. *Certification of Discharge Testing:* (See also Part V.F.4.f.) Test or evaluate all outfalls covered under this permit for the presence of specific mining-related non-stormwater discharges such as discharges subject to effluent limitations guidelines (e.g., 40 CFR Part 436). Alternatively (if applicable), the permittee may keep a certification with the SWMP.

- VIII.J.6. Additional SWMP Requirements. The requirements in Part VIII.J.6. are applicable for sites undergoing exploration and construction, active mineral mining facilities, temporarily inactive mineral mining facilities, and sites undergoing reclamation. The requirements in Part VIII.J.6. are not applicable to inactive mineral mining facilities.

- VIII.J.6.a. *Nature of Industrial Activities.* (See also Part V.F.2.a.) Document in the SWMP the mining and associated activities that can potentially affect the stormwater discharges covered by this permit, including a general description of the location of the site relative to major transportation routes and communities.
- VIII.J.6.b. *Site Map.* (See also Part V.F.2.c.) Document in the SWMP the locations of the following (as appropriate): mining or milling site boundaries; access and haul roads; outline of the drainage areas of each stormwater outfall within the facility with indications of the types of discharges from the drainage areas; location(s) of all permitted discharges covered under an individual RIPDES permit, outdoor equipment storage, fueling, and maintenance areas; materials handling areas; outdoor manufacturing, outdoor storage, and material disposal areas; outdoor chemicals and explosives storage areas; overburden, materials, soils, or waste storage areas; location of mine drainage dewatering or other process water; heap leach pads; off-site points of discharge for mine dewatering and process water; surface waters; boundary of tributary areas that are subject to effluent limitations guidelines; and location(s) of reclaimed areas.
- VIII.J.6.c. *Potential Pollutant Sources.* (See also Part V.F.4.) For each area of the mine or mill site where stormwater discharges associated with industrial activities occur, document in the SWMP the types of pollutants (e.g., heavy metals, sediment) likely to be present in significant amounts. For example, phosphate mining facilities will likely need to document pollutants such as selenium, which can be present in significant amounts in their discharges. Consider these factors: the mineralogy of the waste rock (e.g., acid forming); toxicity and quantity of chemicals used, produced, or discharged; the likelihood of contact with stormwater; vegetation of site (if any); and history of significant leaks or spills of toxic or hazardous pollutants. Also include a summary of any existing waste rock or overburden characterization data and test results for potential generation of acid rock drainage.
- VIII.J.6.d. *Stormwater Controls.* To the extent that the permittee uses any of the control measures in Part VIII.J.5.b., document them in the SWMP pursuant to Part V.F.5. If control measures are implemented or planned but are not listed here (e.g., substituting a less toxic chemical for a more toxic one), include descriptions of them in the SWMP.
- VIII.J.6.e. *Employee Training.* All employee training(s) conducted in accordance with Part VIII.J.5.a. must be documented with the SWMP.
- VIII.J.6.f. *Certification of Permit Coverage for Commingled Non-Stormwater Discharges.* If the permittee determines that the permittee is able to certify, consistent with Part VIII.J.5.c., that a particular discharge composed of commingled stormwater and non-stormwater is covered under a separate RIPDES permit, and that permit subjects the non-stormwater portion to effluent limitations prior to any commingling, the permittee must retain such certification with the SWMP. This certification must identify the non-stormwater discharges, the applicable RIPDES permit(s), the effluent limitations placed on the non-stormwater discharge by the permit(s), and the points at which the limitations are applied.
- VIII.J.7. Additional Inspection Requirements. Except for areas of the site subject to clearing, grading, and/or excavation activities conducted as part of the exploration and construction phase, which are subject to Part VIII.J.4.b.i., the permittee must inspect sites at least quarterly unless adverse weather conditions make the site inaccessible. Sites which discharge to waters which are designated as outstanding waters or waters which are impaired for sediment or nitrogen must be inspected monthly. See Part VIII.J.8.a. for inspection requirements for inactive and unstaffed sites. (See also Part IV.A. and VIII.J.4.b.)
- VIII.J.8. Sector-Specific Benchmarks (See also Part VI. of the permit). Table VIII.J-1 identifies benchmarks that apply to the specific subsectors of Sector J. These benchmarks apply to both the primary industrial activity and any co-located industrial activities, which describe the site activities.

Subsector (The permittee may be subject to requirements for more than one sector/subsector)	Parameter	Benchmark Monitoring Concentration
Subsector J1. Sand and Gravel Mining (SIC 1442, 1446)	Nitrate plus Nitrite Nitrogen	0.68 mg/L
	Total Suspended Solids (TSS)	100 mg/L
Subsector J2. Dimension and Crushed Stone and Nonmetallic Minerals (except fuels) (SIC 1411, 1422-1429, 1481, 1499)	Total Suspended Solids (TSS)	100 mg/L

VIII.J.8.a. Inactive and Unstaffed Sites – Conditional Exemption from No Exposure Requirement for Routine Inspections, Quarterly Visual Assessments, and Benchmark Monitoring. As a Sector J facility, if the permittee is seeking to exercise a waiver from either the routine inspection, quarterly visual assessment or the benchmark monitoring requirements for inactive and unstaffed sites (including temporarily inactive sites), the permittee is conditionally exempt from the requirement to certify that “there are no industrial materials or activities exposed to stormwater” in Parts IV.B.3. and VI.B.1.f., respectively. This exemption is conditioned on the following:

- If circumstances change and the facility becomes active and/or staffed, this exception no longer applies and the permittee must immediately begin complying with the applicable benchmark monitoring requirements as if the permittee was in the first year of permit coverage, and the quarterly visual assessment requirements; and
- The Department retains the authority to revoke this exemption and/or the monitoring waiver where it is determined that the discharge causes, has a reasonable potential to cause, or contributes to an instream excursion above an applicable water quality standard, including designated uses.

Subject to the two conditions above, if the facility is inactive and unstaffed, the permittee is waived from the requirement to conduct quarterly visual assessments and routine facility inspections and benchmark and impaired waters monitoring. The permittee must still conduct an annual site inspection in accordance with Part IV.A. The permittee is encouraged to inspect the site more frequently where the permittee has reason to believe that severe weather or natural disasters may have damaged control measures or increased discharges.

VIII.J.9. Effluent Limitations Based on Effluent Limitations Guidelines (See also Part VI.B.2.a. of the permit). Table VIII.J-2 identifies effluent limits that apply to the industrial activities described below. Compliance with these effluent limits is to be determined based on discharges from these industrial activities independent of commingling with any other wastestreams that may be covered under this permit.

Industrial Activity	Parameter	Effluent Limit¹
Mine dewatering discharges at crushed stone mining facilities (SIC 1422 - 1429)	pH	6.0 - 9.0 s.u.
Mine dewatering discharges at construction sand and gravel mining facilities (SIC 1442)	pH	6.0 - 9.0 s.u.
Mine dewatering discharges at industrial sand mining facilities (SIC 1446)	Total Suspended Solids (TSS)	25 mg/L, monthly avg.
		45 mg/L, daily maximum
	pH	6.0 - 9.0 s.u.

¹ Monitor Annually

VIII.J.10. Termination of Permit Coverage.

VIII.J.10.a. *Termination of Permit Coverage for Sites Reclaimed After December 17, 1990.* A site or a portion of a site that has been released from applicable state or federal reclamation requirements after December 17, 1990, is no longer required to maintain coverage under this permit. If the site or portion of a site reclaimed after December 17, 1990, was not subject to reclamation requirements, the site or portion of the site is no longer required to maintain coverage under this permit if the site or portion of the site has been reclaimed as defined in Part VIII.J.3.

VIII.J.10.b. *Termination of Permit Coverage for Sites Reclaimed Before December 17, 1990.* A site or portion of a site that was released from applicable state or federal reclamation requirements before December 17, 1990, or that was otherwise reclaimed before December 17, 1990, is no longer required to maintain coverage under this permit if the site or portion of the site has been reclaimed. A site or portion of a site is considered to have been reclaimed if: (1) stormwater runoff that comes into contact with raw materials, intermediate byproducts, finished products, and waste products does not have the potential to cause or contribute to violations of state water quality standards, (2) soil disturbing activities related to mining at the sites or portion of the site have been completed, (3) the site or portion of the site has been stabilized to minimize soil erosion, and (4) as appropriate depending on location, size, and the potential to contribute pollutants to stormwater discharges, the site or portion of the site has been revegetated, will be amenable to natural revegetation, or will be left in a condition consistent with the post-mining land use.

VIII.K. **Subpart K – Sector K – Hazardous Waste Treatment, Storage, or Disposal Facilities.** The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.K.1. Covered Storm Water Discharges. The requirements in Subpart K apply to stormwater discharges associated with industrial activity from Hazardous Waste Treatment, Storage, or Disposal facilities (TSDFs) as identified by the Activity Code specified under Sector K in Table B-1 of Appendix B of the permit.

VIII.K.2. Industrial Activities Covered by Sector K. This permit authorizes stormwater discharges associated with industrial activity from facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under subtitle C of RCRA.

Disposal facilities that have been properly closed and capped, and have no significant materials exposed to stormwater, are considered inactive and do not require permits.

VIII.K.3. Limitations on Coverage.

VIII.K.3.a. *Prohibition of Non-Stormwater Discharges.* (See also Part I.B.3.) The following are not authorized by this permit: leachate, gas collection condensate, drained free liquids, contaminated ground water, laboratory-derived wastewater, and contact washwater from washing truck and railcar exteriors and surface areas that have come in direct contact with solid waste at the landfill facility.

VIII.K.4. Definitions.

VIII.K.4.a. *Contaminated stormwater* - stormwater that comes into direct contact with landfill wastes, the waste handling and treatment areas, or landfill wastewater as defined in Part VIII.K.4.d. Some specific areas of a landfill that may produce contaminated stormwater include (but are not limited to) the open face of an active landfill with exposed waste (no cover added); the areas around wastewater treatment operations; trucks, equipment, or machinery that has been in direct contact with the waste; and waste dumping areas.

- VIII.K.4.b. *Drained free liquids* - aqueous wastes drained from waste containers (e.g., drums) prior to landfilling.
- VIII.K.4.c. *Landfill* - an area of land or an excavation in which wastes are placed for permanent disposal, but that is not a land application or land treatment unit, surface impoundment, underground injection well, waste pile, salt dome formation, salt bed formation, underground mine, or cave as these terms are defined in 40 CFR 257.2, 258.2, and 260.10.
- VIII.K.4.d. *Landfill wastewater* - as defined in 40 CFR Part 445 (Landfills Point Source Category), all wastewater associated with, or produced by, landfilling activities except for sanitary wastewater, non-contaminated stormwater, contaminated groundwater, and wastewater from recovery pumping wells. Landfill wastewater includes, but is not limited to, leachate, gas collection condensate, drained free liquids, laboratory derived wastewater, contaminated stormwater, and contact washwater from washing truck, equipment, and railcar exteriors and surface areas that have come in direct contact with solid waste at the landfill facility.
- VIII.K.4.e. *Leachate* - liquid that has passed through or emerged from solid waste and contains soluble, suspended, or miscible materials removed from such waste.
- VIII.K.4.f. *Non-contaminated stormwater* - stormwater that does not come into direct contact with landfill wastes, the waste handling and treatment areas, or landfill wastewater as defined in Part VIII.K.4.d. Non-contaminated stormwater includes stormwater that flows off the cap, cover, intermediate cover, daily cover, and/or final cover of the landfill.
- VIII.K.5. Sector-Specific Benchmarks (See also Part VI. of the permit). Table VIII.K-1. identifies benchmarks that apply to the specific subsectors of Sector K. These benchmarks apply to both the primary industrial activity and any co-located industrial activities, which describe the site activities.

Table VIII.K-1.		
Subsector (The permittee may be subject to requirements for more than one sector/subsector)	Parameter	Benchmark Monitoring Concentration
Subsector K1. ALL - Industrial Activity Code "HZ" (Note: permit coverage limited in some States). Benchmarks only applicable to discharges not subject to effluent limitations in 40 CFR Part 445 Subpart A (see below).	Ammonia	2.14 mg/L
	Total Magnesium	0.064 mg/L
	Chemical Oxygen Demand (COD)	120 mg/L
	Total Arsenic (fresh water discharges)	0.15 mg/L
	Total Arsenic (salt water discharges)	0.069 mg/L
	Total Cadmium ¹ (fresh water discharges)	Hardness Dependent
	Total Cadmium (salt water discharges)	0.040 mg/L
	Total Cyanide (fresh water discharges)	0.022 mg/L
	Total Cyanide (salt water discharges)	0.001 mg/L
	Total Lead ¹ (fresh water discharges)	Hardness Dependent
	Total Lead (salt water discharges)	0.21 mg/L
	Total Mercury (fresh water discharges)	0.0014 mg/L
	Total Mercury (salt water discharges)	0.0018 mg/L
	Total Selenium (fresh water discharges)	0.020 mg/L
	Total Selenium (salt water discharges)	0.29 mg/L
	Total Silver ¹ (fresh water discharges)	Hardness Dependent
	Total Silver (salt water discharges)	0.0019 mg/L

¹ The benchmark values of some metals are dependent on water hardness for fresh water discharges. For these parameters, permittees must determine the hardness of the receiving fresh water body (see Appendix D, "Calculating Hardness in Receiving Waters for Hardness Dependent Metals," for methodology), in accordance with Part VI.B.1.a., to identify the applicable 'hardness range' for determining their benchmark value applicable to their facility. The ranges occur in 25 mg/L increments. Hardness Dependent Benchmarks follow in the table below:

Water Hardness Range	Cadmium (mg/L)	Lead (mg/L)	Silver (mg/L)
0-25 mg/L	0.0005	0.014	0.0007
25-50 mg/L	0.0008	0.023	0.0007
50-75 mg/L	0.0013	0.045	0.0017
75-100 mg/L	0.0018	0.069	0.0030
100-125 mg/L	0.0023	0.095	0.0046
125-150 mg/L	0.0029	0.122	0.0065
150-175 mg/L	0.0034	0.151	0.0087
175-200 mg/L	0.0039	0.182	0.0112
200-225 mg/L	0.0045	0.213	0.0138
225-250 mg/L	0.0050	0.246	0.0168
250+ mg/L	0.0053	0.262	0.183

VIII.K.6. Effluent Limitations Based on Effluent Limitations Guidelines (See also Part VI.B.2.a. of the permit). Table VIII.K-2. identifies effluent limits that apply to the industrial activities described below. Compliance with these effluent limits is to be determined based on discharges from these industrial activities independent of commingling with any other wastestreams that may be covered under this permit.

Table VIII.K-2.¹		
Industrial Activity	Parameter	Effluent Limit
Discharges from hazardous waste landfills subject to effluent limitations in 40 CFR Part 445 Subpart A (see footnote).	Biochemical Oxygen Demand (BOD5)	220 mg/L, daily maximum
		56 mg/L, monthly avg. maximum
	Total Suspended Solids (TSS)	88 mg/L, daily maximum
		27 mg/L, monthly avg. maximum
	Ammonia	10 mg/L, daily maximum
		4.9 mg/L, monthly avg. maximum
	Alpha Terpineol	0.042 mg/L, daily maximum
		0.019 mg/L, monthly avg. maximum
	Aniline	0.024 mg/L, daily maximum
		0.015 mg/L, monthly avg. maximum
	Benzoic Acid	0.119 mg/L, daily maximum
		0.073 mg/L, monthly avg. maximum
	Naphthalene	0.059 mg/L, daily maximum
		0.022 mg/L, monthly avg. maximum
	p-Cresol	0.024 mg/L, daily maximum
		0.015 mg/L, monthly avg. maximum
	Phenol	0.048 mg/L, daily maximum
		0.029 mg/L, monthly avg. maximum
	Pyridine	0.072 mg/L, daily maximum
		0.025 mg/L, monthly avg. maximum
	Total Arsenic	1.1 mg/L, daily maximum
		0.54 mg/L, monthly avg. maximum
	Total Chromium	1.1 mg/L, daily maximum
		0.46 mg/L, monthly avg. maximum
Total Zinc	0.535 mg/L, daily maximum	
	0.296 mg/L, monthly avg. maximum	
pH	Within the range of 6-9 standard pH units (s.u.)	

¹ Monitor annually. As set forth at 40 CFR Part 445 Subpart A, these numeric limitations apply to contaminated stormwater discharges from hazardous waste landfills subject to the provisions of RCRA Subtitle C at 40 CFR Parts 264 (Subpart N) and 265 (Subpart N) except for any of the following facilities:

- (a) landfills operated in conjunction with other industrial or commercial operations when the landfill receives only wastes generated by the industrial or commercial operation directly associated with the landfill;
- (b) landfills operated in conjunction with other industrial or commercial operations when the landfill receives wastes generated by the industrial or commercial operation directly associated with the landfill and also receives other wastes, provided that the other wastes received for disposal are generated by a facility that is subject to the same provisions in 40 CFR Subchapter N as the industrial or commercial operation or that the other wastes received are of similar nature to the wastes generated by the industrial or commercial operation;
- (c) landfills operated in conjunction with Centralized Waste Treatment (CWT) facilities subject to 40 CFR Part 437, so long as the CWT facility commingles the landfill wastewater with other non-landfill wastewater for discharge. A landfill directly associated with a CWT facility is subject to this part if the CWT facility discharges landfill wastewater separately from other CWT wastewater or commingles the wastewater from its landfill only with wastewater from other landfills; or
- (d) landfills operated in conjunction with other industrial or commercial operations when the landfill receives wastes from public service activities, so long as the company owning the landfill does not receive a fee or other remuneration for the disposal service.

VIII.L. Subpart L – Sector L – Landfills, Land Application Sites, and Open Dumps. The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.L.1. Covered Storm Water Discharges. The requirements in Subpart L apply to stormwater discharges associated with industrial activity from Landfills and Land Application Sites and Open Dumps as identified by the Activity Code specified under Sector L in Table B-1 of Appendix B of the permit.

VIII.L.2. Industrial Activities Covered by Sector L. This permit may authorize stormwater discharges for Sector L facilities associated with waste disposal at landfills, land application sites, and open dumps that receive or have received industrial waste, including sites subject to regulation under Subtitle D of RCRA. This permit does not cover discharges from landfills that receive only municipal wastes.

VIII.L.3. Limitations on Coverage.

VIII.L.3.a. *Prohibition of Non-Stormwater Discharges.* (See also Part I.B.3.) The following discharges are not authorized by this permit: leachate, gas collection condensate, drained free liquids, contaminated ground water, laboratory wastewater, and contact washwater from washing truck and railcar exteriors and surface areas that have come in direct contact with solid waste at the landfill facility.

VIII.L.4. Definitions.

VIII.L.4.a. *Contaminated stormwater* - stormwater that comes into direct contact with landfill wastes, the waste handling and treatment areas, or landfill wastewater. Some areas of a landfill that may produce contaminated stormwater include (but are not limited to) the open face of an active landfill with exposed waste (no cover added); the areas around wastewater treatment operations; trucks, equipment, or machinery that has been in direct contact with the waste; and waste dumping areas.

VIII.L.4.b. *Drained free liquids* - aqueous wastes drained from waste containers (e.g., drums) prior to landfilling.

VIII.L.4.c. *Landfill wastewater* - as defined in 40 CFR Part 445 (Landfills Point Source Category) all wastewater associated with, or produced by, landfilling activities except for sanitary wastewater, non-contaminated stormwater, contaminated groundwater, and wastewater from recovery pumping wells. Landfill process wastewater includes, but is not limited to, leachate; gas collection condensate; drained free liquids; laboratory-derived wastewater; contaminated stormwater; and contact washwater from washing truck, equipment, and railcar exteriors and surface areas that have come in direct contact with solid waste at the landfill facility.

VIII.L.4.d. *Leachate* - liquid that has passed through or emerged from solid waste and contains soluble, suspended, or miscible materials removed from such waste.

VIII.L.4.e. *Non-contaminated stormwater* - stormwater that does not come into direct contact with landfill wastes, the waste handling and treatment areas, or landfill wastewater. Non-contaminated stormwater includes stormwater that flows off the cap, cover, intermediate cover, daily cover, and/or final cover of the landfill.

VIII.L.5. Additional Technology-Based Effluent Limits.

VIII.L.5.a. *Preventive Maintenance Program.* (See also Part II.A.2.c.) As part of the preventive maintenance program, maintain the following: all elements of leachate collection and treatment systems, to prevent commingling of leachate with stormwater; the integrity and

effectiveness of any intermediate or final cover (including repairing the cover as necessary), to minimize the effects of settlement, sinking, and erosion.

VIII.L.5.b. *Erosion and Sedimentation Control.* (See also Part II.A.2.e.) Provide temporary stabilization (e.g., temporary seeding, mulching, and placing geotextiles on the inactive portions of stockpiles) for the following: materials stockpiled for daily, intermediate, and final cover; inactive areas of the landfill or open dump; landfills or open dump areas that have gotten final covers but where vegetation has yet to establish itself; and land application sites where waste application has been completed but final vegetation has not yet been established.

VIII.L.5.c. *Unauthorized Discharge Test Certification.* (See also Part V.F.4.f.) The discharge test and certification must also be conducted for the presence of leachate and vehicle washwater.

VIII.L.6. Additional SWMP Requirements.

VIII.L.6.a. *Drainage Area Site Map.* (See also Part V.F.2.c.) Document in the SWMP where any of the following may be exposed to precipitation or surface runoff: active and closed landfill cells or trenches, active and closed land application areas, locations where open dumping is occurring or has occurred, locations of any known leachate springs or other areas where uncontrolled leachate may commingle with runoff, and leachate collection and handling systems.

VIII.L.6.b. *Summary of Potential Pollutant Sources.* (See also Part V.F.4.) Document in the SWMP the following sources and activities that have potential pollutants associated with them: fertilizer, herbicide, and pesticide application; earth and soil moving; waste hauling and loading or unloading; outdoor storage of significant materials, including daily, interim, and final cover material stockpiles as well as temporary waste storage areas; exposure of active and inactive landfill and land application areas; uncontrolled leachate flows; and failure or leaks from leachate collection and treatment systems.

VIII.L.7. Additional Inspection Requirements (See also Part IV.)

VIII.L.7.a. *Inspections of Active Sites.* Except in arid and semi-arid climates, inspect operating landfills, open dumps, and land application sites at least once every 7 days. Focus on areas of landfills that have not yet been finally stabilized; active land application areas, areas used for storage of material and wastes that are exposed to precipitation, stabilization, and structural control measures; leachate collection and treatment systems; and locations where equipment and waste trucks enter and exit the site. Ensure that sediment and erosion control measures are operating properly. For stabilized sites and areas where land application has been completed, or where the climate is arid or semi-arid, conduct inspections at least once every month.

VIII.L.7.b. *Inspections of Inactive Sites.* Inspect inactive landfills, open dumps, and land application sites at least quarterly. Qualified personnel must inspect landfill (or open dump) stabilization and structural erosion control measures, leachate collection and treatment systems, and all closed land application areas.

VIII.L.8. Additional Post-Authorization Documentation Requirements.

VIII.L.8.a. *Recordkeeping and Internal Reporting.* Keep records with the SWMP of the types of wastes disposed of in each cell or trench of a landfill or open dump. For land application sites, track the types and quantities of wastes applied in specific areas.

VIII.L.9. Sector-Specific Benchmarks. Table VIII.L-1 identifies benchmarks that apply to the specific subsectors of Sector L. These benchmarks apply to both the primary industrial activity and any co-located industrial activities, which describe the site activities.

Table VIII.L-1.		
Subsector (The permittee may be subject to requirements for more than one sector/subsector)	Parameter	Benchmark Monitoring Concentration ¹
Subsector L1. All Landfill, Land Application Sites and Open Dumps (Industrial Activity Code "LF")	Total Suspended Solids (TSS)	100 mg/L
Subsector L2. All Landfill, Land Application Sites and Open Dumps, except Municipal Solid Waste Landfill (MSWLF) Areas Closed in Accordance with 40 CFR 258.60 (Industrial Activity Code "LF")	Total Iron	1.0 mg/L

¹Benchmark monitoring required only for discharges not subject to effluent limitations in 40 CFR Part 445 Subpart B (see Table VIII.L-2 above).

VIII.L.10. Effluent Limitations Based on Effluent Limitations Guidelines (See also Part VI.B.2.a. of the permit). Table VIII.L-2 identifies effluent limits that apply to the industrial activities described below. Compliance with these effluent limits is to be determined based on discharges from these industrial activities independent of commingling with any other wastestreams that may be covered under this permit.

Table VIII.L-2. ¹		
Industrial Activity	Parameter	Effluent Limit
Discharges from non-hazardous waste landfills subject to effluent limitations in 40 CFR Part 445 Subpart B.	Biochemical Oxygen Demand (BOD5)	140 mg/L, daily maximum
		37 mg/L, monthly avg. maximum
	Total Suspended Solids (TSS)	88 mg/L, daily maximum
		27 mg/L, monthly avg. maximum
	Ammonia	10 mg/L, daily maximum
		4.9 mg/L, monthly avg. maximum
	Alpha Terpineol	0.033 mg/L, daily maximum
		0.016 mg/L, monthly avg. maximum
	Benzoic Acid	0.12 mg/L, daily maximum
		0.071 mg/L, monthly avg. maximum
	p-Cresol	0.025 mg/L, daily maximum
		0.014 mg/L, monthly avg. maximum
	Phenol	0.026 mg/L, daily maximum
		0.015 mg/L, monthly avg. maximum
Total Zinc	0.20 mg/L, daily maximum	
	0.11 mg/L, monthly avg. maximum	
pH	Within the range of 6-9 standard pH units (s.u.)	

¹ Monitor annually. As set forth at 40 CFR Part 445 Subpart B, these numeric limitations apply to contaminated stormwater discharges from MSWLFs that have not been closed in accordance with 40 CFR 258.60, and to contaminated stormwater discharges from those landfills that are subject to the provisions of 40 CFR Part 257 except for discharges from any of the following facilities:

- (a) landfills operated in conjunction with other industrial or commercial operations, when the landfill receives only wastes generated by the industrial or commercial operation directly associated with the landfill;
- (b) landfills operated in conjunction with other industrial or commercial operations, when the landfill receives wastes generated by the industrial or commercial operation directly associated with the landfill and also receives other wastes, provided that the other wastes received for disposal are generated by a facility that is subject to the same provisions in 40 CFR Subchapter N as the industrial or commercial operation, or that the other wastes received are of similar nature to the wastes generated by the industrial or commercial operation;
- (c) landfills operated in conjunction with CWT facilities subject to 40 CFR Part 437, so long as the CWT facility commingles the landfill wastewater with other non-landfill wastewater for discharge. A landfill directly associated with a CWT facility is subject to this part if the CWT facility discharges landfill wastewater separately from other CWT wastewater or commingles the wastewater from its landfill only with wastewater from other landfills; or
- (d) landfills operated in conjunction with other industrial or commercial operations when the landfill receives wastes from public service activities, so long as the company owning the landfill does not receive a fee or other remuneration for the disposal service

VIII.M. Subpart M – Sector M - Automobile Salvage Yards. The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.M.1. Covered Storm Water Discharges. The requirements in Subpart M apply to stormwater discharges associated with industrial activity from Automobile Salvage Yards as identified by the SIC Code specified under Sector M in Table B-1 of Appendix B of this permit.

VIII.M.2. Additional Technology-Based Effluent Limits.

VIII.M.2.a. *Spill and Leak Prevention Procedures.* (See also Part II.A.2.d.) Drain vehicles intended to be dismantled of all fluids upon arrival at the site (or as soon thereafter as feasible), or employ some other equivalent means to prevent spills and leaks.

VIII.M.2.b. *Employee Training.* (See also Part II.A.2.i.) If applicable to the facility, address the following areas (at a minimum) in the employee training program: proper handling (collection, storage, and disposal) of oil, used mineral spirits, anti-freeze, mercury switches, and solvents.

VIII.M.2.c. *Management of Runoff.* (See also Part II.A.2.f.) Consider the following management practices: berms or drainage ditches on the property line (to help prevent run-on from neighboring properties); berms for uncovered outdoor storage of oily parts, engine blocks, and above-ground liquid storage; installation of detention ponds; and installation of filtering devices and oil and water separators.

VIII.M.3. Additional SWMP Requirements.

VIII.M.3.a. *Drainage Area Site Map.* (See also Part V.F.2.c.) Identify locations used for dismantling, storage, and maintenance of used motor vehicle parts. Also identify where any of the following may be exposed to precipitation or surface runoff: dismantling areas, parts (e.g., engine blocks, tires, hub caps, batteries, hoods, mufflers) storage areas, and liquid storage tanks and drums for fuel and other fluids.

VIII.M.3.b. *Potential Pollutant Sources.* (See also Part V.F.4.) Assess the potential for the following to contribute pollutants to stormwater discharges: vehicle storage areas, dismantling areas, parts storage areas (e.g., engine blocks, tires, hub caps, batteries, hoods, mufflers), and fueling stations.

VIII.M.4. Additional Inspection Requirements. (See also Part IV.A.) Immediately (or as soon thereafter as feasible) inspect vehicles arriving at the site for leaks. Inspect quarterly for signs of leakage all equipment containing oily parts, hydraulic fluids, any other types of fluids, or mercury switches. Also, inspect quarterly for signs of leakage all vessels and areas where hazardous materials and general automotive fluids are stored, including, but not limited to, mercury switches, brake fluid, transmission fluid, radiator water, and antifreeze.

VIII.M.5. Sector-Specific Benchmarks (See also Part VI. of the permit). Table VIII.M-1. identifies benchmarks that apply to Sector M. These benchmarks apply to both the primary industrial activity and any co-located industrial activities, which describe the site activities.

Subsector (The permittee may be subject to requirements for more than one sector/subsector)	Parameter	Benchmark Monitoring Concentration
Subsector M1. Automobile Salvage Yards (SIC 5015)	Total Suspended Solids (TSS)	100 mg/L
	Total Aluminum	0.75 mg/L
	Total Iron	1.0 mg/L
	Total Lead ¹ (fresh water discharges)	Hardness Dependent
	Total Lead (salt water discharges)	0.21 mg/L

¹ The benchmark values of some metals are dependent on water hardness for fresh water discharges. For these parameters, permittees must determine the hardness of the receiving fresh water body (see Appendix D, "Calculating Hardness in Receiving Waters for Hardness Dependent Metals," for methodology), in accordance with Part VI.B.1.a., to identify the applicable 'hardness range' for determining their benchmark value applicable to their facility. The ranges occur in 25 mg/L increments. Hardness Dependent Benchmarks follow in the table below:

Water Hardness Range	Lead (mg/L)
0-25 mg/L	0.014
25-50 mg/L	0.023
50-75 mg/L	0.045
75-100 mg/L	0.069
100-125 mg/L	0.095
125-150 mg/L	0.122
150-175 mg/L	0.151
175-200 mg/L	0.182
200-225 mg/L	0.213
225-250 mg/L	0.246
250+ mg/L	0.262

VIII.N. Subpart N – Sector N – Scrap Recycling and Waste Recycling Facilities. The permittee must comply with Part VIII sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.N.1. Covered Storm Water Discharges. The requirements in Subpart N apply to stormwater discharges associated with industrial activity from Scrap Recycling and Waste Recycling facilities as identified by the SIC Code specified under Sector N in Table B-1 of Appendix B of the permit.

VIII.N.2. Limitations on Coverage. Separate permit requirements have been established for recycling facilities that only receive source-separated recyclable materials primarily from non-industrial and residential sources (i.e., common consumer products including paper, newspaper, glass, cardboard, plastic containers, and aluminum and tin cans). This includes recycling facilities commonly referred to as material recovery facilities (MRF).

VIII.N.2.a. *Prohibition of Non-Stormwater Discharges.* (See also Part I.B.3.) Non-stormwater discharges from turnings containment areas are not covered by this permit (see also Part VIII.N.3.b.iii.). Discharges from containment areas in the absence of a storm event are prohibited unless covered by a separate RIPDES permit.

VIII.N.3. Additional Technology-Based Effluent Limits.

VIII.N.3.a. *Scrap and Waste Recycling Facilities (Non-Source Separated, Nonliquid Recyclable Materials)*. Requirements for facilities that receive, process, and do wholesale distribution of nonliquid recyclable wastes (e.g., ferrous and nonferrous metals, plastics, glass, cardboard, and paper). These facilities may receive both nonrecyclable and recyclable materials. This section is not intended for those facilities that accept recyclables only from primarily non-industrial and residential sources.

VIII.N.3.a.1. *Inbound Recyclable and Waste Material Control Program*. Minimize the chance of accepting materials that could be significant sources of pollutants by conducting inspections of inbound recyclables and waste materials. Following are some control measure options: (a) provide information and education to suppliers of scrap and recyclable waste materials on draining and properly disposing of residual fluids (e.g., from vehicles and equipment engines, radiators and transmissions, oil filled transformers, and individual containers or drums) and removal of mercury switches from vehicles before delivery to the facility; (b) establish procedures to minimize the potential of any residual fluids from coming into contact with precipitation or runoff; (c) establish procedures for accepting scrap lead-acid batteries (additional requirements for the handling, storage, and disposal or recycling of batteries are contained in the scrap lead-acid battery program provisions in Part VIII.N.3.b.vi.); (d) provide training targeted for those personnel engaged in the inspection and acceptance of inbound recyclable materials; and (e) establish procedures to ensure that liquid wastes, including used oil, are stored in materially compatible and non-leaking containers and are disposed of or recycled in accordance with the Resource Conservation and Recovery Act (RCRA).

VIII.N.3.a.2. *Scrap and Waste Material Stockpiles and Storage (Outdoor)*. Minimize contact of stormwater runoff with stockpiled materials, processed materials, and nonrecyclable wastes. Following are some control measure options: (a) permanent or semi-permanent covers; (b) sediment traps, vegetated swales and strips, catch basin filters, and sand filters to facilitate settling or filtering of pollutants; (c) dikes, berms, containment trenches, culverts, and surface grading to divert runoff from storage areas; (d) silt fencing; and (e) oil and water separators, sumps, and dry absorbents for areas where potential sources of residual fluids are stockpiled (e.g., automobile engine storage areas).

VIII.N.3.a.3. *Stockpiling of Turnings Exposed to Cutting Fluids (Outdoor Storage)*. Minimize contact of surface runoff with residual cutting fluids by: (a) storing all turnings exposed to cutting fluids under some form of permanent or semi-permanent cover, or (b) establishing dedicated containment areas for all turnings that have been exposed to cutting fluids. Any containment areas must be constructed of concrete, asphalt, or other equivalent types of impermeable material and include a barrier (e.g., berms, curbing, elevated pads) to prevent contact with stormwater run-on. Stormwater runoff from these areas can be discharged, provided that any runoff is first collected and treated by an oil and water separator or its equivalent. The permittee must regularly maintain the oil and water separator (or its equivalent) and properly dispose of or recycle collected residual fluids.

VIII.N.3.a.4. *Scrap and Waste Material Stockpiles and Storage (Covered or Indoor Storage)*. Minimize contact of residual liquids and particulate matter from materials stored indoors or under cover with surface runoff. Following are some control measure options: (a) good housekeeping measures, including the use of dry absorbents or wet vacuuming to contain, dispose of, or recycle residual liquids originating from recyclable containers, or mercury spill kits for spills from storage of mercury switches; (b) not allowing washwater from tipping floors or other processing areas to discharge to the storm sewer system; and (c) disconnecting or sealing off all floor drains connected to the storm sewer system.

VIII.N.3.a.5. *Scrap and Recyclable Waste Processing Areas*. Minimize surface runoff from coming in contact with scrap processing equipment. Pay attention to operations that generate

visible amounts of particulate residue (e.g., shredding) to minimize the contact of accumulated particulate matter and residual fluids with runoff (i.e., through good housekeeping, preventive maintenance, etc.). Following are some control measure options: (a) regularly inspect equipment for spills or leaks and malfunctioning, worn, or corroded parts or equipment; (b) establish a preventive maintenance program for processing equipment; (c) use dry-absorbents or other cleanup practices to collect and dispose of or recycle spilled or leaking fluids or use mercury spill kits for spills from storage of mercury switches; (d) on unattended hydraulic reservoirs over 150 gallons in capacity, install protection devices such as low-level alarms or equivalent devices, or secondary containment that can hold the entire volume of the reservoir; (e) containment or diversion structures such as dikes, berms, culverts, trenches, elevated concrete pads, and grading to minimize contact of stormwater runoff with outdoor processing equipment or stored materials; (f) oil and water separators or sumps; (g) permanent or semi-permanent covers in processing areas where there are residual fluids and grease; (h) retention or detention ponds or basins; sediment traps, and vegetated swales or strips (for pollutant settling and filtration); (i) catch basin filters or sand filters.

VIII.N.3.a.6. *Scrap Lead-Acid Battery Program.* Properly handle, store, and dispose of scrap lead-acid batteries. Following are some control measure options (a) segregate scrap lead-acid batteries from other scrap materials; (b) properly handle, store, and dispose of cracked or broken batteries; (c) collect and dispose of leaking lead-acid battery fluid; (d) minimize or eliminate (if possible) exposure of scrap lead-acid batteries to precipitation or runoff; and (e) provide employee training for the management of scrap batteries.

VIII.N.3.a.7. *Spill Prevention and Response Procedures.* (See also Part II.A.2.d.) Install alarms and/or pump shutoff systems on outdoor equipment with hydraulic reservoirs exceeding 150 gallons in the event of a line break. Alternatively, a secondary containment system capable of holding the entire contents of the reservoir plus room for precipitation can be used. Use a mercury spill kit for any release of mercury from switches, anti-lock brake systems, and switch storage areas.

VIII.N.3.a.8. *Supplier Notification Program.* As appropriate, notify major suppliers which scrap materials will not be accepted at the facility or will be accepted only under certain conditions.

VIII.N.3.b. Waste Recycling Facilities (Liquid Recyclable Materials).

VIII.N.3.b.1. *Waste Material Storage (Indoor).* Minimize or eliminate contact between residual liquids from waste materials stored indoors and from surface runoff. The plan may refer to applicable portions of other existing plans, such as Spill Prevention, Control, and Countermeasure (SPCC) plans required under 40 CFR Part 112. Following are some control measure options (a) procedures for material handling (including labeling and marking); (b) clean up spills and leaks with dry absorbent materials, a wet vacuum system; (c) appropriate containment structures (trenching, curbing, gutters, etc.); and (d) a drainage system, including appurtenances (e.g., pumps or ejectors, manually operated valves), to handle discharges from diked or bermed areas. Drainage should be discharged to an appropriate treatment facility or sanitary sewer system, or otherwise disposed of properly. These discharges may require coverage under a separate RIPDES wastewater permit or industrial user permit under the pretreatment program.

VIII.N.3.b.2. *Waste Material Storage (Outdoor).* Minimize contact between stored residual liquids and precipitation or runoff. The plan may refer to applicable portions of other existing plans, such as SPCC plans required under 40 CFR Part 112. Discharges of precipitation from containment areas containing used oil must also be in accordance with applicable sections of 40 CFR Part 112. Following are some control measure options (a) appropriate containment structures (e.g., dikes, berms, curbing, pits) to store the volume of the largest tank, with sufficient extra capacity for precipitation; (b) drainage control and other diversionary structures; (c) corrosion protection and/or leak detection systems for

storage tanks; and (d) dry-absorbent materials or a wet vacuum system to collect spills.

VIII.N.3.b.3. *Trucks and Rail Car Waste Transfer Areas.* Minimize pollutants in discharges from truck and rail car loading and unloading areas. Include measures to clean up minor spills and leaks resulting from the transfer of liquid wastes. Following are two control measure options: (a) containment and diversionary structures to minimize contact with precipitation or runoff, and (b) dry clean-up methods, wet vacuuming, roof coverings, or runoff controls.

VIII.N.3.c. *Recycling Facilities (Source-Separated Materials).* The following identifies considerations for facilities that receive only source-separated recyclables, primarily from non-industrial and residential sources.

VIII.N.3.c.1. *Inbound Recyclable Material Control.* Minimize the chance of accepting nonrecyclables (e.g., hazardous materials) that could be a significant source of pollutants by conducting inspections of inbound materials. Following are some control measure options: (a) providing information and education measures to inform suppliers of recyclables about acceptable and non-acceptable materials, (b) training drivers responsible for pickup of recycled material, (c) clearly marking public drop-off containers regarding which materials can be accepted, (d) rejecting nonrecyclable wastes or household hazardous wastes at the source, and (e) establishing procedures for handling and disposal of nonrecyclable material.

VIII.N.3.c.2. *Outdoor Storage.* Minimize exposure of recyclables to precipitation and runoff. Use good housekeeping measures to prevent accumulation of particulate matter and fluids, particularly in high traffic areas. Following are some control measure options (a) provide totally enclosed drop-off containers for the public; (b) install a sump and pump with each container pit and treat or discharge collected fluids to a sanitary sewer system; (c) provide dikes and curbs for secondary containment (e.g., around bales of recyclable waste paper); (d) divert surface water runoff away from outside material storage areas; (e) provide covers over containment bins, dumpsters, and roll-off boxes; and (f) store the equivalent of one day's volume of recyclable material indoors.

VIII.N.3.c.3. *Indoor Storage and Material Processing.* Minimize the release of pollutants from indoor storage and processing areas. Following are some control measure options (a) schedule routine good housekeeping measures for all storage and processing areas, (b) prohibit tipping floor washwater from draining to the storm sewer system, and (c) provide employee training on pollution prevention practices.

VIII.N.3.c.4.. *Vehicle and Equipment Maintenance.* Following are some control measure options for areas where vehicle and equipment maintenance occur outdoors (a) prohibit vehicle and equipment washwater from discharging to the storm sewer system, (b) minimize or eliminate outdoor maintenance areas whenever possible, (c) establish spill prevention and clean-up procedures in fueling areas, (d) avoid topping off fuel tanks, (e) divert runoff from fueling areas, (f) store lubricants and hydraulic fluids indoors, and (g) provide employee training on proper handling and storage of hydraulic fluids and lubricants.

VIII.N.4. Additional SWMP Requirements.

VIII.N.4.a. *Drainage Area Site Map.* (See also Part V.F.2.c.) Document in the SWMP the locations of any of the following activities or sources that may be exposed to precipitation or surface runoff: scrap and waste material storage, outdoor scrap and waste processing equipment; and containment areas for turnings exposed to cutting fluids.

VIII.N.4.b. *Maintenance Schedules/Procedures for Collection, Handling, and Disposal or Recycling of Residual Fluids at Scrap and Waste Recycling Facilities.* If the permittee is subject to Part VIII.N.3.a.iii., the SWMP must identify any applicable maintenance schedule and the

procedures to collect, handle, and dispose of or recycle residual fluids.

VIII.N.5. Additional Inspection Requirements.

VIII.N.5.a. *Inspections for Waste Recycling Facilities.* The inspections must be performed quarterly, pursuant to Part IV.A., and include, at a minimum, all areas where waste is generated, received, stored, treated, or disposed of and that are exposed to either precipitation or stormwater runoff.

VIII.N.6. Sector-Specific Benchmarks (See also Part VI. of the permit). Table VIII.N-1. identifies benchmarks that apply to Sector N. These benchmarks apply to both the primary industrial activity and any co-located industrial activities, which describe the site activities.

Subsector (The permittee may be subject to requirements for more than one sector/subsector)	Parameter	Benchmark Monitoring Concentration
Subsector N1. Scrap Recycling and Waste Recycling Facilities (SIC 5093)	Chemical Oxygen Demand (COD)	120 mg/L
	Total Suspended Solids (TSS)	100 mg/L
	Total Aluminum	0.75 mg/L
	Total Copper ¹ (fresh water discharges)	Hardness Dependent
	Total Copper (salt water discharges)	0.0048 mg/L
	Total Iron	1.0 mg/L
	Total Lead ¹ (fresh water discharges)	Hardness Dependent
	Total Lead (salt water discharges)	0.21 mg/L
	Total Zinc ¹ (fresh water discharges)	Hardness Dependent
	Total Zinc (salt water discharges)	0.09 mg/L
Additional monitoring required for facilities where shredding activities and/or shredding materials are exposed to stormwater	PCB-1016 ²	0.000434 mg/L
	PCB-1221	0.10 mg/L
	PCB-1232 ²	0.000387 mg/L
	PCB-1242 ²	0.000289 mg/L
	PCB-1248	0.002544 mg/L
	PCB-1254	0.10 mg/L
	PCB-1260	0.000477 mg/L
	Oil and Grease	15 mg/L

¹ The benchmark values of some metals are dependent on water hardness for fresh water discharges. For these parameters, permittees must determine the hardness of the receiving fresh water body (see Appendix D, "Calculating Hardness in Receiving Waters for Hardness Dependent Metals," for methodology), in accordance with Part VI.B.1.a., to identify the applicable 'hardness range' for determining their benchmark value applicable to their facility. The ranges occur in 25 mg/L increments. Hardness Dependent Benchmarks follow in the table below:

² The minimum detection limit for this parameter is greater than the EPA benchmark value, therefore sampling results at which an exceedance determination will be based is the Minimum Detection Limit, listed in this Table. These values may be reduced by permit modification as more sensitive methods are approved by EPA and the State

Water Hardness Range	Copper (mg/L)	Lead (mg/L)	Zinc (mg/L)
0-25 mg/L	0.0038	0.014	0.04
25-50 mg/L	0.0056	0.023	0.05
50-75 mg/L	0.0090	0.045	0.08
75-100 mg/L	0.0123	0.069	0.11
100-125 mg/L	0.0156	0.095	0.13
125-150 mg/L	0.0189	0.122	0.16
150-175 mg/L	0.0221	0.151	0.18
175-200 mg/L	0.0253	0.182	0.20
200-225 mg/L	0.0285	0.213	0.23
225-250 mg/L	0.0316	0.246	0.25
250+ mg/L	0.0332	0.262	0.26

VIII.O. Subpart O – Sector O – Steam Electric Generating Facilities. The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.O.1. Covered Storm Water Discharges. The requirements in Subpart O apply to stormwater discharges associated with industrial activity from Steam Electric Power Generating Facilities as identified by the Activity Code specified under Sector O in Table B-1 of Appendix B.

VIII.O.2. Industrial Activities Covered by Sector O. This permit authorizes stormwater discharges from the following industrial activities at Sector O facilities:

VIII.O.2.a. steam electric power generation using coal, natural gas, oil, nuclear energy, etc., to produce a steam source, including coal handling areas;

VIII.O.2.b. coal pile runoff, including effluent limitations established by 40 CFR Part 423; and

VIII.O.2.c. dual fuel facilities that could employ a steam boiler.

VIII.O.3. Limitations on Coverage.

VIII.O.3.a. *Prohibition of Non-Stormwater Discharges.* Non-stormwater discharges subject to effluent limitations guidelines are not covered by this permit.

VIII.O.3.b. *Prohibition of Stormwater Discharges.* Stormwater discharges from the following are not covered by this permit:

VIII.O.3.b.1. ancillary facilities (e.g., fleet centers and substations) that are not contiguous to a steam electric power generating facility;

VIII.O.3.b.2. ancillary facilities (e.g., fleet centers and substations) that are not contiguous to a steam electric power generating facility;

VIII.O.3.b.3. cogeneration (combined heat and power) facilities utilizing a gas turbine.

VIII.O.4. Additional Technology-Based Effluent Limits. The following good housekeeping measures are required in addition to Part II.A.2.b.:

VIII.O.4.a. *Fugitive Dust Emissions.* Minimize fugitive dust emissions from coal handling areas to minimize the tracking of coal dust offsite that could be discharged in stormwater through implementation of control measures such as the following, where determined to be feasible, (list not exclusive): installing specially designed tires; and washing vehicles in a designated area before they leave the site and controlling the wash water.

VIII.O.4.b. *Delivery Vehicles.* Minimize contamination of stormwater runoff from delivery vehicles arriving at the plant site. Implement procedures to inspect delivery vehicles arriving at the plant site as necessary to minimize discharges of pollutants in stormwater. Ensure the overall integrity of the body or container of the delivery vehicle and implement procedures to deal with leakage or spillage from delivery vehicles.

VIII.O.4.c. *Fuel Oil Unloading Areas.* Minimize contamination of precipitation or surface runoff from fuel oil unloading areas. Use containment curbs in unloading areas where feasible. In addition, ensure personnel familiar with spill prevention and response procedures are available to respond expeditiously in the event of a leak or spill during deliveries. Ensure that any leaks or

spills are immediately contained and cleaned up, and use spill and overflow protection devices (e.g., drip pans, drip diapers, or other containment devices placed beneath fuel oil connectors to contain potential spillage during deliveries or from leaks at the connectors).

- VIII.O.4.d. *Chemical Loading and Unloading.* Minimize contamination of precipitation or surface runoff from chemical loading and unloading areas. Use containment curbs at chemical loading and unloading areas to contain spills, where practicable. In addition, ensure personnel familiar with spill prevention and response procedures are available to respond expeditiously in the event of a leak or spill during deliveries. Ensure leaks and spills are immediately contained and cleaned up and, where practicable, load and unload in covered areas and store chemicals indoors.
- VIII.O.4.e. *Miscellaneous Loading and Unloading Areas.* . Minimize contamination of precipitation or surface runoff from loading and unloading areas through implementation of control measures such as the following, where determined to be feasible (list not exclusive): covering the loading area; grading, curbing, or berming around the loading area to divert run-on; locating the loading and unloading equipment and vehicles so that leaks are contained in existing containment and flow diversion systems; or equivalent procedures.
- VIII.O.4.f. *Liquid Storage Tanks.* Minimize contamination of surface runoff from above-ground liquid storage tanks through implementation of control measures such as the following, where determined to be feasible, the following (list not exclusive): using protective guards around tanks; using containment curbs; installing spill and overflow protection; using dry cleanup methods; or equivalent measures.
- VIII.O.4.g. *Large Bulk Fuel Storage Tanks.* Minimize contamination of surface runoff from large bulk fuel storage tanks. Consider containment berms (or their equivalent). The permittee must also comply with applicable State and Federal laws, including Spill Prevention, Control and Countermeasure (SPCC) Plan requirements.
- VIII.O.4.h. *Spill Reduction Measures.* Minimize the potential for an oil or chemical spill, or reference the appropriate part of the SPCC plan. Visually inspect as part of the routine facility inspection the structural integrity of all above-ground tanks, pipelines, pumps, and related equipment that may be exposed to stormwater, and make any necessary repairs immediately.
- VIII.O.4.i. *Oil-Bearing Equipment in Switchyards.* Minimize contamination of surface runoff from oil-bearing equipment in switchyard areas. Consider using level grades and gravel surfaces to retard flows and limit the spread of spills, or collecting runoff in perimeter ditches
- VIII.O.4.j. *Residue-Hauling Vehicles.* Inspect all residue-hauling vehicles for proper covering over the load, adequate gate sealing, and overall integrity of the container body. Repair vehicles without load covering or adequate gate sealing, or with leaking containers or beds.
- VIII.O.4.k. *Ash Loading Areas.* Reduce or control the tracking of ash and residue from ash loading areas. Clear the ash building floor and immediately adjacent roadways of spillage, debris, and excess water before departure of each loaded vehicle.
- VIII.O.4.l. *Areas Adjacent to Disposal Ponds or Landfills.* Minimize contamination of surface runoff from areas adjacent to disposal ponds or landfills. Reduce ash residue that may be tracked on to access roads traveled by residue handling vehicles, and reduce ash residue on exit roads leading into and out of residue handling areas.
- VIII.O.4.m. *Landfills, Scrap yards, Surface Impoundments, Open Dumps, General Refuse Sites.* Minimize the potential for contamination of runoff from these areas.

VIII.O.5. Additional SWMP Requirements

- VIII.O.5.a. *Drainage Area Site Map.* (See also Part V.F.2.c.) Document in the SWMP the locations of any

of the following activities or sources that may be exposed to precipitation or surface runoff: storage tanks, scrap yards, and general refuse areas; short- and long-term storage of general materials (including but not limited to supplies, construction materials, paint equipment, oils, fuels, used and unused solvents, cleaning materials, paint, water treatment chemicals, fertilizer, and pesticides); landfills and construction sites; and stock pile areas (e.g., coal or limestone piles).

VIII.O.5.b. *Documentation of Good Housekeeping Measures.* The permittee must document in the SWMP the good housekeeping measures implemented to meet the effluent limits in Part VIII.O.4.

VIII.O.6. Additional Inspection Requirements. As part of the inspection, inspect the following areas monthly: coal handling areas, loading or unloading areas, switchyards, fueling areas, bulk storage areas, ash handling areas, areas adjacent to disposal ponds and landfills, maintenance areas, liquid storage tanks, and long term and short-term material storage areas.

VIII.O.7. Sector-Specific Benchmarks. Table VIII.O-1 identifies benchmarks that apply to the specific subsectors of Sector O. These benchmarks apply to both the primary industrial activity and any co-located industrial activities, which describe the site activities.

Table VIII.O-1.		
Subsector (The permittee may be subject to requirements for more than one sector/subsector)	Parameter	Benchmark Monitoring Concentration
Subsector O1. Steam Electric Generating Facilities (Industrial Activity Code "SE")	Total Iron	1.0 mg/L

VIII.O.8. Effluent Limitations Based on Effluent Limitations Guidelines (See also Part VI.B.2.a. of the permit). Table VIII.O-2 identifies effluent limits that apply to the industrial activities described below. Compliance with these effluent limits is to be determined based on discharges from these industrial activities independent of commingling with any other wastestreams that may be covered under this permit.

Table VIII.O-2 ¹		
Industrial Activity	Parameter	Effluent Limit
Discharges from coal storage piles at Steam Electric Generating Facilities	TSS	50 mg/L ²
	pH	6.0 min - 9.0 max

¹ Monitor annually.

² If the facility is designed, constructed, and operated to treat the volume of coal pile runoff that is associated with a 10-year, 24-hour rainfall event, any untreated overflow of coal pile runoff from the treatment unit is not subject to the 50 mg/L limitation for total suspended solids.

VIII.P. Subpart P – Sector P – Land Transportation and Warehousing. The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.P.1. Covered Storm Water Discharges. The requirements in Subpart P apply to stormwater discharges associated with industrial activity from Land Transportation and Warehousing facilities as identified by the SIC Codes specified under Sector P in Table B-1 of Appendix B of the permit.

VIII.P.2. Limitation on Coverage

VIII.P.2.a. *Prohibited Discharges* (see also Parts I.B.3. and VIII.P.3.) This permit does not authorize the discharge of vehicle/equipment/surface washwater, including tank cleaning operations. Such discharges must be authorized under a separate RIPDES permit, discharged to a sanitary sewer in accordance with applicable industrial pretreatment requirements, or recycled on-site.

VIII.P.3. Additional Technology-Based Effluent Limits

VIII.P.3.a. *Good Housekeeping Measures.* (See also Part II.A.2.b.) In addition to the Good Housekeeping requirements in Part II.A.2.b., the permittee must do the following. Recommended control measures are discussed as indicated:

VIII.P.3.a.1. *Vehicle and Equipment Storage Areas.* Minimize the potential for stormwater exposure to leaky or leak-prone vehicles/equipment awaiting maintenance. Consider the following (or other equivalent measures): use of drip pans under vehicles/equipment, indoor storage of vehicles and equipment, installation of berms or dikes, use of absorbents, roofing or covering storage areas, and cleaning pavement surfaces to remove oil and grease.

VIII.P.3.a.2. *Fueling Areas.* Minimize contamination of stormwater runoff from fueling areas. Consider the following (or other equivalent measures): Covering the fueling area; using spill/overflow protection and cleanup equipment; minimizing stormwater run-on/runoff to the fueling area; using dry cleanup methods; and treating and/or recycling collected stormwater runoff.

VIII.P.3.a.3. *Material Storage Areas.* Maintain all material storage vessels (e.g., for used oil/oil filters, spent solvents, paint wastes, hydraulic fluids) to prevent contamination of stormwater and plainly label them (e.g., "Used Oil," "Spent Solvents," etc.). Consider the following (or other equivalent measures): storing the materials indoors; installing berms/dikes around the areas; minimizing runoff of stormwater to the areas; using dry cleanup methods; and treating and/or recycling collected stormwater runoff.

VIII.P.3.a.4. *Vehicle and Equipment Cleaning Areas.* Minimize contamination of stormwater runoff from all areas used for vehicle/equipment cleaning. Consider the following (or other equivalent measures): performing all cleaning operations indoors; covering the cleaning operation, ensuring that all washwater drains to a proper collection system (i.e., not the stormwater drainage system); treating and/or recycling collected washwater, or other equivalent measures.

VIII.P.3.a.5. *Vehicle and Equipment Maintenance Areas.* Minimize contamination of stormwater runoff from all areas used for vehicle/equipment maintenance. Consider the following (or other equivalent measures): performing maintenance activities indoors; using drip pans; keeping an organized inventory of materials used in the shop; draining all parts of fluid prior to disposal; prohibiting wet clean up practices if these practices would result in the discharge of pollutants to stormwater drainage systems; using dry cleanup methods; treating and/or recycling collected stormwater runoff, minimizing run on/runoff of stormwater to maintenance areas.

VIII.P.3.a.6. *Locomotive Sanding (Loading Sand for Traction) Areas.* Consider the following (or other equivalent measures): covering sanding areas; minimizing stormwater run on/runoff; or appropriate sediment removal practices to minimize the offsite transport of sanding material by stormwater.

VIII.P.3.b. *Employee Training.* (See also Part II.A.2.9.i.) Train personnel at least once a year and address the following activities, as applicable: used oil and spent solvent management; fueling procedures; general good housekeeping practices; proper painting procedures; and used battery management.

VIII.P.4. Additional SWMP Requirements

VIII.P.4.a. *Drainage Area Site Map.* (See also Part V.F.2.c.) Identify in the SWMP the following areas of the facility and indicate whether activities occurring there may be exposed to precipitation/surface runoff: Fueling stations; vehicle/equipment maintenance or cleaning

areas; storage areas for vehicle/equipment with actual or potential fluid leaks; loading/unloading areas; areas where treatment, storage or disposal of wastes occur; liquid storage tanks; processing areas; and storage areas.

VIII.P.4.b. *Potential Pollutant Sources.* (See also Part V.F.4.) Assess the potential for the following activities and facility areas to contribute pollutants to stormwater discharges: Onsite waste storage or disposal; dirt/gravel parking areas for vehicles awaiting maintenance; illicit plumbing connections between shop floor drains and the stormwater conveyance system(s); and fueling areas. Describe these activities in the SWMP.

VIII.P.4.c. *Description of Good Housekeeping Measures.* The permittee must document in the SWMP the good housekeeping measures the permittee implements consistent with Part VIII.P.3.

VIII.P.4.d. *Vehicle and Equipment Washwater Requirements.* If applicable, attach to or reference in the SWMP, a copy of the RIPDES permit issued for vehicle/equipment washwater or, if a RIPDES permit has not been issued, a copy of the pending application. If an industrial user permit is issued under a local pretreatment program, attach a copy to the SWMP. In any case, implement all non-stormwater discharge permit conditions or pretreatment conditions in the SWMP. If washwater is handled in another manner (e.g., hauled offsite), describe the disposal method and attach all pertinent documentation/information (e.g., frequency, volume, destination, etc.) in the plan.

VIII.P.5. Additional Inspection Requirements. (See also Part IV.A.) Inspect all the following areas/activities: storage areas for vehicles/equipment awaiting maintenance, fueling areas, indoor and outdoor vehicle/equipment maintenance areas, material storage areas, vehicle/equipment cleaning areas and loading/unloading areas.

VIII.Q. Subpart Q – Sector Q – Water Transportation. The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.Q.1. Covered Storm Water Discharges. The requirements in Subpart Q apply to stormwater discharges associated with industrial activity from Water Transportation facilities as identified by the SIC Codes specified under Sector Q in Table B-1 of Appendix B of the permit.

VIII.Q.2. Limitations on Coverage.

VIII.Q.2.a. *Prohibition of Non-Stormwater Discharges.* (See also Part I.B.3.) Not covered by this permit: bilge and ballast water, sanitary wastes, pressure wash water, and cooling water originating from vessels.

VIII.Q.3. Additional Technology-Based Effluent Limits.

VIII.Q.3.a. *Good Housekeeping Measures.* The permittee must implement the following good housekeeping measures in addition to the requirements of part II.A.2.b.:

VIII.Q.3.a.1. *Pressure Washing Area.* If pressure washing is used to remove marine growth from vessels, the discharge water must be permitted by a separate RIPDES permit. Collect or contain the discharges from the pressures washing area so that they are not co-mingled with stormwater discharges authorized by this permit.

VIII.Q.3.a.2. *Blasting and Painting Area.* Minimize the potential for spent abrasives, paint chips, and overspray to discharge into receiving waters or the storm sewer systems. Consider containing all blasting and painting activities or use other measures to minimize the discharge of contaminants (e.g., hanging plastic barriers or tarpaulins during blasting or painting operations to contain debris). When necessary, regularly clean stormwater

conveyances of deposits of abrasive blasting debris and paint chips.

VIII.Q.3.a.3. *Material Storage Areas.* Store and plainly label all containerized materials (e.g., fuels, paints, solvents, waste oil, antifreeze, batteries) in a protected, secure location away from drains. Minimize the contamination of precipitation or surface runoff from the storage areas. Specify which materials are stored indoors, and consider containment or enclosure for those stored outdoors. If abrasive blasting is performed, discuss the storage and disposal of spent abrasive materials generated at the facility. Consider implementing an inventory control plan to limit the presence of potentially hazardous materials onsite.

VIII.Q.3.a.4. *Engine Maintenance and Repair Areas.* Minimize the contamination of precipitation or surface runoff from all areas used for engine maintenance and repair. Consider the following (or their equivalents): performing all maintenance activities indoors, maintaining an organized inventory of materials used in the shop, draining all parts of fluid prior to disposal, prohibiting the practice of hosing down the shop floor, using dry cleanup methods, and treating and/or recycling stormwater runoff collected from the maintenance area.

VIII.Q.3.a.5. *Material Handling Area.* Minimize the contamination of precipitation or surface runoff from material handling operations and areas (e.g., fueling, paint and solvent mixing, disposal of process wastewater streams from vessels). Consider the following (or their equivalents): covering fueling areas, using spill and overflow protection, mixing paints and solvents in a designated area (preferably indoors or under a shed), and minimizing runoff of stormwater to material handling areas.

VIII.Q.3.a.6. *Drydock Activities.* Routinely maintain and clean the drydock to minimize pollutants in stormwater runoff. Address the cleaning of accessible areas of the drydock prior to flooding, and final cleanup following removal of the vessel and raising the dock. Include procedures for cleaning up oil, grease, and fuel spills occurring on the drydock. Consider the following (or their equivalents): sweeping rather than hosing off debris and spent blasting material from accessible areas of the drydock prior to flooding and making absorbent materials and oil containment booms readily available to clean up or contain any spills.

VIII.O.3.b. *Employee Training.* (See also Part II.A.2.i.) As part of the employee training program, address, at a minimum, the following activities (as applicable): used oil management, spent solvent management, disposal of spent abrasives, disposal of vessel wastewaters, spill prevention and control, fueling procedures, general good housekeeping practices, painting and blasting procedures, and used battery management.

VIII.O.3.c. *Preventive Maintenance.* (See also Part II.A.2.c.) As part of the preventive maintenance program, perform timely inspection and maintenance of stormwater management devices (e.g., cleaning oil and water separators and sediment traps to ensure that spent abrasives, paint chips, and solids will be intercepted and retained prior to entering the storm drainage system), as well as inspecting and testing facility equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters.

VIII.Q.4. Additional SWMP Requirements

VIII.O.4.a. *Drainage Area Site Map.* (See also Part V.F.2.c.) Document in the SWMP where any of the following may be exposed to precipitation or surface runoff: fueling; engine maintenance and repair; vessel maintenance and repair; pressure washing; painting; sanding; blasting; welding; metal fabrication; loading and unloading areas; locations used for the treatment, storage, or disposal of wastes; liquid storage tanks; liquid storage areas (e.g., paint, solvents, resins); and material storage areas (e.g., blasting media, aluminum, steel, scrap iron).

VIII.O.4.b. *Summary of Potential Pollutant Sources.* (See also Part V.F.4.) Document in the SWMP the following additional sources and activities that have potential pollutants associated with them: outdoor manufacturing or processing activities (e.g., welding, metal fabricating) and significant dust or particulate generating processes (e.g., abrasive blasting, sanding, and painting.)

VIII.O.5. Additional Inspection Requirements. (See also Part IV.A.) Include the following in all quarterly routine facility inspections: pressure washing area; blasting, sanding, and painting areas; material storage areas; engine maintenance and repair areas; material handling areas; drydock area; and general yard area.

VIII.O.6. Sector-Specific Benchmarks (See also Part VI. of the permit) Table VIII.Q-1 identifies benchmarks that apply to the specific subsectors of Sector Q. These benchmarks apply to both the primary industrial activity and any co-located industrial activities, which describe the site activities

Subsector (The permittee may be subject to requirements for more than one sector/subsector)	Parameter	Benchmark Monitoring Concentration
Subsector Q1. Water Transportation Facilities (SIC 4412-4499)	Total Aluminum	0.75 mg/L
	Total Iron	1.0 mg/L
	Total Lead ¹ (fresh water discharges)	Hardness Dependent
	Total Lead (salt water discharges)	0.21 mg/L
	Total Zinc ¹ (fresh water discharges)	Hardness Dependent
	Total Zinc (salt water discharges)	0.09 mg/L

¹ The benchmark values of some metals are dependent on water hardness for fresh water discharges. For these parameters, permittees must determine the hardness of the receiving fresh water body (see Appendix D, "Calculating Hardness in Receiving Waters for Hardness Dependent Metals," for methodology), in accordance with Part VI.B.1.a., to identify the applicable 'hardness range' for determining their benchmark value applicable to their facility. The ranges occur in 25 mg/L increments. Hardness Dependent Benchmarks follow in the table below:

Water Hardness Range	Lead (mg/L)	Zinc (mg/L)
0-25 mg/L	0.014	0.04
25-50 mg/L	0.023	0.05
50-75 mg/L	0.045	0.08
75-100 mg/L	0.069	0.11
100-125 mg/L	0.095	0.13
125-150 mg/L	0.122	0.16
150-175 mg/L	0.151	0.18
175-200 mg/L	0.182	0.20
200-225 mg/L	0.213	0.23
225-250 mg/L	0.246	0.25
250+ mg/L	0.262	0.26

VIII.R. Subpart R – Sector R – Ship and Boat Building and Repair Yards. The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.R.1. Covered Storm Water Discharges. The requirements in Subpart R apply to stormwater discharges associated with industrial activity from Ship and Boat Building and Repair Yards as identified by

the SIC Codes specified under Sector R in Table B-1 of Appendix B of the permit.

VIII.R.2. Limitations on Coverage.

VIII.R.2.a. *Prohibition of Non-Stormwater Discharges.* (See also Part I.B.3.) Discharges containing bilge and ballast water, sanitary wastes, pressure wash water, and cooling water originating from vessels are not covered by this permit.

VIII.R.3. Additional Technology-Based Effluent Limits.

VIII.R.3.a. *Good Housekeeping Measures.* (See also Part II.A.2.b.)

VIII.R.3.a.1. *Pressure Washing Area.* If pressure washing is used to remove marine growth from vessels, the discharged water must be permitted as a process wastewater by a separate RIPDES permit.

VIII.R.3.a.2. *Blasting and Painting Area.* Minimize the potential for spent abrasives, paint chips, and overspray to discharging into the receiving water or the storm sewer systems. Consider containing all blasting and painting activities, or use other measures to prevent the discharge of the contaminants (e.g., hanging plastic barriers or tarpaulins during blasting or painting operations to contain debris). When necessary, regularly clean stormwater conveyances of deposits of abrasive blasting debris and paint chips.

VIII.R.3.a.3. *Material Storage Areas.* Store and plainly label all containerized materials (e.g., fuels, paints, solvents, waste oil, antifreeze, batteries) in a protected, secure location away from drains. Minimize the contamination of precipitation or surface runoff from the storage areas. If abrasive blasting is performed, discuss the storage and disposal of spent abrasive materials generated at the facility. Consider implementing an inventory control plan to limit the presence of potentially hazardous materials onsite.

VIII.R.3.a.4. *Engine Maintenance and Repair Areas.* Minimize the contamination of precipitation or surface runoff from all areas used for engine maintenance and repair. Consider the following (or their equivalents): performing all maintenance activities indoors, maintaining an organized inventory of materials used in the shop, draining all parts of fluid prior to disposal, prohibiting the practice of hosing down the shop floor, using dry cleanup methods, and treating and/or recycling stormwater runoff collected from the maintenance area.

VIII.R.3.a.5. *Material Handling Area.* Minimize the contamination of precipitation or surface runoff from material handling operations and areas (e.g., fueling, paint and solvent mixing, disposal of process wastewater streams from vessels). Consider the following (or their equivalents): covering fueling areas, using spill and overflow protection, mixing paints and solvents in a designated area (preferably indoors or under a shed), and minimizing stormwater run-on to material handling areas.

VIII.R.3.a.6. *Drydock Activities.* Routinely maintain and clean the drydock to minimize pollutants in stormwater runoff. Clean accessible areas of the drydock prior to flooding and final cleanup following removal of the vessel and raising the dock. Include procedures for cleaning up oil, grease, or fuel spills occurring on the drydock. Consider the following (or their equivalents): sweeping rather than hosing off debris and spent blasting material from accessible areas of the drydock prior to flooding, and having absorbent materials and oil containment booms readily available to clean up and contain any spills.

VIII.R.3.b. *Employee Training.* (See also Part II.A.2.i.) As part of the employee training program, address, at a minimum, the following activities (as applicable): used oil management, spent solvent management, disposal of spent abrasives, disposal of vessel wastewaters, spill prevention and control, fueling procedures, general good housekeeping practices, painting and blasting

procedures, and used battery management.

VIII.R.3.c. *Preventive Maintenance.* (See also Part II.A.2.c.) As part of the preventive maintenance program, perform timely inspection and maintenance of stormwater management devices (e.g., cleaning oil and water separators and sediment traps to ensure that spent abrasives, paint chips, and solids will be intercepted and retained prior to entering the storm drainage system), as well as inspecting and testing facility equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters.

VIII.R.4. Additional SWMP Requirements.

VIII.R.4.a. *Drainage Area Site Map.* (See also Part V.F.2.c.) Document in the SWMP where any of the following may be exposed to precipitation or surface runoff: fueling; engine maintenance or repair; vessel maintenance or repair; pressure washing; painting; sanding; blasting; welding; metal fabrication; loading and unloading areas; treatment, storage, and waste disposal areas; liquid storage tanks; liquid storage areas (e.g., paint, solvents, resins); and material storage areas (e.g., blasting media, aluminum, steel, scrap iron).

VIII.R.4.b. *Potential Pollutant Sources.* (See also Part V.F.4.) Document in the SWMP the following additional sources and activities that have potential pollutants associated with them (if applicable): outdoor manufacturing or processing activities (e.g., welding, metal fabricating) and significant dust or particulate generating processes (e.g., abrasive blasting, sanding, and painting).

VIII.R.4.c. *Documentation of Good Housekeeping Measures.* Document in the SWMP any good housekeeping measures implemented to meet the effluent limits in Part VIII.R.3.

VIII.R.4.c.1. *Blasting and Painting Areas.* Document in the SWMP any standard operating practices relating to blasting and painting (e.g., prohibiting uncontained blasting and painting over open water or prohibiting blasting and painting during windy conditions, which can render containment ineffective).

VIII.R.4.c.2 *Storage Areas.* Specify in the SWMP which materials are stored indoors, and consider containment or enclosure for those stored outdoors.

VIII.R.5. Additional Inspection Requirements. (See also Part IV.A.) Include the following in all quarterly routine facility inspections: pressure washing area; blasting, sanding, and painting areas; material storage areas; engine maintenance and repair areas; material handling areas; drydock area; and general yard area.

VIII.R.6. Sector-Specific Benchmarks (See also Part V.I of the permit) Table VIII.R-1 identifies benchmarks that apply to the specific subsectors of Sector R. These benchmarks apply to both the primary industrial activity and any co-located industrial activities, which describe the site activities

Subsector (The permittee may be subject to requirements for more than one sector/subsector)	Parameter	Benchmark Monitoring Concentration
Subsector R1. Ship and Boat Building and Repair Facilities (SIC 3731, 3732)	Total Aluminum	0.75 mg/L
	Total Iron	1.0 mg/L
	Total Lead ¹ (fresh water discharges)	Hardness Dependent
	Total Lead (salt water discharges)	0.21 mg/L
	Total Zinc ¹ (fresh water discharges)	Hardness Dependent
	Total Zinc (salt water discharges)	0.09 mg/L

¹ The benchmark values of some metals are dependent on water hardness for fresh water discharges. For these parameters, permittees must determine the hardness of the receiving fresh water body (see Appendix D, "Calculating Hardness in Receiving Waters for Hardness Dependent Metals," for methodology), in accordance with Part VI.B.1.a., to identify the applicable 'hardness range' for determining their benchmark value applicable to their facility. The ranges occur in 25 mg/L increments. Hardness Dependent Benchmarks follow in the table below:

Water Hardness Range	Lead (mg/L)	Zinc (mg/L)
0-25 mg/L	0.014	0.04
25-50 mg/L	0.023	0.05
50-75 mg/L	0.045	0.08
75-100 mg/L	0.069	0.11
100-125 mg/L	0.095	0.13
125-150 mg/L	0.122	0.16
150-175 mg/L	0.151	0.18
175-200 mg/L	0.182	0.20
200-225 mg/L	0.213	0.23
225-250 mg/L	0.246	0.25
250+ mg/L	0.262	0.26

VIII.S. Subpart S – Sector S – Air Transportation. The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.S.1. Covered Storm Water Discharges. The requirements in Subpart S apply to stormwater discharges associated with industrial activity from Air Transportation facilities identified by the SIC Codes specified under Sector S in Table B-1 of Appendix B of the permit.

VIII.S.2. Limitations on Coverage.

VIII.S.2.a. *Limitations on Coverage.* This permit authorizes stormwater discharges from only those portions of the air transportation facility that are involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling and lubrication), equipment cleaning operations or deicing operations.

Note: "deicing" will generally be used to imply both deicing (removing frost, snow or ice) and anti-icing (preventing accumulation of frost, snow or ice) activities, unless specific mention is made regarding anti-icing and/or deicing activities.

VIII.S.2.b. *Prohibition of Non-Stormwater Discharges.* (See also Part I.B.3. and Part VIII.S.3.) This permit does not authorize the discharge of aircraft, ground vehicle, runway and equipment

washwaters; nor the dry weather discharge of deicing chemicals. Such discharges must be covered by separate RIPDES permit(s). Note that a discharge resulting from snowmelt is not a dry weather discharge.

VIII.S.3. Multiple Operators at Air Transportation Facilities

Air transportation facilities often have more than one operator who could discharge stormwater associated with industrial activity. Operators include the airport authority and airport tenants, including air passenger or cargo companies, fixed based operators, and other parties who routinely perform industrial activities on airport property.

VIII.S.3.a. *Permit Coverage/Submittal of NOIs.* Where an airport transportation facility has multiple industrial operators that discharge stormwater, each individual operator must obtain coverage under a RIPDES stormwater permit. To obtain coverage under the MSGP, all such operators must meet the eligibility requirements in Part I. and must submit an NOI, per Part I.C. (or, if appropriate, a no exposure certification per Part I.E.).

VIII.S.3.b. *MSGP Implementation Responsibilities for Airport Authority and Tenants.* The airport authority, in collaboration with its tenants, may choose to implement certain MSGP requirements on behalf of its tenants in order to increase efficiency and eliminate redundancy or duplication of effort. Options available to the airport authority and its tenants for implementation of MSGP requirements include:

- The airport authority performs certain activities on behalf of itself and its tenants and reports on its activities;
- Tenants provide the airport authority with relevant inputs about tenants' activities, including deicing chemical usage*, and the airport authority compiles and reports on tenants' and its own activities;
- Tenants independently perform, document and submit required information on their activities.

VIII.S.3.c. *SWMP Requirements.* A single comprehensive SWMP must be developed for all stormwater discharges associated with industrial activity at the airport before submittal of any NOIs. The comprehensive SWMP should be developed collaboratively by the airport authority and tenants. If any operator develops a SWPPP for discharges from its own areas of the airport, that SWMP must be coordinated and integrated with the comprehensive SWMP. All operators and their separate SWMP contributions and compliance responsibilities must be clearly identified in the comprehensive SWMP, which all operators must sign and certify per Part V.F.10. As applicable, the SWMP must clearly specify the MSGP requirements to be complied with by:

- The airport authority for itself;
- The airport authority on behalf of its tenants;
- Tenants for themselves.

For each activity that an operator (e.g., the airport authority) conducts on behalf of another operator (e.g., a tenant), the SWPPP must describe a process for reporting results to the latter operator and for ensuring appropriate follow-up, if necessary, by all affected operators. This is to ensure all actions are taken to correct any potential deficiencies or permit violations. For example, where the airport authority is conducting monitoring for itself and its tenants, the SWPPP must identify how the airport authority will share the monitoring results with its tenants, and then follow-up with its tenants where there are any exceedances of benchmarks, effluent limits, or water quality standards. In turn, the SWPPP must describe how the tenants will also follow-up to ensure permit compliance.

VIII.S.3.d. *Duty to Comply.* All individual operators are responsible for implementing their assigned portion of the comprehensive SWPPP, and operators must ensure that their individual activities do not render another operator's stormwater controls ineffective. In addition, the standard permit conditions found in Appendix B apply to each individual operator, including B.1 Duty to Comply (which states, in part, "You [each individual operator] must comply with all conditions of this permit."). For multiple operators at an airport this means that each individual operator remains responsible for ensuring all requirements of its own MSGP are met regardless of whether the comprehensive SWPPP allocates the actual implementation of any of those responsibilities to another entity. That is, the failure of the entity allocated responsibility in the SWPPP to implement an MSGP requirement on behalf of other operators does not negate the other operators' ultimate liability.

VIII.S.4. Additional Technology-Based Effluent Limits.

VIII.S.4.a. *Good Housekeeping Measures.* (See also Part II.A.2.b.)

VIII.S.4.a.1. Aircraft, Ground Vehicle and Equipment Maintenance Areas. Minimize the contamination of stormwater runoff from all areas used for aircraft, ground vehicle and equipment maintenance (including the maintenance conducted on the terminal apron and in dedicated hangars). Consider the following practices (or their equivalents): performing maintenance activities indoors; maintaining an organized inventory of material used in the maintenance areas; draining all parts of fluids prior to disposal; prohibiting the practice of hosing down the apron or hanger floor; using dry cleanup methods; and collecting the stormwater runoff from the maintenance area and providing treatment or recycling.

VIII.S.4.a.2. Aircraft, Ground Vehicle and Equipment Cleaning Areas. (See also Part VIII.S.4.c.) Clearly demarcate these areas on the ground using signage or other appropriate means. Minimize the contamination of stormwater runoff from cleaning areas.

VIII.S.4.a.3. Aircraft, Ground Vehicle and Equipment Storage Areas. Store all aircraft, ground vehicles and equipment awaiting maintenance in designated areas only and minimize the contamination of stormwater runoff from these storage areas. Consider the following control measures, including any BMPs (or their equivalents): storing aircraft and ground vehicles indoors; using drip pans for the collection of fluid leaks; and perimeter drains, dikes or berms surrounding the storage areas.

VIII.S.4.a.4. Material Storage Areas. Maintain the vessels of stored materials (e.g., used oils, hydraulic fluids, spent solvents, and waste aircraft fuel) in good condition, to prevent or minimize contamination of stormwater. Also plainly label the vessels (e.g., "used oil," "Contaminated Jet A," etc.). Minimize contamination of precipitation/runoff from these areas. Consider the following control measures (or their equivalents): storing materials indoors; storing waste materials in a centralized location; and installing berms/dikes around storage areas.

VIII.S.4.a.5. Airport Fuel System and Fueling Areas. Minimize the discharge of pollutants in stormwater from airport fuel system and fueling areas through implementation of control measures such as the following, where determined to be feasible and that accommodate considerations of safety, space, operational constraints, and flight considerations (list not exclusive): implementing spill and overflow practices (e.g., placing absorptive materials beneath aircraft during fueling operations); using only dry cleanup methods; and collecting stormwater runoff. If you have implemented a SPCC plan developed in accordance with the 2006 amendments to the SPCC rule, you may cite the relevant aspects from your SPCC plan that comply with the requirements of this section in your SWPPP.

VIII.S.4.a.6. Source Reduction. Minimize, and where feasible eliminate, the use of urea and glycol-

based deicing chemicals, in order to reduce the aggregate amount of deicing chemicals used and/or lessen the environmental impact. Chemical options to replace ethylene glycol, propylene glycol and urea include: potassium acetate; magnesium acetate; calcium acetate; and anhydrous sodium acetate.

- VIII.S.4.a.6.i. Runway Deicing Operation: Minimize contamination of stormwater runoff from runways as a result of deicing operations. Evaluate whether over-application of deicing chemicals occurs by analyzing application rates, and adjust as necessary, consistent with considerations of flight safety. Also consider these control measure options (or their equivalents): metered application of chemicals; pre-wetting dry chemical constituents prior to application; installing a runway ice detection system; implementing anti-icing operations as a preventive measure against ice buildup.
- VIII.S.4.a.6.ii. Aircraft Deicing Operations. Minimize the discharge of pollutants in stormwater from deicing chemicals in runoff. To minimize discharges of pollutants from aircraft deicing, implement control measures such as the following, where determined to be feasible and that accommodate considerations of safety, space, operational constraints, and flight considerations (list not exclusive) installing a centralized deicing pad to recover deicing fluid following application; plug-and-pump (PnP); using vacuum/collection trucks (glycol recovery vehicles); storing contaminated stormwater/deicing fluids in tanks; recycling collected deicing fluid where feasible; releasing controlled amounts to a publicly owned treatment works; separation of contaminated snow; conveying contaminated runoff into a stormwater impoundment for biochemical decomposition (be aware of attracting wildlife that may prove hazardous to flight operations); and directing runoff into vegetative swales or other infiltration measures. To minimize discharges of pollutants from runway deicing, implement control measures such as the following, where determined to be feasible and that accommodate considerations of safety, space, operational constraints, and flight considerations (list not exclusive): mechanical systems (snow plows, brushes), conveying contaminated runoff into swales and/or a stormwater impoundment, and pollution prevention practices such as ice detection systems, airfield prewetting, and heating sand. Consider using ice-detection systems and airport traffic flow strategies and departure slot allocation systems where feasible and that accommodate considerations of safety, space, operational constraints, and flight considerations. The evaluations and determinations required by this Part should be carried out by the personnel most familiar with the particular aircraft and flight operations and related systems in question (versus an outside entity such as the airport authority).
- VIII.S.4.a.7. Management of Runoff. (See also II.A.2.f.) Where deicing operations occur, implement a program to control or manage contaminated runoff to minimize the amount of pollutants being discharged from the site. Consider these control measure options (or their equivalents): a dedicated deicing facility with a runoff collection/ recovery system; using vacuum/collection trucks; storing contaminated stormwater/deicing fluids in tanks and releasing controlled amounts to a publicly owned treatment works; collecting contaminated runoff in a wet pond for biochemical decomposition (be aware of attracting wildlife that may prove hazardous to flight operations); and directing runoff into vegetative swales or other infiltration measures. Also consider recovering deicing materials when these materials are applied during non-precipitation events (e.g., covering storm sewer inlets, using booms, installing absorptive interceptors in the drains, etc.) to prevent these materials from later becoming a source of stormwater contamination. Used deicing fluid should be recycled whenever possible.

When applying deicing fluids during non-precipitation events (also referred to as “clear ice deicing”), implement control measures to prevent unauthorized discharge of pollutants (dry-weather discharges of pollutants would need coverage under a RIPDES wastewater permit), or to minimize the discharge of pollutants from deicing fluids in

later stormwater discharges, such as the following, where determined to be feasible and that accommodate considerations safety, space, operational constraints, and flight considerations (list not exclusive): recovering deicing fluids; preventing the fluids from entering storm sewers or other stormwater discharge conveyances (e.g., covering storm sewer inlets, using booms, installing absorptive interceptors in the drains); releasing controlled amounts to a publicly owned treatment works Used deicing fluid should be recycled whenever practicable

VIII.S.4.b. *Deicing Season.* The permittee must determine the seasonal timeframe (e.g., December-February, October - March, etc.) during which deicing activities typically occur at the facility. Implementation of control measures, including any BMPs, facility inspections and monitoring must be conducted with particular emphasis throughout the defined deicing season. If the facility meets the deicing chemical usage thresholds of 100,000 gallons glycol and/or 100 tons of urea, the deicing season the permittee identified is the timeframe during which the permittee must obtain the four required benchmark monitoring event results for deicing-related parameters, i.e., BOD, COD, ammonia and pH. See also Part VIII.S.6.

VIII.S.5. Additional SWMP Requirements. An airport authority and tenants of the airport are encouraged to work in partnership in the development of a SWMP. If an airport tenant obtains authorization under this permit and develops a SWMP for discharges from his own areas of the airport, prior to authorization, that SWMP must be coordinated and integrated with the SWMP for the entire airport. Tenants of the airport facility include air passenger or cargo companies, fixed based operators and other parties who have contracts with the airport authority to conduct business operations on airport property and whose operations result in stormwater discharges associated with industrial activity.

VIII.S.5.a. *Drainage Area Site Map.* (See also Part V.F.2.c.) Document in the SWMP the following areas of the facility and indicate whether activities occurring there may be exposed to precipitation/surface runoff: aircraft and runway deicing operations; fueling stations; aircraft, ground vehicle and equipment maintenance/cleaning areas; storage areas for aircraft, ground vehicles and equipment awaiting maintenance.

VIII.S.5.b. *Potential Pollutant Sources.* (See also Part V.F.4.) In the inventory of exposed materials, describe in the SWMP the potential for the following activities and facility areas to contribute pollutants to stormwater discharges: aircraft, runway, ground vehicle and equipment maintenance and cleaning; aircraft and runway deicing operations (including apron and centralized aircraft deicing stations, runways, taxiways and ramps). If the permittee uses deicing chemicals, the permittee must maintain a record of the types (including the Material Safety Data Sheets [MSDS]) used and the monthly quantities, either as measured or, in the absence of metering, as estimated to the best of the permittee's knowledge. This includes all deicing chemicals, not just glycols and urea (e.g., potassium acetate), because large quantities of these other chemicals can still have an adverse impact on receiving waters. Tenants or other fixed-based operations that conduct deicing operations must provide the above information to the airport authority for inclusion with any comprehensive airport SWMPs.

VIII.S.5.c. *Vehicle and Equipment Washwater Requirements.* Attach to or reference in the SWMP, a copy of the RIPDES permit issued for vehicle/equipment washwater or, if a RIPDES permit has not been issued, a copy of the pending application. If an industrial user permit is issued under a local pretreatment program, include a copy in the SWMP. In any case, if the permittee is subject to another permit, the control measures for implementing all non-stormwater discharge permit conditions or pretreatment requirements must be described in the SWMP. If washwater is handled in another manner (e.g., hauled offsite, retained onsite), the disposal method must be described and attach all pertinent documentation/information (e.g., frequency, volume, destination, etc.) in the SWMP.

VIII.S.5.d. *Documentation of Control Measures Used for Management of Runoff:* Document in the SWMP the control measures used for collecting or containing contaminated melt water from

collection areas used for disposal of contaminated snow.

VIII.S.6. Additional Inspection Requirements.

VIII.S.6.a. *Inspections.* (See also Part IV.A.) At a minimum conduct routine facility inspections at least monthly during the deicing season (e.g., October through April for most mid-latitude airports). If the facility needs to deice before or after this period, expand the monthly inspections to include all months during which deicing chemicals may be used. The Director may specifically require the permittee to increase inspection frequencies.

VIII.S.7. Sector-Specific Benchmarks (See also Part VI.) Table VIII.S-1 identifies benchmarks that apply to the specific subsectors of Sector S These benchmarks apply to both the primary industrial activity and any co-located industrial activities, which describe the site activities.

Subsector (The permittee may be subject to requirements for more than one sector/subsector)	Parameter	Benchmark Monitoring Concentration
For airports where a single permittee, or a combination of permitted facilities use more than 100,000 gallons of glycol-based deicing chemicals and/or 100 tons or more of urea on an average annual basis, monitor the first four parameters in ONLY those outfalls that collect runoff from areas where deicing activities occur (SIC 4512-4581).	Biochemical Oxygen Demand (BOD ₅) ¹	30 mg/L
	Chemical Oxygen Demand (COD) ¹	120 mg/L
	Ammonia ¹	2.14 mg/L
	pH ¹	6.0 - 9.0 s.u.

¹ These are deicing-related parameters. Collect the four benchmark samples, and any required follow-up benchmark samples, during the timeframe defined in Part VIII.S.3., when deicing activities are occurring.

VIII.S.8. Effluent Limitations Based on Effluent Limitations Guidelines. (See also Part VI.B.2. of the permit.)

VIII.S.8.a. *Airfield Pavement Deicing.* For both existing and new primary airports with 1,000 or more annual non-propeller aircraft departures that discharge stormwater from airfield pavement deicing activities, such airports must either use non-urea-containing deicers or meet the effluent limitation in Table VIII.-S-2.

VIII.S.8.b. *Aircraft Deicing.* Airports meeting the definition of a new source (“new airports”) with 10,000 annual departures located in cold climate zones must collect 60 percent of aircraft deicing fluid after deicing. See 40 CFR 449.11 for the Airport Effluent Limitation Guidelines requirements for this new source category. Discharges of the collected aircraft deicing fluid directly to waters of the State are not eligible for coverage under this permit.

VIII.S.8.c. *Monitoring, Reporting and Recordkeeping.* For new airports subject to the effluent limitations in VIII.S.7.b, the permittee must comply with the monitoring, reporting and recordkeeping requirements outlined in 40 CFR 449.20(a)(1) and (2).

Industrial Activity	Parameter	Effluent Limitation
Runoff containing urea from airfield pavement deicing at existing and new primary airports with 1,000 or more annual non-propeller aircraft departures	Ammonia as Nitrogen	14.7 mg/L, daily maximum

VIII.T. **Subpart T – Sector T – Treatment Works.** The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those

sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.T.1. Covered Storm Water Discharges. The requirements in Subpart T apply to stormwater discharges associated with industrial activity from Treatment Works as identified by the Activity Code specified under Sector T in Table B-1 of Appendix B of the permit.

VIII.T.2. Industrial Activities Covered by Sector T. The requirements listed under this part apply to all existing point source stormwater discharges associated with the following activities:

VIII.T.2.a. Treatment works treating domestic sewage, or any other sewage sludge or wastewater treatment device or system used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge; that are located within the confines of a facility with a design flow of 1.0 million gallons per day (MGD) or more; or are required to have an approved pretreatment program under 40 CFR Part 403.

VIII.T.2.b. The following are not required to have permit coverage: farm lands, domestic gardens or lands used for sludge management where sludge is beneficially reused and which are not physically located within the facility, or areas that are in compliance with Section 405 of the CWA.

VIII.T.3. Limitations on Coverage.

VIII.T.3.a. *Prohibition of Non-Stormwater Discharges.* (See also Part I.B.3.) Sanitary and industrial wastewater and equipment and vehicle washwater are not authorized by this permit.

VIII.T.4. Additional Technology-Based Effluent Limits.

VIII.T.4.a. *Control Measures.* (See also the non-numeric effluent limits in Part II.A.2.) In addition to the other control measures, consider the following: routing stormwater to the treatment works; or covering exposed materials (i.e., from the following areas: grit, screenings, and other solids handling, storage, or disposal areas; sludge drying beds; dried sludge piles; compost piles; and septage or hauled waste receiving station).

VIII.T.4.b. *Employee Training.* (See also Part II.A.2.i.) At a minimum, training must address the following areas when applicable to a facility: petroleum product management; process chemical management; spill prevention and controls; fueling procedures; general good housekeeping practices; and proper procedures for using fertilizer, herbicides, and pesticides.

VIII.T.5. Additional SWMP Requirements.

VIII.T.4.a. *Site Map.* (See also Part V.F.2.c.) Document in the SWMP where any of the following may be exposed to precipitation or surface runoff: grit, screenings, and other solids handling, storage, or disposal areas; sludge drying beds; dried sludge piles; compost piles; septage or hauled waste receiving station; and storage areas for process chemicals, petroleum products, solvents, fertilizers, herbicides, and pesticides.

VIII.T.4.b. *Potential Pollutant Sources.* (See also Part V.F.4.) Document in the SWMP the following additional sources and activities that have potential pollutants associated with them, as applicable: grit, screenings, and other solids handling, storage, or disposal areas; sludge drying beds; dried sludge piles; compost piles; septage or hauled waste receiving station; and access roads and rail lines.

VIII.T.4.c. *Wastewater and Washwater Requirements.* Keep a copy of all the current RIPDES permits issued for wastewater and industrial, vehicle and equipment washwater discharges or, if a RIPDES permit has not yet been issued, a copy of the pending application(s) with the SWMP. If the washwater is handled in another manner, the disposal method must be described and

all pertinent documentation must be retained onsite.

VIII.T.6. Additional Inspection Requirements. (See also Part IV.A.) Include the following areas in all inspections: access roads and rail lines; grit, screenings, and other solids handling, storage, or disposal areas; sludge drying beds; dried sludge piles; compost piles; and septage or hauled waste receiving station.

VIII.U. Subpart U – Sector U – Food and Kindred Products. The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.U.1. Covered Storm Water Discharges. The requirements in Subpart U apply to stormwater discharges associated with industrial activity from Food and Kindred Products facilities as identified by the SIC Codes specified in Table B-1 of Appendix B of the permit.

VIII.U.2. Limitations on Coverage.

VIII.U.2.a. *Prohibition of Non-Stormwater Discharges.* (See also Part I.B.3.) The following discharges are not authorized by this permit: discharges containing boiler blowdown, cooling tower overflow and blowdown, ammonia refrigeration purging, and vehicle washing and clean-out operations.

VIII.U.3. Additional Technology-Based Limitations.

VIII.U.3.a. *Employee Training.* (See also Part II.A.2.i.) Address pest control in the employee training program.

VIII.U.4. Additional SWMP Requirements.

VIII.U.4.a. *Drainage Area Site Map.* (See also Part V.F.2.c.) Document in the SWMP the locations of the following activities if they are exposed to precipitation or runoff: vents and stacks from cooking, drying, and similar operations; dry product vacuum transfer lines; animal holding pens; spoiled product; and broken product container storage areas.

VIII.U.4.b. *Potential Pollutant Sources.* (See also Part V.F.4.) Document in the SWMP, in addition to food and kindred products processing-related industrial activities, application and storage of pest control chemicals (e.g., rodenticides, insecticides, fungicides) used on plant grounds.

VIII.U.5. Additional Inspection Requirements (See also Part IV.A.). Inspect on a quarterly basis, at a minimum, the following areas where the potential for exposure to stormwater exists: loading and unloading areas for all significant materials; storage areas, including associated containment areas; waste management units; vents and stacks emanating from industrial activities; spoiled product and broken product container holding areas; animal holding pens; staging areas; and air pollution control equipment.

VIII.U.6. Sector-Specific Benchmarks (See also Part VI. of the permit) Table VIII.U-1 identifies benchmarks that apply to the specific subsectors of Sector U. These benchmarks apply to both the primary industrial activity and any co-located industrial activities, which describe the site activities

Table VIII.U-1.		
Subsector (The permittee may be subject to requirements for more than one Sector / Subsector)	Parameter	Benchmark Monitoring Concentration
Subsector U1. Grain Mill Products (SIC 2041-2048)	Total Suspended Solids (TSS)	100 mg/L
Subsector U2. Fats and Oils Products (SIC 2074-2079)	Biochemical Oxygen Demand (BOD5)	30 mg/L
	Chemical Oxygen Demand (COD)	120 mg/L
	Nitrate plus Nitrite Nitrogen	0.68 mg/L
	Total Suspended Solids (TSS)	100 mg/L

VIII.V. Subpart V – Sector V – Textile Mills, Apparel and Other Fabric Products. The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.V.1. Covered Storm Water Discharges. The requirements in Subpart V apply to stormwater discharges associated with industrial activity from Textile Mills, Apparel, and Other Fabric Product manufacturing as identified by the SIC Codes specified under Sector V in Table B-1 of Appendix B of the permit.

VIII.V.2. Limitations on Coverage.

VIII.V.2.a. *Prohibition of Non-Stormwater Discharges.* (See also Part I.B.3.) The following are not authorized by this permit: discharges of wastewater (e.g., wastewater resulting from wet processing or from any processes relating to the production process), reused or recycled water, and waters used in cooling towers. If the permittee has these types of discharges from the facility, the permittee must cover them under a separate RIPDES permit.

VIII.V.3. Additional Technology-Based Limitations.

VIII.V.3.a. *Good Housekeeping Measures.* (See also Part II.A.2.b.)

VIII.V.3.a.1. *Material Storage Areas.* Plainly label and store all containerized materials (e.g., fuels, petroleum products, solvents, and dyes) in a protected area, away from drains. Minimize contamination of the stormwater runoff from such storage areas. Also consider an inventory control plan to prevent excessive purchasing of potentially hazardous substances. For storing empty chemical drums or containers, ensure that the drums and containers are clean (consider triple-rinsing) and that there is no contact of residuals with precipitation or runoff. Collect and dispose of washwater from these cleanings properly.

VIII.V.3.a.2. *Material Handling Areas.* Minimize contamination of stormwater runoff from material handling operations and areas. Consider the following (or their equivalents): use of spill and overflow protection; covering fueling areas; and covering or enclosing areas where the transfer of material may occur. When applicable, address the replacement or repair of leaking connections, valves, transfer lines, and pipes that may carry chemicals, dyes, or wastewater.

VIII.V.3.a.3. *Fueling Areas.* Minimize contamination of stormwater runoff from fueling areas. Consider the following (or their equivalents): covering the fueling area, using spill and overflow protection, minimizing run-on of stormwater to the fueling areas, using dry cleanup methods, and treating and/or recycling stormwater runoff collected from the fueling area.

VIII.V.3.a.4. *Above-Ground Storage Tank Area.* Minimize contamination of the stormwater runoff from above-ground storage tank areas, including the associated piping and valves. Consider the following (or their equivalents): regular cleanup of these areas; including measures for tanks, piping and valves explicitly in the SPCC program; minimizing runoff of stormwater from adjacent areas; restricting access to the area; inserting filters in adjacent catch basins; providing absorbent booms in unbermed fueling areas; using dry cleanup methods; and permanently sealing drains within critical areas that may discharge to a storm drain.

VIII.V.3.b. *Employee Training.* (See also Part II.A.2.i.) As part of the employee training program, address, at a minimum, the following activities (as applicable): use of reused and recycled waters, solvents management, proper disposal of dyes, proper disposal of petroleum products and spent lubricants, spill prevention and control, fueling procedures, and general good housekeeping practices.

VIII.V.4. Additional SWMP Requirements.

VIII.V.4.a. *Potential Pollutant Sources.* (See also Part V.F.4.) Document in the SWMP the following additional sources and activities that have potential pollutants associated with them: industry-specific significant materials and industrial activities (e.g., backwinding, beaming, bleaching, backing bonding, carbonizing, carding, cut and sew operations, desizing, drawing, dyeing, locking, fulling, knitting, mercerizing, opening, packing, plying, scouring, slashing, spinning, synthetic-felt processing, textile waste processing, tufting, turning, weaving, web forming, winging, yarn spinning, and yarn texturing).

VIII.V.4.b. *Description of Good Housekeeping Measures for Material Storage Areas.* Document in the SWMP the containment area or enclosure for materials stored outdoors in connection with Part VIII.3.a.i. above.

VIII.V.5. Additional Inspection Requirements (See also Part IV.A.). Inspect, at least monthly, the following activities and areas (at a minimum): transfer and transmission lines, spill prevention, good housekeeping practices, management of process waste products, and all structural and nonstructural management practices.

VIII.V.6. Sector-Specific Benchmarks (See also Part VI. of the permit)

VIII.W. Subpart W – Sector W – Furniture and Fixtures. The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.W.1. Covered Storm Water Discharges. The requirements in Subpart W apply to stormwater discharges associated with industrial activity from Furniture and Fixtures facilities as identified by the SIC Codes specified under Sector W in Table B-1 of Appendix B of the permit.

VIII.W.2. Additional SWMP Requirements.

VIII.W.2.a. *Drainage Area Site Map.* (See also Part V.F.2.c.) Document in the SWMP where any of the following may be exposed to precipitation or surface runoff: material storage (including tanks or other vessels used for liquid or waste storage) areas; outdoor material processing areas; areas where wastes are treated, stored, or disposed of; access roads; and rail spurs.

VIII.X. Subpart X – Sector X – Printing and Publishing. The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific

activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.X.1. Covered Storm Water Discharges. The requirements in Subpart X apply to stormwater discharges associated with industrial activity from Printing and Publishing facilities as identified by the SIC Codes specified under Sector X in Table B-1 of Appendix B of the permit.

VIII.X.2. Additional Technology-Based Effluent Limits.

VIII.X.2.a. *Good Housekeeping Measures.* (See also Part II.A.2.b.)

VIII.X.2.a.1. *Material Storage Areas.* Plainly label and store all containerized materials (e.g., skids, pallets, solvents, bulk inks, hazardous waste, empty drums, portable and mobile containers of plant debris, wood crates, steel racks, and fuel oil) in a protected area, away from drains. Minimize contamination of the stormwater runoff from such storage areas. Also consider an inventory control plan to prevent excessive purchasing of potentially hazardous substances.

VIII.X.2.a.2. *Material Handling Area.* Minimize contamination of stormwater runoff from material handling operations and areas (e.g., blanket wash, mixing solvents, loading and unloading materials). Consider the following (or their equivalents): using spill and overflow protection, covering fueling areas, and covering or enclosing areas where the transfer of materials may occur. When applicable, address the replacement or repair of leaking connections, valves, transfer lines, and pipes that may carry chemicals or wastewater.

VIII.X.2.a.3. *Fueling Areas.* Minimize contamination of stormwater runoff from fueling areas. Consider the following (or their equivalents): covering the fueling area, using spill and overflow protection, minimizing runoff of stormwater to the fueling areas, using dry cleanup methods, and treating and/or recycling stormwater runoff collected from the fueling area.

VIII.X.2.a.4. *Above Ground Storage Tank Area.* Minimize contamination of the stormwater runoff from above-ground storage tank areas, including the associated piping and valves. Consider the following (or their equivalents): regularly cleaning these areas, explicitly addressing tanks, piping and valves in the SPCC program, minimizing stormwater runoff from adjacent areas, restricting access to the area, inserting filters in adjacent catch basins, providing absorbent booms in unbermed fueling areas, using dry cleanup methods, and permanently sealing drains within critical areas that may discharge to a storm drain.

VIII.X.2.b. *Employee Training.* (See also Part II.A.2.i.) As part of the employee training program, address, at a minimum, the following activities (as applicable): spent solvent management, spill prevention and control, used oil management, fueling procedures, and general good housekeeping practices.

VIII.X.3. Additional SWMP Requirements.

VIII.X.3.a. *Description of Good Housekeeping Measures for Material Storage Areas.* In connection with Part VIII.X.2.a.i., describe in the SWMP the containment area or enclosure for materials stored outdoors.

VIII.Y. Subpart Y – Sector Y – Rubber, Miscellaneous Plastic Products, and Miscellaneous Manufacturing Industries. The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.Y.1. Covered Storm Water Discharges. The requirements in Subpart Y apply to stormwater discharges associated with industrial activity from Rubber, Miscellaneous Plastic Products, and Miscellaneous Manufacturing Industries facilities as identified by the SIC Codes specified under Sector Y in Table B-1 of Appendix B of the permit.

VIII.Y.2. Additional Technology-Based Effluent Limits.

VIII.Y.2.a. *Controls for Rubber Manufacturers.* (See also Part II.A.2.) Minimize the discharge of zinc in the stormwater discharges. Parts VIII.Y.2.a.i. to VIII.Y.2.a.v. give possible sources of zinc to be reviewed and list some specific control measures to be considered for implementation (or their equivalents). Following are some general control measure options to consider: using chemicals purchased in pre-weighed, sealed polyethylene bags; storing in-use materials in sealable containers, ensuring an airspace between the container and the cover to minimize “puffing” losses when the container is opened, and using automatic dispensing and weighing equipment.

VIII.Y.2.a.1. *Zinc Bags.* Ensure proper handling and storage of zinc bags at the facility. Following are some control measure options: employee training on the handling and storage of zinc bags, indoor storage of zinc bags, cleanup of zinc spills without washing the zinc into the storm drain, and the use of 2,500-pound sacks of zinc rather than 50- to 100-pound sacks.

VIII.Y.2.a.2. *Dumpsters.* Minimize discharges of zinc from dumpsters. Following are some control measure options: covering the dumpster, moving the dumpster indoors, or providing a lining for the dumpster.

VIII.Y.2.a.3. *Dust Collectors and Baghouses.* Minimize contributions of zinc to stormwater from dust collectors and baghouses. Replace or repair, as appropriate, improperly operating dust collectors and baghouses.

VIII.Y.2.a.4. *Grinding Operations.* Minimize contamination of stormwater as a result of dust generation from rubber grinding operations. One control measure option is to install a dust collection system.

VIII.Y.2.a.5. *Zinc Stearate Coating Operations.* Minimize the potential for stormwater contamination from drips and spills of zinc stearate slurry that may be released to the storm drain. One control measure option is to use alternative compounds to zinc stearate.

VIII.Y.2.b. *Controls for Plastic Products Manufacturers.* Minimize the discharge of plastic resin pellets in the stormwater discharges. Control measures to be considered for implementation (or their equivalents) include minimizing spills, cleaning up of spills promptly and thoroughly, sweeping thoroughly, pellet capturing, employee education, and disposal precautions.

VIII.Y.3. Additional SWMP Requirements.

VIII.Y.3.a. *Potential Pollutant Sources for Rubber Manufacturers.* (See also Part V.F.4.) Document in the SWMP the use of zinc at the facility and the possible pathways through which zinc may be discharged in stormwater runoff.

VIII.Y.4. Sector-Specific Benchmarks (See also Part VI. of the permit) Table VIII.Y-1 identifies benchmarks that apply to the specific subsectors of Sector Y. These benchmarks apply to both the primary industrial activity and any co-located industrial activities, which describe the site activities

Subsector (The permittee may be subject to requirements for more than one sector/subsector)	Parameter	Benchmark Monitoring Concentration
Subsector Y1. Rubber Products Manufacturing (SIC 3011, 3021, 3052, 3053, 3061, 3069)	Total Zinc ¹ (fresh water discharges)	Hardness Dependent
	Total Zinc (salt water discharges)	0.09 mg/L

¹ The benchmark values of some metals are dependent on water hardness for fresh water discharges. For these parameters, permittees must determine the hardness of the receiving fresh water body (see Appendix D, "Calculating Hardness in Receiving Waters for Hardness Dependent Metals," for methodology), in accordance with Part VI.B.1.a., to identify the applicable 'hardness range' for determining their benchmark value applicable to their facility. The ranges occur in 25 mg/L increments. Hardness Dependent Benchmarks follow in the table below:

Water Hardness Range	Zinc (mg/L)
0-25 mg/L	0.04
25-50 mg/L	0.05
50-75 mg/L	0.08
75-100 mg/L	0.11
100-125 mg/L	0.13
125-150 mg/L	0.16
150-175 mg/L	0.18
175-200 mg/L	0.20
200-225 mg/L	0.23
225-250 mg/L	0.25
250+ mg/L	0.26

VIII.Z. Subpart Z – Sector Z – Leather Tanning and Finishing. The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.Z.1. Covered Storm Water Discharges. The requirements in Subpart Z apply to stormwater discharges associated with industrial activity from Leather Tanning and Finishing facilities as identified by the SIC Code specified under Sector Z in Table B-1 of Appendix B of the permit.

VIII.Z.2. Additional Technology-Based Effluent Limits.

VIII.Z.2.a. *Good Housekeeping Measures.* (See also Part II.A.2.b.)

VIII.Z.2.a.1. *Storage Areas for Raw, Semiprocessed, or Finished Tannery By-products.* Minimize contamination of stormwater runoff from pallets and bales of raw, semiprocessed, or finished tannery by-products (e.g., splits, trimmings, shavings). Consider indoor storage or protection with polyethylene wrapping, tarpaulins, roofed storage, etc. Consider placing materials on an impermeable surface and enclosing or putting berms (or equivalent measures) around the area to prevent stormwater run-on and runoff.

VIII.Z.2.a.2. *Material Storage Areas.* Label storage containers of all materials (e.g., specific chemicals, hazardous materials, spent solvents, waste materials) minimize contact of such materials with stormwater.

VIII.Z.2.a.3. *Buffing and Shaving Areas.* Minimize contamination of stormwater runoff with leather dust from buffing and shaving areas. Consider dust collection enclosures, preventive

inspection and maintenance programs, or other appropriate preventive measures.

VIII.Z.2.a.4. *Receiving, Unloading, and Storage Areas.* Minimize contamination of stormwater runoff from receiving, unloading, and storage areas. If these areas are exposed, consider the following (or their equivalents): covering all hides and chemical supplies, diverting drainage to the process sewer, or grade berming or curbing the area to prevent stormwater runoff.

VIII.Z.2.a.5. *Outdoor Storage of Contaminated Equipment.* Minimize contact of stormwater with contaminated equipment. Consider the following (or their equivalents): covering equipment, diverting drainage to the process sewer, and cleaning thoroughly prior to storage.

VIII.Z.2.a.6. *Waste Management.* Minimize contamination of stormwater runoff from waste storage areas. Consider the following (or their equivalents): covering dumpsters, moving waste management activities indoors, covering waste piles with temporary covering material such as tarpaulins or polyethylene, and minimizing stormwater runoff by enclosing the area or building berms around the area.

VIII.Z.3. Additional SWMP Requirements.

VIII.Z.3.a. *Drainage Area Site Map.* (See also Part V.F.2.c.) Identify in the SWMP where any of the following may be exposed to precipitation or surface runoff: processing and storage areas of the beamhouse, tanyard, and re-tan wet finishing and dry finishing operations.

VIII.Z.3.b. *Potential Pollutant Sources.* (See also Part V.F.4.) Document in the SWMP the following sources and activities that have potential pollutants associated with them (as appropriate): temporary or permanent storage of fresh and brine-cured hides; extraneous hide substances and hair; leather dust, scraps, trimmings, and shavings.

VIII.AA. Subpart AA – Sector AA – Fabricated Metal Products. The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.AA.1. Covered Storm Water Discharges. The requirements in Subpart AA apply to stormwater discharges associated with industrial activity from Fabricated Metal Products facilities as identified by the SIC Codes specified under Sector AA in Table B-1 of Appendix B of the permit.

VIII.AA.2. Additional Technology-Based Effluent Limits.

VIII.AA.2.a. *Good Housekeeping Measures.* (See also Part II.A.2.b.)

VIII.AA.2.a.1. *Raw Steel Handling Storage.* Minimize the generation of and/or recover and properly manage scrap metals, fines, and iron dust. Include measures for containing materials within storage handling areas.

VIII.AA.2.a.2. *Paints and Painting Equipment.* Minimize exposure of paint and painting equipment to stormwater.

VIII.AA.2.b. *Spill Prevention and Response Procedures.* (See also Part II.A.2.d.) Ensure that the necessary equipment to implement a cleanup is available to personnel. The following areas should be addressed.

VIII.AA.2.b.1. *Metal Fabricating Areas.* Maintain clean, dry, orderly conditions in these areas. Consider using dry clean-up techniques.

- VIII.AA.2.b.2. *Storage Areas for Raw Metal.* Keep these areas free of conditions that could cause, or impede appropriate and timely response to, spills or leakage of materials. Consider the following (or their equivalents): maintaining storage areas so that there is easy access in the event of a spill, and labeling stored materials to aid in identifying spill contents.
 - VIII.AA.2.b.3. *Metal Working Fluid Storage Areas.* Minimize the potential for stormwater contamination from storage areas for metal working fluids.
 - VIII.AA.2.b.4. *Cleaners and Rinse Water.* Control and clean up spills of solvents and other liquid cleaners, control sand buildup and disbursement from sand-blasting operations, and prevent exposure of recyclable wastes. Substitute environmentally benign cleaners when possible.
 - VIII.AA.2.b.5. *Lubricating Oil and Hydraulic Fluid Operations.* Minimize the potential for stormwater contamination from lubricating oil and hydraulic fluid operations. Consider using monitoring equipment or other devices to detect and control leaks and overflows. Consider installing perimeter controls such as dikes, curbs, grass filter strips, or equivalent measures.
 - VIII.AA.2.b.6. *Chemical Storage Areas.* Minimize stormwater contamination and accidental spillage in chemical storage areas. Include a program to inspect containers and identify proper disposal methods.
- VIII.AA.2.c. *Spills and Leaks.* (See also Part V.F.4.e.) In the spill prevention and response procedures, required by Part II.A.2.d., the permittee must pay attention to the following materials (at a minimum): chromium, toluene, pickle liquor, sulfuric acid, zinc and other water priority chemicals, and hazardous chemicals and wastes.

VIII.AA.3. Additional SWMP Requirements.

- VIII.AA.3.a. *Drainage Area Site Map.* (See also Part V.F.2.c.) Document in the SWMP where any of the following may be exposed to precipitation or surface runoff: raw metal storage areas; finished metal storage areas; scrap disposal collection sites; equipment storage areas; retention and detention basins; temporary and permanent diversion dikes or berms; right-of-way or perimeter diversion devices; sediment traps and barriers; processing areas, including outside painting areas; wood preparation; recycling; and raw material storage.
- VIII.AA.3.b. *Potential Pollutant Sources.* (See also Part V.F.4.) Document in the SWMP the following additional sources and activities that have potential pollutants associated with them: loading and unloading operations for paints, chemicals, and raw materials; outdoor storage activities for raw materials, paints, empty containers, corn cobs, chemicals, and scrap metals; outdoor manufacturing or processing activities such as grinding, cutting, degreasing, buffing, and brazing; onsite waste disposal practices for spent solvents, sludge, pickling baths, shavings, ingot pieces, and refuse and waste piles.

VIII.AA.4. Additional Inspection Requirements.

- VIII.AA.4.a. *Inspections.* (See also Part IV.) At a minimum, include the following areas in all inspections: raw metal storage areas, finished product storage areas, material and chemical storage areas, spent solvents and chemical storage areas, recycling areas, loading and unloading areas, equipment storage areas, paint areas, drainage from roof and vehicle fueling and maintenance areas. Potential pollutants include chromium, zinc, lubricating oil, solvents, aluminum, oil and grease, methyl ethyl ketone, steel, and related material .

- VIII.AA.5. Sector-Specific Benchmarks (See also Part VI. of the permit). Table VIII.AA-1 identifies benchmarks that apply to the specific subsectors of Sector AA. These benchmarks apply to both the primary industrial activity and any co-located industrial activities, which describe the site activities

Table VIII.AA-1.		
Subsector (The permittee may be subject to requirements for more than one sector/subsector)	Parameter	Benchmark Monitoring Concentration
Subsector AA1. Fabricated Metal Products, except Coating (SIC 3411-3499; 3911-3915)	Total Aluminum	0.75 mg/L
	Total Iron	1.0 mg/L
	Total Zinc ¹ (fresh water discharges)	Hardness Dependent
	Total Zinc (salt water discharges)	0.09 mg/L
	Nitrate plus Nitrite Nitrogen	0.68 mg/L
Subsector AA2. Fabricated Metal Coating and Engraving (SIC 3479)	Total Zinc ¹ (fresh water discharges)	Hardness Dependent
	Total Zinc (salt water discharges)	0.09 mg/L
	Nitrate plus Nitrite Nitrogen	0.68 mg/L

¹ The benchmark values of some metals are dependent on water hardness for fresh water discharges. For these parameters, permittees must determine the hardness of the receiving fresh water body (see Appendix D, "Calculating Hardness in Receiving Waters for Hardness Dependent Metals," for methodology), in accordance with Part VI.B.1.a., to identify the applicable 'hardness range' for determining their benchmark value applicable to their facility. The ranges occur in 25 mg/L increments. Hardness Dependent Benchmarks follow in the table below:

Water Hardness Range	Zinc (mg/L)
0-25 mg/L	0.04
25-50 mg/L	0.05
50-75 mg/L	0.08
75-100 mg/L	0.11
100-125 mg/L	0.13
125-150 mg/L	0.16
150-175 mg/L	0.18
175-200 mg/L	0.20
200-225 mg/L	0.23
225-250 mg/L	0.25
250+ mg/L	0.26

VIII.AB. **Subpart AB– Transportation Equipment, Industrial or Commercial Machinery Facilities.** The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.AB.1. Covered Storm Water Discharges. The requirements in Subpart AB apply to stormwater discharges associated with industrial activity from Transportation Equipment, Industrial or Commercial Machinery facilities as identified by the SIC Codes specified under Sector AB in Table B-1 of Appendix B of the permit.

VIII.AB.2. Additional SWMP Requirements.

VIII.AB.2.a. *Drainage Area Site Map.* (See also Part V.F.2.c.) Identify in the SWMP where any of the following may be exposed to precipitation or surface runoff: vents and stacks from metal

processing and similar operations.

VIII.AC. **Subpart AC – Sector AC – Electronic and Electrical Equipment and Components, Photographic and Optical Goods.** The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.AC.1. Covered Storm Water Discharges. The requirements in Subpart AC apply to stormwater discharges associated with industrial activity from facilities that manufacture Electronic and Electrical Equipment and Components, Photographic and Optical goods as identified by the SIC Codes specified in Table B-1 of Appendix B of the permit.

VIII.AC.2. Additional Requirements. No additional sector-specific requirements apply.

VIII.AD. **Subpart AD – Sector AD - Stormwater Discharges Designated by the Director as Requiring Permits.** The permittee must comply with Part VIII. sector-specific requirements associated with the primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of the facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

VIII.AD.1. Covered Storm Water Discharges. Sector AD is used to provide permit coverage for facilities designated by the Director as needing a stormwater permit, and any discharges of stormwater associated with industrial activity that do not meet the description of an industrial activity covered by Sectors A-AC.

VIII.AD.1.a. *Eligibility for Permit Coverage.* Because this sector is primarily intended for use by discharges designated by the Director as needing a stormwater permit (which is an atypical circumstance), and the facility may or may not normally be discharging stormwater associated with industrial activity, the applicant must obtain the Director's written permission to use this permit prior to submitting an NOI. If the applicant is authorized to use this permit, the applicant will still be required to ensure that the discharges meet the basic eligibility provisions of Part I. of this permit.

VIII.AD.2. Additional SWMP and Inspections Requirements. The Director will establish any additional SWMP and/or Inspections requirements for the facility at the time of accepting the Notice of Intent to be covered by this permit. Additional requirements would be based on the nature of activities at the facility and the storm water discharges.

VIII.AD.3. Sector Specific Benchmarks and Effluent Limits. The Director will establish any additional monitoring and reporting requirements for the facility prior to authorizing the applicant to be covered by this permit. Additional monitoring requirements would be based on the nature of activities at the facility and the stormwater discharges.

IX. NOTICE OF INTENT REQUIREMENTS

IX.A. *Contents of Notice of Intent*

IX.A.1. The owner's name, point of contact name (first name, last name), mailing address, e-mail address, telephone number, ~~ownership status, and status as a Federal, State, private, public, or other entity;~~

IX.A.2. The operator's name, point of contact name (first name, last name), address, e-mail address, telephone number; ~~ownership status and status as a Federal, State, private, public or other entity;~~

IX.A.3. Facility's information including: name and location of the facility, the latitude and longitude of the approximate center of the facility to the nearest 15 seconds, for which the NOI is being submitted;

- IX.A.4. A brief description of the site including: the total acreage of the site, total acreage of impervious surface, the runoff coefficient, and a description of existing storm water management controls;
 - IX.A.5. Existing quantitative data describing the concentration of pollutants in storm water discharges;
 - IX.A.6. For each outfall: outfall ID and description of location; latitude and longitude; Standard Industrial Code(s) associated with the outfall; name of the receiving water(s) and if the discharge is through a municipal separate storm sewer, the name of the operator of the storm sewer system; the name of the receiving water(s); water body ID#; receiving water body impairment; identify if receiving waters are subject to an EPA approved TMDL; and pollutants causing the impairment;
 - IX.A.7. Four (4) digit SIC code that best represents the principal products or activities provided by the facility and any additional applicable SIC associated with regulated industrial activities and materials at the facility;
 - IX.A.8. An identification of the appropriate Sector(s);
 - IX.A.9. Existing storm water controls;
 - IX.A.10. A list of any pollutants limited in effluent guidelines to which a facility is subject under 40 CFR Subchapter N, any pollutants listed on a RIPDES permit to discharge process waste water, and any information required under 40 CFR 122.21(g)(iii)-(v);
 - IX.A.11. The Storm Water Management Plan (SWMP) must be made available either by providing a Universal Resource Locator or URL for webpage where a copy of the current SWMP is available or submitting an electronic copy of the SWMP.
 - IX.A.12. Additional information may be required by this division to be included as part of the NOI, if the Director determines that such information is reasonably necessary to determine whether or not to authorize the discharge under this permit.
 - IX.A.13. A completed and signed NOI must be submitted electronically using NeT,
- IX.B. *Deficient NOI.* If any portion of the NOI does not meet one or more of the minimum requirements of this part, then the applicant will be notified by a deficiency letter at any point within the review period. It is the responsibility of the applicant to make all required changes and resubmit the NOI. The review period will recommence upon the received submittal date of the revised NOI.

X. GENERAL REQUIREMENTS

- X.A. Duty to Comply. The permittee must comply with all conditions of this permit. Any permit non-compliance constitutes a violation of Chapter 46-12 of the Rhode Island General Laws and the CWA and is grounds for enforcement action which may include permit termination, revocation and reissuance, modification, or for the denial of a permit renewal application and the imposition of penalties.
- X.A.1. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate this requirement.
 - X.A.2. Section 309 of the CWA provides significant penalties for any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318 or 405 of the CWA or any permit condition or limitation implementing any such sections in a permit issued under Section 402 of the CWA. Any person who violates any condition of this permit is subject to a civil penalty of up to \$25,000 per day of such violation, as well as any other appropriate sanctions provided by Section 309 of the CWA. Section 309(c)(4) of the CWA provides that any person who knowingly makes any false material statement, representation, or certification in any record or other document submitted

or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished by a fine of up to \$10,000 or by imprisonment of not more than two (2) years, or by both.

- X.A.3. Chapter 46-12 of the Rhode Island General Laws provides that any person who violates a permit condition is subject to a civil penalty of not more than \$25,000 per day of such violation. Any person who willfully or negligently violates a permit condition is subject to a criminal penalty of not more than \$25,000 per day of such violation and imprisonment for not more than five (5) years, or both. Any person who knowingly makes any false statement in connection with the permit is subject to a criminal penalty of not more than \$5,000 for each instance of violation or by imprisonment for not more than thirty (30) days, or both.
- X.B. Continuation of the Expired General Permit. Provided the permittee has re-applied in accordance with paragraph C below, an expired general permit continues in force and effect until a new general permit is issued. Only those facilities previously authorized to discharge under the expired permit are covered by the continued permit.
- X.C. Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain authorization as required by the new permit once the Department issues it.
- X.D. Need to Halt or Reduce Activity Not a Defense. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- X.E. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.
- X.F. Duty to Provide Information. The permittee shall furnish to the Department, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking, and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall furnish to the Director any copies that are required to be kept as part of this permit.
- X.G. Signatory Requirements. All Notices of Intent, Storm Water Management Plans, reports, certifications or information either submitted to the Director, or that this permit requires to be maintained by the permittee, shall be signed and certified in accordance with Title 250 RICR-150-10-1 § 1.12. Rhode Island General Laws, Chapter 46-12 provides that any person who knowingly makes an false statements, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of up to \$5,000 per violation, or by imprisonment for not more than thirty (30) days per violation, or by both.
- X.H. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the CWA.
- X.I. Release in Excess of Reportable Quantities. If a release in excess of reportable quantities occurs, the permittee must notify the Office of Water Resources immediately. This permit does not relieve the permittee of the reporting requirements of 40 CFR 117 and 40 CFR 302. The discharge of hazardous substances in the storm water discharge(s) from a facility shall be minimized in accordance with the applicable storm water management plan for the facility, and in no case, during any 24-hour period, shall the discharge(s) contain a hazardous substance equal to or in excess of reportable quantities.
- X.J. Property Rights. The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

- X.K. Severability. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.
- X.L. Transfers. This permit is not transferable to any person except after notice to the Director. The Director may require the operator to apply for and obtain an individual RIDES permit as stated in Part X.T. of this permit.
- X.M. State Laws. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law.
- X.N. Proper Operations and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of storm water management plans. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operations of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions of the permit.
- X.O. Monitoring and Records
1. Samples and measurements taken for the purpose of monitoring shall be representative of the volume and nature of the discharge over the sampling and reporting period.
 2. The permittee shall retain records of all monitoring including all calibration and maintenance records and all original strip chart recordings from continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least five (5) years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.
 3. Records of monitoring information shall include:
 - a. The date, exact place, and time of sampling or measurements;
 - b. The individual(s) who performed the sampling or measurements;
 - c. The date(s) analyses were performed;
 - d. The individual(s) who performed the analyses;
 - e. The analytical techniques or methods used; and
 - f. The results of such analyses.
 4. Monitoring must be conducted according to test procedures approved under 40 CFR 136 and applicable Rhode Island regulations, unless other test procedures have been specified in this permit.
 5. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall upon conviction, be punished by a fine of up to \$10,000 per violation or by imprisonment for not more than six months per violation, or by both. Chapter 46-12 of the Rhode Island General Laws also provides that such acts are subject to a fine of up to \$5,000 per violation, or by imprisonment for not more than thirty (30) days per violation, or by both.
 6. Monitoring results must be reported electronically using NetDMR.
 7. If the permittee monitors any pollutants more frequently than required by this permit, using test procedures approved under 40 CFR 136, applicable State regulations, or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.

X.P. Bypass of Storm Water Control Facilities

1. *Anticipated Bypass.* If the permittee knows in advance of the need for a bypass, he or she shall notify this Department in writing at least ten days prior to the date of the bypass. Such notice shall include the anticipated quantity and the anticipated effect of the bypass.
2. *Unanticipated Bypass.* The permittee shall submit notice of an unanticipated bypass. Any information regarding the unanticipated bypass shall be provided orally within twenty-four hours from the time the permittee became aware of the circumstances. A written submission shall also be provided within five (5) days of the time the permittee became aware of the bypass. The written submission shall contain a description of the bypass and its cause; the period of the bypass, including exact dates and times, and if the bypass has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent reoccurrence of the bypass.
3. *Prohibition of Bypass.*
 - a. Bypass is prohibited and enforcement action against the permittee may be taken for the bypass unless:
 - i. The bypass was unavoidable to prevent loss of life, personal injury or severe property damage;
 - ii. There was no feasible alternative to the bypass, such as the use of auxiliary treatment facilities, retention of untreated waste, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the permittee should, in the exercise of reasonable engineering judgement, have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
 - iii. The permittee submitted notices as required in paragraphs X.P.1. and X.P.2. above.
 - b. The Director may approve an anticipated bypass after considering its adverse effects, if the Director determines that it will meet the three conditions of paragraph X.P.3.a., above.

X.Q. Upset Conditions

1. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit limitations if the requirements of Part X.Q.2. below are met. No determination made during administrative review of claims that non-compliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
2. A permittee who wishes to establish an affirmative defense of an upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence, that:
 - a. An upset occurred and the permittee can identify the specific causes(s) of the upset;
 - b. The permittee facility was at the time being properly operated;
 - c. The permittee submitted notice of the upset as required in Title 250 RICR-150-10-1 § 1.14(U); and
 - d. The permittee complied with any remedial measures required under Title 250 RICR-150-10-1 § 1.14(E).
3. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

- X.R. Inspection and Entry. The permittee shall allow the Director or an authorized representative of DEM, upon presentation of credentials and other documents as may be required by law, to:
1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;
 2. Have access to and copy at reasonable times; any records that must be kept under the conditions of this permit;
 3. Inspect at reasonable times any facilities, equipment, or operations regulated or required under this permit; and
 4. Sample or monitor any substances or parameters at any location, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the CWA or Rhode Island General Law.
- X.S. Permit Actions. This permit may be modified, revoked and reissued, or terminated for cause, including but not limited to: violation of any terms or conditions of this permit; obtaining the permit by misrepresentation or failure to disclose all relevant facts; or a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.
- X.T. Requiring an Individual Permit or an Alternative General Permit
1. The Director of the Department of Environmental Management (DEM) may require any owner or operator authorized to discharge storm water under this permit to apply for and obtain either an individual or an alternative RIPDES general permit. Any interested person may petition the Director to take action under this paragraph. The Director may determine at his or her own discretion that an individual or an alternative general permit is required.
 2. Any owner or operator authorized to discharge storm water by this permit may request to be excluded from coverage of this permit by applying for an individual permit or participating in an applicable group permit. The owner or operator shall submit an individual application (Form 1 and Form 2F) with reasons supporting the request, or participate in a group application in accordance with the requirements of 40 CFR 122.26, to the Director. The request may be granted by issuance of an individual permit or an alternative general permit, if the reasons cited by the owner or operator are adequate to support the request. The Director shall notify the permittee within a timely fashion as to whether or not the request has been granted.
 3. If a facility requests or is required to obtain coverage under an individual or an alternative general permit, then authorization to discharge storm water under this permit shall automatically be terminated on the date of issuance of the individual or the alternative general permit. Until such time as an alternative permit is issued, the existing general permit remains fully in force.
- X.U. Reopener Clause. The Director reserves the right to make appropriate revisions to this permit in order to incorporate any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under the CWA or State Law. In accordance with Title 250 RICR-150-10-1 §§ 1.15 and 1.24, if any effluent standard or prohibition, or water quality standard is promulgated under the CWA or under State Law which is more stringent than any limitation on the pollutants limited in this permit, or controls pollutants not limited in the permit; then the Director may promptly reopen the permit and modify or revoke and reissue the permit to conform to the applicable standard.
- X.V. Availability of Reports. Except for data determined to be confidential under Part X.W. below, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the DEM at 235 Promenade Street, Providence Rhode Island. As required by the CWA, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal

penalties as provided for in Section 309 of the CWA and under section 46-12-14 of the Rhode Island General Laws.

X.W. Confidentiality of Information

1. Any information submitted to DEM pursuant to these regulations may be claimed as confidential by the submitter, consistent with Rhode Island General Law 38-2-2. Any such claim must be asserted at the time of the submission in the manner prescribed on the application form or instructions or, in the case of other submissions, by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, DEM may make the information available to the public without further notice.
2. Claims of confidentiality for the following information will be denied:
 - a. The name and address of any permit application or permittee;
 - b. Permit applications, permits and any attachments thereto; and
 - c. RIPDES effluent data.

X.X. Right to Appeal. Within thirty (30) days of receipt of notice of final authorization, the permittee or any interested person may submit a request to the Director for an adjudicatory hearing to appeal the decision to be covered under the general permit. The request for a hearing must conform to the requirements of Title 250 RICR-150-10-1 § 1.50.

Appendix A
Definitions, Abbreviations and Acronyms

Action Area – all areas to be affected directly or indirectly by the stormwater discharges, allowable non-stormwater discharges, and stormwater discharge-related activities, and not merely the immediate area involved in these discharges and activities.

Best Management Practices (BMPs) – schedules of activities, practices (and prohibitions of practices), structures, vegetation, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage

Co-located Industrial Activities – Any industrial activities, excluding your primary industrial activity(ies), located on-site that are defined by Title 250 RICR-150-10-1 § 1.4(A)(111). An activity at a facility is not considered co-located if the activity, when considered separately, does not meet the description of a category of industrial activity covered by the stormwater regulations or identified by the SIC code list in Appendix B.

Control Measure – refers to any BMP or other method (including effluent limitations) used to prevent or reduce the discharge of pollutants to waters of the State.

Director – the Director of the Department of Environmental Management or any subordinate or subordinates to whom he delegated the powers and duties vested in him by these regulations.

Discharge – when used without qualification, means the "discharge of a pollutant."

Discharge of a pollutant – any addition of any "pollutant" or combination of pollutants to "waters of the State" from any "point source,". This includes additions of pollutants into waters of the State from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works.

Discharge Point – for the purposes of this permit, the location where collected and concentrated stormwater flows are discharged from the facility such that the first receiving waterbody into which the discharge flows, either directly or through a separate storm sewer system, is a water of the State.

Discharge-related activities – activities that cause, contribute to, or result in stormwater and allowable non-stormwater point source discharges, and measures such as the siting, construction and operation of BMPs to control, reduce, or prevent pollution in the discharges.

EPA Approved or Established Total Maximum Daily Loads (TMDLs) – "EPA Approved TMDLs" are those that are developed by a State and approved by EPA. "EPA Established TMDLs" are those that are issued by EPA.

Existing Discharger – an operator applying for coverage under this permit for discharges authorized previously under a RIPDES general or individual permit.

Facility or Activity – any RIPDES "point source" (including land or appurtenances thereto) that is subject to regulation under the RIPDES program.

Federal Facility – any buildings, installations, structures, land, public works, equipment, aircraft, vessels, and other vehicles and property, owned by, or constructed or manufactured for the purpose of leasing to, the federal government.

Impaired Water (or “Water Quality Impaired Water”) – a water is impaired for purposes of this permit if it has been identified by a State, Tribe or EPA pursuant to Section 303(d) of the Clean Water Act as not meeting applicable State or Tribal water quality standards. Impaired waters include both waters with approved or established TMDLs, and those for which a TMDL has not yet been approved or established.

Industrial Activity – the 10 categories of industrial activities included in the definition of “stormwater discharges associated with industrial activity” as defined in Title 250 RICR-150-10-1 § 1.4(A)(111).

Industrial Stormwater – stormwater runoff from industrial activity.

Municipal Separate Storm Sewer – means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i) Owned or operated by a city or town or the State district association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the State;

(ii) Designed or used for collecting or conveying storm water;

(iii) Which is not a combined sewer; and

(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined in Title 250 RICR-150-10-1 § 1.4(A)(87).

Natural Background - For the purposes of this permit natural background pollutants include those substances that are naturally occurring in soils or groundwater. Natural background pollutants do not include legacy pollutants from earlier activity on the site, or pollutants in run-on from neighboring sources which are not naturally occurring.

New Discharger – a facility from which there is a discharge, that did not commence the discharge at a particular site prior to August 13, 1979, which is not a new source, and which has never received a finally effective RIPDES permit for discharges at that site.

New Source – any building, structure, facility, or installation from which there is or may be a “discharge of pollutants,” the construction of which commenced:

(i) after promulgation of standards of performance under section 306 of the CWA which are applicable to such source, or

(ii) after proposal of standards of performance in accordance with section 306 of the CWA which are applicable to such source, but only if the standards are promulgated in accordance with section 306 within 120 days of their proposal.

New Source Performance Standards (NSPS) – technology-based standards for facilities that qualify as new sources under 40 CFR 122.2 and 40 CFR 122.29.

No exposure – all industrial materials or activities are protected by a storm-resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff.

Operator – any entity with a stormwater discharge associated with industrial activity that meets either of the following two criteria:

- (i) The entity has operational control over industrial activities, including the ability to modify those activities; or
- (ii) The entity has day-to-day operational control of activities at a facility necessary to ensure compliance with the permit (e.g., the entity is authorized to direct workers at a facility to carry out activities required by the permit).

Owner - the legal name of the person, firm, public (municipal) organization, or any other entity that owns the facility seeking authorization under this permit.

Outfall – see “Discharge Point”.

Person – an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof.

Point source – any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater runoff.

Pollutant – dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal and agricultural waste discharged into water.

Pollutant of concern – A pollutant which causes or contributes to a violation of a water quality standard, including a pollutant which is identified as causing an impairment in a state's 303(d) list.

Primary industrial activity – includes any activities performed on-site which are (1) identified by the facility's primary SIC code; or (2) included in the narrative descriptions of Title 250 RICR-150-10-1 § 1.4(A)(111). [For co-located activities covered by multiple SIC codes, it is recommended that the primary industrial determination be based on the value of receipts or revenues or, if such information is not available for a particular facility, the number of employees or production rate for each process may be compared. The operation that generates the most revenue or employs the most personnel is the operation in which the facility is primarily engaged. In situations where the vast majority of on-site activity falls within one SIC code, that activity may be the primary industrial activity.]

Qualified Personnel – Qualified personnel are those who possess the knowledge and skills to assess conditions and activities that could impact stormwater quality at your facility, and who can also evaluate the effectiveness of control measures.

Reportable Quantity Release – a release of a hazardous substance at or above the established legal threshold that requires emergency notification. Refer to 40 CFR Parts 110, 117, and 302 for complete definitions and reportable quantities for which notification is required.

Restricted Information - for the purposes of this permit, information that is privileged or that is otherwise protected from disclosure pursuant to applicable statutes, Executive Orders, or regulations. Such information includes but is not limited to: classified national security information, protected critical infrastructure information, sensitive security information, and proprietary business information.

Runoff coefficient – the fraction of total rainfall that will appear at the conveyance as runoff. See 40 CFR 122.26(b)(11).

Significant materials – includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical the facility is required to report pursuant to section 313 of Title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with stormwater discharges.

Source Control BMPs - means structures or operations that are intended to prevent pollutants from coming into contact with stormwater through physical separation of areas or careful management of activities that are sources of pollutants. This permit separates source control into two types: *structural source control BMPs (e.g., building of storm-resistant shelters, berms, secondary containment)* and *operational source control BMPs (e.g. increase or improve sweep technology)*.

Stormwater – stormwater runoff, snow melt runoff, and surface runoff and drainage.

Stormwater Discharges Associated with Construction Activity – a discharge of pollutants in stormwater runoff from areas where soil disturbing activities (e.g., clearing, grading, or excavating), construction materials, or equipment storage or maintenance (e.g., fill piles, borrow areas, concrete truck washout, fueling), or other industrial stormwater directly related to the construction process (e.g., concrete or asphalt batch plants) are located.

Stormwater Discharges Associated with Industrial Activity – means the discharge from any conveyance which is used for collecting and conveying storm water to separate storm sewers and/or directly to a water body and which is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the RIPDES program under 40 CFR Part 122. For the categories of industries identified in this section, the term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters (as defined at 40 CFR part 401); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. For the purposes of this paragraph, material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are Federally, State, or municipally owned or operated that meet the description of the facilities listed in Title 250 RICR-150-10-1 § 1.4(A)(111)) include those facilities designated under the provisions of Title 250 RICR-150-10-1 § 1.32(A)(1)(g).

Tier 2 Waters – For antidegradation purposes, pursuant to 40 CFR 131.12(a)(2), Tier 2 waters are characterized as having water quality that exceeds the levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water.

Tier 2.5 Waters – For antidegradation purposes, Tier 2.5 waters are those waters designated by States or Tribes as neither Tier 2 nor Tier 3. These waters are given a level of protection equal to and above that given to Tier 2 waters, but less than that given Tier 3 waters.

Tier 3 Waters – for antidegradation purposes, pursuant to 40 CFR 131.12(a)(3), Tier 3 waters are identified by States or Tribes as having high quality waters constituting an Outstanding National Resource Water (ONRW), which may include waters of National Parks and State Parks, wildlife refuges, and waters of exceptional recreational or ecological significance.

Total Maximum Daily Loads (TMDLs) – a TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. A TMDL includes wasteload allocations (WLAs) for point source discharges; load allocations (LAs) for nonpoint sources and/or natural background and must include a margin of safety (MOS) and account for seasonal variations.

Treatment BMPs - means BMPs that are intended to remove pollutants from stormwater (e.g., filtration BMPs, bioswales).

Water Quality Impaired – See 'Impaired Water'.

Water Quality Standards – the physical, chemical, biological and esthetic characteristics of a water body as described by State water quality criteria or the water quality which would result from existing discharges under design conditions, whichever is more stringent as determined by the Department.

A.2. ABBREVIATIONS AND ACRONYMS

BAT – Best Available Technology Economically Achievable

BOD5 – Biochemical Oxygen Demand (5-day test)

BMP – Best Management Practice

BPJ – Best Professional Judgment

BPT – Best Practicable Control Technology Currently Available

CERCLA – Comprehensive Environmental Response, Compensation and Liability Act

CGP – Construction General Permit

COD – Chemical Oxygen Demand

CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 *et seq*)

CWT – Centralized Waste Treatment

DMR – Discharge Monitoring Report

EPA – U. S. Environmental Protection Agency

ESA – Endangered Species Act

FWS – U. S. Fish and Wildlife Service

LA – Load Allocations

MDMR – MSGP Discharge Monitoring Report

MGD – Million Gallons per Day

MOS – Margin of Safety

MS4 – Municipal Separate Storm Sewer System

MSDS – Material Safety Data Sheet

MSGP – Multi-Sector General Permit

NAICS – North American Industry Classification System
NEC – No Exposure Certification
NEPA – National Environmental Policy Act
NDC – No Discharge Certification
NHPA – National Historic Preservation Act
NMFS – U. S. National Marine Fisheries Service
NOI – Notice of Intent
NOT – Notice of Termination
NRC – National Response Center
NRHP – National Register of Historic Places
NSPS – New Source Performance Standard
NTU – Nephelometric Turbidity Unit
OMB – U. S. Office of Management and Budget
ORW – Outstanding Resource Water
OSM – U. S. Office of Surface Mining
POTW – Publicly Owned Treatment Works
RCRA – Resource Conservation and Recovery Act
RICR – Rhode Island Code of Regulations
RIDEM – Rhode Island Department of Environmental Management
RIPDES – Rhode Island Pollutant Discharge Elimination System
RQ – Reportable Quantity
SARA – Superfund Amendments and Reauthorization Act
SIC – Standard Industrial Classification
SMCRA – Surface Mining Control and Reclamation Act
SPCC – Spill Prevention, Control, and Countermeasures
SWMP – Stormwater Management Plan
TMDL – Total Maximum Daily Load
TSDF – Treatment, Storage, or Disposal Facility
TSS – Total Suspended Solids
USGS – United States Geological Survey
WLA – Wasteload Allocation
WQS – Water Quality Standard

Appendix B
Facilities and Activities Covered

The permit eligibility is limited to discharges from facilities in the “sectors” of industrial activity summarized in Table B-1. These sector descriptions are based on Standard Industrial Classification (SIC) Codes and Industrial Activity Codes. References to “sectors” in this permit (e.g., sector-specific monitoring requirements) refer to these groupings.

Table B-1. Sectors of Industrial Activity Covered by This Permit		
Subsector (May be subject to more than one sector/subsector)	SIC Code or Activity Code¹	Activity Represented
SECTOR A: TIMBER PRODUCTS		
A1	2421	General Sawmills and Planing Mills
A2	2491	Wood Preserving
A3	2411	Log Storage and Handling
A4	2426	Hardwood Dimension and Flooring Mills
	2429	Special Product Sawmills, Not Elsewhere Classified
	2431-2439 (except 2434)	Millwork, Veneer, Plywood, and Structural Wood (see Sector W)
	2448	Wood Pallets and Skids
	2449	Wood Containers, Not Elsewhere Classified
	2451, 2452	Wood Buildings and Mobile Homes
	2493	Reconstituted Wood Products
	2499	Wood Products, Not Elsewhere Classified
A5	2441	Nailed and Lock Corner Wood Boxes and Shook
SECTOR B: PAPER AND ALLIED PRODUCTS		
B1	2631	Paperboard Mills
B2	2611	Pulp Mills
	2621	Paper Mills
	2652-2657	Paperboard Containers and Boxes
	2671-2679	Converted Paper and Paperboard Products, Except Containers and Boxes
SECTOR C: CHEMICALS AND ALLIED PRODUCTS		
C1	2873-2879	Agricultural Chemicals
C2	2812-2819	Industrial Inorganic Chemicals
C3	2841-2844	Soaps, Detergents, and Cleaning Preparations; Perfumes, Cosmetics, and Other Toilet Preparations
C4	2821-2824	Plastics Materials and Synthetic Resins, Synthetic Rubber, Cellulosic and Other Manmade Fibers Except Glass
C5	2833-2836	Medicinal Chemicals and Botanical Products; Pharmaceutical Preparations; in vitro and in vivo Diagnostic Substances; and Biological Products, Except Diagnostic Substances
	2851	Paints, Varnishes, Lacquers, Enamels, and Allied Products
	2861-2869	Industrial Organic Chemicals
	2891-2899	Miscellaneous Chemical Products
	3952 (limited to list of inks and paints)	Inks and Paints, Including China Painting Enamels, India Ink, Drawing Ink, Platinum Paints for Burnt Wood or Leather Work, Paints for China Painting, Artist’s Paints and Artist’s Watercolors
	2911	Petroleum Refining

Table B-1. Sectors of Industrial Activity Covered by This Permit

Subsector (May be subject to more than one sector/subsector)	Permit SIC Code or Activity Code	Activity Represented
SECTOR D: ASPHALT PAVING AND ROOFING MATERIALS AND LUBRICANTS		
D1	2951, 2952	Asphalt Paving and Roofing Materials
D2	2992, 2999	Miscellaneous Products of Petroleum and Coal
SECTOR E: GLASS, CLAY, CEMENT, CONCRETE, AND GYPSUM PRODUCTS		
E1	3251-3259	Structural Clay Products
	3261-3269	Pottery and Related Products
E2	3271-3275	Concrete, Gypsum, and Plaster Products
E3	3211	Flat Glass
	3221, 3229	Glass and Glassware, Pressed or Blown
	3231	Glass Products Made of Purchased Glass
	3241	Hydraulic Cement
	3281	Cut Stone and Stone Products
	3291-3299	Abrasive, Asbestos, and Miscellaneous Nonmetallic Mineral Products
SECTOR F: PRIMARY METALS		
F1	3312-3317	Steel Works, Blast Furnaces, and Rolling and Finishing Mills
F2	3321-3325	Iron and Steel Foundries
F3	3351-3357	Rolling, Drawing, and Extruding of Nonferrous Metals
F4	3363-3369	Nonferrous Foundries (Castings)
F5	3331-3339	Primary Smelting and Refining of Nonferrous Metals
	3341	Secondary Smelting and Refining of Nonferrous Metals
	3398, 3399	Miscellaneous Primary Metal Products
SECTOR G: METAL MINING (ORE MINING AND DRESSING)		
G1	1021	Copper Ore and Mining Dressing Facilities
G2	1011	Iron Ores
	1021	Copper Ores
	1031	Lead and Zinc Ores
	1041, 1044	Gold and Silver Ores
	1061	Ferroalloy Ores, Except Vanadium
	1081	Metal Mining Services
	1094, 1099	Miscellaneous Metal Ores
SECTOR H: COAL MINES AND COAL MINING-RELATED FACILITIES		
H1	1221-1241	Coal Mines and Coal Mining-Related Facilities
SECTOR I: OIL AND GAS EXTRACTION AND REFINING		
I1	1311	Crude Petroleum and Natural Gas
	1321	Natural Gas Liquids
	1381-1389	Oil and Gas Field Services
SECTOR J: MINERAL MINING AND DRESSING		
J1	1442	Construction Sand and Gravel
	1446	Industrial Sand
J2	1411	Dimension Stone
	1422-1429	Crushed and Broken Stone, Including Rip Rap
	1481	Nonmetallic Minerals Services, Except Fuels
	1499	Miscellaneous Nonmetallic Minerals, Except Fuels
J3	1455, 1459	Clay, Ceramic, and Refractory Materials

	1474-1479	Chemical and Fertilizer Mineral Mining
--	-----------	--

Table B-1. Sectors of Industrial Activity Covered by This Permit		
Subsector (May be subject to more than one sector/subsector)	Permit SIC Code or Activity Code	Activity Represented
SECTOR K: HAZARDOUS WASTE TREATMENT, STORAGE, OR DISPOSAL FACILITIES		
K1	HZ	Hazardous Waste Treatment, Storage, or Disposal Facilities, including those that are operating under interim status or a permit under subtitle C of RCRA
SECTOR L: LANDFILLS, LAND APPLICATION SITES, AND OPEN DUMPS		
L1	LF	All Landfill, Land Application Sites and Open Dumps
L2	LF	All Landfill, Land Application Sites and Open Dumps, except Municipal Solid Waste Landfill (MSWLF) Areas Closed in Accordance with 40 CFR 258.60
SECTOR M: AUTOMOBILE SALVAGE YARDS		
M1	5015	Automobile Salvage Yards
SECTOR N: SCRAP RECYCLING FACILITIES		
N1	5093	Scrap Recycling and Waste Recycling Facilities
SECTOR O: STEAM ELECTRIC GENERATING FACILITIES		
O1	SE	Steam Electric Generating Facilities, including coal handling sites
SECTOR P: LAND TRANSPORTATION AND WAREHOUSING		
P1	4011, 4013	Railroad Transportation
	4111-4173	Local and Highway Passenger Transportation
	4212-4231	Motor Freight Transportation and Warehousing
	4311	United States Postal Service
	5171	Petroleum Bulk Stations and Terminals
SECTOR Q: WATER TRANSPORTATION		
Q1	4412-4498	Water Transportation Facilities
	4499 *	Water Transportation Facilities Not Elsewhere Classified *except facilities engaged in marine wrecking ships for scrap, marine salvaging and ship dismantling.
SECTOR R: SHIP AND BOAT BUILDING AND REPAIRING YARDS		
R1	3731, 3732	Ship and Boat Building or Repairing Yards
SECTOR S: AIR TRANSPORTATION FACILITIES		
S1	4512-4581	Air Transportation Facilities
SECTOR T: TREATMENT WORKS		
T1	TW	Treatment Works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are located within the confines of the facility, with a design flow of 1.0 MGD or more, or required to have an approved pretreatment program under 40 CFR Part 403. Not included are farm lands, domestic gardens or lands used for sludge management where sludge is beneficially reused and which are not physically located in the confines of the facility, or areas that are in compliance with section 405 of the CWA

Table B-1. Sectors of Industrial Activity Covered by This Permit

Subsector (May be subject to more than one sector/subsector)	Permit SIC Code or Activity Code	Activity Represented
SECTOR U: FOOD AND KINDRED PRODUCTS		
U1	2041-2048	Grain Mill Products
U2	2074-2079	Fats and Oils Products
U3	2011-2015	Meat Products
	2021-2026	Dairy Products
	2032-2038	Canned, Frozen, and Preserved Fruits, Vegetables, and Food Specialties
	2051-2053	Bakery Products
	2061-2068	Sugar and Confectionery Products
	2082-2087	Beverages
	2091-2099	Miscellaneous Food Preparations and Kindred Products
	2111-2141	Tobacco Product
SECTOR V: TEXTILE MILLS, APPAREL, AND OTHER FABRIC PRODUCT MANUFACTURING; LEATHER AND LEATHER PRODUCTS		
V1	2211-2299	Textile Mill Products
	2311-2399	Apparel and Other Finished Products Made from Fabrics and Similar Materials
	3131-3199	Leather and Leather Products (note: see Sector Z1 for Leather Tanning and Finishing)
SECTOR W: FURNITURE AND FIXTURES		
W1	2434	Wood Kitchen Cabinets
	2511-2599	Furniture and Fixtures
SECTOR X: PRINTING AND PUBLISHING		
X1	2711-2796	Printing, Publishing, and Allied Industries
SECTOR Y: RUBBER, MISCELLANEOUS PLASTIC PRODUCTS, AND MISCELLANEOUS MANUFACTURING INDUSTRIES		
Y1	3011	Tires and Inner Tubes
	3021	Rubber and Plastics Footwear
	3052, 3053	Gaskets, Packing and Sealing Devices, and Rubber and Plastic Hoses and Belting
	3061, 3069	Fabricated Rubber Products, Not Elsewhere Classified
Y2	3081-3089	Miscellaneous Plastics Products
	3931	Musical Instruments
	3942-3949	Dolls, Toys, Games, and Sporting and Athletic Goods
	3951-3955 (except 3952 – see Sector C)	Pens, Pencils, and Other Artists' Materials
	3961, 3965	Costume Jewelry, Costume Novelties, Buttons, and Miscellaneous Notions, Except Precious Metal
	3991-3999	Miscellaneous Manufacturing Industries
SECTOR Z: LEATHER TANNING AND FINISHING		
Z1	3111	Leather Tanning and Finishing
SECTOR AA: FABRICATED METAL PRODUCTS		
AA1	3411-3499 (except 3479)	Fabricated Metal Products, Except Machinery and Transportation Equipment, and Coating, Engraving, and Allied Services.
	3911-3915	Jewelry, Silverware, and Plated Ware
AA2	3479	Fabricated Metal Coating and Engraving

Table B-1. Sectors of Industrial Activity Covered by This Permit

Subsector (May be subject to more than one sector/subsector)	Permit SIC Code or Activity Code	Activity Represented
SECTOR AB: TRANSPORTATION EQUIPMENT, INDUSTRIAL OR COMMERCIAL MACHINERY		
AB1	3511-3599 (except 3571-3579)	Industrial and Commercial Machinery, Except Computer and Office Equipment (see Sector AC)
	3711-3799 (except 3731, 3732)	Transportation Equipment Except Ship and Boat Building and Repairing (see Sector R)
SECTOR AC: ELECTRONIC, ELECTRICAL, PHOTOGRAPHIC, AND OPTICAL GOODS		
AC1	3571-3579	Computer and Office Equipment
	3812-3873	Measuring, Analyzing, and Controlling Instruments; Photographic and Optical Goods, Watches, and Clocks
	3612-3699	Electronic and Electrical Equipment and Components, Except Computer Equipment
SECTOR AD: NON-CLASSIFIED FACILITIES		
AD1	Other stormwater discharges designated by the Director as needing a permit (see 40 CFR 122.26(a)(9)(i)(C) & (D)) or any facility discharging stormwater associated with industrial activity not described by any of Sectors A-AC. NOTE: Facilities may not elect to be covered under Sector AD. Only the Director may assign a facility to Sector AD.	

**TABLE B-2 – EFFLUENT GUIDELINES APPLICABLE TO DISCHARGES
THAT MAY BE ELIGIBLE FOR PERMIT COVERAGE**

Effluent Guideline	New source performance standards included in effluent guidelines?	Sectors with Affected Facilities
Runoff from material storage piles at cement manufacturing facilities [40 CFR Part 411 Subpart C (established February 23, 1977)].	Yes	E
Contaminated runoff from phosphate fertilizer manufacturing facilities [40 CFR Part 418 Subpart A (established April 8, 1974)].	Yes	C
Coal pile runoff at steam electric generating facilities [40 CFR Part 423 (established November 19, 1982)].	Yes	O
Discharges resulting from spray down or intentional wetting of logs at wet deck storage areas [40 CFR Part 429, Subpart I (established January 26, 1981)].	Yes	A
Mine dewatering discharges at crushed stone mines [40 CFR Part 436, Subpart B].	No	J
Mine dewatering discharges at construction sand and gravel mines [40 CFR Part 436, Subpart C].	No	J
Mine dewatering discharges at industrial sand mines [40 CFR Part 436, Subpart D].	No	J
Runoff from asphalt emulsion facilities [40 CFR Part 443, Subpart A (established July 24, 1975)].	Yes	D
Runoff from landfills, [40 CFR Part 445, Subparts A and B (established February 2, 2000)].	Yes	K & L
Runoff containing urea from airfield pavement deicing at existing and new primary airports with 1,000 or more annual non-propeller aircraft departures [40 CFR Part 449]	Yes	S

TABLE B-3a – BENCHMARK MONITORING APPLICABLE TO ALL FACILITIES

Parameter	Benchmark Monitoring Concentration
Total Suspended Solids (TSS)	100 mg/L
Oil & Grease (O&G)	15mg/L

TABLE B-3b – SECTORS/SUB-SECTORS SPECIFIC BENCHMARK MONITORING

MSGP Sector ²	Industry Sub-Sector	Required Parameters for Benchmark Monitoring
A	General Sawmills and Planning Mills	COD, TSS, Zinc.
	Wood Preserving Facilities	Arsenic, Copper.
	Log Storage and Handling	TSS.
	Hardwood Dimension and Flooring Mills	COD, TSS.
B	Paperboard Mills	COD.
C	Industrial Inorganic Chemicals	Aluminum, Iron, Nitrate + Nitrite N.
	Plastics, Synthetic Resins, etc.	Zinc.
	Soaps, Detergents, Cosmetics, Perfumes	Nitrate + Nitrite N, Zinc.
	Agricultural Chemicals	Nitrate + Nitrite N, Lead, Iron, Zinc, Phosphorus.
D	Asphalt Paving and Roofing Materials	TSS.
E	Clay Products	Aluminum.
	Concrete Products	TSS, Iron.
F	Steel Works, Blast Furnaces, and Rolling and Finishing Mills.	Aluminum, Zinc.
	Iron and Steel Foundries	Aluminum, TSS, Copper, Iron, Zinc.
	Non-Ferrous Rolling and Drawing	Copper, Zinc.
	Non-Ferrous Foundries (Castings)	Copper, Zinc.
G ³	Copper Ore Mining and Dressing	COD, TSS, Nitrate + Nitrite N
H	Coal Mines and coal-Mining Related Facilities....	TSS, Aluminum, Iron
J	Dimension Stone, Crushed Stone, and Nonmetallic Minerals (except fuels)	TSS.
	Sand and Gravel Mining	Nitrate + Nitrite N, TSS.
K	Hazardous Waste Treatment Storage or Disposal	Ammonia, Magnesium, COD, Arsenic, Cadmium, Cyanide, Lead, Mercury, Selenium, Silver.
L	Landfills, Land Application Sites, and Open Dumps	Iron, TSS.
M	Automobile Salvage Yards	TSS, Aluminum, Iron, Lead.
N	Scrap Recycling and Waste Recycling Facilities	Copper, Aluminum, Iron, Lead, Zinc, TSS, COD.
	Facilities where shredding activities and/or shredding materials are exposed to stormwater	PCBs (Arochlors 1016, 1221, 1232, 1242, 1248, 1252, 1260), Oil and Grease
O	Steam Electric Generating Facilities	Iron.
Q	Water Transportation Facilities	Aluminum, Iron, Lead, Zinc.
R	Boat building and Repair Facilities	Aluminum, Iron, Lead, Zinc.
S	Airports with Deicing Activities ⁴	BOD, COD, Ammonia, pH.
U	Grain Mill Products	TSS.
	Fats and Oils	BOD, COD, Nitrate + Nitrite N, TSS.
Y	Rubber Products	Zinc.
AA	Fabricated Metal Products Except Coating	Iron, Aluminum, Zinc, Nitrate + Nitrite N.
	Fabricated Metal Coating and Engraving	Zinc, Nitrate + Nitrite N.

² Table does not include parameters for compliance monitoring under effluent limitations guidelines.

³ See Sector G (Part VI.G) for additional monitoring discharges from waste rock and overburden piles from active ore mining or dressing facilities.

⁴ Monitoring requirement is for airports with deicing activities that utilize more than 100 tons of urea or more than 10,000 gallons of ethylene glycol per year.

TABLE B-4 – NUMERIC LIMITATIONS FOR COAL PILE RUNOFF

Parameter	Limit	Monitoring Frequency	Sample Type
Total Suspended Solids (TSS)	50 mg/L, max	1/year	Grab.
pH	6.0-9.0 min. and max	1/year	Grab.

Appendix C
Notice of Intent (NOI) Form, No Exposure Certification (NEC) Form, No Discharge Certification (NDC) Form



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

235 Promenade Street, Providence, RI 02908-5767

TDD 401-222-4462

Dear Applicant:

Section 46-12-15(b) of the Rhode Island General laws of 1956, Title 46, Chapter 12 entitled Water Pollution, as amended, prohibits the discharge of pollutants into waters of the State. The only exceptions are discharges in compliance with the terms and conditions of a Rhode Island Pollutant Discharge Elimination System (RIPDES) Permit issued in accordance with State Regulations.

Title 250 RICR-150-10-1 § 1.32, requires all discharges of Storm Water Associated with Industrial Activity to obtain a RIDPES permit. To be covered by the Multi-Sector General Permit for Storm Water Discharge Associated with Industrial Activity issued in 2019, applicants must complete and submit a Notice of Intent (NOI) to the Director by hard copy, unless an electronic reporting tool becomes available. Provided all required information is submitted and it is determined that a general permit is appropriate for the site, a letter of authorization to discharge will be sent from the Office Water Resources (OWR).

A non-refundable application fee of \$400 is due at the time the electronic submission of the NOI in the form of a check or money order, payable to the General Treasurer of the State of Rhode Island. Note: This fee is only required for new permittees. The review for completeness of the application will not be made until the fee is paid. The check or money order and the attached Application(s) Fee Form must be submitted to:

Rhode Island Department of Environmental Management
RIPDES Program
235 Promenade Street
Providence, RI 02908

Any questions about the General Permit or the NOI Form should be directed to the RIPDES Program Staff, Permitting Section at (401) 222-4700 ext. 7274, 7605, 7201, 7046 or 7405.

Sincerely,

Joseph Haberek, P.E.
Supervising Sanitary Engineer



**RHODE ISLAND POLLUTANT DISCHARGE
 ELIMINATION SYSTEM (RIPDES)
 NOTICE OF INTENT (NOI)
 FOR MULTI-SECTOR GENERAL PERMIT**
 (revised 3/19)

DEM USE ONLY	
Date NOI Received	_____
Date Fee Received	_____
RIPDES#	RIR _____
Data Group: G2A, G2B, G3A	

MARK ONLY ONE ITEM:	
<input type="checkbox"/> Existing RIPDES Authorization No. RIR _____	<input type="checkbox"/> New Permittee

I. OWNER			
Formal Name:			
Mailing Address:			
City:	State:	Zip:	
E-mail Address:			
Name of Contact Person:		Title:	
Phone: ()		Contact Person E-mail Address:	
II. OPERATOR (If Different from Owner)			
Formal Name:			
Mailing Address:			
City:	State:	Zip:	Phone: ()
E-mail Address:			
Name of Contact Person:		Title:	
Phone: ()		Contact Person E-mail Address:	
III. FACILITY INFORMATION			
Facility Name:			
Street Address of Physical Facility:			
City:	State:	Zip:	E-mail Address
Latitude of Facility (in decimals)		Longitude of Facility (in decimals)	
Total Area of Site _____ Acres	Total Area of Impervious Surface _____ Acres	Runoff Coefficient: _____	
Facility Type of Ownership:			
<input type="radio"/> Private	<input type="radio"/> Corporation	<input type="radio"/> Non-Government	<input type="radio"/> Municipality
<input type="radio"/> Municipal or Water District	<input type="radio"/> School District	<input type="radio"/> State	<input type="radio"/> Federal

<input type="radio"/> Mixed - Public/Private	
Existing Quantitative Data: <input type="radio"/> YES <input type="radio"/> NO	Number of Outfalls: _____

IV. INDUSTRIAL ACTIVITY INFORMATION

Provide the 4-digit Standard Industrial Classification (SIC) codes or the 2-letter Activity Codes that best represent the principal products produced or services rendered by your facility and major co-located activities:
 Primary _____ Secondary (if applicable) _____

Applicable sector(s) of industrial activity, as designated in Part I.B.1 of the MSGP (**check all that apply**):

<input type="checkbox"/> Sector A <input type="checkbox"/> Sector B <input type="checkbox"/> Sector C <input type="checkbox"/> Sector D <input type="checkbox"/> Sector E	<input type="checkbox"/> Sector F <input type="checkbox"/> Sector G <input type="checkbox"/> Sector H <input type="checkbox"/> Sector I <input type="checkbox"/> Sector J	<input type="checkbox"/> Sector K <input type="checkbox"/> Sector L <input type="checkbox"/> Sector M <input type="checkbox"/> Sector N <input type="checkbox"/> Sector O	<input type="checkbox"/> Sector P <input type="checkbox"/> Sector Q <input type="checkbox"/> Sector R <input type="checkbox"/> Sector S <input type="checkbox"/> Sector T	<input type="checkbox"/> Sector U <input type="checkbox"/> Sector V <input type="checkbox"/> Sector W <input type="checkbox"/> Sector X <input type="checkbox"/> Sector Y	<input type="checkbox"/> Sector Z <input type="checkbox"/> Sector AA <input type="checkbox"/> Sector AB <input type="checkbox"/> Sector AC <input type="checkbox"/> Sector AD
---	---	---	---	---	---

FEDERAL EFFLUENT LIMITATION GUIDELINES
 Identify the effluent Limitation Guidelines that apply to your discharge, **please refer to Table 2 of the NOI**

Affected MSGP Sector (See Table 2)	Eligible Discharges (See Table 2)	Does your facility have any discharges subject to ELG?
		<input type="radio"/> YES <input type="radio"/> NO
		<input type="radio"/> YES <input type="radio"/> NO

V. DISCHARGE INFORMATION List all Stormwater Outfalls from your facility:	
Outfall ID: 002 Outfall Description:	List All Sectors/Sub-Sectors Applicable to the Outfall:
Latitude (in decimals) _____	Longitude (in decimals) _____
Are outfall discharges subject to ELG? <input type="radio"/> YES <input type="radio"/> NO	
Does stormwater discharge to a Separate Storm Sewer System (MS4)? <input type="radio"/> YES <input type="radio"/> NO	MS4 owner/operator: _____
RECEIVING WATER INFORMATION ASSOCIATED WITH OUTFALL:	
Is Receiving Waterbody Fresh or Salt Water? <input type="radio"/> FRESH <input type="radio"/> SALT	
Is the Receiving Water an Unnamed Stream or Wetland not hydrologically connected to a Named Waterbody? <input type="radio"/> YES <input type="radio"/> NO	
If YES: Use "Unnamed Stream or Wetland" as the Name of the Receiving Water. Information for Water Body ID and Impairments is not applicable to the outfall. If NO: Provide Waterbody Name and Waterbody ID Number of the Named Waterbody that directly (through outfall or MS4) receives stormwater from the facility or it is the nearest hydrologically connected to the "Unnamed Stream or Wetland	
Waterbody Name: _____ Waterbody ID Number: _____	
Is the Receiving Water an Impaired Water Body? <input type="radio"/> YES <input type="radio"/> NO	
If the receiving Waterbody is Impaired (on the CWA 303(d) list), list the cause(s) of impairments: _____	

VII. OWNER/OPERATOR 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, I certify that 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. I am aware that it is the responsibility of the owner/operator to implement and amend the SWMP as appropriate in accordance with the requirements of the General Permit.

I further certify that a copy of this Notice of Intent (NOI) was submitted and received by the appropriate MS4 Operator* on the date of _____ 20__.

Print Name _____

Print Title _____

Signature _____ Date _____

* Refer to RIDEM website for Contact List of stormwater coordinators for each Municipality and RIDOT:
<http://www.dem.ri.gov/programs/benviron/water/permits/ripdes/stwater/index.htm>

VIII. SWMP DEVELOPMENT CERTIFICATION

URL where SWMP is available : _____.

I certify under penalty of law that a site specific SWMP was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for implementing the SWMP, the SWMP is, to the best of my knowledge and belief, true, accurate, and complete at the time this certification is made and has been developed in accordance to the requirements of the Permit. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name _____

Print Title _____

Signature _____ Date _____

TABLE 4- ORGANIC TOXIC POLLUTANTS

Volatiles

acrolein
 acrylonitrile
 benzene
 bromoform
 carbon tetrachloride
 chlorobenzene
 chlorodibromomethane
 chloroethane
 2-chloroethylvinyl ether
 chloroform
 dichlorobromomethane
 1,1-dichloroethane
 1,2-dichloroethane
 1,1-dichloroethylene
 1,2-dichloropropane
 1,3-dichloropropylene
 ethylbenzene
 methyl bromide
 methyl chloride
 methylene chloride
 1,1,2,2-tetrachloroethane
 tetrachloroethylene
 toluene
 1,2-trans-dichloroethylene
 1,1,1-trichloroethane
 1,1,2-trichloroethane
 trichloroethylene
 vinyl chloride

Acid Compounds

2-chlorophenol
 2,4-dichlorophenol
 2,4-dimethylphenol
 4,6-dinitro-o-cresol
 2,4-dinitrophenol
 2-nitrophenol
 4-nitrophenol
 p-chloro-m-cresol
 pentachlorophenol
 phenol
 2,4,6-trichlorophenol

Base/Neutral Compounds

acenaphthene *
 acenaphthylene *
 anthracene *
 benzidine
 benzo(a)anthracene *
 benzo(a)pyrene *
 3,4-benzofluoranthene *
 benzo(ghi)perylene *
 benzo(k)fluoranthene *
 bis(2-chloroethoxy)methane
 bis(2-chloroethyl)ether
 bis(2-chloroisopropyl)ether
 bis(2-ethylhexyl)phthalate
 4-bromophenyl phenyl ether
 butylbenzyl phthalate
 2-chloronaphthalene
 4-chlorophenyl phenyl ether
 chrysene *
 dibenzo (a,h)anthracene *
 1,2-dichlorobenzene
 1,3-dichlorobenzene
 1,4-dichlorobenzene
 3,3'-dichlorobenzidine
 diethyl phthalate
 dimethyl phthalate
 di-n-butyl phthalate
 2,4-dinitrotoluene
 2,6-dinitrotoluene
 di-n-octyl phthalate
 1,2-diphenylhydrazine (as
 azobenzene)
 fluoranthene *
 fluorene *
 hexachlorobenzene
 hexachlorobutadiene
 hexachlorocyclopentadiene
 hexachloroethane
 indeno(1,2,3-cd)pyrene *
 isophorone
 naphthalene *
 nitrobenzene
 N-nitrosodimethylamine
 N-nitrosodi-n-propylamine
 N-nitrosodiphenylamine
 phenanthrene *
 pyrene *
 1,2,4-trichlorobenzene
 * = Polynuclear Aromatic
 Hydrocarbons

Pesticides

aldrin
 alpha-BHC
 beta-BHC
 gamma-BHC
 delta-BHC
 chlordane
 4,4'-DDT
 4,4'-DDE
 4,4'-DDD
 dieldrin
 alpha-endosulfan
 beta-endosulfan
 endosulfan sulfate
 endrin
 endrin aldehyde
 heptachlor
 heptachlor epoxide
 PCB-1242
 PCB-1254
 PCB-1221
 PCB-1232
 PCB-1248
 PCB-1260
 PCB-1016
 toxaphene

TABLE 5 - TOXIC METALS, CYANIDE & PHENOL

Antimony, Total
Arsenic, Total
Beryllium, Total
Cadmium, Total
Chromium, Total
Chromium, Hexavalent
Copper, Total
Lead, Total
Mercury, Total
Nickel, Total
Selenium, Total
Silver, Total
Thallium, Total
Zinc, Total
Cyanide, Total
Phenols, Total

TABLE 6 - CONVENTIONAL & NON-CONVENTIONAL POLLUTANTS

Bromide
Chlorine, Total Residual
Color
Fecal Coliform
Fluoride
Nitrate-Nitrite
Nitrogen, Total Organic
Oil & Grease
Phosphorus, Total
Radioactivity
Sulfate
Sulfide
Sulfite
Surfactants
Aluminum, Total
Barium, Total
Boron, Total
Cobalt, Total
Iron, Total
Magnesium, Total
Molybdenum, Total
Manganese, Total
Tin, Total
Titanium, Total

TABLE 7 - HAZARDOUS SUBSTANCES & ASBESTOS

Toxic Pollutants

Asbestos
TCDD

Hazardous Substances

Acetaldehyde
Allyl alcohol
Allyl chloride
Amyl Acetate
Aniline
Benzonitrile
Benzyl Chloride
Butyl acetate
Butylamine
Captan
Carbaryl
Carbofuran
Carbon disulfide
Chlorpyrifos
Coumaphos
Cresol
Crotonaldehyde
Cyclohexane
2,4-D (2,4-Dichlorophenoxy acetic acid)
Diazinon
Dicamba
Dichlone
2,2-Dichloropropionic acid
Dichlorvos
Diethyl amine
Dimethyl amine
Dinitrobenzene
Diquat
Disulfoton
Diuron
Epichlorohydrin
Ethion
Ethylene diamine
Ethylene dibromide
Formaldehyde
Furfural
Guthion
Isoprene
Isopropanolamine Dodecylbenzenesulfonate
Kelthane
Kepone
Malathion
Mercaptodimethur
Methoxychlor

Methyl mercaptan
Methyl methacrylate
Methyl parathion
Mevinphos
Mexacarbate
Monoethyl amine
Monomethyl amine
Naled
Napthenic acid
Nitrotoluene
Parathion
Phenolsulfanate
Phosgene
Propargite
Propylene oxide
Pyrethrins
Quinoline
Resorcinol
Strontium
Strychnine
Styrene
2,4,5-T (2,4,5-Trichlorophenoxy acetic acid)
TDE (Tetrachlorodiphenylethane)
2,4,5-TP [2-(2,4,5-Trichlorophenoxy) propanoic acid]
Trichlorofan
Triethanolamine dodecylbenzenesulfonate
Triethylamine
Trimethylamine
Uranium
Vanadium
Vinyl acetate
Xylene
Xylenol
Zircon



NOTICE OF INTENT INSTRUCTIONS
FOR STORMWATER DISCHARGES ASSOCIATED WITH INDUSTRIAL
ACTIVITY UNDER THE RIPDES MULTI-SECTOR GENERAL PERMIT

WHO MUST FILE A NOTICE OF INTENT (NOI) FORM

Discharges of storm water associated with industrial activity to Waters of the State are prohibited without a Rhode Island Pollutant Discharge Elimination System (RIPDES) permit. The owner or operator of an industrial activity that has such a storm water discharge must submit a Notice of Intent (NOI) to obtain coverage under the RIPDES Storm Water Multi-Sector General Permit. If you have questions about whether you need a permit under the RIPDES Storm Water program contact the Rhode Island Department of Environmental Management, Office of Water Resources at (401) 222-4700 ext. 7274.

An originally signed NOI form must be sent to:

RI Department of Environmental Management
Office of Water Resources
RIPDES Program
Permitting Section
235 Promenade Street
Providence, Rhode Island 02908

Please be sure to keep a copy for your files.

FEES

If you are required to submit a SWMP to accompany the NOI, a \$400 non-refundable fee is required to be submitted. Please follow the directions on the attached Application Fee Form (also available online at

<http://www.dem.ri.gov/programs/benviron/water/permits/ripdes/pdfs/apfeenew.pdf>). Note that all facilities are subject to an annual fee in accordance with the *Rules and Regulations Governing the Establishment of Various Fees* (available online at:

<http://www.dem.ri.gov/pubs/regs/regs/water/feereg07.pdf>).

COMPLETING THE FORM

You must type or print in the appropriate areas only. Abbreviate if necessary to save space.

For facilities with discharges of storm water associated with industrial activity, please check off the box that

best describes your facility. If you have an existing RIPDES Storm Water Authorization, please include the permit number. A New Permittee is defined as one of the following: a facility commencing to discharge on or after August 14, 2018 (which is the expiration date of the previous industrial stormwater general permit), and/or a facility not previously permitted under the August 15, 2013 MSGP. Note: If you are a New Permittee and have not previously submitted a Storm Water Management Plan (SWMP) then you are required to submit a SWMP for review along with the NOI.

Section I - Owner Information

Give the **legal name** of the firm, public (municipal) organization, person or any other entity that owns the industrial activity described in this application (250-RICR-150-10-1.4 & 250-RICR-150-10-1.14 of the RIPDES Regulations). The name of the owner may or may not be the same as the name of the facility. Do not use a colloquial name. Enter the complete mailing address and email of the owner. Enter the name, title, telephone number and email of the contact person for the owner of the industrial facility.

Section II - Operator Information

If the operator is the same as the owner, enter "Same as Owner". Give the **legal name** of the firm, public (municipal) organization, person or any other entity that, that operates the industrial facility described in this application (250-RICR-150-10-1.4 & 250-RICR-150-10-1.14 of the RIPDES Regulations). The name of the operator may or may not be the same as that of the facility. The operator is the legal entity that controls the facility's operation, rather than the plant or site manager. Do not use a colloquial name. Enter the complete address and email of the operator. Enter the name, title, telephone number and email of the contact person for the operator of the industrial facility. Circle the appropriate choice to indicate the legal status of the owner of the facility.

Section III - Facility Information

Enter the facility's official or legal name and complete street address and telephone number. Indicate the latitude and longitude of the approximate center of the facility in decimal coordinates, as

determined from a system using World Geodetic System 1984 datum <https://www.fcc.gov/media/radio/dms-decimal> (i.e. <https://www.latlong.net/> Enter the total area of the site (acres), the total area of the impervious surface (acres), and the runoff coefficient for the site. Select the appropriate choice to indicate the legal status of the owner of the facility. Please indicate if there is any existing quantitative data regarding storm water runoff from the site by checking “YES” or “NO”. If “YES”, please submit the relevant information. Please indicate the number of outfalls that contain storm water discharge associated with industrial activity.

Section IV - Industrial Activity Information

List your primary and secondary 4-digit standard industrial classification (SIC) codes or 2-character Activity Codes that best describe the principle products or services provided at the facility or site identified in Section III of this application. Use the following 2-character codes for industrial activities defined in 250-RICR-150-10-1.4(111)(a-k) of the RIPDES Regulations that do not have SIC codes to accurately describe them;

HZ = Hazardous waste treatment, storage or disposal facilities, including those that are operating under interim status or a permit subtitle C of RCRA [40 CFR 122.26 b)(14)(iv)];

LF = Landfills, land application sites and open dumps that receive or have received any industrial waste, including those that are subject to regulation under subtitle D of RCRA [40 CFR 122.26 b)(14)(v)];

SE = Steam electric power generating facilities, including coal handling sites [40 CFR 122.26 b)(14)(vii)];

TW = Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage [40 CFR 122.26 b)(14)(ix)]; or

Alternatively, if your facility or site was specifically designated by the RIPDES permitting authority, enter AD.

Using Table 1 (enclosed), indicate the SIC code for your industry. Select up to three (3) additional applicable sectors of industrial activity with associated discharges that you seek to have covered under this permit.

Co-located Activities. If the permittee has co-located industrial activities on-site that are described in a sector(s) other than the primary sector, the permittee must comply with all other applicable sector-specific conditions found in Part VI for the co-located

industrial activities. The extra sector-specific requirements are applied only to those areas of the facility where the extra-sector activities occur. An activity at a facility is not considered co-located if the activity, when considered separately, does not meet the description of a category of industrial activity covered by the storm water regulations, and identified by this general permit SIC code list. For example, unless the permittee is actually hauling substantial amounts of freight or materials with the facility's own truck fleet or are providing a trucking service to outsiders, simple maintenance of vehicles used at the facility is unlikely to meet the SIC code group 42 description of a motor freight transportation facility. Even though Sector P may not apply, the runoff from the vehicle maintenance facility would likely still be considered storm water associated with industrial activity. As such, the SWMP must still address the runoff from the vehicle maintenance facility—although not necessarily with the same degree of detail as required by Sector P—but the permittee would not be required to monitor as per Sector P.

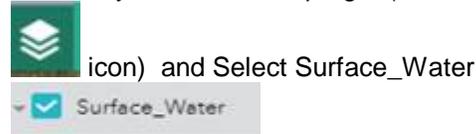
Section V – Discharge Information

If the storm water discharges to a separate storm sewer system check the box and enter the name of the operator of the storm sewer system and enter the name of the ultimate surface water. If the site discharges storm water directly to a surface water body check the box and enter the name of the receiving water. If the receiving water is an unnamed stream or wetlands that is either connected to a named surface water check the box and enter the name of surface water; or if the receiving water is an unnamed stream or wetlands not connected to named surface water check the box. Determine the water body ID number and if the receiving water body is impaired:

Access RIDEM's Environmental Resource Map using the following link:

<http://ridemgis.maps.arcgis.com/apps/webappviewer/index.html?id=87e104c8adb449eb9f905e5f18020de5>

1. Use layer list on the top right (denoted by the



2. Type your facility's street address in the address

locator and

using zoom tool  zoom in to the area in the vicinity of your industrial facility and receiving water body.

3. Information regarding the receiving water body can be obtained by clicking on the receiving water body on the vicinity of the location where stormwater discharges. Receiving water information will be listed in a pop-up box, including: the name of the water body (NAME), water body ID number (WBID), list of pollutants causing impairment (Impairments).

3.a. Receiving Water Body is Named

name of the water body will be listed under **"NAME"**

water body ID number will be listed under **"WBID"**

list of pollutants causing impairment will be listed under **"Impairments"**; or

3.b. Receiving Water is Unnamed - determine if it is hydrologically connected to a named water body:

3.b.1 If the unnamed water body is hydrologically connected to a named water body the information provided must be that of the named waterbody:

name of the water body will be listed under **"NAME"**

water body ID number will be listed under **"WBID"**

list of pollutants causing impairment will be listed under **"Impairments"**; or

3.b.2 If the receiving unnamed water body is not hydrologically connected to a named water you need to identify the receiving water body as Unnamed not hydrologically connected to a Named Water Body.

4. Impairments Information – If the receiving water body is impaired the cause(s) of impairments will be listed under **"Impairments"** (e.g., Fecal Coliform, Cadmium), completed TMDL(s) will be listed under **"TMDLs_For"**. If **"Impairments"** = X there are no impairments, if **TMDLs_For** = X there are no TMDLs completed.

To find the name and code of the watershed that receives the storm water runoff activate the "Watershed HUC12" layer by checking the box next to it. Click on your facility and a box displaying the watershed name will pop up.

If there are more outfalls than fit on the NOI, list additional outfalls with the required information on separate sheets of paper and submit attached to the NOI.

Section VI - Regulatory Information

If there is a RCRA permit issued for the facility, check the box and list the permit number(s).

If there are other RIPDES permits issued for the facility, check the box and list the permit number(s). If an application has been submitted but no permit number has been assigned, enter *"new application"* in the space provided for the RIPDES Permit number.

If the facility is subject to Categorical Effluent Guidelines in Table 2 (enclosed), check the appropriate box and attach a list of appropriate parameters.

Check the appropriate box if you know or have reason to believe that pollutants from Tables 4 through 7 (enclosed) are present at your facility and attach a list of those pollutants. Base your determination that a pollutant is present at your facility on your knowledge of the raw materials, material management practices, maintenance chemicals, history of spills and releases, intermediate and final products and byproducts, and any previous analyses known of the effluent or similar effluent.

If your facility is subject to benchmark monitoring listed in Table 3 (enclosed) check the appropriate box.

Section VII – Owner/Operator Certification

State and Federal statutes provide for severe penalties for submitting false information on this application form. State and Federal regulations require this application to be signed as follows (250-RICR-150-10-1.12):

For a corporation: by a responsible corporate officer, which means: (i) president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions, or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

- *For a partnership or sole proprietorship:* by a general partner or the proprietor;
- *For a Municipality, State, Federal or other public*

facility: by either a principal executive officer or ranking elected official.

*Note that this section also requires certification that a copy of the Notice of Intent (NOI) was sent to and received by the appropriate MS4 Owner/Operator. Please provide the date it was received.

Section VIII –SWMP Development Certification

This section needs to be filled out for discharges of storm water associated with industrial activity which were authorized under the 2013 MSGP or facilities not authorized under the 2013 MSGP that applied after the previous permit expired and submitted a SWMP as part of their application.* The purpose of this certification is for the person or persons who prepared the SWMP to document that a site specific SWMP was prepared consistent with the requirements of the General Permit prior to filing the NOI. This certification does not alleviate or in any way limit the liability and sole responsibility of the Owner/Operator to properly implement the SWMP and to amend the SWMP as may be required.

* For New Permittees or previously unpermitted facilities or discharges, the submission of a SWMP to accompany the NOI for review is required as per the permit requirements. (Signed certification is optional.)



**STATE OF RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
RIPDES PROGRAM
NO EXPOSURE CERTIFICATION EXCLUSION
FROM RIPDES INDUSTRIAL STORM WATER PERMITTING**

(revised 03/19)

A condition of no exposure exists at an industrial facility when all industrial materials and activities are protected by a storm-resistant shelter to prevent exposure to rain, snow, snowfall, and/or runoff. Industrial materials or activities include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste products. Material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product or waste product. **A storm-resistant shelter is not required for the following industrial materials and activities:**

- drums, barrels, tanks, and similar containers that are tightly sealed, provided those containers are not deteriorated and do not leak. "Sealed" means banded or otherwise secured and without operational taps or valves;
- adequately maintained vehicles used in material handling; and
- final products, other than products that would be mobilized in storm water discharges (e.g., rock salt).

A No Exposure Certification should be provided for each facility qualifying for the no exposure exclusion. In addition, the exclusion from RIPDES permitting is available on a facility-wide basis only, not for individual outfalls. If any industrial activities or materials are or will be exposed to precipitation, the facility is not eligible for the no exposure exclusion.

By signing and submitting this No Exposure Certification form, the entity in Section I is certifying that a condition of no exposure exists at its facility or site and is obligated to comply with the terms and conditions of 250-RICR-150-10-1.32(H) of the RIPDES Regulations.

ALL INFORMATION MUST BE PROVIDED ON THIS FORM.

Instructions for completing this form and obtaining no exposure exclusion are provided at the end of the NEC forms – attached.

I. OWNER

Formal Name:

Mailing Address:

City:

State:

Zip:

E-mail Address:

Name of Contact Person:

Title:

Phone: ()

Contact Person E-mail Address:

II. OPERATOR (If Different from Owner)

Formal Name:

Mailing Address:

City:

State:

Zip:

Phone: ()

E-mail Address:

Name of Contact Person:

Title:

Phone: ()

Contact Person E-mail Address:

III. FACILITY INFORMATION			
Facility Name: _____			
Street Address of Physical Facility: _____			
City: _____	State: _____	Zip: _____	E-mail Address _____
Latitude of Facility (in decimals) _____		Longitude of Facility (in decimals) _____	
Total Area of Site _____ Acres	Total Area of Impervious Surface _____ Acres	Runoff Coefficient: _____	
Facility Type of Ownership: <input type="radio"/> Private <input type="radio"/> Corporation <input type="radio"/> Non-Government <input type="radio"/> Municipality <input type="radio"/> Municipal or Water District <input type="radio"/> School District <input type="radio"/> State <input type="radio"/> Federal <input type="radio"/> Mixed - Public/Private			
IV. INDUSTRIAL ACTIVITY INFORMATION			
Existing Quantitative Data: <input type="radio"/> YES (Provide as Attachment) <input type="radio"/> NO		Number of Outfalls: _____	
1. a. Was the facility or site previously covered under a RIPDES Storm water permit? <input type="radio"/> YES <input type="radio"/> NO			
b. If yes, enter RIPDES permit number: _____			
2. SIC/Activity Codes: Primary: _____ Secondary (if applicable): _____			
3. Total size of site associated with industrial activity: _____ acres			
4. a. Have you paved or roofed over formerly exposed, pervious area in order to qualify for the no exposure exclusion? YES NO			
b. If yes, please indicate approximately how much area was paved or roofed over. Completing this question does not disqualify you for the no exposure exclusion. However, RIPDES may use this information in considering whether storm water discharges from your site are likely to have an adverse impact on water quality, in which case you could be required to obtain permit coverage.			
Less than one acre <input type="checkbox"/> One to five acres <input type="checkbox"/> More than five acres <input type="checkbox"/>			
Completing questions (5) and (6) of this section does not disqualify you for the no exposure exclusion. However, RIPDES may use this information in considering whether storm water discharges from your site are likely to have an adverse impact on water quality, in which case you could be required to obtain permit coverage.			
5. a. Do you make use of tarpaulins to protect materials or products stored outdoors from exposure to storm water? <input type="radio"/> YES <input type="radio"/> NO			
b. If yes, please provide a description of the materials/products: _____ _____			
c. Description of use of materials/products: _____ _____			

d. How often do you access the materials/products? _____

e. Length of time for the use of tarpaulins: _____

f. Description of inspections and preventive maintenance of tarpaulins:

g. Proximity of the materials/products to storm water drains and surface water bodies including wetlands:

6. a. Have any spills and/or chronic leaks of significant materials occurred at the facility in the three years prior to the submission of the No Exposure Certification?

YES NO

b. If yes, please provide a list of spills and/or chronic leaks: (refer to Attachments if necessary)

c. Please provide the cause of each spill and/or chronic leak:

d. Description of actions taken to respond to each release:

e. Description of the actions taken to prevent similar spills or leaks in the future:

V. EXPOSURE CHECKLIST

Are any of the following materials or activities exposed to precipitation, now or in the foreseeable future? (Please check either "Yes" or "No" in the appropriate box.) **If you answer "Yes" to any of these questions (1) through (11), you are not eligible for the no exposure exclusion.**

1. Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning industrial machinery or equipment remain and are exposed to stormwater	<input type="radio"/> YES	<input type="radio"/> NO
2. Materials or residuals on the ground or in storm water inlets from spills/leaks	<input type="radio"/> YES	<input type="radio"/> NO
3. Materials or products from past industrial activity	<input type="radio"/> YES	<input type="radio"/> NO
4. Material handling equipment (except adequately maintained vehicles)	<input type="radio"/> YES	<input type="radio"/> NO
5. Materials or products during loading/unloading or transporting activities	<input type="radio"/> YES	<input type="radio"/> NO
6. Materials or products stored outdoors (except final products intended for outside use [e.g., new cars] where exposure to storm water does not result in discharge of pollutants)	<input type="radio"/> YES	<input type="radio"/> NO
7. Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers	<input type="radio"/> YES	<input type="radio"/> NO
8. Materials or products handled/stored on roads or railways owned or maintained by the discharger	<input type="radio"/> YES	<input type="radio"/> NO
9. Waste material (except waste in covered, non-leaking containers [e.g., dumpsters])	<input type="radio"/> YES	<input type="radio"/> NO
10. Application or disposal of process wastewater (unless otherwise permitted)	<input type="radio"/> YES	<input type="radio"/> NO
11. Particulate matter or visible deposits of residuals from roof stacks and/or vents not otherwise regulated (i.e., under an air quality control permit) and evident in the storm water outflow	<input type="radio"/> YES	<input type="radio"/> NO

VI. CERTIFICATION STATEMENT

I certify under penalty of law that I have read and understand the eligibility requirements for claiming a condition of "no exposure" and obtaining an exclusion from RIPDES storm water permitting. I certify under penalty of law that there are no discharges of storm water contaminated by exposure to industrial activities or materials from the industrial facility or site identified in the document (except as allowed under 250-RICR-150-10-1.31(h)(2) of the RIPDES Regulations). I understand that I should submit a no exposure certification form once every five years to RIPDES and, if requested, to the operator of the local municipal separate storm sewer system (MS4) into which the facility discharges (where applicable). I understand that I must allow RIPDES, or MS4 operator where the discharge is into the local MS4, to perform inspections to confirm the condition of no exposure and to make such inspection reports publicly available upon request. I understand that I must obtain coverage under a RIPDES permit prior to any point source discharge of storm water from the facility that does not meet the requirements for the no exposure exclusion.

Additionally, 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 gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violators.

Print Name: _____

Print Title: _____

Signature: _____ Date: _____



NO EXPOSURE CERTIFICATION EXCLUSION FROM RIPDES INDUSTRIAL STORM WATER PERMITTING INSTRUCTIONS

Where to File the No Exposure Certification Form

Who Should File an NEC Form?

Discharges of storm water associated with industrial activity to Waters of the State are prohibited without a Rhode Island Pollutant Discharge Elimination System (RIPDES) permit pursuant to the provisions of the Rhode Island General Laws Chapter 46-12. The owner or operator of an industrial activity that has such a storm water discharge must submit a Notice of Intent (NOI) to obtain coverage under the RIPDES Storm Water Multi-Sector General Permit. However, RIPDES permit coverage is not required for discharges of stormwater associated with industrial activities identified in the RIPDES Regulations 250-RICR-150-10-1.32(B)(15)(i-ix) and (xi) if the discharger can certify that a condition of “no exposure” exists at the industrial facility or site. If you have questions about whether you need a permit under the RIPDES Storm Water program contact the Rhode Island Department of Environmental Management, Office of Water Resources at (401) 222-4700 ext. 7274.

In order for RIPDES to ensure that all industrial facilities are properly permitted according to state and federal regulations, a filed NEC provides documentation that a particular industrial facility is exempt. See Page 1 of the NEC form for more details on what constitutes “no exposure”.

Obtaining and Maintaining the No Exposure Exclusion

This form is used to certify that a condition of no exposure exists at the industrial facility or site described herein. This certification should be submitted at least once every five years.

The industrial facility operator must maintain a condition of no exposure at its facility or site in order for the no exposure certification to remain applicable. If conditions change resulting in the exposure of materials and activities to stormwater, the facility operator must obtain coverage under a RIPDES stormwater permit (MSGP authorization) immediately.

Mail the completed no exposure certification form to:

Rhode Island Department of Environmental
Management
Office of Water Resources
RIPDES Program
235 Promenade Street
Providence, RI 02908

Any questions regarding the No Exposure Certification Form should be directed to Travis Babikoff at (401) 222-4700 ext. 7274 or Margarita Chatterton at (ext. 7605).

Completing the Form

You must type or print in the appropriate areas only. Abbreviate if necessary to save space. Additional pages may be attached for review and should be clearly labeled. Please make sure you have addressed all applicable questions and have made a photocopy for your records before sending the completed form to the above address.

Section I - Owner Information

Give the **legal name** of the firm, public (municipal) organization, person or any other entity that owns the industrial activity described in this application (250-RICR-150-10-1.4 & 250-RICR-150-10-1.14 of the RIPDES Regulations). The name of the owner may or may not be the same as the name of the facility. Do not use a colloquial name. Enter the complete mailing address and email of the owner. Enter the name, title, telephone number and email of the contact person for the owner of the industrial facility.

Section II - Operator Information

If the operator is the same as the owner, enter "Same as Owner". Give the **legal name** of the firm, public (municipal) organization, person or any other entity that, that operates the industrial facility described in this application (250-RICR-150-10-1.4 & 250-RICR-150-10-1.14 of the RIPDES Regulations). The name of the operator may or may not be the same as that of the facility. The operator is the legal entity that controls the

facility's operation, rather than the plant or site manager. Do not use a colloquial name. Enter the complete address and email of the operator. Enter the name, title, telephone number and email of the contact person for the operator of the industrial facility. Circle the appropriate choice to indicate the legal status of the owner of the facility.

Section III - Facility Information

Enter the facility's official or legal name and complete street address and telephone number. Indicate the latitude and longitude of the approximate center of the facility in decimal coordinates, as determined from a system using World Geodetic System 1984 datum <https://www.fcc.gov/media/radio/dms-decimal> (i.e. <https://www.latlong.net/> Enter the total area of the site (acres), the total area of the impervious surface (acres), and the runoff coefficient for the site. Select the appropriate choice to indicate the legal status of the owner of the facility.

Section IV – Industrial Activity Information

Please indicate if there is any existing quantitative data regarding storm water runoff from the site by checking "YES" or "NO". If "YES", please submit the relevant information as an attachment to the certification. Please indicate the number of outfalls that contain storm water discharge associated with industrial activity.

1. Indicate whether the facility has been previously covered under a RIPDES Stormwater permit. If yes, provide the RIPDES permit number.
2. List your primary and secondary 4-digit standard industrial classification (SIC) codes or 2-character Activity Codes that best describe the principle products or services provided at the facility or site identified in Section III of this application. SIC codes can be obtained from the [Standard Industrial Classification Manual, 1987](#). SIC codes can also be accessed online in a searchable database at the following web address: https://www.osha.gov/pls/imis/sic_manual.html. Use the following 2-character codes for industrial activities defined in 250-RICR-150-10-1.4(111)(a-k) of the RIPDES Regulations that do not have SIC codes to accurately describe them;
 - (a) **HZ** = Hazardous waste treatment, storage or disposal facilities, including those that are operating under interim status or a permit subtitle C of RCRA [40 CFR 122.26 b)(14)(iv)];
 - (b) **LF** = Landfills, land application sites and open dumps that receive or have received any

industrial waste, including those that are subject to regulation under subtitle D of RCRA [40 CFR 122.26 b)(14)(v)];

- (c) **SE** = Steam electric power generating facilities, including coal handling sites [40 CFR 122.26 b)(14)(vii)];
 - (d) **TW** = Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage [40 CFR 122.26 b)(14)(ix)]; or
 - (e) Alternatively, if your facility or site was specifically designated by the RIPDES permitting authority, enter AD.
3. Indicate the size of the site associated with industrial activity, in acres.
 4. Indicate whether pervious area has been paved over or covered with a roof in order to qualify for the no exposure exclusion. If yes, indicate the area that was changed (<1 acre, 1-5 acres, >5 acres).
 5. Indicate whether tarps are used to protect materials or products that are stored outside from exposure to storm water. If yes, provide a description of the covered materials/products and a description of how those materials or products are used (i.e., loading or unloading practices, outdoor processing activities, potential for significant dust or particulate matter generating while accessing materials and/or products). Also indicate how often the materials/products are accessed and how long the tarps have been in use. Describe the process for inspection and preventative maintenance of the tarps. Indicate how close the covered materials/products are to storm water drains and surface water bodies including wetlands.
 6. Describe any spills or chronic leaks of significant materials at the facility within the three years prior to submission, and answer parts (b)-(e) if applicable. Significant materials include, but are not limited to: raw materials; fuels; solvents; detergents; hazardous substances designated under Section 101(14) of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA); any chemical the facility is required to report pursuant to RCRA Section 313; and/or chronic leaks, the cause of each spill and/or chronic leaks, the actions taken to respond to each release, and the actions taken to prevent similar such releases in the future.

Section V – Exposure Checklist

Answer yes or no to each of the 11 questions in Section V, indicating whether or not any of the materials or activities listed are exposed to precipitation now or in the foreseeable future. If you answer "Yes" to **ANY** of the questions (1) through (11) in this section, the potential for exposure exists at your site and you cannot certify to a condition of no exposure. You must obtain (or already have) coverage under a RIPDES stormwater permit. After obtaining permit coverage, you can institute modifications to eliminate the potential for a discharge of stormwater exposed to industrial activity, and then certify to a condition of no exposure.

Section VI – Certification Statement

State and Federal statutes provide for severe penalties for submitting false information on this application form. State and Federal regulations require this application to be signed as follows (250-RICR-150-10-1.12):

- *For a corporation:* by a responsible corporate officer, which means:
 - (i) president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions, or
 - (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;
- *For a partnership or sole proprietorship:* by a general partner or the proprietor;
- *For a Municipality, State, Federal or other public facility:* by either a principal executive officer or ranking elected official.

*Note that this section also requires certification that a copy of the NEC was sent to and received by the appropriate MS4 Owner/Operator, if requested. Please provide the date it was received if applicable



**RHODE ISLAND POLLUTANT DISCHARGE
ELIMINATION SYSTEM (RIPDES)
NO DISCHARGE CERTIFICATION**

(revised 3/19)

I. OWNER			
Formal Name:			
Mailing Address:			
City:	State:	Zip:	
E-mail Address:			
Name of Contact Person:		Title:	
Phone: ()		Contact Person E-mail Address:	
II. OPERATOR (If Different from Owner)			
Formal Name:			
Mailing Address:			
City:	State:	Zip:	Phone: ()
E-mail Address:			
Name of Contact Person:		Title:	
Phone: ()		Contact Person E-mail Address:	
III. FACILITY INFORMATION			
Facility Name:			
Street Address of Physical Facility:			
City:	State:	Zip:	E-mail Address
Latitude of Facility (in decimals)		Longitude of Facility (in decimals)	
Total Area of Site _____ Acres	Total Area of Impervious Surface _____ Acres		Runoff Coefficient: _____
IV. Basis for Seeking No Discharge Option			
Provide a detailed description of your facility and operations including the best practices and/or control measures used to ensure that storm water does not discharge from your facility. Examples of best practices include using berms to prevent storm water from leaving the site, using detention basins to collect uncontaminated storm water on site, and frequent inspections of berms.			

Check the condition which best describes your facility:

- facility is engineered and constructed to contain all storm water associated with industrial activities from discharging to waters of the State
- facility is located in basins or other physical locations that are not hydrologically connected to waters of the State
- have all stormwater associated with industrial activity discharged via Combined Sewer Overflow Systems

Has the facility been inspected to verify the condition of No Discharge? YES NO

V. NO DISCHARGE 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, I certify that 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.

Print Name _____

Print Title _____

Signature _____ Date _____



NO DISCHARGE CERTIFICATION EXCLUSION FROM RIPDES INDUSTRIAL STORM WATER PERMITTING INSTRUCTIONS

Who Should File an NDC Form?

Discharges of storm water associated with industrial activity to Waters of the State are prohibited without a Rhode Island Pollutant Discharge Elimination System (RIPDES) permit pursuant to the provisions of the Rhode Island General Laws Chapter 46-12. The owner or operator of an industrial activity that has such a storm water discharge must submit a Notice of Intent (NOI) to obtain coverage under the RIPDES Storm Water Multi-Sector General Permit. However, RIPDES permit coverage is not required for discharges of stormwater associated with industrial activities identified in the RIPDES Regulations 250-RICR-150-10-1.32(B)(15)(i-ix) and (xi) if the discharger can certify that a condition of “no discharge” exists at the industrial facility or site. If you have questions about whether you need a permit under the RIPDES Storm Water program contact the Rhode Island Department of Environmental Management, Office of Water Resources at (401) 222-4700 ext. 7274.

In order for RIPDES to ensure that all industrial facilities are properly permitted according to state and federal regulations, a filed NEC provides documentation that a particular industrial facility is exempt. See Page 1 of the NEC form for more details on what constitutes “no discharge”.

Obtaining and Maintaining the No Discharge Exclusion

This form is used to certify that a condition of no discharge exists at the industrial facility or site described herein. This certification should be submitted at least once every five years.

The industrial facility operator must maintain a condition of no discharge at its facility or site in

order for the no discharge certification to remain applicable. If conditions change resulting in the discharge of stormwater that is exposed to materials and activities related to industrial activities identified in the RIPDES Regulations 250-RICR-150-10-1.32(B)(15)(i-ix) and (xi), the facility operator must obtain coverage under a RIPDES stormwater permit (MSGP authorization) immediately.

Where to File the No Discharge Certification Form

Mail the completed no discharge certification form to:

Rhode Island Department of Environmental
Management
Office of Water Resources
RIPDES Program
235 Promenade Street
Providence, RI 02908

Any questions regarding the No Discharge Certification Form should be directed to Travis Babikoff at (401) 222-4700 ext. 7274 or Margarita Chatterton at (ext. 7605).

Completing the Form

You must type or print in the appropriate areas only. Abbreviate if necessary to save space. Additional pages may be attached for review and should be clearly labeled. Please make sure you have addressed all applicable questions and have made a photocopy for your records before sending the completed form to the above address.

Section I - Owner Information

Give the **legal name** of the firm, public (municipal) organization, person or any other entity that owns the industrial activity described in this application (250-RICR-150-10-1.4 & 250-RICR-150-10-1.14 of

the RIPDES Regulations). The name of the owner may or may not be the same as the name of the facility. Do not use a colloquial name. Enter the complete mailing address and email of the owner. Enter the name, title, telephone number and email of the contact person for the owner of the industrial facility.

Section II - Operator Information

If the operator is the same as the owner, enter "Same as Owner". Give the **legal name** of the firm, public (municipal) organization, person or any other entity that, that operates the industrial facility described in this application (250-RICR-150-10-1.4 & 250-RICR-150-10-1.14 of the RIPDES Regulations). The name of the operator may or may not be the same as that of the facility. The operator is the legal entity that controls the facility's operation, rather than the plant or site manager. Do not use a colloquial name. Enter the complete address and email of the operator. Enter the name, title, telephone number and email of the contact person for the operator of the industrial facility. Circle the appropriate choice to indicate the legal status of the owner of the facility.

Section III - Facility Information

Enter the facility's official or legal name and complete street address and telephone number. Indicate the latitude and longitude of the approximate center of the facility in decimal coordinates, as determined from a system using World Geodetic System 1984 datum <https://www.fcc.gov/media/radio/dms-decimal> (i.e. <https://www.latlong.net/> Enter the total area of the site (acres), the total area of the impervious surface (acres), and the runoff coefficient for the site. Select the appropriate choice to indicate the legal status of the owner of the facility.

Section IV – Basis for Seeking No Discharge

Complete this section to describe how the facility prevents any stormwater discharge from the site. If ANY stormwater discharge occurs from the site and the potential exists for that stormwater to come into contact with materials, products, or activities associated with industrial activity and meeting the requirements of RIPDES regulations, you must obtain (or already have) coverage under a RIPDES stormwater permit. Indicate whether or not RIPDES

has inspected the site to confirm a no discharge certification is appropriate.

Section V – Certification Statement

State and Federal statutes provide for severe penalties for submitting false information on this application form. State and Federal regulations require this application to be signed as follows (250-RICR-150-10-1.12):

- *For a corporation:* by a responsible corporate officer, which means:
 - (i) president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions, or
 - (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;
- *For a partnership or sole proprietorship:* by a general partner or the proprietor;
- *For a Municipality, State, Federal or other public facility:* by either a principal executive officer or ranking elected official.

*Note that this section also requires certification that a copy of the NDC was sent to and received by the appropriate MS4 Owner/Operator, if requested. Please provide the date it was received if applicable.

Appendix D
Calculating Hardness in Receiving Waters for Hardness Dependent Metals

Calculating Hardness in Receiving Waters for Hardness Dependent Metals Overview

The benchmarks are adjusted for six hardness-dependent metals (i.e., cadmium, copper, lead, nickel, silver, and zinc) to further ensure compliance with water quality standards and provide additional protection for endangered species and their critical habitat. For any sectors required to conduct benchmark samples for a hardness-dependent metal, 'hardness ranges' are included from which benchmark values are determined. To determine which hardness range to use, the permittee must collect data on the hardness of the facility's receiving water(s). Once the site-specific hardness data have been collected, the corresponding benchmark value for each metal is determined by comparing where the hardness data fall within 25 mg/L ranges, as shown in Table D-1.

Table D-1. Hardness Ranges to Be Used to Determine Benchmark Values for Cadmium, Copper, Lead, Nickel, Silver, and Zinc.

All Units mg/L	Benchmark Values (mg/L, total)					
	Cadmium	Copper	Lead	Nickel	Silver	Zinc
0-25 mg/L	0.0005	0.0038	0.014	0.15	0.0007	0.04
25-50 mg/L	0.0008	0.0056	0.023	0.20	0.0007	0.05
50-75 mg/L	0.0013	0.0090	0.045	0.32	0.0017	0.08
75-100 mg/L	0.0018	0.0123	0.069	0.42	0.0030	0.11
100-125 mg/L	0.0023	0.0156	0.095	0.52	0.0046	0.13
125-150 mg/L	0.0029	0.0189	0.122	0.61	0.0065	0.16
150-175 mg/L	0.0034	0.0221	0.151	0.71	0.0087	0.18
175-200 mg/L	0.0039	0.0253	0.182	0.80	0.0112	0.20
200-225 mg/L	0.0045	0.0285	0.213	0.89	0.0138	0.23
225-250 mg/L	0.0050	0.0316	0.246	0.98	0.0168	0.25
250+ mg/L	0.0053	0.0332	0.262	1.02	0.0183	0.26

How to Determine Hardness for Hardness-Dependent Parameters. The permittee may select one of three methods to determine hardness, including; individual grab sampling, grab sampling by a group of operators which discharge to the same receiving water, or using third-party data. Regardless of the method used, the permittee is responsible for documenting the procedures used for determining hardness values. Once the hardness value is established, the permittee is required to include this information in the first benchmark report submitted to RIDEM so that the Department can make appropriate comparisons between the benchmark monitoring results and the corresponding benchmark. The permittee must retain all report and monitoring data in accordance with Part VII.E of the permit. The three method options for determining hardness are detailed in the following sections.

(1) Permittee Samples for Receiving Stream Hardness

This method involves collecting samples in the receiving water and submitting these to a laboratory for analysis. If the permittee elects to sample the receiving water(s) and submit samples for analysis, hardness must be determined from the closest intermittent or perennial stream downstream of the facility's point of discharge. The sample can be collected during either dry or wet weather. Collection of the sample during wet weather is more representative of conditions during stormwater discharges; however, collection of in-stream samples during wet weather events may be impracticable or present safety issues.

Hardness must be sampled and analyzed using approved methods as described in 40 CFR Part 136 (Guidelines Establishing Test Procedures for the Analysis of Pollutants).

(2) Group Monitoring for Receiving Stream Hardness

The permittee can be part of a group of permittees discharging to the same receiving waters and collect samples that are representative of the hardness values for all members of the group. In this scenario, hardness of the receiving water must be determined using 40 CFR Part 136 procedures and the results shared by group members. To use the same results, hardness measurements must be taken on a stream reach within a reasonable distance of the discharge points of each of the group members.

(3) Collection of Third-Party Hardness Data

The permittee can submit receiving stream hardness data collected by a third party provided the results are collected consistent with the approved 40 CFR Part 136 methods. These data may come from a local water utility, previously conducted stream reports, TMDLs, peer reviewed literature, other government publications, or data previously collected by the permittee. Data should be less than 10 years old.

Water quality data for many of the nation's surface waters are available on-line or by contacting EPA or a state environmental agency. EPA's data system STORET, short for STORage and RETrieval, is a repository for receiving water quality, biological, and physical data and is used by state environmental agencies, EPA and other federal agencies, universities, private citizens, and many others. Similarly, state environmental agencies and the U.S. Geological Service (USGS) also have water quality data available that, in some instances, can be accessed online. "Legacy STORET" codes for hardness include: 259 hardness, carbonate; 260 hardness, noncarbonated; and 261 calcium + magnesium, while more recent, "Modern STORET" data codes include: 00900 hardness, 00901 carbonate hardness, and 00902 noncarbonate hardness; or the discrete measurements of calcium (00915) and magnesium (00925) can be used to calculate hardness. Hardness data historically has been reported as "carbonate," "noncarbonate," or "Ca + Mg." If these are unavailable, then individual results for calcium (Ca) and magnesium (Mg) may be used to calculate hardness using the following equation:

$$\text{mg/L CaCO}_3 = 2.497 (\text{Ca mg/L}) + 4.118 (\text{Mg mg/L})$$

When interpreting the data for carbonate and non-carbonate hardness, note that total hardness is equivalent to the sum of carbonate and noncarbonate hardness if both forms are reported. If only carbonate hardness is reported, it is more than likely that noncarbonate hardness is absent and the total hardness is equivalent to the available carbonate hardness.

APPENDIX B
SWMP Amendment Log



APPENDIX C

Inventory of Exposed Materials

Inventory of Materials with Potential Storm Water Contact

ProvPort, Inc.

35 Terminal Road, Providence, Rhode Island

July 2019

Material Stored	Dates Stored	Quantity	Location	Materials Management Practices / Structural and Non-Structural Controls
Salt	2003-present	Varies	Covered storage in Mid-American Salt building (Drainage Area 8) and stockpiles in Drainage Areas 1 and 4	Covered storage building, drainage booms surrounding pile(s) and at probable discharge point (sheet flow over dock), and covers over stockpiles. Exposure during material management.
Aluminum Oxide	2008-present	50,000 tons	Covered storage adjacent to Marine Terminal Building, Drainage Areas 1 and 2	Covered storage, drainage booms at probable discharge point (sheet flow over dock).
Stockpile (copper slag)	1999-present	Varies	Drainage Area 4	Stockpile is generally stored for short-term, drainage booms around downgradient perimeter and at the discharge point (over the dock), pile graded low.
Various stockpiles (copper slag, aluminum dregs, and salt)	1999-present	Varies	Drainage Area 1	Stockpiles are generally only stored for short-term, drainage booms around downgradient perimeter of piles and at the discharge point (over the dock).
Temporary storage of vehicles	2013-present	800-1,500 cars	Drainage Areas 1, 4, 5, and 7	Drainage booms are located at the discharge point (over the dock).
Vehicle fuel	2013-present	~100 gallons, varies	Drainage Area 9	100-gallon fuel tank is kept on a truck stored inside the Maintenance Building. Exposure during re-fueling of vehicles.
Aluminum Dregs	1999-present	Varies	Drainage Area 3	Stockpile generally stored for short-term, drainage booms around downgradient perimeter and at the discharge point (over the dock).

APPENDIX D

Additional MSGP Documentation

MSGP Stormwater Visual Assessment Form

(Complete a separate form for each outfall you assess)

Name of **Name of Facility**

RIPDES PERMIT No.

Facility:

Outfall Name: **Name** "Substantially Identical Outfall"? No Yes (*identify substantially identical outfalls*):

Person(s)/Title(s) collecting sample: **Name/Title**

Person(s)/Title(s) examining sample: **Name/Title**

Date & Time Discharge Began:

Date & Time Sample Collected:

Date & Time Sample Examined:

Enter date and time

Enter date and time

Enter date and time

Substitute Sample? No Yes (*identify quarter/year when sample was originally scheduled to be collected*):

Nature of Discharge: Rainfall Snowmelt

If rainfall: Rainfall Amount: **No of** Previous Storm Ended > 72 hours Yes No* (*explain*):
inches inches Before Start of This Storm?

Parameter

Color None Other (*describe*):

Odor None Musty Sewage Sulfur Sour Petroleum/Gas _____
 Solvents Other (*describe*):

Clarity Clear Slightly Cloudy Cloudy Opaque Other

Floating Solids No Yes (*describe*):

Settled Solids** No Yes (*describe*):

Suspended Solids No Yes (*describe*):

Foam (gently shake sample) No Yes (*describe*):

Oil None Flecks Globs Sheen Slick

Sheen Other (*describe*):

Other Obvious No Yes (*describe*):

Indicators of Stormwater Pollution

* The 72-hour interval can be waived when the previous storm did not yield a measurable discharge or if you are able to document (attach applicable documentation) that less than a 72-hour interval is representative of local storm events during the sampling period.

** Observe for settled solids after allowing the sample to sit for approximately one-half hour.

Detail any concerns, additional comments, descriptions of pictures taken, and any corrective actions taken below (attach additional sheets as necessary). [Insert details](#)

Certification by Facility Responsible Official (Refer to MSGP Part X for Signatory Requirements)

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 gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name:

B. Title:

C. Signature

D. Date Signed:

	Structural Control Measure	Control Measure is Operating Effectively?	If No, In Need of Maintenance, Repair, or Replacement?	Corrective Action Needed and Date Corrected (identify needed maintenance and repairs, or any failed control measures that need replacement, list repairs/modifications made and date completed)
8	Insert Control Measure Name	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	Describe Corrective Actions
9	Insert Control Measure Name	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	Describe Corrective Actions
10	Insert Control Measure Name	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	Describe Corrective Actions

Areas of Industrial Materials or Activities Exposed to Stormwater

Below are some general areas that should be assessed during routine inspections. Customize this list as needed for the specific types of industrial materials or activities at your facility.

	Area/Activity	Inspected?	Controls Adequate (appropriate, effective, and operating)?	Corrective Action Needed and Date Corrected (identify needed maintenance and repairs, or any failed control measures that need replacement, list repairs/modifications made and date completed)
1	Material loading/unloading and storage areas	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	Describe Corrective Actions
2	Equipment operations and maintenance areas	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	Describe Corrective Actions
3	Fueling areas	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	Describe Corrective Actions
4	Outdoor vehicle and equipment washing areas	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	Describe Corrective Actions
5	Waste handling and disposal areas	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	Describe Corrective Actions
6	Erodible areas/construction	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	Describe Corrective Actions
7	Non-stormwater/ illicit connections	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	Describe Corrective Actions
8	Salt storage piles or pile containing salt	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	Describe Corrective Actions
9	Dust generation and vehicle tracking	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	Describe Corrective Actions
10	(Other)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	Describe Corrective Actions
11	(Other)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	Describe Corrective Actions

Non-Compliance

Describe any incidents of non-compliance observed and not described above:

[Describe Non-compliance](#)

Additional Control Measures

Describe any additional control measures needed to comply with the permit requirements:

[Describe Additional Controls Needed](#)

Notes

Use this space for any additional notes or observations from the inspection:

[Additional Notes](#)

CERTIFICATION STATEMENT

"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 gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Print name and title: _____

Signature: _____ **Date:** _____

Significant Spills, Leaks, or Other Releases
 ProvPort, Inc.
 35 Terminal Road, Providence, Rhode Island

Date of incident:	
Location of incident:	
Description of incident:	
Circumstances leading to release:	
Actions taken in response to release:	
Measures taken to prevent recurrence:	

Date of incident:	
Location of incident:	
Description of incident:	
Circumstances leading to release:	
Actions taken in response to release:	
Measures taken to prevent recurrence:	



Employee Training
ProvPort, Inc.
35 Terminal Road, Providence, Rhode Island

Training Date:	
Training Description:	
Trainer:	
Employee(s) Trained:	Employee Signature:

Training Date:	
Training Description:	
Trainer:	
Employee(s) Trained:	Employee Signature:

Training Date:	
Training Description:	
Trainer:	
Employee(s) Trained:	Employee Signature:





March 15, 2021

Mr. Willie Willis
SEA-3 Providence
25 Fields Point Drive
Providence, RI 02905

Re: **SEA-3 LPG Terminal- Traffic Assessment**
Providence, Rhode Island
Pare Project No.: 21046.00

Dear Mr. Willis:

Per your request, Pare Corporation (Pare) has completed a preliminary investigation into the potential impact on the traffic conditions on the surrounding roadway network due to the proposed expansion of the ancillary operation improvements at the SEA-3 Providence, LLC Propane Terminal (SEA-3). The facility is on a 10-acre lot at 25 Fields Point Drive in Providence, Rhode Island located within the Port of Providence (ProvPort). This site receives LPG from pressurized ships and then converts the fuel to propane for distribution for home heating and backup power generation. SEA-3 is the second largest storage and distribution terminal for LPG (propane) in the northeastern United States and is the only refrigerated, water-accessible propane storage terminal in southern New England. This location in ProvPort is a critical asset to the southern New England propane market.

This assessment focuses on the distribution of the LPG after the rail offloading. The overall objective of the project is to provide the operational flexibility to move 600,000 gallons (with a maximum of 1,200,000 gallons) of LPG product per day on to truck transports. The LPG is to be distributed from the Fields Point Drive site to destinations within the southern New England region (Rhode Island, Connecticut, & Massachusetts). The delivery locations are within an anticipated 150-mile radius from the ProvPort site. Currently the site has 3 lanes for the existing truck loading. It is proposed to relocate the existing three (3) truck loading lanes and to also add a fourth (4th) and fifth (5th) expansion lane to transfer propane from bullets to truck loading.

The existing site is permitted for 244 trucks to travel to and take LPG away from the site each day. This permitted number of trucks will not increase with the ancillary expansion of the Sea 3 Providence's operation being described in the Site Report and Petition. An estimated 80-100 trucks refuel at the terminal each day during the winter, when demand was highest, when a previous operator ran the facility. Based on the existing permits, the site is allowed to load 18 trucks per hour. With an average operation time for loading the trucks being 30 minutes per lane and with SEA-3 looking to expand the facility to 5 fueling lanes, this allows a maximum of 10 trucks being loaded per hour which is well below the permitted 18 trucks per hour.

As far as the site layout, the access to the site will be moved from Seaview Drive to a new entrance further south on Fields Point Drive, just north of the intersection with Harborside Boulevard. Between





Mr. Willie Willis

(2)

March 15, 2021

the entrance and the fueling positions, there is approximately 600 feet of queuing area on-site, which will allow more than enough area for stacking of trucks without truck traffic spilling out onto the adjacent roadway system. After the product is loaded onto the trucks, the trucks will exit the site through the existing site egress onto Fields Point Drive. As mentioned, this site will provide deliveries to customers within an approximate 150-mile radius within the southern New England Region. The deliveries will not go out to local neighboring customers but will be distributed throughout the southern New England region using mainly the interstate highway system. All truck traffic from the site will use the roadways within ProvPort, Fields Point Drive and Terminal Road, to gain access to Allens Avenue. Allens Avenue will provide direct access to the I-95 northbound ramp, approximately 1,700 feet north of the Terminal Road intersection to provide deliveries to points north and west.

For access to I-95 southbound, traffic will turn left onto Allens Avenue and make an immediate right turn onto Ernest Street, a mostly industrial area. Traffic will then head north on Eddy Street, through a mixture of industrial and residential uses and east on Thurbers Avenue to gain access onto I-95 south. This route appears to be an established truck route.

In summary, we are of the opinion that the proposed development and the number of trucks being generated from the site along with the routes they will be travelling on will not have any significant impact to the capacity and safety of the existing roadway network. We are available to discuss our findings at your convenience. Please feel free to contact me if you have any questions or need additional information.

Sincerely,

John P. Shevlin, P.E.
Senior Vice President

JPS/



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street, Providence, Rhode Island 02908

RI POLLUTANT DISCHARGE ELIMINATION SYSTEM (RIPDES)
NO EXPOSURE CERTIFICATION (NEC)
FOR STORMWATER DISCHARGES ASSOCIATED WITH INDUSTRIAL
ACTIVITY UNDER THE RIPDES MULTI-SECTOR GENERAL PERMIT

Exclusion Information

Master Permit Number RIRNE0000

RIPDES ID: RIRNE0306

Submission of this No Exposure Certification constitutes notice that the operator identified in Operator Information of this form does not require permit authorization under RIDEMs Stormwater Multi Sector General Permit for its stormwater discharges associated with industrial activity from the facility identified in Facility Information section due to the existence of a condition of no exposure.

Select the purpose for filling out this form

To obtain a new No Exposure Certification

Eligibility Information

State/territory where your facility is located: RI

Is your facility located on Indian Country lands? No

Are you a "Federal Operator" as defined in Appendix A (https://www.epa.gov/sites/production/files/2015-10/documents/msgp2015_appendixa.pdf)? No

Which type of form would you like to submit? No Exposure Certification (NEC)

By indicating "Yes" below, I understand that I am obligated to re-certify the no exposure status in accordance to RIPDES requirements, and, if requested, to the operator of the local municipal separate storm sewer system (MS4) into which the facility discharges (where applicable). I understand that I must allow the RIPDES permitting authority, or MS4 operator where the discharge is into the local MS4, to perform inspections to confirm the condition of no exposure and to make such inspection reports publicly available upon request. I understand that I must obtain coverage under a RIPDES permit prior to any point source discharges associated with industrial activity from the facility.

Yes

Have industrial stormwater discharges from your facility been covered previously under a RIPDES permit? No

Has your facility previously been covered by a No Exposure exclusion? No

Has your facility previously been covered by a No Discharge exclusion? No

Operator Information

Operator Information

Operator: Sea-3 Providence, LLC

Operator Mailing Address:

Address Line 1: 10200 Grogans Mill Road

Address Line 2: Suite 510

ZIP/Postal Code: 77380

City: The Woodlands

State: TX

Operator Point of Contact Information

First Name Middle Initial Last Name: Giuseppe R Natale

Title: VP, Corporate Development & Operations

Phone: 973-617-6382 Ext.

Email: jnatale@blackline-partners.com

Facility Information

Facility Information

Facility Name: Sea-3 Providence, LLC

Address Line 1: 25 Fields Point Drive

Address Line 2:

City: Providence

ZIP/Postal Code: 02905

State: RI

Latitude/Longitude for the facility

Latitude/Longitude: 41.7901°N, 71.3855°W

Latitude/Longitude Data Source: Map

Horizontal Reference Datum: NAD 27

Identify the 4-digit Standard Industrial Classification code or 24-letter Activity Code that best represents the products produced or services rendered for which your facility is primarily engaged, as defined in MSGP.

Primary SIC Code: 5171

OR

Primary Activity Code:

Tarpaulins Information

Do you make use of tarpaulins to protect materials or products stored outdoors from exposure to stormwater? No

Have any spills and/or chronic leaks of significant materials occurred at the facility in the three years prior to the submission of the No Exposure Certification? No

Exposure Checklist

For your facility, are any of the following materials or activities exposed to precipitation, now or in the foreseeable future?

- ➔ Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning industrial machinery or equipment remain and are exposed to stormwater No
- ➔ Materials or residuals on the ground or in stormwater inlets from spills/leaks No
- ➔ Materials or products from past industrial activity No
- ➔ Material handling equipment (except adequately maintained vehicles) No
- ➔ Materials or products during loading/unloading or transporting activities No
- ➔ Materials or products stored outdoors (except final products intended for outside use [e.g., new cars] where exposure to stormwater does not result in the discharge of pollutants) No
- ➔ Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers No
- ➔ Materials or products handled/stored on roads or railways owned or maintained by the discharger No
- ➔ Waste material (except waste in covered, non-leaking containers [e.g., dumpsters]) No
- ➔ Application or disposal of process wastewater (unless otherwise permitted) No
- ➔ Particulate matter or visible deposits of residuals from roof stacks and/or vents not otherwise regulated (i.e., under an air quality control permit) and evident in the stormwater outflow No

Certification Information

I certify under penalty of law that I have read and understand the eligibility requirements for claiming a condition of "no exposure" and obtaining an exclusion from RIPDES stormwater permitting.

I understand that I am obligated to submit a no exposure certification form once every five years to the RIPDES permitting authority and, if requested, to the operator of the local municipal separate storm sewer system (MS4) into which the facility discharges (where applicable). I understand that I must allow the RIPDES permitting authority, or MS4 operator where the discharge is into the local MS4, to perform inspections to confirm the condition of no exposure and to make such inspection reports publicly available upon request. I understand that I must obtain coverage under an RIPDES permit prior to any point source discharge of stormwater from the facility.

Additionally, 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 gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Signing an electronic document on behalf of another person is subject to criminal, civil, administrative, or other law if action.

Certified By: Giuseppe R. Natale

Certifier Title: VP, Corporate Development and Operations

Certifier Email: jnatala@blackline-partners.com

Certified On: 06/21/2019 3:25 PM



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

OFFICE OF AIR RESOURCES
235 Promenade Street
Providence, Rhode Island 02908

11 May 2020

Mr. Douglas Ring
Terminal Manager
Sea-3 Providence LLC
25 Fields Point Drive
Providence, RI 02905

Dear Mr. Ring:

The Department of Environmental Management, Office of Air Resources, has reviewed and approved your application for the installation of fuel burning equipment at your 25 Fields Point Drive, Providence facility.

Enclosed is a minor source permit issued pursuant to our review of your application (Approval Nos. 2464 & 2465).

If there are any questions concerning this permit, please contact me at (401) 222-2808, extension 7048 or at David.DelSesto@dem.ri.gov.

Sincerely,

David DelSesto
Principal Air Quality Specialist
Office of Air Resources

cc: Joe Natale, Blackline Midstream
Amy Austin, POWER Engineers, Inc.
Providence Building Official

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR RESOURCES

MINOR SOURCE PERMIT

SEA-3 PROVIDENCE, LLC

APPROVAL NOs. 2464 & 2465

Pursuant to the provisions of Air Pollution Control Permits, 250-RICR-120-05-9, this permit is issued to:

Sea-3 Providence, LLC

For the following:

Installation of two identical Cleaver Brooks 19.424 MMBtu/hr firetube heaters Model No. CBLE-500HP. The heaters will be fired with natural gas.

Located at: *25 Fields Point Drive, Providence*

This permit shall be effective from the date of its issuance and shall remain in effect until revoked by or surrendered to the Department. This permit does not relieve *Sea-3 Providence, LLC* from compliance with applicable state and federal air pollution control rules and regulations. The design, construction and operation of this equipment shall be subject to the attached permit conditions and emission limitations.



Laurie Grandchamp, P.E., Chief
Office of Air Resources

5/11/20

Date of Issuance

**STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR RESOURCES**

Permit Conditions and Emission Limitations

Sea-3 Providence, LLC

Approval NOs. 2464 & 2465

A. Emission Limitations

1. Nitrogen Oxides (as nitrogen dioxide (NO₂))

The emission rate of nitrogen oxides discharged to the atmosphere from each heater shall not exceed 0.035 lb per million BTU heat input or 0.68 lbs/hr, whichever is more stringent.

2. Carbon Monoxide (CO)

The emission rate of carbon monoxide discharged to the atmosphere from each heater shall not exceed 0.038 lb per million BTU heat input or 0.73 lbs/hr, whichever is more stringent.

3. Total Nonmethane Hydrocarbons (NMHC)

The emission rate of total nonmethane hydrocarbons discharged to the atmosphere from each heater shall not exceed 0.004 lb per million BTU heat input or 0.070 lb/hr, whichever is more stringent.

4. Visible emissions from the heater stacks shall not exceed 10% opacity (6-minute average).

B. Operating Requirements

1. The maximum firing rate of the heaters shall not exceed 19,424 ft³/hr of natural gas per heater.

C. Continuous Monitors

1. Natural gas flow to the heaters shall be continuously measured and recorded.

D. Record Keeping and Reporting

1. The owner/operator shall, on a monthly basis, no later than 15 days after the first of the month, determine the total quantity of natural gas combusted in each heater. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources upon request.

2. The owner/operator shall notify the Office of Air Resources in writing of the date of actual start-up of each heater, no later than 15 days after such date.
3. The owner/operator shall notify the Office of Air Resources in writing of any physical or operational change to any equipment that would:
 - a. Change the representation of the facility in the application.
 - b. Alter the applicability of any state or federal air pollution rules or regulations.
 - c. Result in the violation of any terms or conditions of this permit.
 - d. Qualify as a modification under 250-RICR-120-05-9.

Such notification shall include:

- Information describing the nature of the change.
- Information describing the effect of the change on the emission of any air contaminant.
- The scheduled completion date of the planned change.

Any such change shall be consistent with the appropriate regulation and have the prior approval of the Director.

4. The owner/operator shall notify the Office of Air Resources of any anticipated noncompliance with the terms of this permit or any other applicable air pollution control rules and regulations.
5. The owner/operator shall notify the Office of Air Resources, in writing, of any noncompliance with the terms of this permit within 30 calendar days of becoming aware of such occurrence and supply the Director with the following information:
 - a. The name and location of the facility.
 - b. The subject source(s) that caused the noncompliance with the permit term.
 - c. The time and date of first observation of the incident of noncompliance.
 - d. The cause and expected duration of the incident of noncompliance.
 - e. The estimated rate of emissions (expressed in lbs/hr or lbs/day) during the incident and the operating data and calculations used in estimating the emission rate.
 - f. The proposed corrective actions and schedule to correct the conditions causing the incidence of noncompliance.

6. All records required in this permit shall be maintained for a minimum of five years after the date of each record and shall be made available to representatives of the Office of Air Resources upon request.

E. Other Permit Conditions

1. To the extent consistent with the requirements of this approval and applicable federal and state laws, the facility shall be designed, constructed and operated in accordance with the representation of the facility in the permit application.
2. Employees of the Office of Air Resources and its authorized representatives shall be allowed to enter the facility at all times for the purpose of inspecting any air pollution source, investigating any condition it believes may be causing air pollution or examining any records required to be maintained by the Office of Air Resources.
3. At all times, including periods of startup, shutdown and malfunction, the owner/operator shall, to the extent practicable, maintain and operate the facility in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Office of Air Resources which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures and inspection of the source.
4. The Office of Air Resources may reopen and revise this permit if it determines that:
 - a. a material mistake was made in establishing the operating restrictions; or,
 - b. inaccurate emission factors were used in establishing the operating restrictions; or,
 - a. emission factors have changed as a result of stack testing or emissions monitoring; or,
 - d. revisions that are necessary due to additional applicable requirements pursuant to state or federal law or from any regulatory agency.
5. The owner/operator is subject to the requirements of the Federal New Source Performance Standards 40 CFR 60, Subparts A (General Provisions) and Dc (Small Industrial-Commercial-Institutional Steam Generating Units). Compliance with all applicable provisions of these regulations is required.



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

OFFICE OF AIR RESOURCES
235 Promenade Street
Providence, Rhode Island 02908

11 May 2020

Mr. Douglas Ring
Terminal Manager
Sea-3 Providence LLC
25 Fields Point Drive
Providence, RI 02905

Dear Mr. Ring:

The Department of Environmental Management, Office of Air Resources has reviewed and approved your general permit application for the installation of an emergency generator located at 25 Fields Point Drive, Providence facility.

Enclosed is a general permit issued pursuant to our review of your application (General Permit No. GPEG-445).

Be advised that on May 4, 2016, the U.S. Court of Appeals for the D.C. Circuit vacated the provisions of 40 CFR 60, Subpart JJJJ – “Standards of Performance for Stationary Spark Ignition Internal Combustion Engines”, which allow emergency engines to operate for up to 100 hours for emergency demand response when the Reliability Coordinator has declared an Energy Emergency Alert Level 2 or for voltage or frequency deviations of 5 percent or greater below standard voltage or frequency. Specifically, the provisions in 40 CFR 60.4243(d)(2)(ii)-(iii) were vacated. Therefore, if you plan to operate your emergency generator to address voltage or frequency deviations or in emergency demand response, you must apply for a modification to your minor source permits to allow the units to be operated in non-emergency situations.

If there are any questions concerning this permit, please contact me at 401-222-2808, extension 7048 or by email at David.DelSesto@dem.ri.gov.

Sincerely,

David DelSesto
Principal Air Quality Specialist
Office of Air Resources

cc: Joe Natale, Blackline Midstream
Amy Austin, POWER Engineers, Inc.
Providence Building Official

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR RESOURCES

GENERAL PERMIT FOR AN EMERGENCY GENERATOR

SEA-3 PROVIDENCE, LLC

GENERAL PERMIT NO. GPEG-445

Pursuant to the provisions of Air Pollution Control Permits, 250-RICR-120-05-9, this permit is issued to:

Sea-3 Providence, LLC

For installation of the following emergency generator:

Kohler, Model No. 400REZXB-CP1, 650 HP, 400 kW_e

Natural Gas-fired emergency generator

Located at: *25 Fields Point Drive Providence, RI 02905*

East side of Heater Building

This general permit shall be effective from the date of its issuance and shall remain in effect until revoked by or surrendered to the Department. This general permit does not relieve *Sea-3 Providence, LLC* from compliance with applicable state and federal air pollution control rules and regulations. The design, construction and operation of this equipment shall be subject to the attached permit conditions and emission limitations.


Laurie Grandchamp, P.E., Chief
Office of Air Resources

5/11/26
Date of Issuance

**STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR RESOURCES**

Permit Conditions and Emission Limitations

Sea-3 Providence, LLC

GENERAL PERMIT NO. GPEG-445

A. Emission Limitations

1. Sulfur Dioxide

The sulfur content of any gaseous fuel burned in the emergency generator shall not exceed 10 grains total sulfur per 100 dry standard cubic feet.

2. Carbon Dioxide

The emission rate of carbon dioxide discharged to the atmosphere from the emergency generator shall not exceed 1900 lbs/MWh.

3. Visible emissions from the emergency generator shall not exceed 10% opacity except for a period or periods aggregating no more than three minutes in any one-hour. This visible emission limitation shall not apply during startup of an emergency generator. Startup shall be defined as the first ten minutes of firing following the initiation of firing.

B. Operating Requirements

1. The maximum firing rate for the emergency generator shall not exceed 4,231 cubic feet per hour.

2. The emergency generator shall not operate more than 500 hours in any 12-month period.

3. The emergency generator shall be used only during emergencies or for maintenance or testing purposes. Emergency means an electric power outage due to a failure of the electrical grid, on-site disaster, local equipment failure, or public service emergencies such as flood, fire, or natural disaster.

4. The emergency generator shall not be operated in conjunction with any voluntary demand-reduction program or any other interruptible power supply arrangement with a utility, other market participant or system operator.

C. Continuous Monitoring

1. The emergency generator shall be equipped with a non-resettable elapsed time meter to indicate, in cumulative hours, the elapsed engine operating time for the unit.

D. Record Keeping and Reporting

1. The owner/operator shall, on a monthly basis, no later than 5 days after the first of each month, determine and record the hours of operation for the emergency generator for the previous 12-month period.
2. The owner/operator shall notify the Office of Air Resources, in writing, within 15 days of determining that the hours of operation in any 12-month period exceeds 500 hours for the emergency generator.
3. The owner/operator shall notify the Office of Air Resources of any anticipated noncompliance with the terms of this permit or any other applicable air pollution control rules and regulations.
4. The owner/operator shall notify the Office of Air Resources, in writing, of the date of actual start-up of the emergency generator
5. The owner/operator shall notify the Office of Air Resources in writing of any planned physical or operational change to this emergency generator that would:
 - a. Change the representation of the facility in the application.
 - b. Alter the applicability of any state or federal air pollution rules or regulations.
 - c. Result in the violation of any terms or conditions of this permit.

Such notification shall include:

- Information describing the nature of the change.
- Information describing the effect of the change on the emission of any air contaminant.
- The scheduled completion date of the planned change.

Any such change shall be consistent with the appropriate regulation and have the prior approval of the Director.

6. The owner/operator shall notify the Office of Air Resources, in writing, of any noncompliance with the terms of this permit within 30 calendar days of becoming aware of such occurrence and supply the Director with the following information:

- a. The name and location of the facility.
 - b. The subject source(s) that caused the noncompliance with the permit term.
 - c. The time and date of first observation of the incident of noncompliance.
 - d. The cause and expected duration of the incident of noncompliance.
 - e. The estimated rate of emissions (expressed in lbs/hr or lbs/day) during the incident and the operating data and calculations used in estimating the emission rate.
 - f. The proposed corrective actions and schedule to correct the conditions causing the incidence of noncompliance.
7. All records required as a condition of this permit shall be maintained for a minimum of five years after the date of each record and shall be made available to representatives of the Office of Air Resources upon request.

E. Other Permit Conditions

1. To the extent consistent with the requirements of this approval and applicable Federal and State laws, the emergency generator shall be designed, constructed and operated in accordance with the representation of the equipment in the permit application.
2. Employees of the Office of Air Resources and its authorized representatives shall be allowed to enter the facility at all times for the purpose of inspecting any air pollution source, investigating any condition it believes may be causing air pollution or examining any records required to be maintained by the Office of Air Resources.
3. At all times, including periods of startup, shutdown and malfunction, the owner/operator shall, to the extent practicable, maintain and operate the emergency generator in a manner consistent with good air pollution control practice for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this permit have been achieved. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Office of Air Resources which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures and inspection of the emergency generator.
4. The owner/operator is subject to the requirements of 40 CFR 60, Subpart A (General Provisions) and Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines). Compliance with all applicable provisions therein is required.



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

OFFICE OF AIR RESOURCES
235 Promenade Street
Providence, Rhode Island 02908

31 October 2018

Mr. Joe Natale
Vice President Operations and Development
Sea-3 Providence, LLC
10200 Grogans Mill Road, Suite 510
The Woodlands, TX 77380

Dear Mr. Natale:

The Office of Air Resources is in receipt of Sea-3 Providence, LLC letter dated 20 September 2018 pertaining to notification of a change in ownership from Enterprise Terminals and Storage, LLC to Sea-3 Providence, LLC. The facility's name will also change from Providence Terminal to Sea-3 Providence, LLC. This letter acknowledges those changes as it applies to your facility located at 25 Fields Point Drive in Providence, Rhode Island. This letter also fulfills your obligation to notify the Office of Air Resources of a transfer of any air pollution permits.

This change applies to Approval Nos. 1506 and 1869. Enclosed are the revised minor source permits issued pursuant to our review of your request (Approval Nos. 1506 and 1869).

Pursuant to the provisions of subsection 9.10(J) of Air Pollution Control Regulation Part 9 (250-RICR-120-05-9), entitled, "Air Pollution Control Permits", effective with this change Sea-3 Providence, LLC shall be responsible for complying with all applicable air pollution control regulations and permit conditions.

The Office of Air Resources understands that Sea-3 Providence, LLC will continue to operate the existing equipment at the facility and no change to the process will occur.

Sea-3 Providence, LLC shall notify the Office of Air Resources, in writing, of any planned physical or operational change to the equipment that would:

1. Change the representation of the facility in the application.
2. Alter the applicability of any state or federal air pollution rules or regulations.
3. Result in the violation of any terms or conditions of the permit.

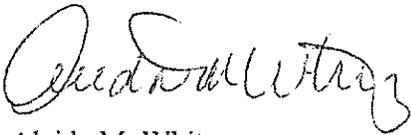
4. Qualify as a modification under Air Pollution Control Regulation Part 9. Such notification shall include:
- Information describing the nature of the change.
 - Information describing the effect of the change on the emission of any air contaminant.
 - The scheduled completion date of the planned change.

Any change which may result in an increased emission rate of any air contaminant shall have the prior approval of the Director.

This letter does not relieve Sea-3 Providence, LLC from compliance with applicable state or federal air pollution control rules and regulations.

If you have any questions, I may be reached at 401-222-2808, extension 7028 or at Aleida.whitney@dem.ri.gov.

Sincerely,



Aleida M. Whitney
Senior Air Quality Specialist
Office of Air Resources

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR RESOURCES

MINOR SOURCE PERMIT

SEA-3 PROVIDENCE, LLC

APPROVAL NO. 1506

Pursuant to the provisions of Air Pollution Control Regulation Part 9, this minor source permit is issued to:

Sea-3 Providence, LLC

For the following:

Change in ownership from Enterprise Terminals and Storage, LLC to Sea-3 Providence, LLC and change in facility name from Providence Terminal to Sea-3 Providence, LLC. This permit was issued for the installation and operation of a Flare King flare, Model No. FKAVP-H35-R6S-EPTK, to control air pollution emissions from the truck loading rack.

Located at: *25 Fields Point Drive, Providence, RI 02905*

This permit shall be effective from the date of its issuance and shall remain in effect until revoked by or surrendered to the Department. This permit does not relieve *Sea-3 Providence, LLC* from compliance with applicable state and federal air pollution control rules and regulations. The design, construction and operation of this equipment shall be subject to the attached permit conditions and emission limitations.


Laurie Grandchamp, P.E., Chief
Office of Air Resources

Oct. 31, 2018
Date of issuance

**STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR RESOURCES**

Permit Conditions and Emission Limitations

SEA-3 PROVIDENCE, LLC

APPROVAL NO. 1506

(Revised October 2018)

A. General Requirements

1. Residual propane remaining between the truck rack loading arm valve and the truck loading valve following the loading of LPG into trucks shall be treated by a flare before discharge to the atmosphere.

B. Operating Requirements

1. The truck loading rack flare shall be operated with a pilot flame present at all times.
2. No more than eighteen trucks per hour shall be loaded at the loading rack.
3. The flare shall be operated with no visible emissions.
4. The flare shall be operated at all times when propane gas is being vented to it.

C. Monitoring

1. The presence of a flare flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.
2. The truck rack flare system shall be equipped with a flame failure detection device that will alert terminal personnel to the extinguished flare pilot. Terminal personnel, upon receiving this flare pilot failure alarm, will discontinue evacuation of LPG from the truck loading rack to the truck rack flare until such time that the pilot can be re-established.
3. The flare system shall be equipped with a pilot ignition source. When the flare is lit or relit, fuel must be provided to ensure that a flame is present so that untreated propane is not discharged to the atmosphere.
4. The owner/operator shall visually inspect the flare system to confirm that a flame is present upon start-up or re-lighting of the flare. The date and time of each observation shall be recorded.

D. Record Keeping and Reporting

1. The owner/operator shall maintain records of the number of trucks loaded per hour and each day.
2. The owner/operator shall notify the Office of Air Resources whenever the number of trucks loaded exceeds eighteen in any 1-hour period.
3. The owner/operator shall notify the Office of Air Resources of any anticipated noncompliance with the terms of this permit or any other applicable air pollution control rules and regulations.
4. The owner/operator shall notify the Office of Air Resources in writing of the date of actual start-up of the truck loading rack flare system no later than 15 days after such date.
5. The owner/operator shall notify the Office of Air Resources immediately of any breakdown or malfunction of the flare. A written report of any breakdown or malfunction shall be submitted within five (5) days of the breakdown or malfunction. The following information shall be provided in each report:
 - a. The date the breakdown or malfunction occurred
 - b. The suspected reason for the malfunction
 - c. The corrective action taken
 - d. The time needed to make repairs

A copy of each report shall be kept at the facility.

6. The owner/operator shall notify the Office of Air Resources in writing of any planned physical or operational change to any equipment that would:
 - a. Change the representation of the facility in the permit application.
 - b. Alter the applicability of any state or federal air pollution rules or regulations.
 - c. Result in the violation of any terms or conditions of the permit.
 - d. Qualify as a modification under Air Pollution Control Regulation Part 9.

Such notification shall include:

- Information describing the nature of the change.
- Information describing the effect of the change on the emission of any air contaminant.
- The scheduled completion date of the planned change.

Any such change shall be consistent with the appropriate regulation and have the prior approval of the Director.

7. The owner/operator shall notify the Office of Air Resources, in writing, of any noncompliance with the terms of this permit within 30 calendar days of becoming aware of such occurrence and supply the Director with the following information:
 - a. The name and location of the facility;
 - b. The subject source(s) that caused the noncompliance with the permit term;
 - c. The time and date of first observation of the incident of noncompliance;
 - d. The cause and expected duration of the incident of noncompliance;
 - e. The estimated rate of emissions (expressed in lbs/hr or lbs/day) during the incident and the operating data and calculations used in estimating the emission rate.
 - f. The proposed corrective actions and schedule to correct the conditions causing the incidence of noncompliance.
8. All records required as a condition of this approval shall be maintained for a minimum of five years after the date of each record and shall be made available to representatives of the Office of Air Resources upon request.

E. Other Permit Conditions

1. To the extent consistent with the requirements of this permit and applicable federal and state laws, the facility shall be designed, constructed and operated in accordance with the representation of the facility in the permit application.
2. Employees of the Office of Air Resources and its authorized representatives shall be allowed to enter the facility at all times for the

purpose of inspecting any air pollution source, investigating any condition it believes may be causing air pollution or examining any records required to be maintained by the Office of Air Resources.

3. At all times, including periods of startup, shutdown and malfunction, the owner/operator shall, to the extent practicable, maintain and operate the facility in a manner consistent with good air pollution control practice for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this permit have been achieved. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Office of Air Resources which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures and inspection of the source.

**STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR RESOURCES**

Permit Conditions and Emission Limitations

SEA-3 PROVIDENCE, LLC

APPROVAL NO. 1869

(Revised October 2018)

A. Operating Requirements

1. The maintenance flare, used to treat excess propane that may be generated during transfer of LPG from marine vessels into the storage tank or due to pressure changes in the storage tank, shall not treat more than 16,000,000 pounds of propane in any 12-month period.
2. The maintenance flare shall be operated with a pilot flame present at all times, except for periods of time when the unit is out of service for maintenance and/or repair.
3. The maintenance flare shall be operated with no visible emissions.
4. The maintenance flare shall be operated at all times when propane gas is being vented to it.
5. All residual propane remaining in the loading arm following unloading of LPG from marine vessels into cryogenic storage shall be treated by the maintenance flare before discharge to the atmosphere.

B. Monitoring

1. The presence of a flare flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.
2. The maintenance flare shall be equipped with a flame failure detection device that will sense a flameout of the flare and will alert terminal personnel to the extinguished flare pilot.
3. The flare system shall be equipped with a pilot ignition source. When the flare is lit or relit, fuel must be provided to ensure that a flame is present so that untreated propane is not discharged to the atmosphere.
4. The owner/operator shall visually inspect the flare system to confirm that a flame is present upon start-up or re-lighting of each flare unit. The date and time of each observation shall be recorded.

4. The mass flow of propane to the maintenance flare shall be continuously measured and recorded.

C. Record Keeping and Reporting

1. The owner/operator shall, on a monthly basis, no later than 5 days after the first of the month, determine the mass flow of propane to the maintenance flare for the previous 12 months.
2. The owner/operator shall notify the Office of Air Resources in writing within 30 days whenever the mass flow of propane to the maintenance flare exceeds 16,000,000 pounds in any 12-month period.
3. The owner/operator shall notify the Office of Air Resources in writing of the date of actual start-up of the maintenance flare system no later than 15 days after such date.
4. The owner/operator shall notify the Office of Air Resources of any anticipated noncompliance with the terms of this permit or any other applicable air pollution control rules and regulations.
5. The owner/operator shall notify the Office of Air Resources immediately of any breakdown or malfunction of the maintenance flare. A written report of any breakdown or malfunction shall be submitted within five (5) days of the breakdown or malfunction. The following information shall be provided in each report:
 - a. The date the breakdown or malfunction occurred
 - b. The suspected reason for the malfunction
 - c. The corrective action taken
 - d. The time needed to make repairsA copy of each report shall be kept at the facility.
6. The owner/operator shall notify the Office of Air Resources in writing of any planned physical or operational change to any equipment that would:
 - a. Change the representation of the facility in the permit application.
 - b. Alter the applicability of any state or federal air pollution rules or regulations.
 - c. Result in the violation of any terms or conditions of the permit.

- d. Qualify as a modification under Air Pollution Control Regulation Part 9.

Such notification shall include:

- Information describing the nature of the change.
- Information describing the effect of the change on the emission of any air contaminant.
- The scheduled completion date of the planned change.

Any such change shall be consistent with the appropriate regulation and have the prior approval of the Director.

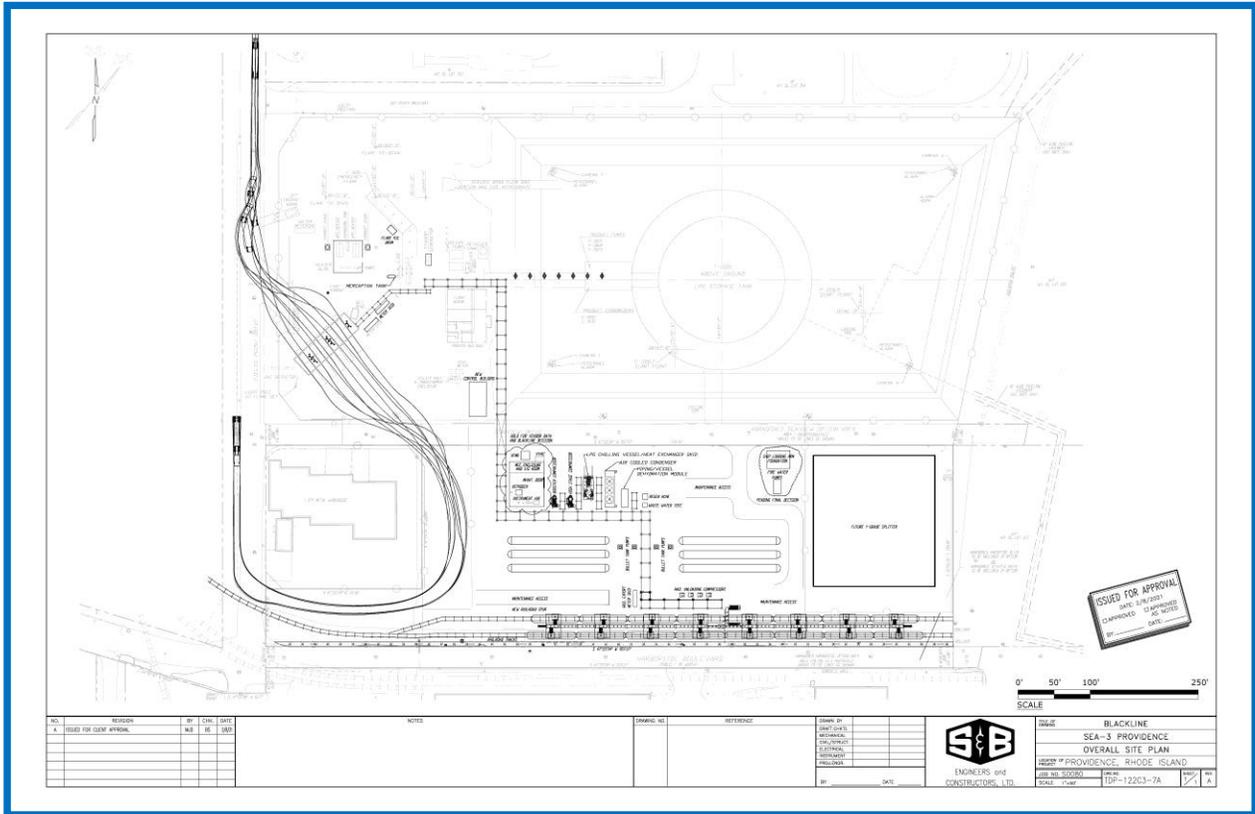
7. The owner/operator shall notify the Office of Air Resources, in writing, of any noncompliance with the terms of this permit within 30 calendar days of becoming aware of such occurrence and supply the Director with the following information:
 - a. The name and location of the facility;
 - b. The subject source(s) that caused the noncompliance with the permit term;
 - c. The time and date of first observation of the incident of noncompliance;
 - d. The cause and expected duration of the incident of noncompliance;
 - e. The estimated rate of emissions (expressed in lbs/hr or lbs/day) during the incident and the operating data and calculations used in estimating the emission rate.
 - f. The proposed corrective actions and schedule to correct the conditions causing the incidence of noncompliance.
8. All records required as a condition of this approval shall be maintained for a minimum of five years after the date of each record and shall be made available to representatives of the Office of Air Resources upon request.

D. Other Permit Conditions

1. To the extent consistent with the requirements of this permit and applicable federal and state laws, the facility shall be designed, constructed and operated in accordance with the representation of the facility in the permit application.

2. Employees of the Office of Air Resources and its authorized representatives shall be allowed to enter the facility at all times for the purpose of inspecting any air pollution source, investigating any condition it believes may be causing air pollution or examining any records required to be maintained by the Office of Air Resources.

3. At all times, including periods of startup, shutdown and malfunction, the owner/operator shall, to the extent practicable, maintain and operate the facility in a manner consistent with good air pollution control practice for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this permit have been achieved. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Office of Air Resources which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures and inspection of the source.



FIRE SAFETY ANALYSIS (FSA)

Property Identification:

**Blackline Midstream SEA-3 Facility Expansion
25 Seaview Drive
Providence, RI 02905**

February 12, 2021

Prepared by:

**MPE, Inc.
10 Pendleton Drive
PO Box 259
Hebron, CT 06248**



TABLE OF CONTENTS

1.0 INTRODUCTION.....	5
1.1 Description of Blackline SEA-3 LPG Expansion.....	5
1.2 Work Scope Phasing of the Blackline SEA-3 LPG Expansion	7
1.3 Meetings with the State Fire Marshall & Providence, RI Fire Department.....	7
1.4 Discussion of Supporting Documents & Response Training	8
1.5 Contents of Fire Safety Analysis.....	9
2.0 FACILITY & AREA DESCRIPTION.....	10
2.1 Blackline Midstream SEA-3 LPG Site Description.....	10
2.2 Area Topography	10
2.3 Area Land Use.....	10
3.0 FIRE SAFETY ANALYSIS.....	11
3.1 Gas Line & Storage Container Safety Features	12
3.2 LPG Terminal Staffing & Hours of Operation.....	14
3.3 Site Security & Illumination	14
3.4 Tank & Pipework Protection.....	14
3.5 Separation Distances from Containers to Buildings & Property Lines.....	14
3.6 Assessment of Sources of Ignition & Adjacent Combustible Materials.....	15
3.7 Distance to Vapor Cloud Explosion & 1 PSI Over Pressure	15
3.8 Use of Fire Extinguishing Equipment.....	18
3.9 Ignition Control Procedures	18
3.10 Analysis of Potentially Hazardous Situations from Surroundings.....	18
4.0 APPLICABLE GUIDANCE, CODES & STANDARDS.....	19
4.1 NFPA 58 – Liquefied Petroleum Gas Code.....	19
4.2 NFPA 24 - Standard for Installation of Private Fire Service Mains	19
4.3 NFPA 70 - National Electrical Code.....	19
5.0 RHODE ISLAND FIRE PROTECTION REGULATIONS.....	20
5.1 2013 Rhode Island General Laws.....	20
5.2 Completed Fire Safety Analysis Forms	20
5.3 Site Plan	21
5.4 Ethyl or Methyl Mercaptan Odorant Addition	21
6.0 ADEQUACY OF WATER SUPPLY & FIRE PROTECTION	22
6.1 Results of Fire Hydrant Testing by Providence Water.....	22
6.2 Fire Protection Systems	23
7.0 SAFETY & FIRE SYSTEMS, ALARMS, SHUTDOWNS, HORNS & LIGHTS	23
8.0 OPERATIONS & MAINTENANCE	23

8.1	Basic Plant Operations.....	24
8.2	Operations & Maintenance	24
9.0	EMERGENCY RESPONSE PLAN	24
9.1	Local Area Evacuation & Further Planning/Integration	25
9.2	Blackline SEA-3 LPG Expansion Evacuation Notifications & Protocols	25
9.3	Public Notifications	27
9.4	Contacting Area Businesses with Providence FD Issued Welding Permits.....	27
9.5	Notifications Based on Propane Sensor Alarms & Sensor Calibrations	27
9.6	Notifications Based on Flame Detection Sensors	28
9.7	Propane Emergency Response & Evacuation Training.....	29
9.8	Procedures for Security Breach.....	30
9.9	Sequence of Operations.....	31
10.0	PROPANE EMERGENCY RESPONSE TRAINING.....	32
11.0	LIMITATIONS.....	35
12.0	REFERENCES	35

FIGURES:

Figure 1:	Local Street Map Showing Occupancies
Figure 2:	Aerial Photograph Showing Adjacent Properties
Figure 3:	Aerial Photograph Showing Location of Blackline SEA-3 Expansion
Figure 4:	Aerial Photograph Showing Surrounding Area
Figure 5:	Off Site Mustering Locations
Figure 6:	Proposed Site Plan
Figure 7:	Fire Hydrant Locations Along Fieldspoint Drive and Seaview Drive
Figure 8:	RMP*Comp Release Model Distance Map to 1 PSI Over Pressure

TABLES:

Table 1:	Distances to Commercial & Residential Occupancies
Table 2:	Description of the Various Steps in Performing the FSA
Table 3A:	EPA RMP Comp Worst Case Vapor Cloud Explosion Scenario
Table 3B:	EPA RMP Comp Alternate Case Estimated Vapor Cloud Explosion
Table 3C:	EPA RMP Comp Alternate Case Four-Inch Pipe Break
Table 3D:	EPA RMP Comp Alternate Case Hose Rupture by a Truck Pull-Away with Active Mitigation in Place
Table 4:	Fire Hydrant Water Flow Testing Results
Table 5A:	Location of Propane Gas Detectors
Table 5B:	Location of Flame/Heat Detectors

APPENDIXES:

- Appendix A: Description of Blackline SEA-3 LPG Expansion Project Phasing
- Appendix B: NFPA 58, Fire Safety Analysis Completed Forms 4.1 through 9.7
- Appendix C: Hydrant Testing by Providence Water Along Fieldspoint Drive and Seaview Drive, Providence, RI
- Appendix D: Information on Liquid Propane Gas (LPG):
 - F1 - Propane Education & Research Council (PERC) Physical Properties and Characteristics of Propane
 - F2 - Safety Data Sheet for Liquid Propane Gas (LPG)
- Appendix E: Propane Guidance Documents and Technical Resources:
 - G1- The Propane Education & Research Council (PERC) and National Propane Gas Association (NPGA), Certified Employee Training Program for Basic Plant Operations, 2011 Edition
 - G2 - The National Propane Gas Association (NPGA) and Propane Education & Research Council (PERC), Operations & Maintenance Handbook for LPG Storage Facilities, 2009
 - G3 - The National Propane Gas Association (NPGA) and Propane Education & Research Council (PERC), Propane Emergencies, Third Edition, 2007

1.0 INTRODUCTION

MPE, Inc. (MPEI) has prepared this Fire Safety Analysis (FSA) to address the fire safety requirements outlined in the National Fire Protection Association (NFPA) and National Propane Gas Association (NPGA) Fire Safety Analysis Manual for LP-Gas Storage Facilities based on NFPA 58 – Liquefied Propane Gas Code, 2011 Edition. The Blackline SEA-3 Liquefied Propane Gas (LPG) Expansion will be designed and constructed to be in full compliance with NFPA 58. Additionally, guidance documents adopted by the Petroleum Education Research Council (PERC) and the National Propane Gas Association (NPGA) for the training of operators and for plant operation and maintenance (O&M) have been incorporated into the FSA. The Blackline SEA-3 LPG Expansion project is located at 25 Seaview Drive in Providence, RI adjacent to the existing Blackline SEA-3 LPG Facility where Tank 0001 is located. Figures 1-4 show the location of the facility and area surrounding the Site.

1.1 Description of Blackline SEA-3 LPG Expansion

The Blackline SEA-3 LPG project involves expanding the capabilities of the existing adjacent facility where Tank 0001 is located by the addition of the following equipment on the adjacent property located on Seaview Drive in Providence, RI. The expansion includes addition of the following:

- Additional railcar offloading;
- Additional above ground storage tank (AST) installations,
- A new truck loading area;
- Additional dehydration equipment, refrigeration equipment, heating equipment, odorization equipment; and
- Compressed air & nitrogen generation systems;
- Product metering equipment.

The Blackline SEA-3 LPG Expansion will involve addition of the following LPG capabilities and handling equipment as described in the following:

1. Provide new railcar offloading and transfer to new bullet storage:
 - Design basis: approximately ten (10) to sixteen (16) spots, for up to thirty-two (32) rail cars per day at 30,000 gallons per car (GPC).
2. Provide new bullet to existing or new truck loading via odorization and metering:
 - Design basis: existing three (3), expanded four (4), or new five (5) truck lanes, at 500 gallon per minute (gpm) per lane.
3. Provide new bullet to existing T-0001 storage via dehydration and refrigeration:

- Design basis: approximately 125 gpm.
- 4. Provide existing T-0001 storage to new bullet storage via heating:
 - Design basis: Not provided (to be approved by Blackline).
- 5. Maintain or provide existing T-0001 storage to existing, expanded or new truck loading via heating, odorization and metering:
 - Design basis: Not provided (to be approved by Blackline).
- 6. Maintain existing ship unloading to T-0001 storage
- 7. Evaluate Optimization Options:
 - Existing three (3), expanded in place four (4) or relocated five (5) truck lanes.
 - Feasibility of eliminating existing truck rack flare and recycling vapors to T-0001.
 - Opportunities for nitrogen system usage improvements.
 - Feasibility of ethane railcar unloading for blending in new bullets, or day tank, with the ability to segregate bullets for HD-2 and HD-5 products as well as odorized and non-odorized propane.
 - Existing ship loading arm foundation location and tie-down requirements.

A breakdown of the new major equipment items involved in the expansion is summarized in the following:

- Rail Offloading:
 - Five (5) to eight (8) dual rail unloading arm assemblies (for 10 to 16 railcar spots)
 - One (1) railcar vapor recovery unit (VRU)
 - One (1) railcar vapor compression package
 - Four (4) railcar unloading transfer pumps
 - One (1) railcar unloading Leased Automated Custody Transfer Unit (LACT)
 - One (1) flare package
 - One (1) flare knockout tank
 - One (1) flare knockout tank heater
- Truck Loading:
 - Relocate existing three (3) truck loading arm assemblies
 - Two (2) truck loading arm assemblies
 - One (1) truck loading LACT
- LPG Bullets to T-0001:
 - Four (4) to six (6) 90,000-gallon LPG ASTs
 - One (1) dehydration packaged system
 - One (1) dehydration tank
 - One (1) dehydration tank heater
 - One (1) LPG refrigeration system

- One (1) regeneration heater system
- Four (4) LPG storage tank feed pumps
- Utilities:
 - One (1) nitrogen generation system
 - One (1) instrument air compression system.

1.2 Work Scope Phasing of the Blackline SEA-3 LPG Expansion

The scope of work is intended to be completed in a phased project approach. The phases consist of an initial Front-End Loading (FEL) engineering phase that will include the initial engineering, design and estimating for all three (3) subsequent Project Phases. Phases 1, 2, and 3, will be treated as separate projects, where future engineering, detailed design, procurement and construction will be treated independently. The three work scope phases are briefly summarized below:

- Phase 1: Completion of Warm Propane Railcar Unloading, Bullet Storage, Ethane Blending and Tie into Existing Truck Loading;
- Phase 2: Completion of Existing Truck Loading Fourth (4th) Lane Expansion, or New Truck Loading Five (5) Lane Location; and
- Phase 3: Provide new AST installations to supplement the existing T-0001 storage via dehydration and refrigeration.

A detailed description of the work scope phasing is provided in Appendix A of this document.

1.3 Meetings with the State Fire Marshall & Providence, RI Fire Department

A project scoping meeting was held using RingCentral.com on December 7, 2020 at 3:00 PM. The purpose of the meeting was to discuss the proposed Blackline SEA-3 LPG Expansion project and the fire protection requirements that are required as they apply to Blackline SEA-3 LPG Expansion Project.

The following parties attended the meetings:

- Ryan Boyle, SEA-3 Blackline Midstream;
- Brian Stephens, SBEC;
- Keith Webb, SBEC;
- Willie Willis, SEA-3 Blackline Midstream;
- Nick Hemond, Darrow Everett LLP;
- Eric Lee, SEA-3 Blackline Midstream;

- Konner Funkhouser; SEA-3 Blackline Midstream;
- Andrew Went, RI Division of Fire Prevention & Assistant Fire Marshal;
- David DiMaio, RI Deputy State Fire Marshal;
- James Gumbley, RI Chief Deputy, State Fire Marshal
- Robert Palermo, Sc.D., P.E., C.S.P., MPE, Inc.; and
- Robert Ceppi, P.E., MPE, Inc.

1.4 Discussion of Supporting Documents & Response Training

The following supporting Occupational Safety & Health Administration (OSHA) and U.S. Environmental Protection Agency (EPA) documents are also being prepared and/or updated for the subject Blackline Midstream SEA-3 LPG Expansion project:

- OSHA Process Safety Management (PSM) Plan;
- EPA Risk Management Plan (RMP) Online Application;
- OSHA/EPA Emergency Response Plan (ERP);
- OSHA Fire Prevention Plan (FPP);
- OSHA HAZCOM/GHS Written Program;
- OSHA Control of Hazardous Energy Sources Written Program;
- OSHA Personal Protective Equipment (PPE) Program;
- OSHA HAZWOPER Program;
- OSHA Respiratory Protection Written Program; and
- OSHA and NFPA 51B - Standard for Fire Prevention During Welding, Cutting, and Other Hot Work compliant Hot Works Program.

The Providence Fire Department (FD) will be the principal fire department responding to any incident/emergency that might occur at the subject facility. The Blackline Midstream SEA-3 LPG Expansion facility operations personnel understand that the Providence FD first responders as well as other local emergency responders and emergency medical services (e.g., Police, Emergency Management, Ambulances, etc.) must be included and integrated into the training that will be conducted at the facility that pertains to the ERP, FPP, and HAZWOPER programs.

The Blackline Midstream SEA-3 facility will coordinate this training with the Providence FD and with other local responders (e.g., Providence Police Department, Providence Emergency Management, Medical Service Provider and Ambulances, etc.) accordingly so that they can attend and participate in the above referenced training

programs. The training will be scheduled after the new equipment installations at the Blackline SEA-3 LPG Expansion project are complete and employees have been hired to operate the new facility.

1.5 Contents of Fire Safety Analysis

The FSA is required by NFPA 58, Chapter 6.25 Fire Protection and the contents of the FSA must satisfy the requirements outlined in this chapter. NFPA 58, Chapter 6.25.3.2 specifies that the FSA must address the following:

- The modes of fire protection shall be specified in a written FSA for new installations, and for existing installations that have an aggregate water capacity of more than 4,000 gallons, and for ASME containers on roofs;
- The FSA shall be submitted by the owner, operator, or their designee, to the authority having jurisdiction and local emergency responders;
- The FSA shall be updated when the storage capacity or transfer system is modified;
- The FSA shall be an evaluation of the total product control system, such as the emergency shutoff and internal valves equipped for remote closure and automatic shutoff using thermal (fire) actuation, pull away protection where installed, and the optional requirements of Section 6.26.; and
- If in the preparation for the FSA it is determined that a hazard to adjacent structures exists that exceeds the protection provided by the provisions of this code, special protection shall be provided in accordance with 6.25.5.

Chapter A.6.25.3 requires facilities that have redundant automatic product control systems provide a high level of confidence that propane will not be released during an emergency. Therefore, not only will the storage be protected from a fire that could lead to container rupture, but major fires at the facility would be prevented. The public would be protected, fire-fighting operations would be safer, and applications of large quantities of water would not be needed to prevent tank failure.

This FSA is organized into the following report sections:

- 1.0 Introduction;
- 2.0 Facility & Area Description;
- 3.0 Fire Safety Analysis;
- 4.0 Applicable Guidance, Codes & Standards;
- 5.0 Rhode Island Fire Protection Regulations;
- 6.0 Adequacy of Water Supply;

- 7.0 Safety & Fire Systems, Alarms, Shutdowns, Horns & lights
- 8.0 Operations & Maintenance;
- 9.0 Emergency Response Plan;
- 10.0 Propane Emergency Response Training;
- 11.0 Limitations; and
- 12.0 References.

2.0 FACILITY & AREA DESCRIPTION

2.1 Blackline Midstream SEA-3 LPG Site Description

The Blackline Midstream SEA-3 LPG Expansion facility is located between Fields Point Drive and Harborside Boulevard in Providence, RI and the property is approximately 1,057 feet long and 269 feet wide and occupies an area of approximately 6.527 acres (see Figures 1-4). The site can be accessed from Fields Point Drive and Harborside Boulevard. The site currently occupies a large story commercial building centrally located approximately 593 long and 196 feet wide and four (4) smaller buildings which are interconnected and are located along the western boundary by the site entrance.

2.2 Area Topography

The Blackline SEA-3 LPG Expansion project is located adjacent to the Providence River approximately 260 feet due East of the property line with higher topographic elevations on the site. The site is relatively flat and gradually slopes to the Northeast towards the Providence River which is approximately 1,690 feet wide at this location in the river.

2.3 Area Land Use

The Site is situated in a mixed residential and commercial/industrial area with homes located with the greatest density to the east and west of the site (see Table 1 and Figure 4). The locations of the properties in the immediate vicinity of the site are shown on Table 1 and include both commercial buildings, residential, hospitals and recreational parks. The scaled distances were obtained using Google Maps scaling from the source of a potential release, the LPG AST centrally located on the site (see Figure 6 Proposed Site Plan), to the noted receptor locations shown on Figure 1. The sensitive offsite receptor distances from the Blackline SEA-3 LPG Extension site are noted below in Table 1 below.

**Table 1 – Approximate Distances to Commercial & Residential Occupancies
(Distances from Central Location on the Blackline SEA-3 LPG Expansion Site)**

Description	Distance to Receptor (Feet)	Occupancy Type	General Direction
Narraganset Bay Commission off of Earnest Street	2,841	Commercial	North
Drummond Field off of Shipyard Street	2,271	Recreational	Northwest
Johnson & Wales University	1,981	Commercial	West
Wildcat Center	1,860	Commercial	West
Save the Bay Center	1,689	Commercial	South
Recreational Park (Soccer & Baseball Fields, etc.)	1,023	Recreational	West
Squantum Woods Park	3,294	Recreational	East
Residential Homes Located off of Narragansett Boulevard	3,326	Residential	West
Fields Point	1,411	Recreational	South
Cranberry Island	2,412	Recreational	East
Residential Apartments off of Harborside Boulevard	1,853	Residential	West
Residential Neighborhoods off of Michigan Ave	2,460	Residential	West
Kettle Point Homes off of Kettle Point Ave	3,124	Residential	East
Residential Neighborhoods off of Sunnyside Ave	3,586	Residential	East
University Orthopedics Kettle Point	2,835	Hospital	East
Emma Pendleton Bradley Hospital	4,257	Hospital	East

3.0 FIRE SAFETY ANALYSIS

The principal elements of the FSA required by NFPA 58 are summarized below. NFPA 58 notes that an FSA should address the following:

1. The effectiveness of product control measures;
2. Analysis of local conditions of hazard within the container site;
3. Exposure to or from other properties, population density, and congestion within the site;
4. Probable effectiveness of plant fire brigades or local fire departments, based on adequate water supply, response time, and training;
5. Consideration for the adequate application of water by hose stream or other method for effective control of leakage, fire, or other exposures; and
6. If necessary, designated time period for review of the fire safety analysis with local emergency response agencies to ensure preplanning and emergency response.

The development of an FSA involves a number of steps as shown on Table 2. The FSA requirements are presented in one or more tables and fill-in forms (see Appendix B for FSA completed forms). The tables provide either factual information or calculated results. The fill-in forms specify the NFPA 58 requirements and/or other assessment parameters, and provide two columns, one with a “Yes” column heading and the other with a “No” heading. In some cases, either schematic or pictorial representations are provided to clarify a requirement. The fill-in forms require information input, either checking a “Yes” column or a “No” column or writing a numerical value. Also provided are notes under each table or fill-in form to explain conditions, if any, associated with the table or the form or how a calculation is performed for entering data into the form.

3.1 Gas Line & Storage Container Safety Features

The Blackline Midstream SEA-3 LPG Expansion will be designed and constructed based on Best Management Practices (BMPs) and NFPA 58. The facility liquid and gas transfer lines and ASTs will be equipped with protective valve devices such as Emergency Shut Off Valves (ESV), Backflow Check Valves (BCK), Excess Flow Valves (EFV), Hydrostatic Pressure Relief Valve (HRV), Pressure Relief Valve (PRV) and breakaway protection should a truck accidentally pull away from a truck loading area. Early warning detection systems for gas leaks, heat and flame detection will be employed to proactively alarm and activate the ESVs. A brief description of the types of required protective valves, gas detection, flame and heat detection further described in NFPA 58 are provided below:

Positive Shutoff Valve: Manually operated shutoff valve used to control the flow of propane.

Backflow Check Valve: Valve allows flow in one direction only and is used to allow a container to be filled while preventing product from flowing out of the container.

Excess-Flow Valve: Valve designed to close when the liquid or vapor passing through it exceeds a prescribed flow rate.

Internal Valve: Primary shutoff valve for a container that can be closed remotely, which incorporates an internal excess flow valve with the seat and seat disc located within the container so that they remain in place should external damage occur to the valve.

Emergency Shutoff Valve: Shutoff valve incorporating thermal and manual means of closing that also provides for a remote means of closing.

Hydrostatic Pressure Relief Valve: Relief valve that is set to open and relieve pressure in a liquid hose or pipe segment between two shutoff valves when the pressure exceeds the setting of the valve.

Container Pressure Relief Valve: A type of pressure relief device designed to open and then close to prevent excess internal fluid pressure in a container without releasing the entire contents.

Propane Gas Sensors: Propane gas detection sensors installed throughout the facility at strategic locations where there are possible leak points and where propane can accumulate.

Heat & Flame Sensors: Heat/flame detection sensors installed at strategic locations throughout the facility where there could be potential ignition sources (i.e., heat, spark or flame) and propane vapors.

Overfilling Prevention Device: A safety device designed to provide an automatic means to prevent the over filling of a container in excess of the maximum permitted filling limit.

Overpressure Shutoff Device: A safety device that shuts off the flow of LP-Gas vapor when the outlet pressure of the regulator reaches a predetermined maximum allowable pressure.

The Blackline SEA-3 LPG Expansion facility uses automatic ESVs to shut down the LPG flow in the event of an emergency. The safety system features, controls, shutdowns, alarm horns and warning lights to be utilized at the Blackline SEA-3 LPG Expansion facility are described in Section 7.0 of this FSA.

3.2 LPG Terminal Staffing & Hours of Operation

The Blackline SEA-3 LPG Expansion facility will be staffed with a fulltime manager/operator and up to 2-4 additional employees as necessary, depending upon the LPG volume distributed. The facility will operate 24-hours a day, 7-days per week and will not operate on holidays but will operate on weekdays during the heating season.

3.3 Site Security & Illumination

The Blackline SEA-3 Expansion facility will be secured with a seven (7) foot galvanized steel mesh security fence (or equal) around the entire perimeter of the facility. Access into and out of the facility will be controlled by keyed access gates and will be monitored by an on-site operator and security monitoring cameras during all hours of operation. The automatic access gate locations are shown on Figure 6 and will provide entry and egress for incoming trucks. Video security will also be used and be in place at the facility. Adequate illumination is provided at nighttime to illuminate the truck loading stations and metering skids. The security monitoring system will have the ability to remotely shut down the facility by any person on site, remotely on site, and remotely off site by authorized employees. Keyed access to the gates will be provided to the Providence FD.

3.4 Tank & Pipework Protection

Equipment exposed to vehicular movement will be protected with guardrails, steel bollards, crash pots or other equal means. The truck-loading pad will be fully protected with bollards to prevent any damage to the propane lines and associated conveyance equipment.

3.5 Separation Distances from Containers to Buildings & Property Lines

The facility design has not been finalized at the time of this FSA preparation. It is MPE, Inc, understanding the Blackline SEA-3 LPG Expansion will be fully compliant with the applicable NFPA 58 separation distance requirements as summarized below.

A minimum distance of 100-feet from above ground containers has been maintained to important buildings and property lines as shown of Figure 6. The applicable facility set back requirements are outlined in NFPA 58 in the following Chapters:

- Table 6.3.1 - Separation Distances Between Containers, Important Buildings, and Line of Adjoining Property That Can Be Built Upon;

- Table 6.3.8 Separation Distance Between Container Pressure Relief Valve and Building Openings;
- Table 6.4.2 Maximum Number of Containers in a Group and Their Separation Distances;
- Table 6.4.5.8 Separation Distances of LP-Gas Containers and Oxygen and Hydrogen Containers; and
- Table 6.5.3 - Distances Between Point of Transfer and Exposure.

Appendix B, Form 6.3 verifies compliance with the separation distances from containers to buildings and property lines. Form 6.4 verifies compliance with separation distances between points of transfer and other exposures.

3.6 Assessment of Sources of Ignition & Adjacent Combustible Materials

Minimum distances of 10 ft. are maintained from all combustible materials (e.g., grass, weeds, etc.) and 20 feet between containers and tanks containing flammable liquids with a flash point < 200° F. There are no flammable liquids that will be stored on the Blackline SEA-3 LPG Expansion facility. If Methanol is used at the facility as needed to remove water from the LPG, but will be stored and used in small quantities (e.g., 55-gallon drums) stored away from AST locations. If and when the Methanol is used, it will be stored in a separate storage shed which will be electrically grounded and containers used to transfer Methanol from the drums will be electrically bonded from the transfer container to the drums.

3.7 Distance to Vapor Cloud Explosion & 1 PSI Over Pressure

A worst-case release, as defined by the U.S. Environmental Protection Agency (EPA), is release of the largest quantity of a regulated substance from a vessel or process line failure that results in the greatest distance to a specified endpoint. For substances in vessels, you must assume release of the largest amount in a single vessel. For substances in pipes, you must assume release of the largest amount in a pipe. The largest quantity should be determined taking into account administrative controls rather than absolute capacity of the vessel or pipe. Administrative controls are written procedures that limit the quantity of a substance that can be stored or processed in a vessel or pipe at any one time. For the worst-case scenario involving a release of flammable gases, it is assumed that the total quantity of the flammable substance forms a vapor cloud within the upper and lower flammability limits and the cloud detonates.

The method presented here for analysis of vapor cloud explosions is based on a TNT-equivalent model which assumes a yield factor of 10 percent. The TNT-equivalency method, is discussed in the publication of the Center for Chemical Process Safety of the

American Institute of Chemical Engineers (AIChE), Guidelines for Evaluating the Characteristics of Vapor Cloud Explosions, Flash Fires, and BLEVEs (1994). The assumption is for the worst case that the total quantity of the released substance is in the flammable part of the cloud. The AIChE document lists this assumption as one of a number that have been used for vapor cloud explosion blast prediction; it was chosen as a conservative assumption for the worst-case analysis. The yield factor of 10 percent was a conservative worst-case assumption, based on information presented in the AIChE document. According to the AIChE document, reported values for TNT equivalency for vapor cloud explosions range from a fraction of one percent to tens of percent; for most major vapor cloud explosions, the range is one to ten percent.

The distance from the Blackline SEA-3 Providence facility at which 1 psi over pressure, was estimated, based on the U.S. Environmental Protection Agency (EPA) RMP*Comp software modeling as discussed below. At 1 psi over pressure, partial demolition of a house may occur resulting in serious injury to the occupants and shattering of glass windows causing skin lacerations from the flying glass. This endpoint was chosen for the consequence analysis because of the potential for serious injuries to people from the property damage that might result from an explosion blast.

For a worst-case vapor cloud explosion involving propane, the following formula can be used to estimate the flammable gas endpoint:

Using the weight of the propane at 283,500 lbs. (see Table 3A below) yields a distance to 1 psi over pressure at approximately 0.5 miles.

$$D = 0.0081 \times [0.1 \times 283,500 \times (46,333/4,680)]^{1/3}$$

Where:

D= the distance to 1 psi overpressure (miles)

Wf = Weight of flammable substance (pounds)

Hcf = Heat of combustion of flammable substances (kilojoules per kilogram)

HCTNT = Heat of combustion of trinitrotoluene (TNT) 4,680 kilojoules per kilogram

Results of Blackline SEA-3 Expansion Facility RMP*Comp Modeling:

Based on the U.S. EPA RMP*Comp modeling, a Worst-Case propane vapor cloud explosion could be reached from the release source at a distance up to 0.5 miles from the AST location (centrally located on site) where a release of 283,500 pounds of propane was modeled, which is the entire content of one 90,000 gallon tank filled to 75 percent capacity as shown below in Table 3A (see Figure 8 for map distances). Table 3B below models an alternate release scenario where 7,580.4 pounds (lbs.) of propane is released over a 10-minute period where a vapor cloud explosion was modeled from the release

source at a distance up to 0.2 miles from the AST location. Table 4C below estimates the release from a four (4) inch diameter pipe break over a 10-minute period where 81,995 lbs. of propane is released resulting in a modeled vapor cloud explosion at a distance up to 0.4 miles from the AST location. Table 3D below estimates the release from a four (4) inch diameter fueling truck hose break over a 10-minute period where 68.37 lbs. of propane is released resulting in a modeled vapor cloud explosion at a distance up to 174.8 feet from the loading rack where the truck fueling is taking place. This scenario assumes that active mitigation equipment is in place (i.e., excess flow valve) that would immediately shut off the flow of propane if the truck failed to disconnect the hose connection to the stationary fueling manifold.

Table 3A - EPA RMP Comp Worst Case Vapor Cloud Explosion Scenario

Modeled Fire Condition Scenario	Pounds of Propane Releases	Gallons of Propane Releases	Distance to 1 psig Over Pressure	Atmosphere Stability Class	Air Temp. Degrees °F	Wind Speed (mph)
Worst Case -Vapor Cloud Explosion	283,500	67,500	0.5 miles	F	77° F	3.4 mph

Note: One 90,000-gallon LPG tank filled at 75 percent contains 67,500 gallons.

Table 3B - EPA RMP Comp Alternate Case Estimated Vapor Cloud Explosion

Modeled Fire Condition Scenario	Pounds of Propane Releases	Distance to 1 psig Over Pressure	Release Rate (lbs./minute)	Atmosphere Stability Class	Air Temp. Degrees F	Wind Speed (mph)
Alternate Case -Vapor Cloud Explosion	75,804	0.2 miles	7,580.4	D	77° F	6.7 mph

Note: The time interval over which the release occurred is 10-minutes.

Table 3C - EPA RMP Comp Alternate Case Four-Inch Pipe Break

Modeled Fire Condition Scenario	Pounds of Propane Releases (lbs.)	Total Amount Released (lbs.)	Cross-Sectional Pipe Area (Inches ²)	Distance to 1 psig Over Pressure
Alternate Case - Four Inch Pipe Break	81,995	8,199	12.57	0.4

Note: The time interval over which the release occurred is 10-minutes.

Table 3D - EPA RMP Comp Alternate Case Hose Rupture by a Truck Pull-Away with Active Mitigation in Place

Modeled Fire Condition Scenario	Pounds of Propane Releases (lbs.)	Truck Hose Length (ft.)	Hose Diameter (inches)	Distance to 1 psig Over Pressure
Alternate Case – Accidental Truck Pull Away with Hose Still Connected	68.37	25	4	174.8 ft.

Note: The time interval over which the release occurred is 10-minutes.

3.8 Use of Fire Extinguishing Equipment

Portable, dry chemical fire extinguishers with a minimum capacity of 18 pounds (lbs.) and having a B:C fire rating will be employed at the Blackline SEA-3 LPG Expansion facility. The fire extinguishers will be located throughout the facility and by the truck loading stations and rail car fuel offloading.

3.9 Ignition Control Procedures

Grounding legs and ignition control procedures will be employed during all LGP gas transfers. All electrical connections and lines have been classified for flammable gases and electrical circuits have been adequately safeguarded/protected as per NFPA 70E - Standard for Electrical Safety in the Workplace to prevent an ignition from occurring.

3.10 Analysis of Potentially Hazardous Situations from Surroundings

Sensitive offsite public receptors located in and around the Blackline SEA-3 Expansion facility include the following public and residential occupancies:

1. A large recreational field park located off of Harborside Boulevard and Save the Bay Drive at 1,023 feet southwest.
2. Save the Bay Center located off of Save the Bay Drive at 1,689 feet south.
3. The Johnson & Wales Harborside Campus at 1,981 feet west.
4. The University Orthopedics Kettle Point is located at 2,835 feet east and the Kettle Point Homes located 3,124 feet east.
5. The Wildcat Center is located at 1,860 feet west.
6. The Erma Pendleton Bradley Hospital is located at 4,257 feet due east.

Potentially hazardous situations from the surroundings and neighbors would involve potential commercial and industrial activities that have the potential to provide an

ignition source in the event of a propane gas release. The likely ignition sources could include businesses that perform outside/outdoor metal welding, metal cutting and grinding operations or buildings partially open to the outside performing metal welding, cutting and grinding. The following businesses located within a half mile of the Blackline SEA-3 Expansion facility which have the potential to act as an ignition source include:

1. Schnitzer Northeast, (N 55 Fields Point Dr, Providence, RI, Telephone No. 401-785-2000 (Northwest at 341 feet and 841 feet to scrap metal pile); and
2. Sims Metals Management, 30 Fields Point Drive, Providence, RI, Telephone No. 401-519-9999 (Southwest at 623 feet).

It is assumed that if a hazardous condition presents itself from an offsite source, that appropriate emergency response measures would be immediately implemented to control the incident by the respective adjacent property operators/owners. The distances to which a worst case, vapor cloud fire, vapor cloud explosion would occur are discussed in Sections 3.7.

4.0 APPLICABLE GUIDANCE, CODES & STANDARDS

This section discusses the applicable best management practices (BMPs) and codes and standards which have been incorporated into the design and operation of the Blackline SEA-3 Expansion facility.

4.1 NFPA 58 – Liquefied Petroleum Gas Code

The FSA undertaken is based on the requirements outlined in NFPA 58, 2011 Edition. The Blackline SEA-3 LPG Expansion facility has been designed to be in full compliance with NFPA 58.

4.2 NFPA 24 - Standard for Installation of Private Fire Service Mains

The fire service water mains will be assessed for conformance with NFPA 24 - Standard for Installation of Private Fire Service Mains & Their Appurtenances. The SEA3 Providence facility will utilize the services of the Providence Water with oversight from MPE, Inc., Mr. Robert Ceppi a Rhode Island licensed Fire Protection Engineer (FPE) to oversee the hydrant testing along Fieldspoint Drive and Seaview Drive performed by the Providence Water. The results of the subject hydrant testing is discussed in Section 6.1 which follows.

4.3 NFPA 70 - National Electrical Code

Electrical equipment and wiring installed in unclassified areas shall be in accordance with NFPA 70 - National Electrical Code. The extent of electrically classified areas shall be in accordance with NFPA 58, Chapter 6.22, Ignition Source Control, Table 6.22.2.2.

5.0 RHODE ISLAND FIRE PROTECTION REGULATIONS

The Rhode Island fire safety regulations are described in 450-RICR-00-07, Part 7, Rhode Island Fire Code NFPA 1- Fire Code, 2015 Edition. NFPA 1, Chapter 69 – Liquefied Petroleum Gases & Liquefied Natural Gases outlines the requirements for LPG storage and handling.

5.1 2013 Rhode Island General Laws

Title 23 - Health and Safety Chapter 23-28.20 - Storage and Handling of Liquefied Petroleum Gas addresses the registration, permitting, and expiration of permits for the storage and handling of LPG.

5.2 Completed Fire Safety Analysis Forms

Appendix B contains the completed FSA Forms which were developed by the National Fire Protection Association (NFPA), National Propane Gas Association, and Propane Educational Research Council (PERC), 2011 Edition. The FSA was conducted by Dr. Robert S. Palermo, a registered Professional Engineer (PE), Certified Safety Professional (CSP) in comprehensive practice through the Board of Certified Safety Professional (BCSP) and a Registered Professional Industrial Hygienist (PPIH) in comprehensive practice through the Association of Professional Industrial Hygienists. Dr. Palermo has over thirty years of experience preparing facility plans (e.g., Contingency Plans, Emergency Response Plans, Spill Prevention, Control & Countermeasures Plan, Process Safety Management Plans, etc.) and conducting OSHA HAZWOPER and HAZMAT spill response training.

The NFPA, NPGA and PERC Fire Safety Manual, 2011 Edition, was intended to address smaller LPG facilities and not refrigerated LPG storage facilities or for facilities offloading LPG from Marine terminals. These facilities are governed by an OSHA Process Safety Management Plan (PSM) and U.S. EPA Risk management Plan (RMP).

The NFPA/NPGA/PERC Fire Safety Manual does address a number of important LPG fire safety elements including:

- A review of product control measures required by NFPA 50 – Liquefied Petroleum Gas Code;
- Local conditions of hazards within the facility;
- Exposure to and from other properties;
- Effectiveness of local fire departments;

- Effective control of leakage, fire and exposure; and
- Illustrative examples using four (4) different sizes of typical LPG facilities.

There were no major deficiencies identified as a result of the FSA. Multiple redundant fail-safe systems as described in Chapter 6.26 of NFPA 58, 2011 Edition, are to be installed at the facility as part of the Blackline SEA-3 Expansion facility upgrades. These systems are being installed to ensure that safety is incorporated into as many elements of the facility design and operation as can be accomplished (see Section 7.0 of the FSA).

The Appendix B, NFPA Fire Safety Analysis Manual for LPG Storage Facilities forms were completed prior to completion of the final designs for the Blackline SEA-3 Expansion facility. The Appendix B forms were completed assuming the final facility designs and build out will be in full conformance with NFPA 58 which is the design standard for the project.

5.3 Site Plan

The Blackline SEA-3 Expansion site plan is included as Figure 6 - Overall Site Plan. The site plans show the general proposed site layout including a one story metal warehouse that will remain, location of propane equipment, pipe racks, refrigerant compressors, air cooled condensers, chilling vessel/heat exchanger skid, flare unit, rail export odor removal bed, meter skid, nitrogen storage, NCC enclosure and I/O room, rail unloading compressors, piping/vessel dehydration skid, security fence, Mercaptan tank, ship loading arm foundation, future y-grade splitter, ASTs pumps, and location of six (6) 90,000 gallon ASTs.

5.4 Ethyl or Methyl Mercaptan Odorant Addition

The Blackline SEA-3 Expansion facility operations personnel will be responsible for ensuring that the LPG loaded onto the trucks at the truck loading stations have been adequately odorized prior to the vehicles leaving the site. Proper odorization with ethyl mercaptan (or equivalent odorant) is essential for safe transport of the propane that has no odor or warning properties unless the odorants are present in sufficient concentrations in the LPG. The method use for odorant addition by the SEA-3 Providence facility is discussed in Section 7.4.

The odorant level specified in the 2011 Edition of NFPA 58 is 1 pound (lb.) of ethyl mercaptan per 10,000 lbs. of liquid propane gas [LPG] (see A.4.2.1). However, it is accepted practice in industry to add 1.5 lbs. to 2.5 lbs. of methyl mercaptan per 10,000 lbs. of LPG.

6.0 ADEQUACY OF WATER SUPPLY & FIRE PROTECTION

This section describes the results of the flow testing conducted by Providence Water of the fire hydrants along Seaview Drive and Fields Point Drive in Providence, RI. ProvPort, Inc., a private port authority, located on 35 Terminal Road in Providence, RI may have additional fire hydrants located along the waterfront which will be further investigated.

6.1 Results of Fire Hydrant Testing by Providence Water

Mr. Robert Ceppi, a licensed Fire Protection Engineer (FPE) in Rhode Island of MPE, Inc. located in Hebron, CT, provided engineering oversight of the hydrant flow testing conducted on two (2) fire hydrants located on Fields Point Drive and on Seaview Drive immediately adjacent to the Blackline SEA-3 Providence, RI facility. The fire hydrant testing was conducted by Providence Water in October of 2019. There are a number of fire hydrants immediately accessible to the facility. Three (3) fire hydrants located on Seaview Drive and another three (3) on Harborside Boulevard surround the Blackline SEA-3 LPF Expansion facility.

Mr. Ceppi completed and submitted to the Providence Water a request for a hydrant testing on May 20, 2019. Providence Water proceeded to test the fire hydrants and discovered that one of the hydrants was damaged and they could not proceed with the hydrant testing until the hydrant could be repaired.

The fire hydrants tested are located on Fields Point Drive and along Seaview Ave and are situated along the site property boundary and can be utilized by the Providence FD in the event that water is required to respond to a fire emergency. The results of the hydrant flow testing by Providence Water are summarized below. The location of the fire hydrants is shown on Figure 7 and Appendix C contains the fire hydrants testing results.

Table 4 - Fire Hydrant Water Flow Testing Results

Street Location	Test Number	Hydrant Flow Number	Pitot Pressure (psig)	Test Flow in (gpm)	Hydrant Gauge Number	Static Pressure (psig)	Residual Pressure (psig)	Available Water @ 20 psig (gpm)
Seaview Ave	1	3066	17	1,384	3065	84	52	2,030
					3067	82	40	1,700
Fields Point Drive	2	3064	16	1,342	3065	84	64	2,480

Note: gpm = Gallons per Minute, psig = pounds per square inch gauge

Appendix B, NFPA Form 8.3 - Water Flow Rate and Total Water Volume Required to Cool Containers Exposed to a Fire notes that the water flow for each of the 90,000-gallon tanks is 575 gpm. Based on the hydrant flow test conducted in 2019 the city water main can only provide adequate water to simultaneously cool three (3) of the proposed ASTs located on site in the event this is necessary.

Fire protection as defined by NFPA 58 includes fire prevention, fire detection, and fire suppression. A water spray deluge system will be installed over all six (6) of the 90,000-gallon ASTs. Because of the adequate separation between two sets of 3 tanks there will be two separate deluge systems provided over the tanks that can be individually protected by the current city water supply. A booster pump sufficiently sized and rated will be installed at the facility to assist with the withdrawal of water as needed from the city water main located on Seaview Drive and Fieldspoint Drive. The water spray deluge system will be designed by Robert Ceppi, P.E. and will be based on NFPA 15 - Standard for Water Spray Fixed Systems for Fire Protection.

Manually activated and operated water monitors will be positioned for the rail cars to provide water coverage in the event the rail cars need to be cooled. The monitors will be located and positioned to provide full spray coverage over the entire expanse of the rail cars.

6.2 Fire Protection Systems

The Blackline SEA-3 LPG Expansion design will incorporate the use of redundant fail-safe product controls as described in NFPA 58, Chapter 6.26.4. utilizing automatic system shutdown of all primary valves (i.e., internal valves and emergency shutoff valves) thermally activated and remote shutdown stations within 15 feet of point of transfer.

7.0 SAFETY & FIRE SYSTEMS, ALARMS, SHUTDOWNS, HORNS & LIGHTS

The control system architecture for the Blackline SEA-3 LPG Expansion facility is comprised of a hierarchical design, that reflects the latest technology and methods used for process safety management systems in the oil and gas industry. Combined with the upgraded Fire Alarm Control Panel with addressable devices located throughout the key areas in the facility, it provides the optimum safety design needed for personnel, protection of the community, and fire department personnel.

8.0 OPERATIONS & MAINTENANCE

This section describes the requirements for basic plant operations and maintenance. The procedures that will be followed during routine facility operations and

maintenance of the equipment is discussed below and in greater detail in the National Propane Gas Association (NPGA) and Propane Education & Research Council (PERC) operational guidelines for propane facilities. Appendix E contains information on the physical properties and characteristics of propane and safety related information and Appendix G1 and G2 contains NPGA/PERC information on the facility operation and maintenance (O&M).

8.1 Basic Plant Operations

The Propane Education & Research Council (PERC) and National Propane Gas Association (NPGA), Certified Employee Training Program for Basic Plant Operations, 2011 Edition, will be utilized and followed during routine operations at the SEA3 Providence facility. The Basic Plant Operation Manual included in Appendix G1 outlines the proper procedures to be followed during propane plant operations.

8.2 Operations & Maintenance

The National Propane Gas Association (NPGA) and Propane Education & Research Council (PERC), Operations & Maintenance Handbook for LPG Storage Facilities, 2009 Edition, will be utilized as the operations and maintenance (O&M) for plant maintenance. This handbook has been developed specifically for propane facilities (see Appendix E, G2). Additionally, equipment specific O&M procedures are further discussed in the OSHA Process Safety Management Plan (PSM) prepared for the subject Blackline SEA-3 Expansion facility in the Mechanical Integrity (MI) section of the subject PSM/RMP Plan.

9.0 EMERGENCY RESPONSE PLAN

An Emergency Response Plan (ERP) has been prepared for the adjacent Blackline SEA-3 Tank 001 facility. This ERP will be updated to address the Blackline SEA-3 LPG Expansion facility to address both employee evacuation and the evacuation of the local community (e.g., homes in the area, schools, public buildings, etc.) as required by the OSHA PSM Plan and EPA RMP. Appendix D contains safety information on propane physical properties, characteristics and Safety Data Sheet (SDS).

The Blackline SEA-3 LPG Expansion facility has been designed and will be operated to take every reasonable measure and precaution to prevent a propane release from occurring. Early warning detection systems including propane gas sensors utilizing both audible alarms and strobe lights will be used when the facility is in operation. The facility will be equipped with a number of protective valve systems including emergency stop valves (ESVs) which shut down the flow when a leak is detected, and pressure relief valves (PRVs) which vent to the atmosphere when tank pressure exceeds a safe limit. Regardless of how many protective systems and proactive measures

employed, it is always a possibility that an incident and release could occur. Therefore, the ERP must be capable of addressing safe evacuation of the Blackline SEA-3LPG Expansion facility workers and the local community residing in the immediate area surrounding the facility.

9.1 Local Area Evacuation & Further Planning/Integration

The Blackline SEA-3 LPG Expansion facility will reach out to the Providence, RI emergency response organizations to discuss and plan an approach involving the integration of the local support agencies to assist in an emergency evacuation. The ability to automatically call local residents/businesses via an emergency call system will be further investigated to provide emergency notification to the local community in the event that an evacuation is required/warranted. The Blackline SEA-3 LPG Expansion will be expanded to work with and integrate the City of Providence emergency response resources and local emergency medical services (EMS) into the ERP and will include the following resources/departments:

- Providence Fire Department (FD);
- Providence Police Department (PD);
- Providence Board of Health (BOH);
- Providence Emergency Management (EM);
- Providence Department of Public Works (DPW)/Engineering; and
- Other Departments/Agencies deemed appropriate by state and local authorities.

9.2 Blackline SEA-3 LPG Expansion Evacuation Notifications & Protocols

The Blackline SEA-3 LPG Expansion facility trained personnel, propane truck drivers, contractors and other support personnel on site will be notified of an evacuation condition by the sounding of an audible warning device/alarm. Personnel will initially evacuate to designated off site mustering areas as shown on Figure 5 depending upon prevailing wind and Providence FD instruction(s) upon their arrival at the facility. Accountability will be achieved by maintaining an active Sign-in-List(s) of employees and contractors working at the facility on a daily basis. The list will be updated each morning and personnel will be added to the list each morning as part of the daily safety briefing.

The propane gas sensors do not alarm directly to the Providence FD. The Lower Explosive Limit (LEL) for Propane is 2.1% by volume or 21,000 parts per million (ppm) and the Upper Explosive Limit (UEL) is 9.5% or 95,000 ppm. Propane gas detectors will

be installed on site at strategic locations in all process and operating areas. They will be wired to the facility Safety Instrumented System (SIS). The SIS is a high integrity, industrial safety system designed for these kinds of applications. All detectors are monitored continuously for high propane gas present. Each detector is programmed to perform the following functions in the SIS:

- If the propane level reaches 20% LEL, a “high gas” alarm is annunciated on the system HMI (human machine interface) and operations will investigate and remediate the cause of the high gas. This alarm will remain active as long as high gas is detected; and
- If the propane level reaches 40% LEL, a “high-high gas” alarm and shutdown will occur. All sources of gas in the area of the detector will be shut in (through valving) or shutdown (in the event it is associated with pumps or compressors). In some cases, a sitewide Emergency Shutdown occurs (as is appropriate and has been identified on the site wide fire and gas Cause and Effect Diagrams (C&E’s). The C&E’s are the governing document for site safety management and the SIS system is configured and tested to achieve the C&E requirements.

When a determination is made by the Blackline SEA-3 LPG Expansion Operations Manager and/or Providence FD to evacuate the facility, the evacuation alarm will be activated. The Blackline SEA-3 LPG Expansion emergency response personnel who have been trained on the manually operated monitors installed over the rail cars may operate the equipment if necessary, until the Providence FD arrives at the facility and assumes operational command and control (C2) of the incident response. Use of the water suppression equipment by the Blackline SEA-3 LPG Expansion Providence emergency response personnel will be authorized/approved by the Providence FD to ensure that equipment is operated properly, and that the employees are adequately trained on the equipment and the FPP and ERP.

In the event an evacuation is ordered, the following measures will be implemented:

1. The facility evacuation alarm (audible alarm) will be activated.
2. The EVS and/or E-Stops will be immediately activated to close off the flow of propane gas from the AST.
3. The vehicle/truck access gate to the facility will be secured to restrict/prevent access while the facility remains in a shutdown status.
4. Propane compressors and pumps will be powered down to prevent start up resulting from flow or pressure control monitoring.
5. All on site personnel will proceed to identified evacuation mustering points with the exception of facility personnel who will be providing temporary

operation of the monitors over the rail cars until the Providence FD arrives at the facility and assumes Command & Control (C2). The SEA-3 Providence Operations Manager, or his designated representative, will muster and account for all personnel present in the designated evacuation area(s). This will be accomplished by conducting a roll call and verifying that all SEA3 Providence employees, contractors, truck drivers, and other support personnel who have signed in at the facility on the subject date have been accounted for.

6. All on site personnel will remain in the designated evacuation mustering locations until instructed otherwise by the Providence FD Incident Commander (IC).
7. All on site personnel will remain clear of and will not obstruct entry or egress of emergency EMS and firefighting equipment and personnel at the facility.

9.3 Public Notifications

The City of Providence must be responsible for public notification and taking the lead on public notification since the Blackline SEA-3 LPG Expansion facility has no operational command and control over any of the cities local response resources nor does it have any authority to control and/or activate town emergency response resource. Consistent with the National Incident Management Systems (NIMS) and the Incident Command System (ICS), the local Fire Chief will assume operational command and control of a local incident response as the Incident Commander (IC).

9.4 Contacting Area Businesses with Providence FD Issued Welding Permits

There are no local area businesses with a Providence FD issued Hot Work Permit. There are no Hot Works Permits that could be located within 0.4 miles from the Blackline SEA-3 LPG Expansion facility.

9.5 Notifications Based on Propane Sensor Alarms & Sensor Calibrations

Propane gas sensors will be placed in all strategic locations where there are possible leak points and where propane can accumulate. Propane detectors will be installed at the Blackline SEA-3 LPG Expansion facility at the locations that will be indicated on the design plans/drawings to be prepared at a later date. The detectors will provide for early warning and detection in the event of a leak and, if required, to shut down equipment based on gas detection concentrations. The detectors will be equipped with both an audible alarm and strobe light warning. The monitors can be set to alarm at several alarm thresholds. The propane monitors will be located at the following locations as shown on Table 5A below to provide for early detection at the Blackline SEA-3 LPG Expansion facility to include the following locations:

reviewed by the State Fire Marshal during the facility design. Flame detectors will be installed for early detection of flames and to shut down equipment if excessive heat is detected. The flame sensors will be tied directly into the fire control and safety information panels. In the event of a flame being detected, an immediate plantwide emergency shutdown is initiated. A fire detected on site by the SIS system is denoted with a red beacon and alarm horn. A fire detected alarm will be communicated to the fire department in five minutes (to allow for reset by operations in the event of a false trigger).

Similar to a Fire Detected alarm, there is also the site wide Manual Emergency Shutdown Pushbuttons (ESD's). ESD pushbuttons have the same effect as a Fire Detected trip and will shut down the entire site and notify the fire department immediately.

Table 5B – Location of UV Flame Detection Sensors

Sensor Identification Number	Sensor Manufacturer	Sensor Location	Rational for UV Flame Detector Installation & Location
<u>Note:</u> To be completed at a later point in time when the facility design plans/drawings have been finalized. All UV flame detectors will be listed in Table 5B.			

9.7 Propane Emergency Response & Evacuation Training

Propane incidents often bring a wide range of organizations to the scene of an incident. This is especially true at major fires or product releases at bulk plants, or at incidents involving bulk cargo tank trucks or rail cars. Personnel with different specialties and expertise must get involved to resolve the problem. The key to success is to have a coordinated incident management structure where all the players integrate their resources to manage the problem in a coordinated, safe and effective manner.

The Blackline SEA-3 LPG Expansion facility will work with the Providence FD and PD to conduct joint emergency response training which will include Table Top Exercise and

Mock-Up Training Exercises dealing with propane release scenarios to better train and prepare for a propane incident at the facility. The National Propane Gas Association (NPGA) and Propane Education & Research Council (PERC) have developed guidelines for response personnel responding to propane emergencies that can be utilized as a training resource (see Appendix G3, Propane Emergencies, Third Edition, 2007).

The following audiences/organizations will be included and invited to participate in the training:

- Blackline SEA-3 LPG Expansion facility operations personnel;
- Providence Fire Department;
- Providence Police Department;
- Providence Emergency Management;
- Providence Public Works Department; and
- Other departments, agencies and first responders deemed appropriate by the City of Providence, RI.

There are a number of emergency response scenarios that are presented in the NPGA/PERC Propane Emergency, Third edition that can form the basis of the initial Table Top and Mock-Up Training Exercises as summarized below:

Scenario 12 - Fire Involving a Stationary Tank

Scenario 19 - Emergency Planning for a Propane Bulk Plant

Scenario 20 - Developing Credible Scenarios for Emergency Response Planning

The facility will further investigate the planning of a initial Table Top training response scenarios and both state and federal funding that may be available to train the City of Providence emergency response organizations and the Blackline SEA-3 LPG Expansion personnel.

The facility will schedule a Table Top training exercise in December of 2021 or early 2022, prior to it becoming fully operational with the Providence FD and other local emergency response personnel. The attendees to participate in the initial Tabletop Training Exercise will be agreed upon with the Providence FD.

9.8 Procedures for Security Breach

Security breaches will be monitored 24/7 by onsite Blackline SEA-3 Providence facility personnel and will automatically be reported to the Providence Police Department. Breaches that are detected by operations personnel will be individually assessed. Breaches that have minimal hazard will be dealt with by facility personnel. Breaches

that appear to have a greater threat level will be immediately reported to the Providence PD. The facility is monitored with cameras 24/7 and the audio-visual images are stored electronically for viewing.

9.9 Sequence of Operations

Should an incident occur at the Blackline SEA-3 LPG Expansion facility that requires a response from the City of Providence emergency response organizations, the following Sequence of Operations will take place:

1. The Providence FD will be immediately contacted via telephone at (401) 274-3348 or dial 911.
2. Upon arrival at the facility, the Incident Commander (IC) will be briefed by the Blackline SEA-3 LPG Expansion Operations Manager, their identified representative and/or operator in charge of existing conditions at the facility and actions that have been taken by facility personnel to address the reported condition. The accountability of all facility personnel working at the facility will be reported to the Providence FD upon their arrival at the facility. The results of propane gas sensor concentrations %LEL measurements will be provided to Providence FD personnel responding to the call.
3. If a release of propane gas has occurred from the ship offloading/transfer operation, compressor, pumps, valves, or associated piping, the emergency shut off valve (ESV) or emergency stop valve (E-Stop) system will be immediately activated. Activating the ESV/E-Stop will immediately close off the LPG at the tank source(s). This will result in limiting a release to the quantity or volume of LPG present in the subject line or hose.
4. The Blackline SEA-3 LPG Expansion Operations Manager will determine if a facility evacuation is required based on the reported condition at the facility. If evacuation is ordered, all nonessential personnel will evacuate from the facility to the designated mustering areas located on/off the facility (see updated ERP).
5. If a fire exists at the facility, the water deluge system will be activated over the 90,000-gallon tanks. Facility personnel who have been trained on the operations of the manual monitors located over the rail cars will operate the equipment until the Providence FD arrives at the facility. At that time the Providence FD Incident Commander (IC) will determine if continued operation of the water suppression system is warranted and if further operation of the equipment by trained Blackline SEA-3 LPG Expansion personnel is required to address the onsite conditions. Once local firefighting personnel have arrived at the facility, operation of the fire response equipment will be accomplished by experienced firefighters.

6. The Providence FD will assume full operational command and control of the incident and call for assistance as necessary from local area fire departments.
7. The Blackline SEA-3 LPG Expansion Operations Manager will complete a detailed written report of the incident with actions taken to prevent the same from reoccurring. All facility operational personnel will be briefed on why the incident occurred and corrective actions and/or mitigative measures taken by the SEA3 Providence to prevent reoccurrence of the observed incident.

10.0 PROPANE EMERGENCY RESPONSE TRAINING

This section discusses propane emergency response training to be undertaken by emergency first responders for propane emergencies. The Providence FD will receive additional training on propane emergencies and on responding to propane incidents at the Blackline SEA-3 LPG Expansion facility. The following training is available for first responders providing firefighting support at propane facilities:

1. Emergency response organizations responding to propane emergencies require firefighting training on how to respond to propane fires and emergencies. It is recommended that all firefighting emergency response personnel receive training on propane emergencies. Several courses are offered through the following training sources/organizations:
 - A two-hour online course is offered by the International Association of Fire Chiefs (IAFC) and the Petroleum Education and Research Council (PERC);
 - Instruction could also be provided locally utilizing the training resources provided by the PERC on Propane Emergencies, PERC Instructor Guide, 3rd Edition Book (see Appendix E, G3 for training contents). A two to three-day training program could be offered locally utilizing the PERC Instructor Guide;
 - The Propane Gas Association of New England offers 3-day training classes for emergency responders throughout New England. The 3-Day training is for industry members and first responders that have not previously taken the Emergency Response Training. It includes two days of classroom training from a team of industry volunteers with hundreds of years of experience in propane response. The third day is hands on including an opportunity for live fire training and leak mitigation. The cost of the 3-day training is \$500.00 for industry members. Scholarships are available for first responders. Courses have been offered in the past at the Massachusetts Firefighting Academy in Stow, MA and at the New Hampshire Fire Fighting Academy in Concord, NH. We may be able to bring the course to the Providence Firefighting Academy.

After the above training is completed, the Blackline SEA-3 LPG Expansion facility will invite the Providence FD to participate in the facility specific training which is operational specific (e.g., how to activate emergency shut off valves, fuel transferring from ship to AST, fueling of trucks, etc.). The focus of the firefighting training will be on propane firefighting response and less about the day to day operational aspects of the facility, yet operational awareness training on the propane emergency shut down system may also be beneficial to the Providence FD as well.

2. The facility operations personnel will be trained in accordance with the NPGA/PERC required training for operators, and complete the Certified Employee Training Program (CETP) or equivalent educational programs acceptable to the State Fire Marshal. These training requirements are further described in detail in the Blackline SEA-3 LPG Expansion OSHA Process Safety Management Plan and EPA Risk Management Plan. The following CETP training modules will be completed by plant operations personnel:

2016 NPGA CETP CERTIFICATION AREAS

1.0 Module 1 Basic Principles and Practices of Propane (BP&PP) - 2016

The CETP 1.0 Basic Principles and Practices of Propane offers an “entry level, foundational” course primarily about propane's physical and combustion properties, and how propane is produced and transported.

BP&PP is a required certification for the completion of all other CETP Certifications.

Course objectives include:

- Identify the advantages of propane;
- Describe Propane customer applications and strategies for quality customer relations;
- Identify sources, physical properties, and effects of pressure and temperature on propane
- Verify characteristics and purposes of odorants;
- Identify and respond appropriately to service interruptions;
- Identify complete and incomplete combustion
- Identify which propane industry standards, codes, and regulations correspond to job-related tasks
- Recognize and use appropriate personal protective equipment, practices, and procedures; and

- Identify features of bulk plants, DOT/ICC cylinders, and other propane equipment, systems, and materials.

Requirements for 1.0 Certification include the following:

- Passing score on 1.0 Basic Principles and Practices of Propane Examination; and
- Completed 1.0 Basic Principles and Practices of Propane Skills Assessment returned to the testing center within 12 months of passing the examination.

2.0 Module 3.0 Basic Plant Operations

Primarily designed for employees who work in propane bulk plants, this course provides information, practices, and procedures that support general plant operations tasks.

Course objectives include:

- Identify the main components of a bulk plant;
- Operate the propane liquid supply system;
- Inspect and fill DOT containers;
- Inspect and fill vehicle mounted ASME tanks;
- Requalify DOT cylinders by visual inspection;
- Maintain cylinders and ASME tanks;
- Unload a cargo tank motor vehicle; and
- Maintain bulk plant systems and equipment.

Requirements for Certification include the following:

- Prerequisite: Module 1.0 BP&PP Certification completed within 12 months of passing the examination;
- Passing score on the Module 3.0 Basic Plant Operations examination; and
- Completed Module 3.0 Basic Plant Operations Skills Assessment returned to the testing center within 12 months of passing the examination.

The NPGA and PERC, Operations & Maintenance Handbook for LPG Storage Facilities, 2009 Edition will be utilized as the operations and maintenance (O&M) for plant maintenance. This handbook has been developed specifically for propane facilities and represents what we believe are best management practices (BMP) for propane facilities. We believe that this should satisfy the requirement for a Certified Employee Training Program as required by the MA Fire Prevention Regulations.

All operations personnel working at the SEA3 Providence facility will undergo and complete PERC Training for operators as well as required OSHA training on written safety procedures and programs (see Section 1.2 for listing of OSHA programs).

11.0 LIMITATIONS

The FSA was based on requirements outlined in the FSA Manual for LP-Gas Storage Facilities which addresses the requirements outlined in the 2011 Edition of NFPA 58 Liquefied Petroleum Gas Code developed by the National Fire Protection Association (NFPA) and the National Propane Gas Association (NPGA). The FSA completed is a self-conducted audit of the safety features for the planned Blackline SEA-3 LPG Expansion facility and an assessment of the means to minimize the potential for inadvertent propane releases from containers and during transfer operations. The assessment also includes an evaluation of the capabilities of local emergency response agencies as well as an analysis of potentially hazardous exposures from the installation to the neighborhood and from the surroundings to the LPG facility. The FSA at the time of preparation was representative of current Site conditions.

This FSA was specifically prepared for the Blackline SEA-3 LPG Expansion facility and may not be used or reproduced without the permission and consent of the MPE, Inc. and the Blackline SEA-3 LPG Expansion facility. This report contains information regarding fire safety analysis and compliance with BMPs and fire protection regulations. It is not intended to address other requirements or conditions that may apply to the Blackline SEA-3 LPG Expansion facility under federal regulations (e.g., OSHA General Industry and OSHA PSM requirements, and EPA RMP requirements and Chemical Accident Prevention Provisions). These requirements are addressed under separate plans and are identified in Section 1.4 and in the reference section which follows.

12.0 REFERENCES

The following references apply to this FSA:

1. National Fire Protection Code (NFPA) 58 – Liquefied Petroleum Gas Code, 2011 Edition.
2. National Fire Protection Code (NFPA) and National Propane Gas Association (NPGA) Fire Safety Analysis Manual for LP-Gas Storage Facilities, 2011 Edition.
3. The Propane Education & Research Council (PERC), Basic Plant Operations, Modules 1-9, PERC 2011.

4. National Fire Protection Code (NFPA) and National Propane Gas Association (NPGA) Operations & Maintenance Handbook for LPG Storage Facilities, 2009 Edition.
5. The National Propane Gas Association (NPGA) and Propane Education & Research Council (PERC), Propane Emergencies, Third Edition, 2007.
6. U.S. Environmental Protection Agency (EPA), Risk Management Plan Guidance for Propane Storage Facilities, 40 CFR Part 68, EPA 550-B-00-001, March 2009.
7. Occupational Safety and Health Administration (OSHA), Process Safety Management of Highly Hazardous Chemicals; 29 CFR 1910.119.
8. National Fire Protection Code (NFPA) 58 – Liquefied Petroleum Gas Code.
9. Rhode Island Fire Code, NFPA 1 – Fire Code, 2015 Edition.
10. Occupational Safety and Health Administration (OSHA), Emergency Action Plan (EAP); 29 CFR 1910.38.
11. Occupational Safety and Health Administration (OSHA), Fire Prevention Plan (FPP); 29 CFR 1910.39.
12. Occupational Safety and Health Administration (OSHA), Hazardous Waste Operations and Emergency Response (HAZWOPER); 29 CFR 1910.120.
13. Occupational Safety and Health Administration (OSHA), The Control of Hazardous Energy (LOTO); 29 CFR 1910.147.
14. Occupational Safety and Health Administration (OSHA), Hot Work Programs; 29 CFR 1910.252.
15. National Fire Protection Association (NFPA), NFPA 51B - Standard for Fire Prevention During Welding, Cutting, and Other Hot Work.

Figures:

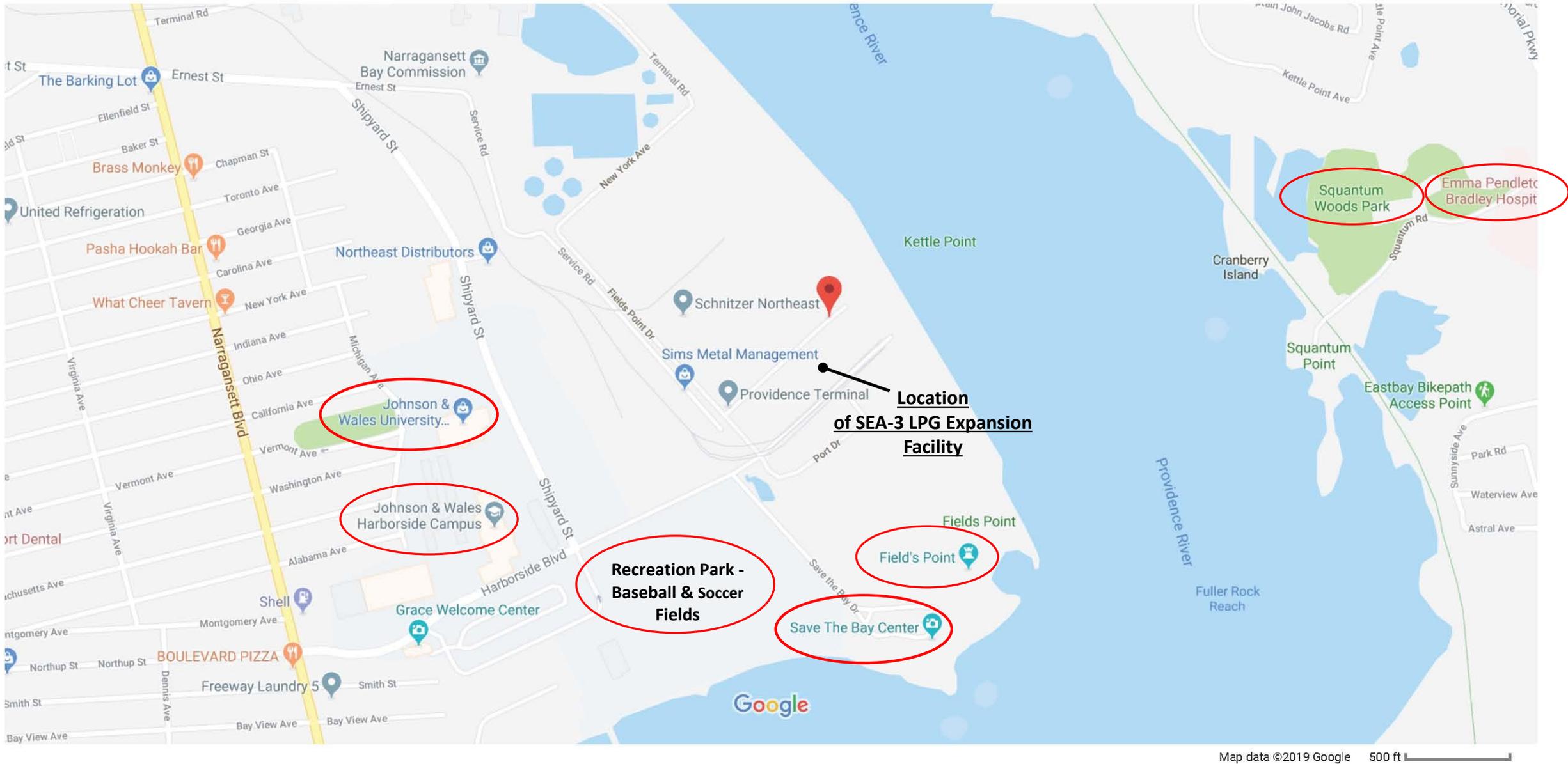


Figure 1 – Local Street Map Showing Occupancies

 = sensitive populations/occupancies



Map data ©2019 Google 2000 ft

Figure 2 – Aerial Photograph Showing Adjacent Properties



Figure 3 – Aerial Photograph Showing Location of LPG AST

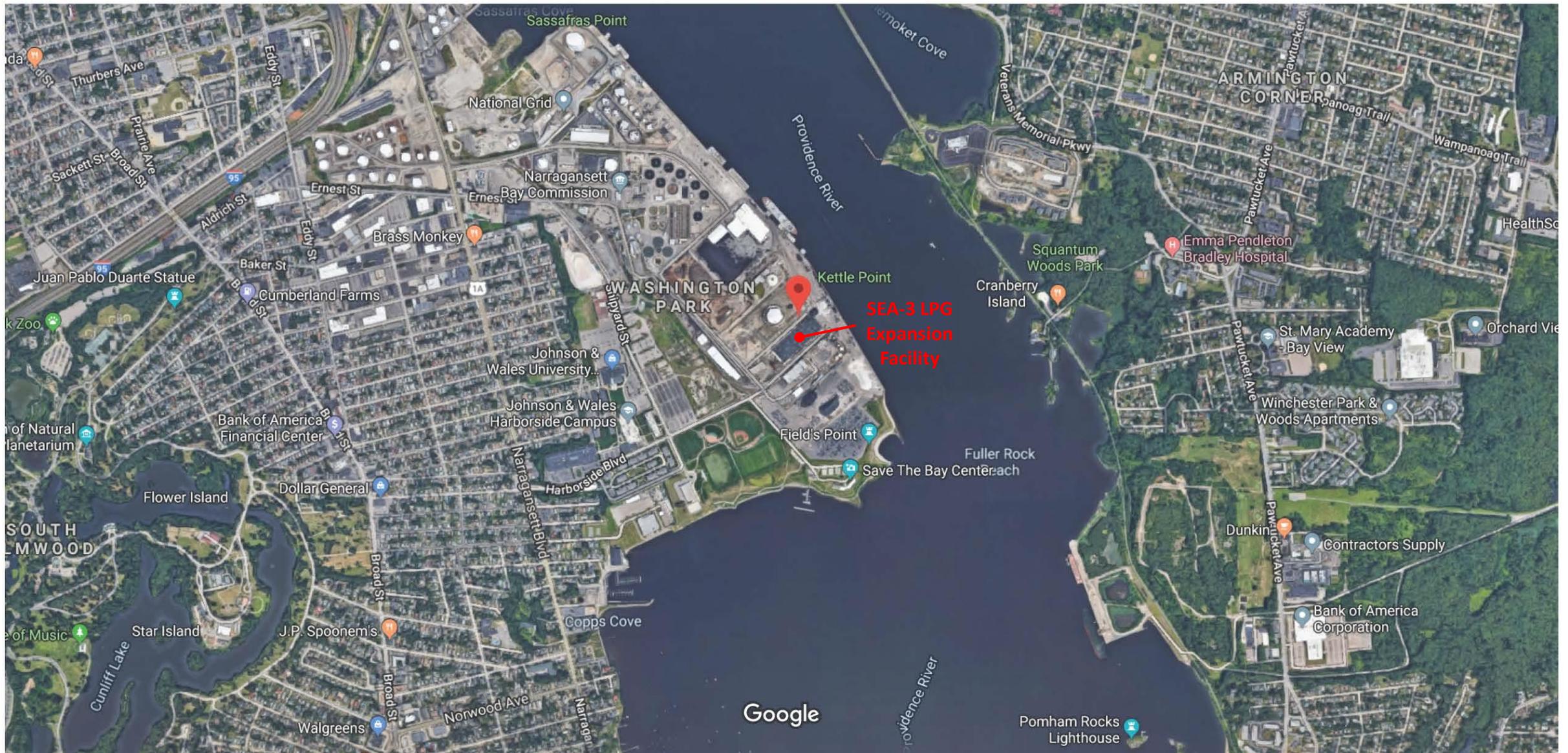
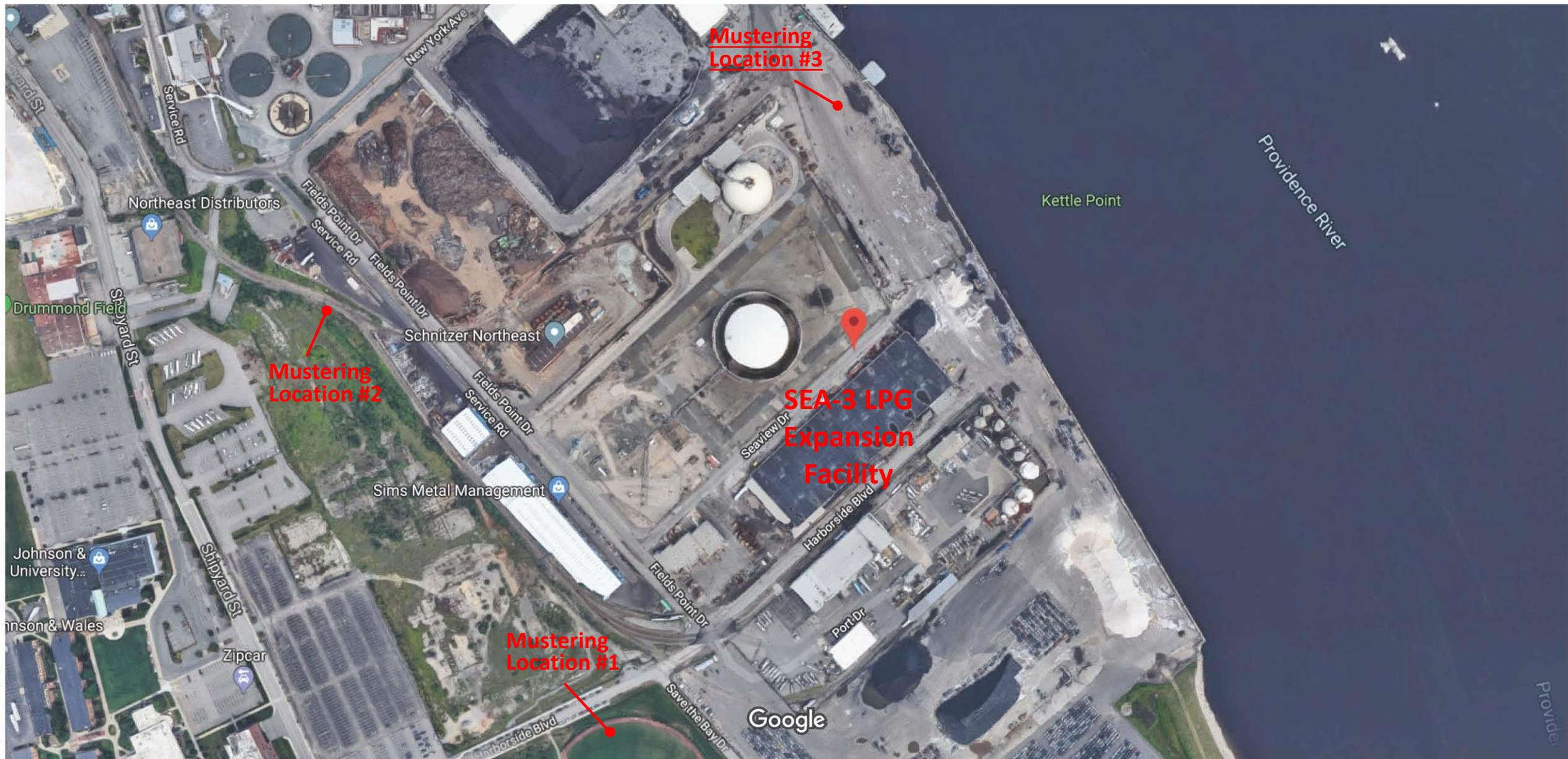


Figure 4 – Aerial Photograph Showing Surrounding Area



Imagery ©2019 Google, Map data ©2019 Google 200 ft

Figure 5 – Off Site Mustering Locations



Figure 8 - RMP*Comp Release Model Distance Map to 1 PSI Over Pressure

Tables:

Table 2
Description of the Various Steps in Performing the FSA

Step No.	FSA Steps	Chapter Where Described
1	Gather data on the volume of LP-Gas stored and other information pertinent to the facility.	Chapter 4
2	Perform simple calculations and determine whether the facility is subject to the requirements for developing an FSA.	
3	Evaluate the product control appurtenances and other safety features of the facility relative to the requirements of the NFPA 58 code.	Chapter 5
4	Assess the appurtenance requirements for containers of different capacities and compare them to the actual installation.	
5	Evaluate the requirements for valves on transfer piping and compare them to the valves provided in the facility.	
6	Assess conformance to the code of a Redundant and Fail-Safe Product Control System, if such a system is provided in the facility.	
7	Evaluate the code conformance of the Low Emission Transfer Equipment if installed in the facility.	Chapter 6
8	Analyze the protection measures against local conditions of hazard. That is, assess whether all requirements of the code for the physical protection of containers and transfer piping are implemented.	
9	Analyze the code requirements for the control of ignition sources and whether these requirements are complied with.	
10	Assess conformance to the code requirements for separation distances between (i) containers of different sizes and property and, (ii) LP-Gas transfer points and other exposures.	
11	Evaluate conformance to the code requirements for Special Protection Systems, if they are provided on containers in the facility.	Chapter 7
12	Evaluate the potential hazards to off-site populations and property from propane releases in the facility. This step includes selecting credible LP-Gas release scenarios and assessing the distance (and area) over which the hazard exists.	
13	Assess whether any off-site populations, especially people in institutional occupancies, are potentially subject to the LP-Gas release hazards	
14	Evaluate whether there exists a hazard from other industrial operations around the LP-Gas facility	
15	Evaluate the effectiveness of the local Fire Department, including the availability and capability of response personnel, training level, equipment and response time to an emergency in the facility.	Chapter 8
16	Evaluate the amount of water needed to cool containers exposed to a fire and the adequacy of the facility (or locally available) water supply.	
17	For a proposed facility, develop corrective actions to address deficiencies found.	Chapter 9 (Only applicable for proposed facilities)
18	Assess, based on specific criteria, the need to provide Redundant and Fail-Safe Product Control Systems.	
19	Assess, based on specific criteria, the need to provide Low Emission Transfer Systems.	
20	Assess when Special Protection Systems are needed	
21	Evaluate alternative approaches to using water in a special protection system	

**Appendix A – Description of Blackline
SEA-3 LPG Expansion Project Phasing**

S & B Engineers and Constructors, Ltd.
Northeast Operations



Blackline SEA-3 Providence



PROCESS BASIS OF DESIGN



Project # S0080

Revision	Date	Description	By	Checked	Approved
A	02/08/2021	Issued for Approval	MR	SP	BJS



Table of Contents

1. Introduction3

2. Executive Summary.....3

2.1 Phase 1.....4

2.2 Phase 2.....4

2.3 Phase 3.....4

2.4 Phase 4.....4

3. System Description4

4. Design Philosophy and Flow Rate Determination.....5

4.1 HD-5 Propane Specification.....6

4.2 HD-2 Propane Specification.....6

4.3 Vapor Recovery / Compressor System.....7

4.4 LPG Bullet Storage Tanks Volume.....7

4.5 LPG Dehydration & Refrigeration System8

5. Optimization Studies8

5.1 Feasibility of Nitrogen Onsite Production8

5.2 Alternatives to Flaring Disposal of Vapor During Truck Unloading.....8

5.3 Feasibility of Ethane Railcar Unloading for Blending8

5.4 Techno-Economic Evaluation of Railcar Unloading Systems.....9

5.5 Optional LPG Vaporizer9

5.6 Dehydration and Refrigeration Units – Liquid vs. Air Cooling Options.....9

6. Equipment List.....9

7. Operation Philosophy9

8. Appendices9

1. Introduction

The objective of the project is to provide the operational flexibility to move 600,000 gallons (with maximum of 1,200,000 gallons) of LPG product per day on to truck transports with maximum commercial flexibility on market source via refrigerated storage or rail to Blackline Midstream existing SEA-3 LPG terminal located in Providence, RI. Two cases are evaluated for this estimate as:

- Base Case: 16 Railcars, 4 Corken Miser Unloading Compressors, 6 Bullet Storage Tanks
- Alternate Case: 10 Railcars, 2 Corken Miser Unloading Compressors, 4 Bullet Storage Tanks

2. Executive Summary

The project scope of work is to provide a Conceptual Rail and Site Layout Design and FEED Study Proposal that will allow for the development and integration of new LPG rail offloading operations at the SEA-3 Providence, LLC Propane Terminal (“Sea-3”) and ancillary operational improvements to the existing facility operations.

The project will be implemented in different FEL (Front End Loading) phases.

Completion of sufficient engineering and design in order to obtain Total Installed Cost (TIC) estimates for each of the three (3) Project Phases, as well as five (5) Optimization Options.

FEL Engineering Key Elements:

1. Determine site constraints and impact on throughput rates for finalization of a Design Basis.
 - a. Initial basis:
 - i. 20 to 28 MM gallons per six (6) month summer period from rail to truck
 - ii. 16 MM gallons per six (6) month summer period from rail to refrigeration
 - iii. 80 MM gallons per six (6) month winter period from rail and storage to truck
 - b. Determine maximum rail off-loading spots possible within property constraints - anticipated ten (10) to sixteen (16) spots
 - c. Determine new equipment minimum and maximum rates
2. Evaluate the following Optimization Options
 - a. Determine cost/benefit of adding a fourth (4th) lane to existing truck loading vs relocating truck loading and installing five (5) lanes
 - b. Consider relocation or removal of LPG Overfill Tank (122V-0012)
 - c. Determine feasibility of eliminating the existing truck rack flare and recycling vapors to Bullet tanks (considering return of odorized or non-odorized LPG), or sending to emergency flare (F-0001)
 - d. Evaluate existing nitrogen system and identify opportunities for usage improvements
 - i. Determine cost/benefit of adding on-site nitrogen generation in place of or in addition to existing purchasing from Praxair using current basis of use of 1 (one) load per month
 - e. Evaluate the feasibility and flexibility of ethane railcar unloading for blending in new bullets, or in potential new day tank - blend must meet HD-5 specification

The above items were evaluated and the final conclusion for each phases of this project are listed below:

2.1 Phase 1

Completion of warm propane railcar unloading, metering (LACT skid), bullet storage and tie to existing truck loading.

1. Provide new railcar warm propane unloading and transfer to new bullet warm storage.
2. Provide existing (T-0001) cold storage to new bullet warm storage via existing glycol heating.
3. Implement nitrogen system improvements.
4. Provide for ability to blend ethane-rich import from railcars without flaring at boil-off gas compressors.

2.2 Phase 2

Completion of existing truck loading relocation and adding fourth (4th) and fifth (5th) lanes expansion.

1. Provide new bullet to existing and new truck loading via existing and new odorization and metering. Eliminate existing Mercaptan Storage Tank (122VE-OT-1) and locate a new tank in North plant. Include two (2) new YZ injection systems for new truck lanes, and one (1) new YZ injection for transferring from storage tank (T-0001) to bullets.
2. Provide existing (T-0001) storage to new truck loading via existing heating, odorization and metering.
3. Eliminate truck flare (F-0002) and send vent and blowdown from truck loading to emergency flare (F-0001).
4. Remove LPG Overflow Tank (122V-0012) and LPG Reloading Pump (122P-54) and provide new connection to send the truck overflow back to bullet tanks.

2.3 Phase 3

Completion of dehydration and refrigeration Additions.

Provide new bullet to existing storage tank (T-0001) via dehydration and refrigeration.

2.4 Phase 4

Provide a new LACT unit with 600 gpm capacity (with available connection for a second one in future), and piping for export from storage tank (T-0001) or from bullet tanks via railcars.

3. System Description

This design basis summarizes the main design parameters necessary to complete the design.

The project will make the following changes to the current configuration of Sea-3 LPG Terminal:

1. New Warm Railcar Unloading System: this includes additional new rail spurs, 16 or 10 railcar unloading stations with unloading arms at each station, four (4) or two (2) units of Corken Propane Miser Compressor.
2. The inlet and outlet headers to and from the bullet tanks are segregated for possibility of seasonal operation like summer and winter, by importing odorized or unodorized propane via railcars.

3. New on-site Nitrogen Generation Skid: the on-site nitrogen generation skid (provided by vendor) will supplement and back-up the nitrogen usage in the facility, with the major user being the annular space of storage tank (T-0001) cold propane storage tank.
4. New Flare KO Drum with a glycol coil for vaporizing the remaining liquids will be added to the emergency flare (F-0001).
5. New LPG Bullet Storage Tanks and LPG Transfer Pumps: this includes six (6) or four (4) bullet storage tanks and four (4) vertical can transfer pumps, each 750 gpm with VFD, to transfer propane from bullets to truck loading, and to cold propane storage tank (T-0001) via dehydration/refrigeration. Design rate for each truck lane is 600 gpm.
6. New Dehydration System: this includes two (2) new dehydrators, filtration, pumps, electric heater for regeneration, regeneration recirculation pumps and water KO drum. The dehydration system is needed to meet LPG water ppm level necessary for refrigeration and transfer to storage in (T-0001) tank.
7. New Refrigeration Skid: this will refrigerate dry LPG for transfer to storage tank (T-0001).
8. Relocate three (3) existing truck lanes and add two additional truck lanes: this includes new connections from the new LPG bullet storage tanks to the existing and new metering skids and existing flare.
9. Eliminate LPG Overflow Tank (122V-0012) and LPG Reloading Pump (122P-54) and provide new connection to send the truck overflow back to bullet tanks.
10. Utilities:

The following utilities were evaluated for the new additional systems to the facility, considering the availability and capacity of the existing utilities:

- a. Instrument Air: 2 x 100% new instrument air compressor with 250 SCFM capacity each.
- b. Nitrogen: New Nitrogen Generation system with 74 SCFM capacity, utilizing Pressure Swing Adsorption (PSA) with air sourced from new Instrument Air system.
- c. Natural Gas: Available as is, no new usage.
- d. Lube Oil Storage: As required by new propane chiller compressor system.
- e. Condensate Collection: No condensate collection, only a water tote for dehydration unit.
- f. Closed Drain Collection: No new closed drain system.
- g. Wastewater System: No wastewater system.
- h. Stormwater: As required for the new expansion in South plant.
- i. Firewater: New firewater system for new expansion in South plant.
- j. Cooling Water: It's not required. Air cooling is used when needed.

4. Design Philosophy and Flow Rate Determination

The two main LPG (Propane specifications) handled in this facility currently and in the future of this project are HD-2 and HD-5 Propane.

4.1 HD-5 Propane Specification

All of the equipment will be designed to meet HD-5 Propane Specification. HD-5 grade propane is "consumer grade" propane and is the most widely sold and distributed grade of propane in the U.S. market. HD-5 is the highest-grade propane available to consumers in the United States and is what propane companies ordinarily sell to their customers. This propane is suitable and recommended for engine fuel use. HD-5 spec propane consists of:

- Minimum of 90% propane
- Maximum of 5% propylene
- Other gases constitute the remainder (ethane, iso-butane, butane, methane, etc.)

HD-5 Propane product quality must meet the specification outlined below: (See next page)

C3			
As per GPA Standard 2140-97 HD-5 Spec			
Specification	Min	Max	Test Method
Vapor Pressure		208 psig at 100°F 1434 kPa at 37.8°C	ASTM D-1267
Propane	90.0 Liq. Vol. %		ASTM D-2163
Propylene		5.0 Liq. Vol. %	ASTM D-2163
Butanes & Heavier		2.5 Liq. Vol. %	ASTM D-2163
Corrosion		Copper Strip of 1B	ASTM D-1838 (Note A)
Total Sulfur		123 ppmw	ASTM D-2784
Volatile Residue Max Temp. at 95% evaporation		-37.0°F -38.3°C	ASTM D-1837
Residual matter On evaporation of 100ml		0.05 ml	ASTM D-2158
Residual matter Oil stain observation		Pass	ASTM D-2158 (Note B)
Moisture content -Freeze valve test		Pass	GPA Propane Dryness Test (Cobalt Bromide) or D-2713

4.2 HD-2 Propane Specification

The other Propane specification used in this facility is HD-2 with the following details:

- Minimum of 90% propane
- Maximum of 5% propylene
- 2% ethane
- Other gases constitute the remainder (iso-butane, butane, methane, etc.)

HD-2 Propane product quality must meet the specification outlined below (next page):

C3			
HD-2 Marine Propane (2.0% Ethane, 30 ppm Sulfur)			
Component	Min	Max	Test Method
Ethane		2.0 Liq. Vol.%	ASTM D-2163
Propylene		5.0 Liq. Vol.%	ASTM D-2163
Propane	90.0 Liq. Vol.%		ASTM D-2163
Butanes & Heavier		2.5 Liq. Vol.%	ASTM D-2163
Vapor Pressure @100° F		208 psig	ASTM D-1267 or D-2598
Residual Matter (residue)		0.05 ml. (Note C)	ASTM D-2158
Residual Matter (oil stain)		Pass (Note B)	ASTM D-2158
Copper Strip Corrosion		No. 1	ASTM D-1838
Volatile Sulfur		30 ppm wt.	ASTM D-5623 or D-6667
Water		30 ppm wt.	ASTM D-5454

4.3 Vapor Recovery / Compressor System

For unloading operation of rail cars and transferring the liquid to the bullet tanks, a liquid transfer and vapor recovery are required to collect the displaced vapors and help empty the rail car.

A cost benefit analysis was performed between application of Corken FD891 and Propane Miser T791. Application of Propane Miser T791 is selected for this project. For Base Case with 16 railcars, 4 Propane Miser units, and for Alternate Case with 10 railcars, 2 Propane Miser units are considered. Propane Miser T791 is a 2-stage unloading compressor system which can recover the remaining propane and its vapor from the railcars down to near zero psig pressure.

The Current requirement as a design point is to unload maximum of 16 railcars in 24 hours, assuming 22 working hours.

4.4 LPG Bullet Storage Tanks Volume

The LPG Bullet Storage tanks are horizontal bullet tanks. To determine the volume of the tanks the following are considered:

- i. 20 to 28 MM gallons per six (6) month summer period from rail to truck
- ii. 16 MM gallons per six (6) month summer period from rail to refrigeration
- iii. 80 MM gallons per six (6) month winter period from rail and storage to truck

These volumes are based on addition of 16 or 10 railcar unloading spots, with capacity of each railcar about 30,000 gallons.

Each LPG Bullet Storage tank will be designed to have a nominal volume of 90,000 gallons, with effective volume of about 76,000 gallons.

Each LPG Bullet Storage tank will be equipped with a PSV venting to flare, sized for emergency relief in case of open pool fire.

4.5 LPG Dehydration & Refrigeration System

LPG rail off-loading to bullets and bullets to refrigerated storage will be designed for minimal capital investment constrained by minimum of (480,000 gallons per day) to transports. For this we will assume 16 MM gallons per six (6) month period in the summer to fill the storage tank (T-0001), which is equivalent of about 72 gpm continuous, with 125 gpm taken as the basis of design for dehydration and refrigeration system.

The dehydration system is utilizing two (2) mole sieve beds, with a pump and spare for regeneration loop, electric heater for regeneration gas, air cooler and water separator and tote.

5. Optimization Studies

The following optimization and feasibility studies are ongoing to determine the scope of this project:

5.1 Feasibility of Nitrogen Onsite Production

It was determined that onsite generation of nitrogen utilizing PSA method with air supplied to it by new instrument air compressor is a viable option for this facility expansion.

5.2 Alternatives to Flaring Disposal of Vapor During Truck Unloading

A flare study was performed for new equipment and any system impacted by this expansion. It was determined that the vent and blowdown from truck loading (and railcar unloading) be routed to the emergency flare F-0001. Existing flare F-0002 will be removed, with its loads tied into F-0001.

5.3 Feasibility of Ethane Railcar Unloading for Blending

For unloading and blending of the LPGs from the rail cars, the ethane content (or the RVP of LPGs) should be taken into account to avoid flaring from the Refrigerated Tank (T-0001) via boil-off gas compressor inlet. The phase envelope of the propane blends were developed and provided to Blackline. The phase envelope will help determine if flaring is expected at the boil-off compressors based on ethane content of the imported propane from railcars.

Given the design temperature of the Refrigerated Tank (T-0001) as -50 °F, high concentration of ethane should be avoided in imported propane from railcars in order not to exceed this minimum design temperature of the storage tank (T-0001) to lower values.

The inlet and outlet headers to and from the bullet storage tanks were split to 3+3 bullets for base case (or 2+2 for alternate case). This will provide flexibility to segregate odorized or unodorized propane (or other acceptable products) in seasonal operation of winter and summer.

It was determined that blending off-spec propane imported via railcar to make spec product is not an economically feasible option. It would require sampling and testing of each railcar content, measurement of flow for blending, and blending in a segregated bullet tank. Therefore the ethane blending as described above is not considered in the basis of this estimate.

5.4 Techno-Economic Evaluation of Railcar Unloading Systems

A cost benefit analysis was performed for application of Corken FD891 compressor and Propane Miser T791 compressor system. The Propane Miser T791 was recommended and selected for this project.

5.5 Optional LPG Vaporizer

Based on demand, frequency of operation and capacity of existing and new equipment, no additional LPG vaporizer is considered for this project.

5.6 Dehydration and Refrigeration Units – Liquid vs. Air Cooling Options

For dehydration and refrigeration of LPGs from bullet tanks to refrigerated tank (T-0001), it was determined that air cooler systems will be used.

6. Equipment List

There is an equipment list for the existing equipment on site which is now developed further for the required equipment for the scope of this project.

7. Operation Philosophy

An operation philosophy for the new systems will be developed in future phase of this project to address the key operational parameters and envelopes for each system. This operation philosophy can be used for developing detailed control narratives and procedures.

8. Appendices

Additional documents and references are available in project documentation to support the information in this basis of design.

Appendix B – NFPA 58, Fire Safety Analysis
Completed Forms 4.1 through 9.7

Interactive Appendix B Fill-in Forms (2011 Edition of NFPA 58)

This Appendix contains a set of forms copied from the different chapters in this manual. The form number corresponds to the respective forms in chapters 4 through 9; the first number digit represents the chapter number. Where the forms refer to a figure, it is understood that they refer to the figures shown in the main body of the manual.

How to Use the Forms in this Section

This Microsoft Word document contains tables with fill-in blanks, or form fields, in which you enter information. These tables are made of cells, and the ones in which you may enter information contain gray shading.

The following types of form fields are included in this Appendix:

Regular Text: Accepts text, numbers, symbols, or spaces.

Number: Only allows a number. If you enter a letter into this field, it will change to a zero after you leave the field.

Calculation: Uses a formula to calculate numbers, such as the sum of two columns automatically appears in another column. Users cannot fill in or change this field, even though it contains gray shading. **Users must click in another number field to activate the calculations.**

Checkbox: Shows the selection state of an item. When the box is empty, or unchecked, click it to make an X appear. When the box is checked and contains an X, click the box to remove it. Examples: Unchecked: Checked:

The form fields are already set up to only accept a certain type of input (numbers only or numbers and letters) and contain the formulas needed for automatically performing calculations. Users are not permitted to use the other fields in the forms (for example, change Item #s or values already in the form). Once the forms are completed, this document is saved using File→Save, like a regular Microsoft Word document.

PRC #0A3025

Form 4.1
Initial Data on the LP-Gas Facility

A	B	C
Item #	Information Item	Data
1	Name of the LP-Gas Facility Owner or Operator	Blackline SEA-3 LPG Expansion Project
2	Contact Name:	Ryan Boyle
3	Contact Telephone & Fax Numbers	Office: (401) 648-9159 Cell: (401)-533-4021
4	Contact Email Address	Ryan.boyle@sea-3.com
5	Mailing Address	Street 1: 25 Fields Point Drive
		Street 2:
		City, State, Zip: Providence, RI 02905

Form 4.2
Facility Storage Capacity ^{1,2,3,5}

A	B	C	D
Item #	Individual Container Water Capacity (w.c.) (gallons)	Number of containers	Total Water Capacity (w.c.) of each container size (gallons)
1	500		0
	1,000		0
	2,000		0
	4,000		0
	10,000		0
	18,000		0
	30,000		0
	60,000		0
	Other: 90,0000	6	540,000
	Other:		0
	Other:		0
Other:		0	
2	Aggregate Water Capacity⁴		540,000

- Notes:**
- (1) Column D = Column B x Column C.
 - (2) Parked bobtails, transports and tank cars should not be considered for aggregate capacity calculations.
 - (3) Do not consider containers that are not connected for use.
 - (4) For the purpose of this manual, "Aggregate Water Capacity" means any group of single ASME storage containers separated from each other by distances less than those stated in the aboveground containers column of Table 6.3.1.
 - (5) **This form contains formulas that will automatically calculate results based on the values entered in the related cells. To activate the calculations, click in another number field, such as one in Column C.**

If the aggregate water capacity of the LP-Gas facility is less than or equal to 4,000 gallon (w.c.), no further assessment is required.

YOU CAN STOP HERE.

Form 4.3
Additional Information on the LP-Gas Facility

Existing Facility; Built to NFPA 58 Edition 2011 Proposed Facility

a) Name of the Facility (if applicable): Blackline SEA-3 LPG Expansion

b) Type of LP-Gas Facility: Commercial Industrial Bulk Plant

c) Facility is located in: City Industrial Zone Suburban Area Rural Area
 City Commercial Zone

d) Facility neighbors^s: Agri Fields Commercial Bldgs. Flammable Liquids Storage
 (Check all that apply) Industrial Activity (metal fabrication, cutting and welding, etc.)
 Manufacturing Others (Explain) Residences

e) Geographic Location of Facility/Address: 25 Fields Point Drive
 Providence, RI 02905

f) Landmarks, if any: _____

g) LP-Gas liquid supply by: Bobtail Truck Transport Rail Tank Car
 (Check all that apply) Pipeline Other (Marine Terminal)

h) LP-Gas Distribution by: Liquid Piping Truck Transport Vapor Piping
 Plant (Check all that apply): Bobtail Dispensing or Vehicle Liquid Fueling

i) Number of Vehicle Entrances: One Two More than two

j) Type of Access Roads to the Facility: Rural City or Town Highway
 (One check per line) Entrance 1: Dirt road Gravel road Paved
 (One check per line) Entrance 2: Dirt road Gravel road Paved

k) Staff presence: Not staffed Only during transfer operations
 Staffed always (24/7) Only during business hours
 Other (Explain) _____

l) Location and distances to Assembly, Educational or Institutional Occupancies surrounding the facility, if any, within 256 ft, from the facility boundary in the direction of the assets.

The Johnson & Wales University harborside campus buildings are located approximately 1,981 feet to the west, immediately due north is the location of the plant 400,000-barrel LPG aboveground storage tank (AST) Tank 0001. A recreational park with baseball and soccer fields are located approximately 1,023 feet southwest of the AST source. Fields Point is located 1,411 feet due south of the facility and the Save the Bay Center is located approximately 1,689 feet due south of the plant (see Table 1 in FSA for estimated distances and Figures 1-4 in FSA).

n) Overview plot plan of the facility attached? Yes No

§ All properties either abutting the LP-Gas facility or within 250 feet of the container or transfer point nearest to facility boundary.

Form 5.1
Compliance with Code Requirements for Appurtenances on Containers of 2,000 Gallons Water Capacity or Less

A	B	C	D	E
Container #	Service Configuration Sub Figure (in Figure 5-1)	Number of Product Control Appurtenances		NFPA 58 Section Reference (2011 Edition)
		Required by NFPA 58 (applicable edition)	Installed on the Container	
1				5.7.4.1 and Table 5.7.4.1
2				
3				
4				
5				
6				
7				

If, in Form 5.1, any one of the numbers in column D is less than the number in Column C of the corresponding row, then these items must be addressed and brought into compliance with the specific edition of NFPA 58 that the facility was constructed to.

Form 5.2
Compliance with Code Requirements for Appurtenances on Containers Of water capacity 2001 gallons through 4,000 gallons Used in Residential and Commercial Facilities

A	B	C	D	E
Container #	Service Configuration Sub Figure (in Figure 5-1)	Number of Product Control Appurtenances		NFPA 58 Section Reference (2011 Edition)
		Required by NFPA 58 (applicable edition)	Installed on the Container	
1				5.7.4.1 and Table 5.7.4.1
2				
3				
4				
5				
6				

If, in Form 5.2, any one of the numbers in column D is less than the number in Column C of the corresponding row, these items must be addressed and brought into compliance with the specific edition of NFPA 58 that the facility was constructed to.

Form 5.3

Compliance with Code Requirements for Appurtenances on Containers Having a Water Capacity of 2,001 through 4,000 Gallons Used in Bulk Plants and Industrial Plants

A	B	C	D	E	F	G
Container #	LP-Gas inlet to and outlet from the container**		Figure #	Total Number of Product Control Appurtenances		NFPA 58 Section Reference (2011 Edition)
				Required by NFPA 58 (Applicable Edition)	Installed on the container	
1	Vapor	Inlet	5-2			See §5.7.4.2 and Table 5.7.4.2
		Outlet	5-3			
	Liquid	Inlet	5-4			
		Outlet	5-5			
2	Vapor	Inlet	5-2			
		Outlet	5-3			
	Liquid	Inlet	5-4			
		Outlet	5-5			
3	Vapor	Inlet	5-2			
		Outlet	5-3			
	Liquid	Inlet	5-4			
		Outlet	5-5			
4	Vapor	Inlet	5-2			
		Outlet	5-3			
	Liquid	Inlet	5-4			
		Outlet	5-5			

** If the container does not provide an opening for the specific function listed, enter 0 (zero) in columns E and F corresponding to that row.

If, in Form 5.3, any one of the numbers in Column F is less than the number in Column E of the corresponding row, these items must be addressed and brought into compliance with the specific edition of NFPA 58 that the facility was constructed to.

Form 5.4
Compliance with Code Requirements for Appurtenances on Containers Having a
Water Capacity Greater Than 4,000 Gallons
Used in Bulk Plants and Industrial Plants

A	B	C	D	E	F	G
Container #	LP-Gas inlet to and outlet from the container**		Enter Configuration Number	Total Number of Product Control Appurtenances		NFPA 58 Section Reference (2011 Edition)
				Required by NFPA 58 (applicable edition)	Installed on the container	
1	Vapor	Inlet	5-2	Yes	*1 on each container	See §5.7.4.2 and Table 5.7.4.2
		Outlet	5-3	Yes	*1 on each container	
	Liquid	Inlet	5-6A	Yes	*1 on each container	
		Outlet	5-7A	Yes	*1 on each container	
2	Vapor	Inlet	5-2	1	1	
		Outlet	5-3	1	1	
	Liquid	Inlet	5-6	1	1	
		Outlet	5-7	1	1	
3	Vapor	Inlet	5-2	1	1	
		Outlet	5-3	1	1	
	Liquid	Inlet	5-6	1	1	
		Outlet	5-7	1	1	
4	Vapor	Inlet	5-2	1	1	
		Outlet	5-3	1	1	
	Liquid	Inlet	5-6	1	1	
		Outlet	5-7	1	1	

* All 6 ASTs will be configured with the same or equivalent vapor inlet and outlet and liquid inlet and outlet internal valves and pressure relief valves (see NFPA Fire Safety Analysis Manual, 2011 Edition, Section 5.1.3 for detailed configurations). Valves will be installed in the tanks on site.

** If the container does not provide an opening for the specific function listed, enter 0 (zero) in columns E and F corresponding to that row.

If in Form 5.4 any one of the numbers in Column F is less than the number in Column E of the corresponding row, these items must be addressed and brought into compliance with the specific edition of NFPA 58 that the facility was constructed to.

Form 5.5
Requirements for Transfer Lines of 1½-inch Diameter or Larger,
Liquid-into-Containers

A	B	C	D	E	F
Item #	Appurtenance (Either No. 1 or No. 2)**	Appurtenance Provided with the Feature	Installed in the facility?		NFPA 58 Section Reference (2011 edition)
			Yes	No	
1	Emergency Shutoff Valve (ESV) (Ref § 6.12)	Installed within 20 ft. of lineal pipe from the nearest end of the hose or swivel-type connections.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.12.2
		Automatic shutoff through thermal (fire) actuation element with maximum melting point of 250 °F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.12.6
		Temperature sensitive element (fusible link) installed within 5 ft from the nearest end of the hose or swivel type piping connected to liquid transfer line.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.12.6
		Manually operated remote shutoff feature provided for ESV.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.12.10 (1)
		Manual shutoff device provided at a remote location, not less than 25 ft., and not more than 100 ft. from the ESV in the path of egress.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.12.10 (2)
		An ESV is installed on each leg of a multi leg piping each of which is connected to a hose or a swivel type connection on one side and to a header of size 1½ inch in diameter or larger on the other side.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.12.5 6.18.2.6 (1)
		Breakaway protection is provided such that in any pull-away break will occur on the hose or swivel-type connection side while retaining intact the valves and piping on the plant side.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.12.8
2	Backflow Check Valve (BCK)**	Installed downstream of the hose or swivel-type connection	NA	<input type="checkbox"/>	6.12.3
		BCK is designed for this specific application.	NA	<input type="checkbox"/>	6.12.4
		A BCK is installed on each leg of a multi leg piping each of which is connected to a hose or a swivel type connection on one side and to a header of 1½ inch in diameter or larger on the other side.	NA	<input type="checkbox"/>	6.12.5
		Breakaway protection is provided such that in any pull-away break will occur on the hose or swivel-type connection side while retaining intact the valves and piping on the plant side.	NA	<input type="checkbox"/>	6.12.8

** In lieu of an emergency shutoff valve, the backflow check valve (BCK) is only permitted when flow is only into the container and shall have a metal-to-metal seat or a primary resilient seat with metal backup, not hinged with a combustible material (6.12.3, 6.12.4).

Form 5.6
Requirements for Transfer Lines of 1½-inch Diameter or Larger,
Liquid Withdrawal From Containers

A	B	C	D	E	F
Item #	Appurtenance	Appurtenance Provided with the Feature	Installed in the facility?		NFPA 58 Section Reference (2011 Edition)
			Yes	No	
1	Emergency Shutoff Valve (ESV) (Ref § 6.12)	Installed within 20 ft. of lineal pipe from the nearest end of the hose or swivel-type connections.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.12.2
		Automatic shutoff through thermal (fire) actuation element with maximum melting point of 250 °F.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.12.6
		Temperature sensitive element installed within 5 ft from the nearest end of the hose or swivel type piping connected to liquid transfer line.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.12.6
		Manually operated remote shutoff feature provided for ESV.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.12.10 (1)
		Manual shutoff device provided at a remote location, not less than 25 ft., and not more than 100 ft. from the ESV in the path of egress.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.12.10 (2)
		An ESV is installed on each leg of a multi leg piping each of which is connected to a hose or a swivel type connection on one side and to a header of 1½ inch in diameter or larger on the other side.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.12.5 6.18.2.6 (1)
		Breakaway protection is provided such that in any pull-away break will occur on the hose or swivel-type connection side while retaining intact the valves and piping on the plant side.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.12.8
		Number of ESV's in liquid withdrawal service	6		

Note: If more than one ESV is installed in the facility, use one Form 5.6 for each ESV.

Form 5.7
Requirements for Vapor Transfer Lines 1¼-inch Diameter or Larger

A	B	C	D	E	F
Item #	Appurtenance	Appurtenance Provided with the Feature	Installed in the facility?		NFPA 58 Section Reference (2011 Edition)
			Yes	No	
1	Emergency Shutoff Valve (ESV) (Ref § 6.12)	Installed within 20 ft. of lineal pipe from the nearest end of the hose or swivel-type connections.	☒	☐	6.12.2
		Automatic shutoff through thermal (fire) actuation element with maximum melting point of 250 °F	☒	☐	6.12.6
		Temperature sensitive element installed within 5 ft from the nearest end of the hose or swivel type piping connected to liquid transfer line.	☒	☐	6.12.6
		Manually operated remote shutoff feature provided for ESV.	☒	☐	6.12.10 (1)
		Manual shutoff device provided at a remote location, not less than 25 ft., and not more than 100 ft. from the ESV in the path of egress.	☒	☐	6.12.10 (2)
		An ESV is installed on each leg of a multi leg piping each of which is connected to a hose or a swivel type connection on one side and to a header of 1-1/4 inch in diameter or larger on the other side.	☒	☐	6.12.5 6.18.2.6 (1)
		Breakaway protection is provided such that in any pull-away break will occur on the hose or swivel-type connection side while retaining intact the valves and piping on the plant side.	☒	☐	6.12.8
2	Backflow Check Valve (BCK)**	Installed downstream of the hose or swivel-type connection	NA	☐	6.12.3
		BCK is designed for this specific application.	NA	☐	6.12.4
		A BCK is installed on each leg of a multi leg piping each of which is connected to a hose or a swivel type connection on one side and to a header of 1-1/4 inch in diameter or larger on the other side.	NA	☐	6.12.5
		Breakaway protection is provided such that in any pull-away break will occur on the hose or swivel-type connection side while retaining intact the valves and piping on the plant side.	NA	☐	6.12.8

NA = mean Not Applicable

** In lieu of an emergency shutoff valve, the backflow check valve (BCK) is only permitted when flow is only into the container and it shall have a metal-to-metal seat or a primary resilient seat with metal backup, not hinged with a combustible material (6.12.3, 6.12.4).

If a checkmark is made in the “No” column of any one of Form 5.5, Form 5.6 or Form 5.7, then these items must be addressed and brought into compliance with the specific edition of NFPA 58 that the facility was constructed to.

If the LP-Gas facility is designed using ALTERNATE PROVISIONS for the installation of ASME CONTAINERS, then continue the analysis below. Otherwise skip Forms 5.8 and 5.9 and go to Chapter 6.

Form 5.8

Evaluation of Redundant Fail-Safe Design

A	B		C	D	E	F
Item #	Description		Features	Installed in the facility?		NFPA 58 Section Reference (2011 edition)
				Yes	No	
1	Container sizes for which the appurtenances are provided		Appurtenances and redundant fail-safe equipment are provided for <u>each</u> container of water capacity 2,001 gal. through 30,000 gal.	NA	NA	6.26.3 and 6.26.4
2	Liquid or Vapor Withdrawal (1-1/4 in. or larger)		Internal valve having internal excess-flow valve	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.26.3.1 and 6.26.3.2
			Positive shutoff valve installed as close as practical to the internal valve	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.26.3.4
3	Liquid or Vapor Inlet		Internal valve having internal excess-flow valve or backflow check valve	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.26.3.5
			Positive shutoff valve installed as close as possible to the internal valve or the backflow check valve	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.26.3.5
4	Railcar Transfer	Flow into or out of railroad tank car	Approved emergency shutoff valves installed in the transfer hose or the swivel-type piping at the tank car end	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.18.2.6 (1) and 6.26.4.1
		Flow only into railroad tank car	Approved emergency shutoff valve or backflow check valve installed in the transfer hose or the swivel-type piping at the tank car end	NA	<input type="checkbox"/>	6.18.2.6 (2) and 6.26.4.1
5	Cargo Tank Transfer		Protection provided in accordance with 6.26.4.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.26.4.1
6	Automatic closure of all primary valves (IV & ESV) in an emergency		By thermal (Fire) actuation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.26.4.2
			Actuated by a hose pull-away due to vehicle motion	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.26.4.2
7	Manually operated remote shutdown of IV and ESV		Remote shutdown station within 15 ft of the point of transfer	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.26.4.3 (A)
			Another remote shutdown station between 25 ft and 100 ft of the transfer point	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.26.4.3 (B)
			Shutdown stations will shut down electrical power supply, if any, to the transfer equipment and primary valves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.26.4.3
			Signs complying with the requirements of 6.26.4.3 (C) provided	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.26.4.3 (C)

Note: If the facility does not have a rail terminal, write the word NA in both the “Yes” column and the “No” column in item 4 of this Form in the railroad tank car row. Similar option is also available if there is no cargo tank vehicle transfer station.

NA: means Not Applicable

If the LP-Gas facility is provided with LOW EMISSION TRANSFER EQUIPMENT, then complete Form 5.9 below. Otherwise skip section 5.3.2 and go to Chapter 6.

Form 5.9
Evaluation of Low Emission Transfer Equipment

A I t e m #	B Description	C Features		D Installed in the facility?		F NFPA 58 Section Reference (2011 Edition)
				Yes	No	
1	Transfer into permanently mounted ASME containers on vehicles	Delivery nozzle and filler valve- Max. liquid release after transfer of 4 cc.	Fixed maximum liquid level gage not used during transfer operations	NA	NA	6.26.5.1 (B)
2	Transfer into stationary ASME containers. delivery valve and nozzle combination	During product transfer or post transfer uncoupling of the hose, liquid product volume released to the atmosphere	Does not exceed 4 cc (0.24 in ³) from a hose of nominal size 1 in or smaller	NA	NA	6.26.5.2 (A)
			Does not exceed 15 cc (0.91 in ³) from a hose of nominal size larger than 1 in.	NA	NA	6.26.5.2 (B)
3	Transfer into stationary ASME containers maximum filling limit	Do containers of less than 2,001 gal (w.c.) have an overfilling prevention device or another approved device?		NA	NA	6.26.5.2 (F)
		Do containers 2,001 gal (w.c.) or greater have a float gage or other non-venting device?		NA	NA	6.26.5.2 (E)
4	Transfer into stationary ASME containers fixed maximum liquid level gage	Not used during routine transfer operations but used to calibrate other non-venting liquid level gages in the container		NA	NA	6.26.5.2 (C,D)

Note: 1) If the facility does not have a particular feature described in items 2 or 3, write “NA” in both the “Yes” and “No” columns corresponding to its row.
NA: means not applicable.

If separation distance reductions are intended, checkmarks made in the “No” column of either Form 5.8 or Form 5.9 must be addressed and brought into compliance with the specific edition of NFPA 58 that the facility was constructed to.

Form 6.1
Evaluation of Physical Protection and Other Measures

A #	B Item	C Features	D Installed in the facility?		E NFPA 58 Section Reference (2011 Edition)
			Yes	No	
1	Lighting‡	Provide lighting for nighttime operations to illuminate storage containers, container being loaded, control valves, and other equipment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.18.5
2	Vehicle Impact Protection	Protection against vehicular (traffic) impacts on containers, transfer piping and other appurtenances is designed and provided commensurate with the size of vehicles and type of traffic in the facility. (Example protection systems include but not limited to (1) Guard rails, (2) Steel bollards or crash posts, (3) Raised sidewalks.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.6.1.2, 6.9.3.10 and 6.19.3.2
3	Protection Against Corrosion	Provide protection against corrosion where piping is in contact with supports or corrosion causing substances.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.9.3.11
Complete only 4A or 4B					
4A	Perimeter Fence	Is an industrial type or chain link fence of at least 6 ft high or equivalent protection provided to enclose (all around) container appurtenances, pumping equipment, loading and unloading and container filling facilities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.18.4.2
		Are at least two means of emergency accesses (gates) from the enclosure provided? NOTE: Write "N.A." (not applicable) if (i) The area enclosed is less than 100 ft ² , or (ii) The point of transfer is within 3 ft of the gate, or containers are not filled within the enclosure.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.18.4.2 (A)
		Is a clearance of at least 3 feet all around to allow emergency access to the required means of egress provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.18.4.2 (B)
	Guard Service	If a guard service is provided, does this service cover the LP-Gas plant and are the guard personnel provided with appropriate LP-Gas related training, per section 4.4 of NFPA 58?	NA	Staffed 24/7	6.18.4.3
4B	Lock-in-Place devices	Are Lock-in-Place devices provided to prevent unauthorized use or operation of any container appurtenance, system valves, or equipment in lieu of the fence requirements above?	<input checked="" type="checkbox"/>		6.18.4.2 (C)

Note: Fill only items 1, 2, 3, and 4A or 4B. Indicate with "NA" when not filling the "Yes" or "No" column.

‡ Indicate with "NA" if the facility is not operated at night.

Form 6.2
Assessment of Sources of Ignition and Adjacent Combustible Materials

A	B	C	D	E
#	Sources of Ignition and Requirements Pertaining to Adjacent Combustible Materials	Is the Facility compliant?		NFPA 58 Section Reference (2011 Edition)
		Yes	No	
1	Are combustible materials, weeds and tall grass not closer than 10 ft. from each container?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.4.5.2
2	Is a distance at least 20 ft. provided between containers and tanks containing flammable liquids with flash point less than 200 °F (ex., gasoline, diesel)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.4.5.5
3	Are electrical equipment and wiring installed per Code requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.22.2
4	Is open flame equipment located and used according to Code?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.22.3.1
5	Are ignition control procedures and requirements during liquid transfer operations complied with.?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.2.3.2
6	Is an approved, portable, dry chemical fire extinguisher of minimum capacity 18 Lbs. and having a B:C rating provided in the facility?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.25.4.2
7	Is an approved, portable, dry chemical fire extinguisher of minimum capacity 18 Lbs. and having a B:C rating provided on each truck or trailer used to transport portable containers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9.4.7
8	Is the prohibition on smoking within the facility premises strictly enforced?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.2.3.2 (B) & 9.4.10

Note: Insert “NA” in both “Yes” and “No” columns of any items that are not applicable.

Form 6.3

Separation Distances from Containers to Buildings, Property Lines that can be Built upon, Inter-container Distances, and Aboveground Flammable or Combustible Storage Tanks

A #	B Container Size Range in Gallons (W.C.)	C Separation between a property line, important building or other property and the <u>nearest</u> container which is	D Minimum Distance (ft)	E Is the Facility compliant?		F NFPA 58 Section Reference (2011 Edition)	
				Yes	No		
1	501 through 2,000	Above Ground	25	NA		6.3.1 and Table 6.3.1	
		Underground or Mounded	10	NA			
		Between containers	3	NA			
2	2,001 through 30,000	Above Ground	50	NA			
		Underground or Mounded	50	NA			
		Between containers	5	NA			
3	30,001 through 70,000	Above Ground	75	NA			
		Underground or Mounded	50	NA			
		Between containers	¼ sum of diameters of adjacent containers	NA			
4	70,001 through 90,000	Above Ground	100	Yes			
		Underground or Mounded	50	NA			
		Between containers	¼ sum of diameters of adjacent containers	Yes			
5	All sizes greater than 125 gal	Separation distance between a LP-Gas container and an above ground storage tank containing flammable or combustible liquids of flash points below 200 °F.	20	Yes			6.4.5.5 and 6.4.5.6

Note: If any of the container sizes indicated in the above form are not present in the facility, enter "NA" in both Yes and No columns.

If the LP-Gas plant is provided with every one of the redundant and fail-safe product control-design equipment indicated in Form 5.8, then the minimum distance in column D of Form 6.3 can be reduced to 10 feet for underground and mounded containers of water capacity 2,001 gal to 30,000 gal.

Form 6.4
Separation Distances between Points of Transfer and other Exposures

A #	B Type of Exposure within or outside the facility boundary		C Check if exposure is present	D Minimum Distance (ft)	E Is the Facility compliant?		F No	G NFPA 58 Section Reference (2011 Edition)
					Yes	No		
1	Buildings, mobile homes, recreational vehicles, and modular homes with at least 1-hour fire-rated walls		<input type="checkbox"/>	10	<input checked="" type="checkbox"/>			Section 6.5.3 Table 6.5.3
2	Buildings with other than at least 1-hour fire-rated walls		<input type="checkbox"/>	25	<input checked="" type="checkbox"/>			
3	Building wall openings or pits at or below the level of the point of transfer.		<input type="checkbox"/>	25	NP			
4	Line of adjoining property that can be built upon.		<input type="checkbox"/>	25	<input checked="" type="checkbox"/>			
5	Outdoor places of public assembly, including school yards, athletic fields, and playgrounds		<input type="checkbox"/>	50	<input checked="" type="checkbox"/>			
6	Public ways, including public streets, highways, thoroughfares, and sidewalks	From points of transfer in LP-Gas dispensing stations and at vehicle fuel dispensers.	<input type="checkbox"/>	10	<input checked="" type="checkbox"/>			
		From other points of transfer	<input type="checkbox"/>	25	<input checked="" type="checkbox"/>			
7	Driveways		<input type="checkbox"/>	5	<input checked="" type="checkbox"/>			
8	Mainline railroad track centerlines		<input type="checkbox"/>	25	<input checked="" type="checkbox"/>			
9	Containers other than those being filled		<input type="checkbox"/>	10	NP			
10	Flammable and Class II combustible liquid dispensers and aboveground and underground containers.		<input type="checkbox"/>	20	<input checked="" type="checkbox"/>			
11	Flammable and Class II combustible liquid dispensers and the fill connections of LPG containers		<input type="checkbox"/>	10	NP			
12	LP-Gas dispensing device located close to a Class I liquid dispensing device.		<input type="checkbox"/>	10	NP		6.24.4.3	

NOTE: Place a checkmark in Column C against an exposure that is present in or around the facility. Fill columns E or F for only those rows for which there is a checkmark in Column C. NP: means not present.

If the facility contains low emission transfer equipment (i.e., all equipment identified in Form 5.9 are installed and are in working order), then the minimum separation distances in column D of Form 6.4 can be reduced to one half of the indicated values.

If the containers in the LP-Gas facility are provided with SPECIAL PROTECTION MEASURES, then continue the analysis below. Otherwise skip Forms 6.5 and 6.6 and go to Form 6.7. Also see Chapter 9.

Form 6.5 Special Protection Measures – Passive Systems

A #	B Special Protection Option	C Question	D Is the Facility compliant?		E NFPA 58 Section Reference (2011 Edition)
			Yes	No	
1	Container Insulation	Insulation provided on each of the containers?		NP	6.25.5.1
		Insulation material complies with the requirements of NFPA 58?		NP	6.25.5.1 and 6.25.5.2
2	Mounding of Containers	Each container in the facility is mounded?	NA		6.25.5.3
		Mounding complies with each requirement under section 6.6.6.3 of NFPA 58.	NA		6.6.6.3 & 6.25.5.3
3	Burying of Containers	Each container in the facility is buried?	NA		6.25.5.4
		Buried containers comply with each requirement under section 6.6.6.1 of NFPA 58.	NA		6.6.6.1 & 6.25.5.4

Form 6.6 Special Protection Measures –Active Systems

#	Special Protection Option	Question	Is the Facility compliant?		NFPA 58 Section Reference (2011 Edition)
			Yes	No	
1	Water Spray Systems	Are fixed water spray systems, complying with NFPA 15 ¹ requirements, used for each container in the facility?		<input checked="" type="checkbox"/>	6.25.6.1
		Do fire responsive devices actuate water spray system automatically?		<input checked="" type="checkbox"/>	6.25.6.2
		Can the water spray systems be actuated manually also?	<input checked="" type="checkbox"/>		6.25.6.2
2	Monitor Nozzle Systems	Are the monitor nozzles located and arranged so that the water stream can wet the surfaces of all containers exposed to a fire?	<input checked="" type="checkbox"/>		6.25.6.3
		Can the water stream from a monitor nozzle reach and wet the entire surface of, at least, one half of a length from one end of each of the containers it is designed to protect?	<input checked="" type="checkbox"/>		6.25.6.3
		Do fixed monitor nozzles comply with NFPA 15 ¹ requirements?	<input checked="" type="checkbox"/>		6.25.6.1
		Do fire responsive devices actuate the monitor nozzles?		<input checked="" type="checkbox"/>	6.25.6.2
		Can the monitor nozzles can be actuated manually also?	<input checked="" type="checkbox"/>		6.25.6.2

1. See discussion in Section 8.2

2. Refer to Chapter 8 for a discussion on NFPA 15 *Standard for Water Spray Fixed Systems for Fire Protection*

NA: Means Not Applicable, NP =Not Present

Form 6.7
Protection Against Vehicular Impact

#	System Protected	Is physical protection provided?		Type of physical protection installed
		Yes	No	
1	Storage Containers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Bollards/Guard rails
2	Transfer Stations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Bollards/Guard Rails
3	Entryway into Plant	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Fence/Bollards

Table 7.1**Distances to Various Types of Propane Hazards Under Different Release Models****

Model #	Details of the Propane Release Model Releases from or due to		Vapor Dispersion Distance to LFL (ft)	Explosion Hazard Distance (ft)	Fire Ball Radiation Distance (ft)
1A	Bobtail hose failure. Release of the entire inventory in the hose, quickly.	1" ID x 150 ft hose length	250	110	50
1B		1" ID x 120 ft hose length	230	103	45
1C		1" ID x 75 ft hose length	190	90	40
2a	Release of the inventory in a transfer piping 1" x 30 ft + @ 20 gpm for 10 min., due to failed excess flow valve.		135	120	25
2b	Release of the inventory in a transfer piping 2" x 30 ft + @80 gpm for 10 mins.		230	252	48
2c	Release of the inventory in a transfer piping 2" x 80 ft. @ 70 gpm for 10 mins.		328	235	74
2d	Release of the inventory in a transfer piping 2.5" x 30 ft @80 gpm for 10 mins.		269	252	59
2e	Release of the inventory in a transfer piping 3" x 30 ft + @100 gpm for 10 mins.		312	287	69
2f	Release of the inventory in a transfer piping 3" x 18 ft + @100 gpm for 10 mins.		256	284	55
3	Release from the container pressure relief valve		No ignitable vapor concentration at ground level		
4	Release from a 1" ID x 150 ft transfer piping to a vaporizer and reduced flow from a partially open excess flow valve @ 20 gpm for 10 min.		250	120	50
5	Leak from a corrosion hole in a transfer pipe at a back pressure of 130 psig (corresponding to 80 °F) for 60 min. Hole size is ¼" ID.		110	120	5
6	Release of the entire inventory in a 2" ID x 20 ft., transfer hose.		195	90	40
6a	Release of the entire inventory in a 2.5 inch dia. transfer hose x 16 ft. length		215	98	45
6b	Release of the entire inventory in a 3-inch dia. transfer hose x 12 ft. length		230	100	46
7	Transport hose blow down: Hose size 2" ID, 20 ft length release for 3min., from a Transport after the tank is filled.		25	30	<5
7a	Transport hose blow down: Hose size 2.5" ID, 16 ft length release for 3min., from a Transport after the tank is filled.		25	29	<5
7b	Transport hose blow down: Hose size 3" ID, 16 ft length release for 3min., from a Transport after the tank is filled.		31	36	<5

** Results from models described in Appendix B. The results are rounded to the nearest 5 feet.

Form 7.1
Types of Occupancies⁽¹⁾ Near or Surrounding the LP-Gas Facility

Type of Occupancies	Model # from Table 7.1	Hazard Distance ⁽²⁾ (feet)	Is Occupancy located within the hazard distance from the Facility?	
			Yes	No
Assembly Occupancies (Places of worship, Libraries, Theaters and Auditoriums, Food or Drink Bars, Sports Stadiums, Amusement Parks, Transportation Centers, etc. with 50 or more people).	2e	287		<input checked="" type="checkbox"/>
Institutional Occupancies (Elderly Persons Home or Nursing Home, Hospitals, Alcohol & Drug Rehabilitation Centers, Prisons)	2e	287		<input checked="" type="checkbox"/>
Educational Occupancies (Elementary Schools, Day Care Facilities, etc).	2e	287		<input checked="" type="checkbox"/>

- NOTES:** (1) Different types of occupancies are defined in NFPA 5000
(2) Table 7.1 provides a number of scenarios that can result in propane release, and the resulting area exposed for different ignition mechanisms. Determine the scenarios that are applicable to the facility, for the quantities that can be released, and enter the greatest value from Table 7.1. Use the hose diameters and length that will be used at the facility if they differ from the ones in Table 7.1 and recalculate the hazard distances using a spreadsheet method that is available at npga.org. Some scenarios may not be applicable to an installation because of other mitigation measures implemented, such as a hose management procedure to minimize the possibility of hose failure.

Form 7.2
Exposure to LP-Gas Facility from External Hazards

A	B	C	D
Item #	Type of Neighboring Operation	Hazard exists to the LP-Gas Facility	
		Yes	No
1	Petroleum and other hazardous material storage, wholesale dispensing, etc.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Metal cutting, welding, and metal fabrication	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	Industrial Manufacturing that can pose external hazards	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Ports, rail yards and trans-shipment terminals handling flammable and explosive materials.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Other operations that may pose hazards (gasoline and other hazardous material dispensing stations, fertilizer storage, etc).	<input type="checkbox"/>	<input checked="" type="checkbox"/>

NOTE: If a particular activity indicated in column B does not exist, fill both “Yes” and “No” columns with “NA.”
The GFD has issued welding permits to the buildings located immediately west of the GU&R LPGTF (see Item 2 above). If a propane release occurs immediate notification will be provided (phone call) to the facility.

Where a “Yes” has been checked in either Form 7.1 or Form 7.2:

- 1) For an existing facility, communicate this information to local emergency responders for inclusion in their emergency planning.**
- 2) For a proposed facility, implement the actions indicated in Chapter 9.**

Form 8.1
Data on the Responding Fire Department

A	B		C
Item #	<u>Data Item</u>		Data Entry
1	Name of the Fire Department (FD).		Providence Fire Department
2A	Name of the person in the FD assisting with the data acquisition.		Captain Andrew M. Went
2B	Position of the person in the FD assisting with the data acquisition.		Director of Fire Prevention & Acting Fire Marshal
3A	Date on which FD data was collected.		May 9, 2019
3B	Name of the person collecting the data.		Dr. Robert S. Palermo, P.E., C.S.P
4	Number of firefighters on duty at any time.		34
5	Average number of firefighters available for response.		34 not including Ambulance personnel.
to	Number of firefighters qualified to	“Firefighter I” level.	88
6B		“Firefighter II” level.	88
7A	Number of firefighters who would:	Respond on the first alarm to the facility.	24
7B		Respond on the first alarm and who are qualified to the operations level requirements of NFPA 472 or <u>similar</u> local requirements	24
7C		Respond on the first alarm with specific knowledge and training on the properties of LP-Gas and LP-Gas fires.	The Providence FD is trained on NG and not LPG.
8A	Number of fire apparatus that have the capability to deploy a 125 gpm hose line supplied by onboard water for at least 4 minutes, and, which:	Are in service in the department.	12 Engines (rated @ 1,250 to 1,750 GPM)
8B		Would respond on a first alarm.	4

NOTE: Form 8.1 was completed based on input from Capt. Andrew M. Went of the Providence Fire Department.

Form 8.2
Response Time data for the Fire Departments

A	B	C	D	E
Company or Department	Time in Minutes for			
	Alarm Receipt & Handling	Turnout	Travel	Total Time
Providence, RI FD	30 seconds to 2 minutes	30 seconds to 1 minute	5 to 10 minutes	6 to 13 minutes
				0
				0
				0
				0
				0
				0

Note: Number in Column E = Sum of numbers from Columns B through D.

Form 8.2 was completed based on input from Capt. Andrew Went of the Providence Fire Department.

This form contains formulas that will automatically calculate results based on the values entered in the related cells. To activate the calculations, click in another number field, such as one in Column D.

Form 8.3
Water Flow Rate and Total Water Volume
Required to Cool Containers Exposed to a Fire

A	B	C	D	E	F	G	H
Item #	ASME Container Size (gallons)	Total Surface Area of each Container ¹ (ft ²)	Surface Area of each container to be Cooled (ft ²)	Water flow rate required per container (gpm)	Number of containers of the size indicated‡	Total Water flow rate required (gpm)	Total volume of water required for 10 min (gal)
1	500	86	43	10.8	0.0	0.0	0.0
	1,000	172	86	21.5	0.0	0.0	0.0
	2,000	290	145	36.3	0.0	0.0	0.0
	4,000	374	187	46.8	0.0	0.0	0.0
	6,500	570	285	71.3	0.0	0.0	0.0
	9,200	790	395	98.8	0.0	0.0	0.0
	12,000	990	495	123.8	0.0	0.0	0.0
	18,000	1,160	580	145	0.0	0.0	0.0
	30,000	1,610	805	201.3	0.0	0.0	0.0
	45,000	2,366	1,183	295.8	0.0	0.0	0.0
	60,000	3,090	1,545	386.3	0.0	0.0	0.0
	80,000	4,098	2,049	512	0.0	0.0	0.0
	90,000	4,600	2,300	575	6.0	3,450	5,750
2a	Calculated water flow rate for container protection		Rounding up [13 * 125 = 1,625]			3,450	
2b	Water flow rate rounded up to nearest multiple of 125					3,500	
3	Water for firefighter protection, if required					250	
4	Total water flow rate and volume					3,750	

Note: Column D = (1/2) x Column C Column E = 0.25 (gpm/ft²) x Column D;
Column G = Column F x Column E Column H = 10 x Column G
Line 2a, Column G and Column H are the sum of numbers in each row above line 2 of each column.
Line 4, Column G and Column H are the sum of numbers in rows 2b and 3.

‡ Consider only 3 containers for water supply evaluations even if the number of containers in a group is more than 3. See Section 8.2.

The total water requirement for the facility is indicated in item 4, column G (water flow rate) and column H (total water volume or quantity) of Form 8.3. If multiple groups of containers are present in the facility, repeat the calculations in Form 8.3 for each group of containers. The total water requirement for the facility is the largest value for any single group of containers.

‡ 1 ASME container approximate dimensions

Form 8.4
Evaluation of Water Availability in or Near the LP-Gas Facility

A	B	C	D		
Item #	Water from...	Available?	Quantitative information		
1	Public supply or from another piped-in supply through one or more fire hydrants in or near the facility	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Hydrant data	Distance from Container(s) on which water will be applied (feet)	Available water flow rate from all hydrants ⁽¹⁾ (gpm)
			Hydrant 1	To be Provided	To be Provided
			Hydrant 2	To be Provided	
			Hydrant 3	To be Provided	
2	A nearby static water source (stream, pond, lake, etc).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Distance to water source = 535 ft. from Providence River to center of six (6) AST locations. Time to set up relay = 30 min. Rate of delivery =		
3	Only through mobile water tanker shuttle.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Time to set up shuttle = _____ min. Sustainable flow rate = _____ gpm		

(1) Obtain the available flow rate from the local municipal water authority or the entity that supplies water to the hydrant or conduct a test to determine total available flow rate.

- 1. For an existing facility, communicate this information to local responders for inclusion in their emergency planning.**
- 2. For a proposed new facility, refer to Chapter 9**

Form 9.1

Analysis Summary on Product Control and Local Conditions of Hazard

A	B	C	D	E
Item #	CHAPTER Title	Section & Title	Reference FORM #	Number of “No” checked [§]
1	Product Control Measures in Containers & Transfer Piping	5.1: Product Control in Containers	5.1 or 5.2 or 5.3 or 5.4 [§]	0
		5.2 Product Control in Transfer Piping	5.5	0
			5.6	0
			5.7	0
			5.8	0
			5.9	0
2	Analysis of Local Conditions of Hazard	6.1 Physical Protection Measures	6.1	0
		6.2 Ignition Source Control	6.2	0
		6.3.1 Separation distances; Container and outside exposures	6.3	0
		6.3.2 Separation distances; Transfer points and outside exposures	6.4	0
		6.4 Special Protection Measures	6.5	0
			6.6	0

§ The number of “No” for Forms from Chapter 5 is the difference between the required number of appurtenances according to NFPA 58-2011, and a lesser number found to be actually installed on the container or the transfer piping.

* Internal valves and pressure relief valves will be installed on site for all 6 ASTs.

If, in any row of column E (“No”) of Form 9.1, the entry number is greater than zero, the proposed LP-Gas facility is not in compliance with the requirements of NFPA 58-2011 for product control appurtenances or other safety measures. The design of the proposed facility must be modified to conform to the code requirements. In addition, the following items should be noted.

- If there are any “No” checks in Form 6.3, then the separation distance requirements for containers are not satisfied. An option that may be considered is the reduction in separation distance to 10 feet for underground and mounded containers by providing “Redundant and Fail-Safe Product Control Measures.” In this case, complete Form 9.4 below to ensure that each requirement of “Redundant and Fail-Safe Product Control Measures” is provided.
- If there are any “No” checks in Form 6.4, then the separation distance requirements for transfer points are not satisfied. In this case, relocate the transfer points so that the separation distances conform to the code requirements or provide the Low Emission Transfer Equipment. Complete Form 9.5 below and ensure that all requirements for Low Emission Transfer Equipment are fulfilled.

Form 9.2
Analysis Summary on Exposure from and to the LP-Gas Facility

A	B	C	D	E
Item #	CHAPTER Title	Section & Title	Reference FORM #	Number of “Yes” checked
1	Exposure to and from Other Properties	7.1 Exposure to off-site properties and persons from in-plant propane releases.	7.1	0
		7.2 Exposure to propane facility from external events.	7.2	2

If the entry number in column E (“Yes”), Form 9.2 corresponding to Form 7.1 is greater than zero, consider one or more of the following design alternatives.

- 1 Consider moving the container or the transfer point to a different location, if possible and space exists, so that the property or the person is beyond the hazard distance.
- 2 Provide “Redundant and Fail-safe Product Control Measures”. Complete Form 9.4 to ensure compliance.
- 3 Institute other technical measures such as installing gas and flame detectors (connected to facility shut down systems), sounding alarm outside facility premises, etc.
- 4 Institute administrative controls such as additional training for personnel, more frequent inspections of hoses and transfer piping, etc.

If the entry number in column E (“Yes”), Form 9.2 corresponding to Form 7.2 is greater than zero, consider one or more of the following design alternatives.

- 1 Implement procedures to monitor neighboring activity.
- 2 Install means in the adjacent plant to shut down the LP-Gas plant in case of an emergency in that plant.

Form 9.3 Analysis Summary on Fire Department Evaluations

A	B	C	D	E	F
Item #	CHAPTER Title	Section & Title	Reference FORM #	Number “zeros” entered in Column C, Lines 6 through 8 of Form 8.1	Number of “Yes” checked in Column C of Form 8.4
1	Fire department capability, adequacy of water supply and Emergency Planning	8.1 Data on the Fire Department	8.1	0	
2		8.2 Fire response water needs and availability	8.4	0	2

If the entry number in row 1, Column E of Form 9.3 is greater than zero, consider one or more of the following design alternatives.

- 1 Discuss with the local Fire Department the needs of the LP-Gas facility and the evaluation results on the capability and training inadequacies of the Department.
- 2 Consider developing a cadre of personnel within the LP-Gas facility to respond to emergencies.
- 3 Institute container special protection system based on active protection approaches or passive approaches. Complete Form 9.6 and Form 9.7 below.

If the entry number in row 2, Column F of Form 9.3 is equal to zero, consider one or more of the following design alternatives.

- 1 Provide special protection (other than water spray or monitor systems) to containers, satisfying the requirements of section 6.25.5 of NFPA 58, 2011 edition. Complete Form 9.6 to ensure compliance.

Consider implementing the various options indicated in Table 9.1.

Form 9.4 Redundant and Fail-Safe Design for Containers

A	B		C	D	E	F
Item #	Description		Features	Proposed for the facility?		NFPA 58 Section Reference (2011 Edition)
				Yes	No	
1	Container sizes for which the appurtenances are provided		Appurtenances and redundant fail-safe equipment and low emission transfer lines are provided for <u>each</u> container of water capacity 2,001 gal to 30,000 gal	NA		6.26.3, 6.26.4 and 6.26.5
2	Liquid or vapor withdrawal (1-1/4 in. or larger)		Internal valve with internal excess-flow valve	<input checked="" type="checkbox"/>		6.26.3.1 and 6.26.3.2
			Positive shutoff valve installed as close as possible to the internal valve	<input checked="" type="checkbox"/>		6.26.3.4
3	Liquid or vapor inlet		Internal valve with internal excess flow valve or Backflow check valve	<input checked="" type="checkbox"/>		6.26.3.5
			Positive shutoff valve installed as close as possible to the internal valve or the Backflow check valve	<input checked="" type="checkbox"/>		6.26.3.5
4	Railcar transfer	Flow into or out of railroad tank car	Emergency shutoff valve installed in the transfer hose or the swivel-type piping at the tank car end.	<input checked="" type="checkbox"/>		6.18.2.6 (1) and 6.26.4.1
		Flow only into railroad tank car	Emergency shutoff valve or backflow check valve installed in the transfer hose or the swivel-type piping at the tank car end.	<input checked="" type="checkbox"/>		6.18.2.6 (2) and 6.26.4.1
5	Cargo tank transfer		Protection provided in accordance with 6.26.4.1	<input checked="" type="checkbox"/>		6.26.4.1
6	Automatic closure of all primary valves (IV & ESV) in an emergency		By thermal (fire) actuation	<input checked="" type="checkbox"/>		6.26.4.2
			Actuated by a hose pull-away due to vehicle motion	<input checked="" type="checkbox"/>		6.26.4.2
7	Manually operated remote shutdown of IV and ESV		Remote shutdown station within 15 ft of the point of transfer?	<input checked="" type="checkbox"/>		6.26.4.3 (A)
			Another remote shutdown station between 25 ft and 100 ft of the transfer point?	<input checked="" type="checkbox"/>		6.26.4.3 (B)
			Shutdown stations will shut down electrical power supply, if any, to the transfer equipment and primary valves?	<input checked="" type="checkbox"/>		6.26.4.3
			Signs complying with the requirements of 6.24.4.3 (C) provided?	<input checked="" type="checkbox"/>		6.26.4.3 (C)

Note: If your facility does not have a rail terminal, write the word NA in both the “Yes” column and the “No” column in item 4 of the form in the railroad tank car row. Similar option is also available if there is no cargo tank vehicle transfer station.

Form 9.5
Evaluation of Low Emission Transfer Equipment

A	B	C		D	E	F
Item #	Description	Features		Proposed for the facility?		NFPA 58 Section Reference (2011 Edition)
				Yes	No	
1	Transfer into permanently mounted ASME containers on vehicles	Delivery nozzle and filler valve-Max. liquid release after transfer of 4 cc.	Fixed maximum liquid level gage not used during transfer operations	NA		6.26.5.1 (B)
2	Transfer into stationary ASME containers delivery valve and nozzle combination	During product transfer or post transfer uncoupling of the hose, liquid product volume released to the atmosphere	Does not exceed 4 cc (0.24 in ³) from a hose of nominal size 1 in or smaller	NA		6.26.5.2 (A)
			Does not exceed 15 cc (0.91 in ³) from a hose of nominal size larger than 1 in.	NA		6.26.5.2 (B)
3	Transfer into stationary ASME containers maximum filling limit	Do containers less than 2,001 gal (w.c.) have an overfilling prevention device or another approved device?		NA		6.26.5.2 (F)
		Do containers greater than 2,000 gal (w.c.) have a float gage or other non-venting device?		NA		6.26.5.2 (E)
4	Transfer into stationary ASME containers fixed maximum liquid level gage	Not used during routine transfer operations but may be used in calibrating other non-venting liquid level gauges in the container		NA		6.26.5.2 (C,D)

Note: If the facility does not have a particular feature described in items 2 or 3, write "NA" in both the "Yes" and "No" columns corresponding to its row in item 2.

Form 9.6
Special Protection Measures –Passive Systems

A Item #	B Special Protection Option	C Question	D Proposed for the facility?		E NFPA 58 Section Reference (2011 Edition)
			Yes	No	
			1	Container insulation	
	Insulation material complies with the requirements of NFPA 58?	NP			6.25.5.1 and 6.25.5.2
2	Mounding of containers	Each container in the facility is mounded?	NA		6.25.5.3
		Mounding complies with each requirement under section 6.6.6.3 of NFPA 58.	NA		6.6.6.3 & 6.25.5.3
3	Burying of containers	Each container in the facility is buried?	NA		6.25.5.4
		Buried containers comply with each requirement under section 6.6.6.1 of NFPA 58.	NA		6.6.6.1 & 6.25.5.4

Form 9.7
Special Protection Measures –Active Systems

Item #	Special Protection Option	Question	Is the Facility compliant?		NFPA 58 Section Reference (2011 Edition)
			Yes	No	
			1	Water Spray Systems	
Do fire responsive devices actuate water spray system automatically?	NA				6.25.6.2
Can the water spray systems be actuated manually also?	NA				6.25.6.2
2	Monitor Nozzle Systems	Are the monitor nozzles located and arranged so that the water stream can wet the surfaces of all containers exposed to a fire?	<input checked="" type="checkbox"/>		6.25.6.3
		Can the water stream from a monitor nozzle reach and wet the entire surface of, at least, one half of a length from one end of each of the containers it is designed to protect?	<input checked="" type="checkbox"/>		6.25.6.3
		Do fixed monitor nozzles comply with NFPA 15 requirements?	<input checked="" type="checkbox"/>		6.25.6.1
		Do fire responsive devices actuate the monitor nozzles?		<input checked="" type="checkbox"/>	6.25.6.2
		Can the monitor nozzles be actuated manually also?	<input checked="" type="checkbox"/>		6.25.6.2

Note: NA = Not Applicable, NP = Not Provided

Equivalent Protection to a Water Supply for Industrial and Bulk Facilities

In the case where water supply is not available in or near the LP-Gas facility, or is inadequate or it is prohibitively expensive to connect to a public or private water supply hydrant, alternative methods for providing protection should be considered. In lieu of providing a water supply, several alternatives are indicated in Table 9.1, which can offer an equivalency to a water supply system.

The intent of the controls identified in Table 9.1 is to maintain the entire system as a gas tight entity. These methods include reducing the service life of equipment, increasing the design pressure rating of the system beyond the requirements of NFPA 58, or providing early detection and isolation of the system to ensure product control. This list is not exhaustive and is not ranked in an order of priority.

**Table 9.1
Suggested Alternative Methods for Industrial and Bulk Plants That Do Not Pose a Hazard But Lack a Water Supply**

Item #	Possible options to implement when adequate water supply is not available
1	Reduce the service life of hoses.
2	Increase frequency of equipment inspection.
3	Establish a service life program for the maintenance of the container pressure relief devices. This could include the installation of a listed multiple port valve and certifying that the relief devices are properly set and maintained every 5 to 10 years.
4	Increase the design strength of the piping and fitting systems.
5	Install emergency shutoff valves in conjunction with container internal valves.
6	Install emergency shutoff valves downstream of transfer pump outlets and upstream of the vapor and liquid valves at the bulkhead.
7	Install pneumatic tubing along the facility boundary to serve as a perimeter fire detection system. This would provide protection of the facility against exposure fires.
8	Provide optical flame detection or linear heat detection, or a gas detection system connected to an isolation valve installed downstream of every liquid and vapor nozzle on the container. This system could also be monitored to send a signal to an alarm company that notifies the fire department of an event.
9	Increase the separation distances of internal facility exposures to the container. These exposures would include a site dumpster, idle or waste pallets and combustibles, and increasing the parking distances between the bobtails and transports in relation to the container.
10	Relocate overhead power lines away from all container and cylinder storage areas to protect against ignition in the event of a line dropping due to wind or power pole impact.
11	Eliminate all combustible vegetation within 30 feet of the LP-Gas container. This can be accomplished using gravel, or paving the site yard.
12	Install tanks using the mounding or burial method.

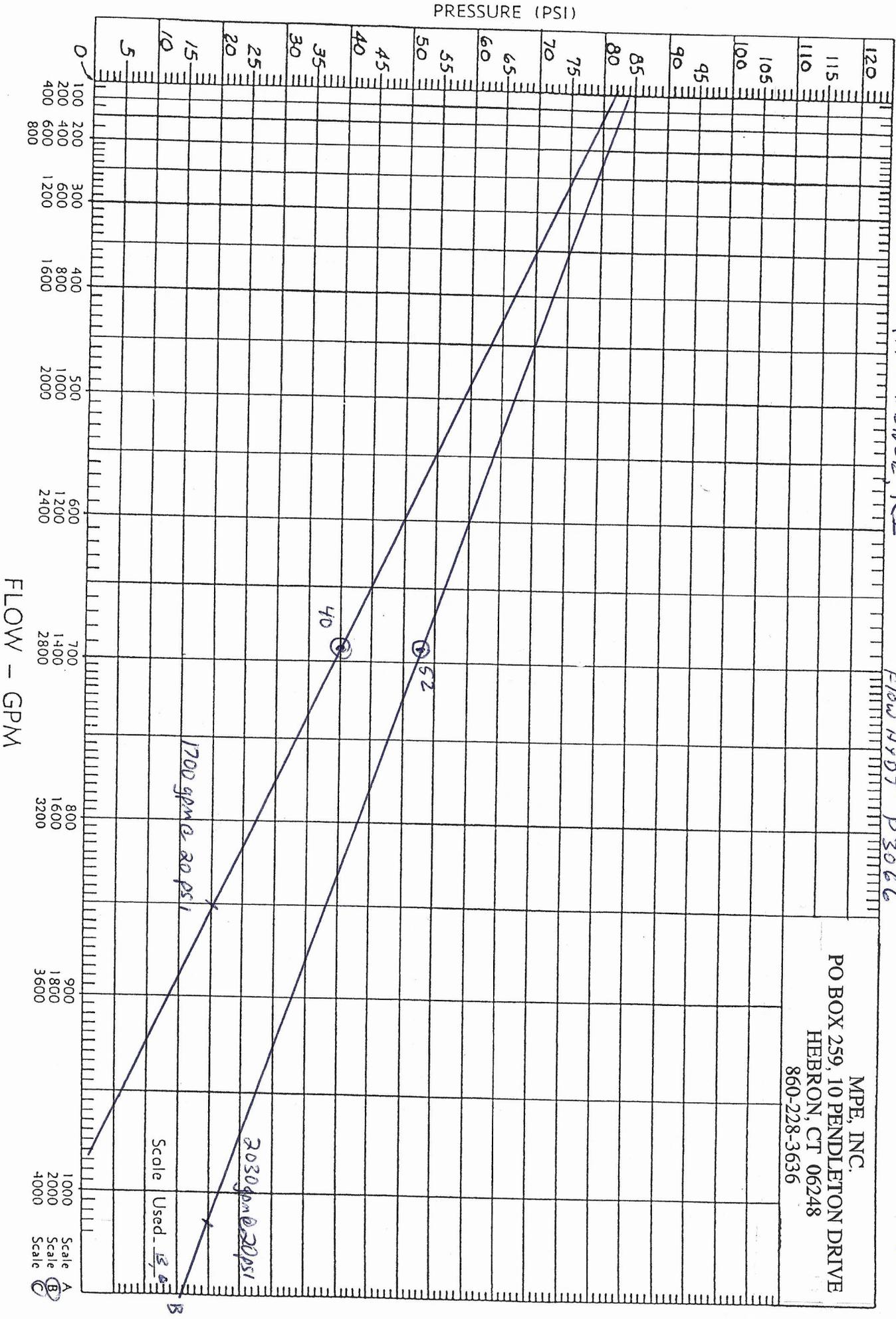
Appendix C – Hydrant Testing by Providence
Water Along Seaview Drive & Fieldspoint
Drive, Providence, RI

FLOW TEST ON FIELDS POINT DR

CONTRACT NAME: SEA 3-PROVIDENCE RT

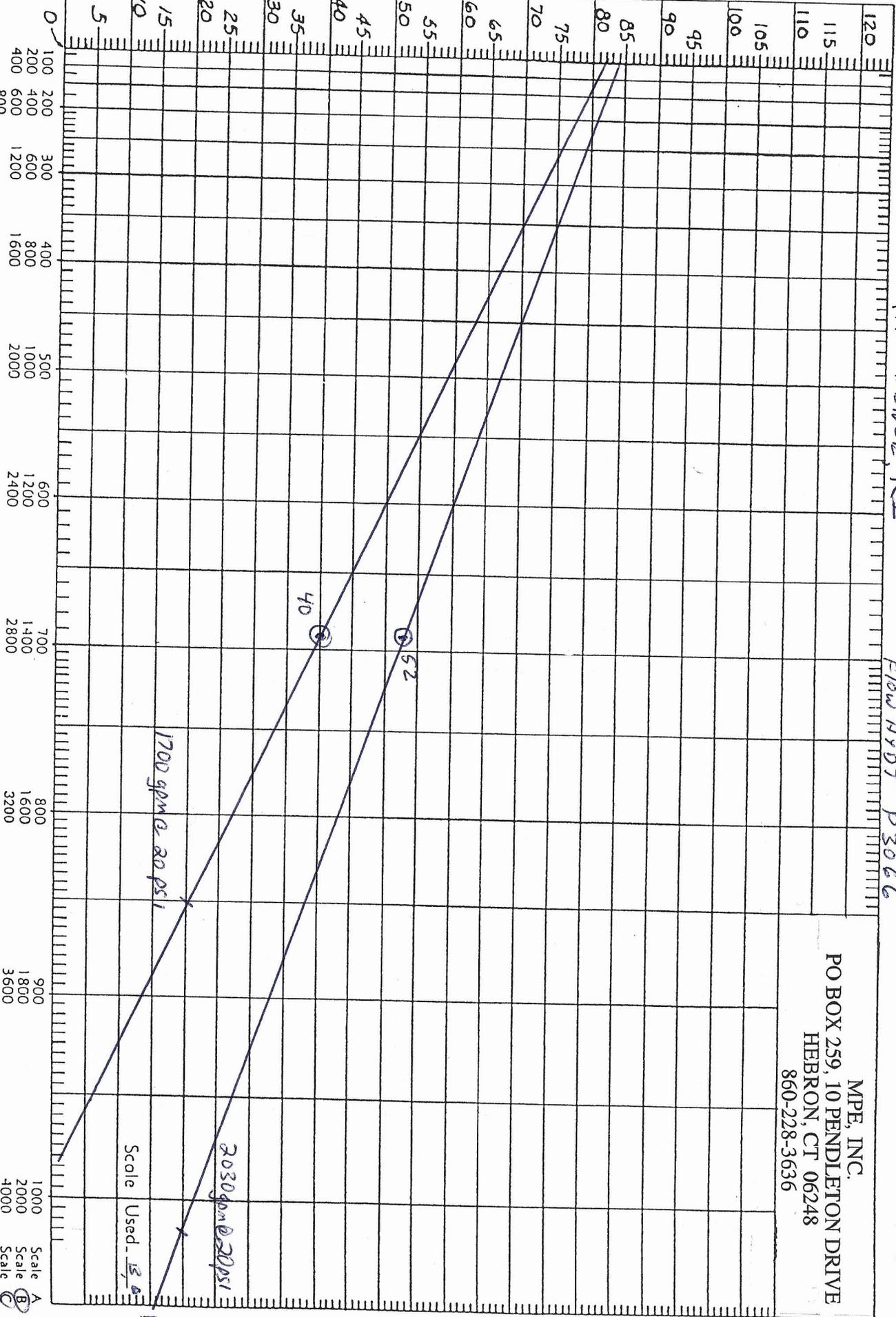
STATIC: P3065 - 84 PSI P3067 82 PSI
 RESID 52 40
 P.TOT 17 PSI (2 1/2" Hydrant Butt) Flow 1384 gpm
 Flow Hydr P3066

MPE, INC.
 PO BOX 259, 10 PENDLETON DRIVE
 HEBRON, CT 06248
 860-228-3636



FLOW - GPM

PRESSURE (PSI)



Scale A
 Scale B
 Scale C

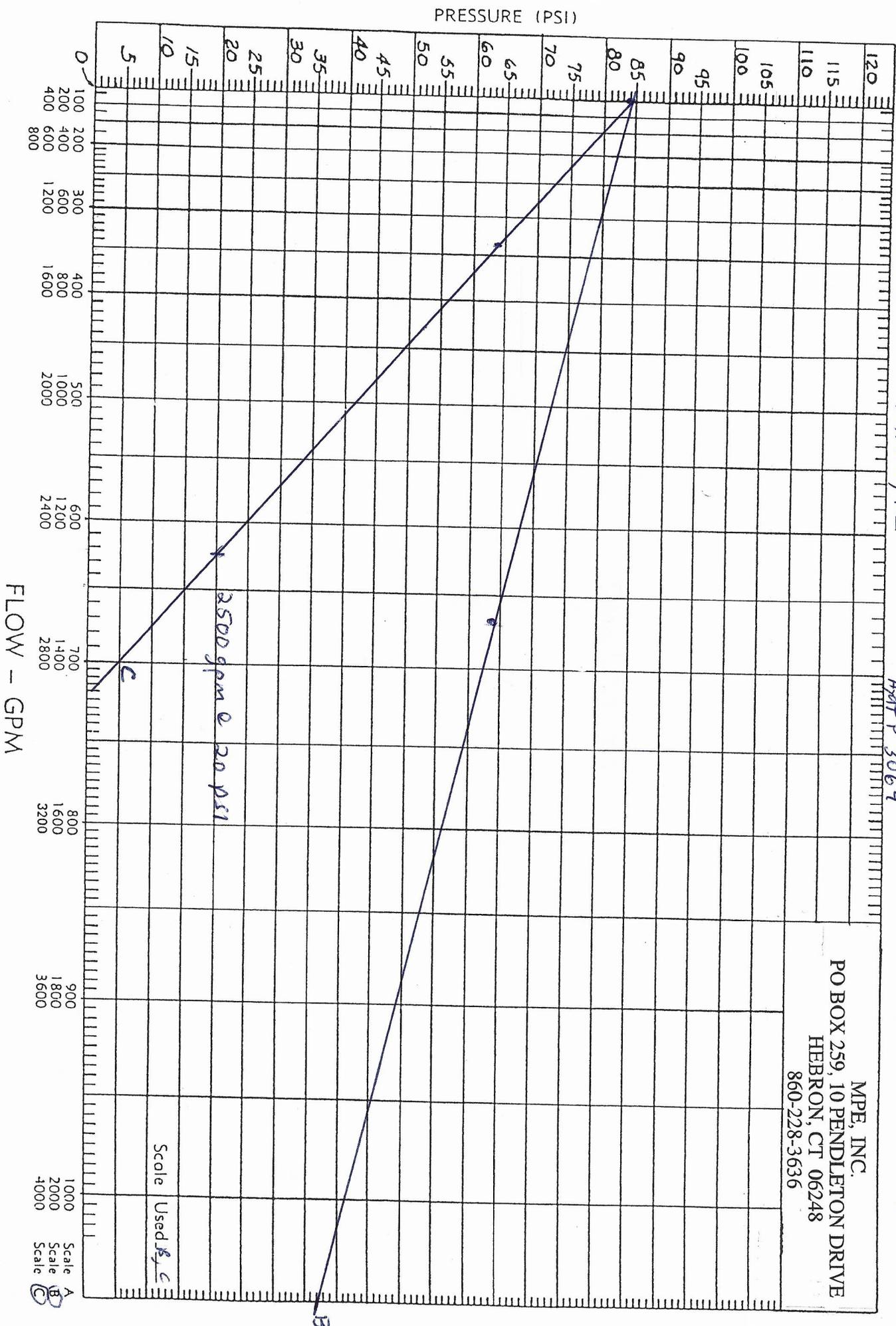
Scale Used: B

Flow Test on Seaview

CONTRACT NAME: SEA 3 - PROVIDENCE, RI

STATIC 84 PSI 2480 gpm Available @ 20 PSI
 RESID 64 PSI
 P. to t 16 PSI (2 1/2" Hydrant Butt) Flow 1342 gpm
 Hydr P 3064

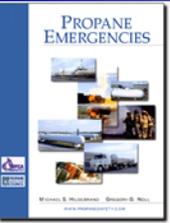
MPE, INC.
 PO BOX 259, 10 PENDLETON DRIVE
 HEBRON, CT 06248
 860-228-3636



Scale Used B, C

Scale A
 Scale B
 Scale C

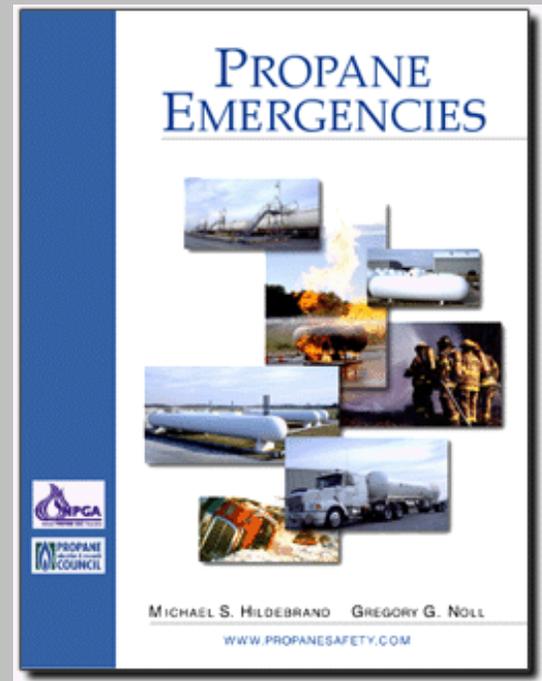
Appendix D -
Information on Liquid Propane Gas (LPG):
F1- Physical Properties and Characteristics of Propane
F2- Safety Data Sheet (SDS) for Propane



Propane Emergencies Marketer Outreach Toolkit

Physical Properties and Characteristics of Propane

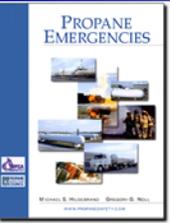
Propane Emergencies



1



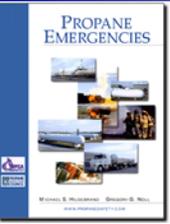
Physical Properties and Characteristics of Propane



Propane Emergencies Marketer Outreach Toolkit

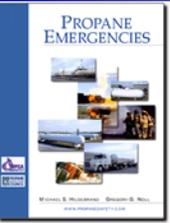
Objectives

- ◆ To Define The Following Physical And Chemical Properties Of Propane And Explain Their Significance In An Emergency:
 - ◆ Specific Gravity
 - ◆ Vapor Density
 - ◆ Boiling Point
 - ◆ Expansion Ratio
 - ◆ Flammable Limits
 - ◆ Ignition Temperature



Processing And Refining LP-Gases

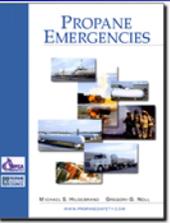
- ◆ The Two Major LP-Gases Extracted And Used In Our Industry:
 - ◆ Propane
 - ◆ Butane
- ◆ LP-Gases Are Normally Found Trapped In Pockets With Either Crude Oil Or With Natural Gas.



Propane Emergencies Marketer Outreach Toolkit

LP-Gas Blends

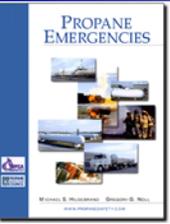
- ◆ There Are Different Types Or Blends That Are Used In The LP-Gas Industry.
- ◆ The Four Major Blends Are:
 - ◆ Commercial Propane
 - ◆ HD5 Propane
 - ◆ Commercial Butane
 - ◆ Butane/Propane Blends



Propane Emergencies Marketer Outreach Toolkit

Odorization Of Propane

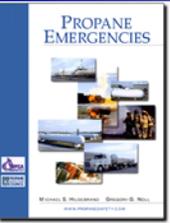
- ◆ Propane In Its Natural State Is Odorless And Colorless.
- ◆ A Commercial Odorant Is Added So It May Be Detected If Leaked Into The Environment.
- ◆ Effective Odorization Serves Two Primary Purposes:
 - ◆ Permits The Detection Of Leaks.
 - ◆ Reduces Gas Losses Through Early Detection And Repair Of Leaks.



Odorization Of Propane

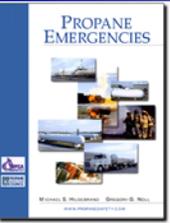
◆ Desirable Characteristics For A Gas Odorant Vary Considerably. Some Of These Characteristics Include:

- ◆ Odor
- ◆ Volatility
- ◆ Inertness
- ◆ Absorption By Soil
- ◆ Corrosion
- ◆ Combustion Products



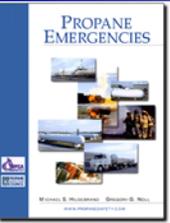
Characteristics Of LP-Gas

- ◆ LP-Gases Belong To A Family Of Chemical Compounds Known As Hydrocarbons.
 - ◆ Hydrogen And Carbon Atoms Only
- ◆ Common Hydrocarbons Are:
 - ◆ Methane (CH_4)
 - ◆ Ethane (C_2H_6)
 - ◆ Propane (C_3H_8)
 - ◆ Butane (C_4H_{10})



Characteristics Of LP-Gas

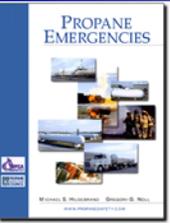
- ◆ Tasteless
- ◆ Colorless
- ◆ Usually Odorless
- ◆ When Mixed With The Proper Amount Of Air They Can Burn.
- ◆ Most LP-Gases Are Capable Of Being Either A Liquid Or Gas.



Propane Emergencies Marketer Outreach Toolkit

Characteristics Of LP-Gas

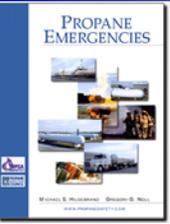
- ◆ Most LP-Gases Can Be Stored And Transported As Liquids Under Pressure.
- ◆ Under Normal Outdoor Temperatures Liquid LP-Gases Expand Rapidly Into Gas.
- ◆ LP-Gases Will Expand When Heat Is Applied.
- ◆ LP-Gases Are Not Toxic, But They Present Possible Inhalation Hazards.
- ◆ Released In A Confined Space, Propane Can Displace Oxygen.



Propane Emergencies Marketer Outreach Toolkit

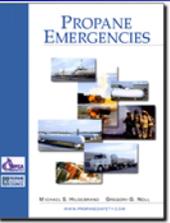
Specific Gravity And Vapor Density

- ◆ Physical Properties Are Very Important In Understanding Propane.
- ◆ Vapor Density - How It Compares To Other Vapors And Gases.
- ◆ Specific Gravity - How It Compares To Other Liquids.



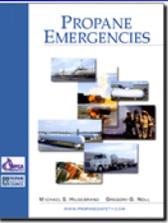
Specific Gravity Of Liquids

- ◆ The Specific Gravity Of A Liquid Is The Comparison Of The Weight Of A Given Volume Of One Liquid At A Certain Temperature With The Weight Of The Same Volume Of Water At The Same Temperature.
- ◆ Commercial Propane
 - ◆ Liquid At 60° F (Water = 1) = 0.504
 - ◆ Gas At 60° F = 1.50 (Air = 1)



Vapor Density

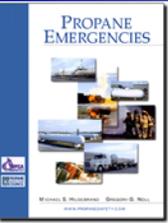
- ◆ Vapor Density Is The Comparison Of The Weight Of A Given Volume Of A Gas At A Certain Temperature With The Same Volume Of Air At The Same Temperature.
- ◆ Propane Vapor Has A Vapor Density Of 1.52 At 60° F.
- ◆ Propane Vapor Is About 1.5 Times Heavier Than Air (Air = 1.00).



Propane Emergencies Marketer Outreach Toolkit

Effects Of Pressure And Temperature On Propane

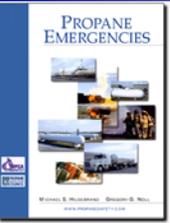
- ◆ Three Points Which Must Be Understood:
 - ◆ The Effect Of Heat On Liquids
 - ◆ Liquids And Boiling Points
 - ◆ Storing Liquids Above Their Normal Boiling Points In A Closed Container



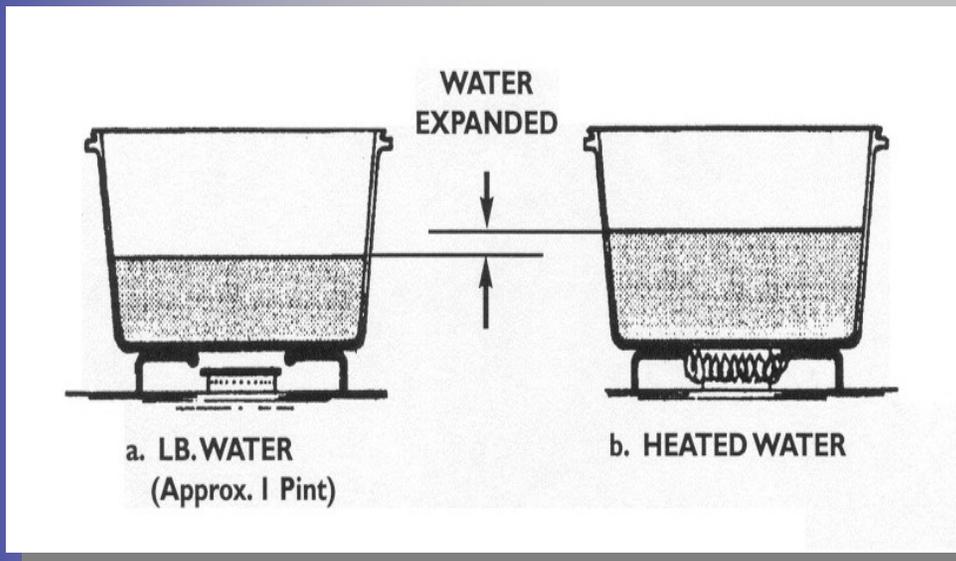
Propane Emergencies Marketer Outreach Toolkit

Effects Of Pressure And Temperature On Propane

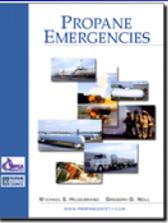
- ◆ Three Points Which Must Be Understood:
 - ◆ The Effect Of Heat On Liquids
 - ◆ Liquids And Boiling Points
 - ◆ Storing Liquids Above Their Normal Boiling Points In A Closed Container



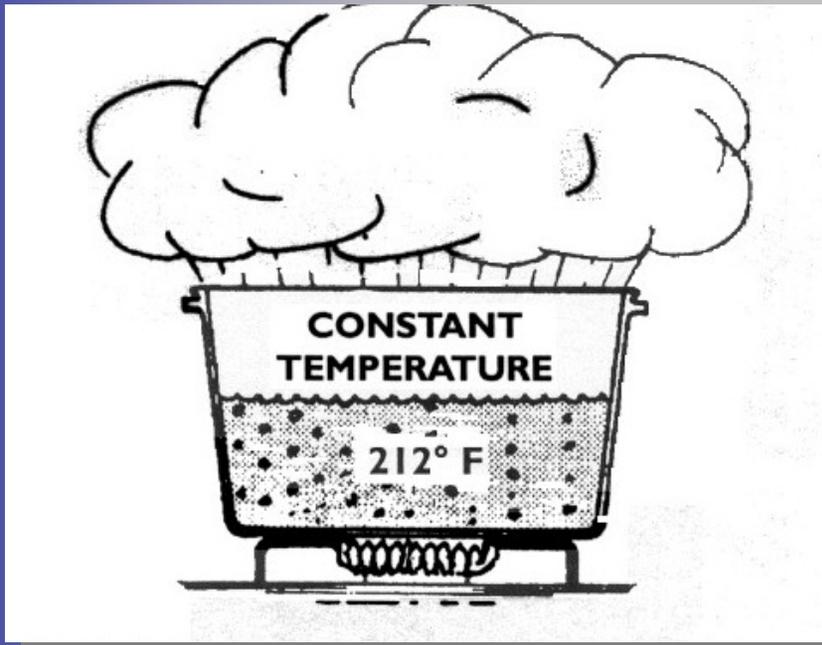
The Effect Of Heat On Liquids



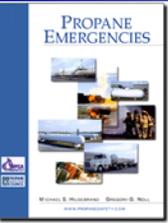
- ◆ Adding Heat To Liquid Will Always Cause It To Expand.
- ◆ A Common Value To Measure Heat Is A BTU (The Amount Of Heat Needed To Raise The Temperature Of One Pound Of Water 1° F).



Liquids And Boiling Points

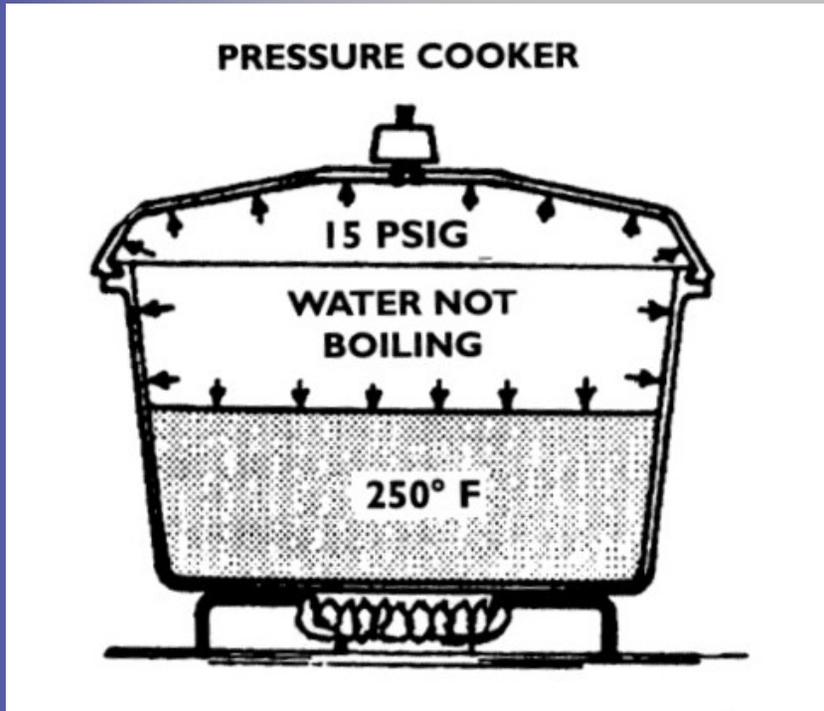


- ◆ The Normal Atmospheric Boiling Point Of A Liquid Is The Temperature At Which A Liquid Will Change To A Vapor Under Normal Atmospheric Conditions.



Propane Emergencies Marketer Outreach Toolkit

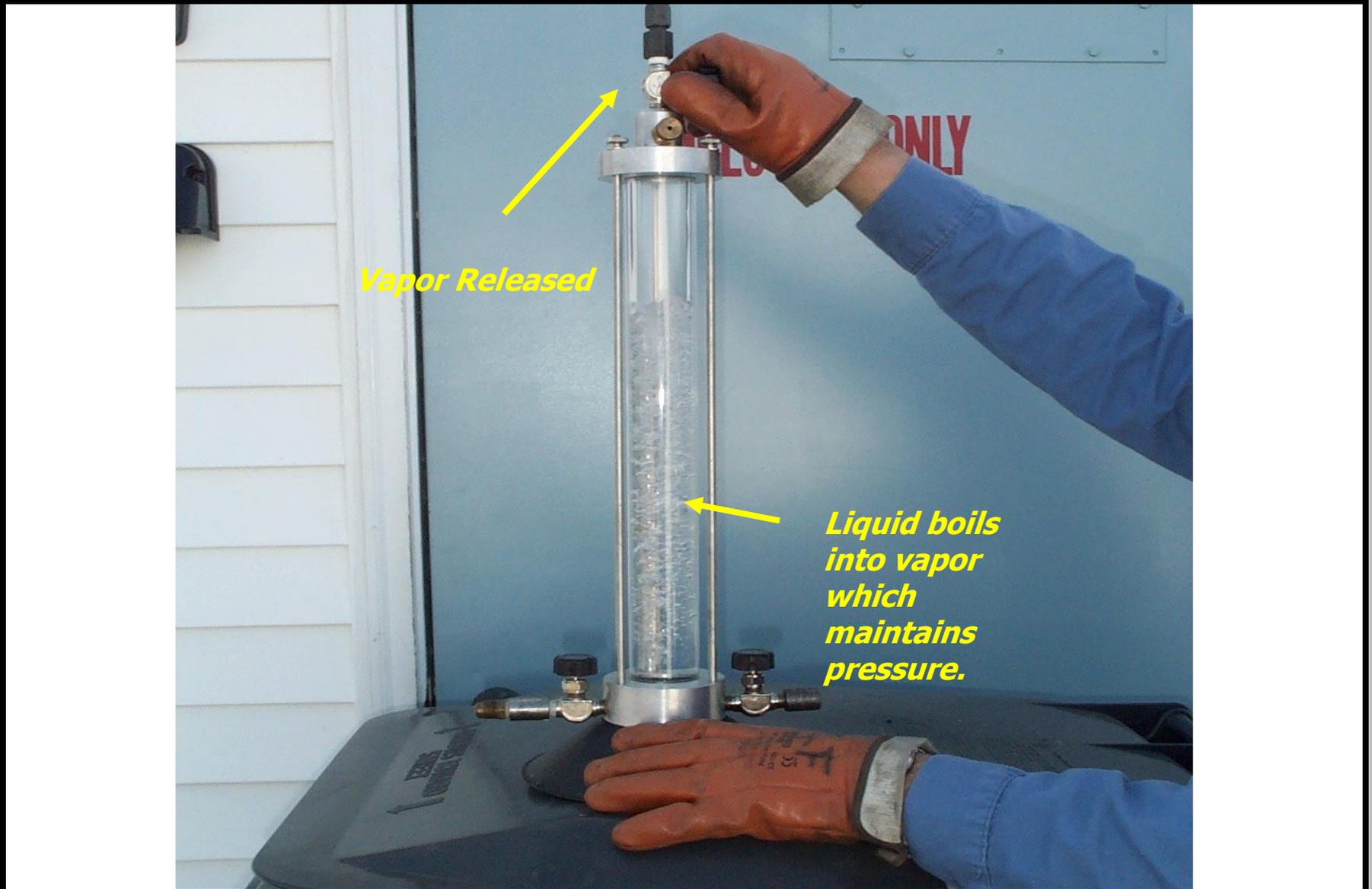
Storing Liquids Above Their Normal Boiling Points

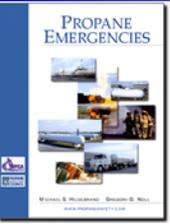


- ◆ As Long As The Container Is Open To The Surrounding Atmosphere, The Relationships Between Heat, Temperature, And Boiling Points For The Liquid Will Not Be Changed.



Propane Emergencies Marketer Outreach Toolkit

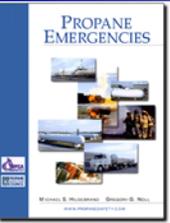




Propane Emergencies Marketer Outreach Toolkit

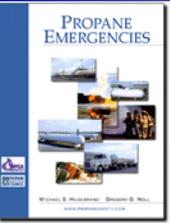
Four Important Characteristics When Storing Propane In A Closed Container

1. Heat Added To Propane In A Tank Or Cylinder Is Transferred Directly From The Air Surrounding The Container. These Changes In Liquid Temperature Also Cause Changes In Vapor Pressure.
2. Propane, Like Water, Will Expand When Heat Is Added.
3. Due To Changes In Liquid Volume And High Storage Pressures, Every Propane Container Is Equipped With At Least One Pressure Relief Valve.
4. Liquid Leaks Are Generally More Dangerous Than Gas Leaks. One Cubic Foot Of Propane Liquid Will Boil Off Into Approximately 270 Cubic Feet Of Vapor.



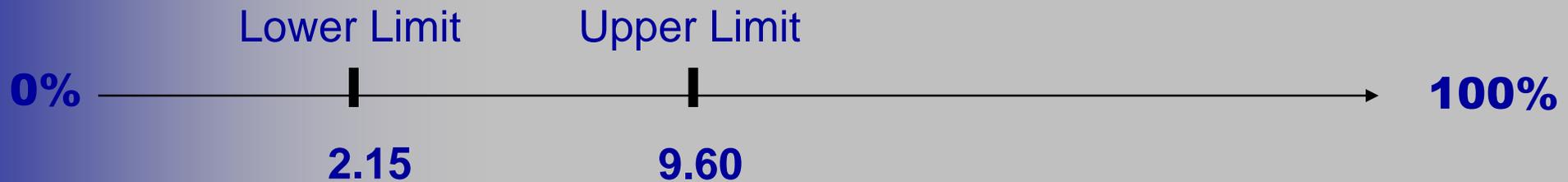
Flammable Limits

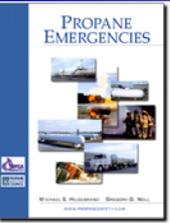
- ◆ A Flammable Limit Is Simply The Percentage Of Gas Needed In A Gas/Air Mixture To Support Combustion.
- ◆ Normally, This Value Is Given In Both Upper And Lower Limits Of Flammability.
- ◆ Flammable Limits And Explosive Limits Have The Same Meaning.



Flammable Limits

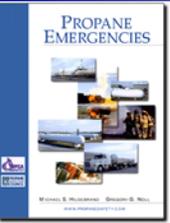
- ◆ The Upper Limit Is The Percentage Of Gas In The Richest (Most Gas) Mixture That Will Support Combustion.
- ◆ The Lower Limit Is The Percentage Of Gas In The Leanest (Least Gas) Mixture That Will Support Combustion.





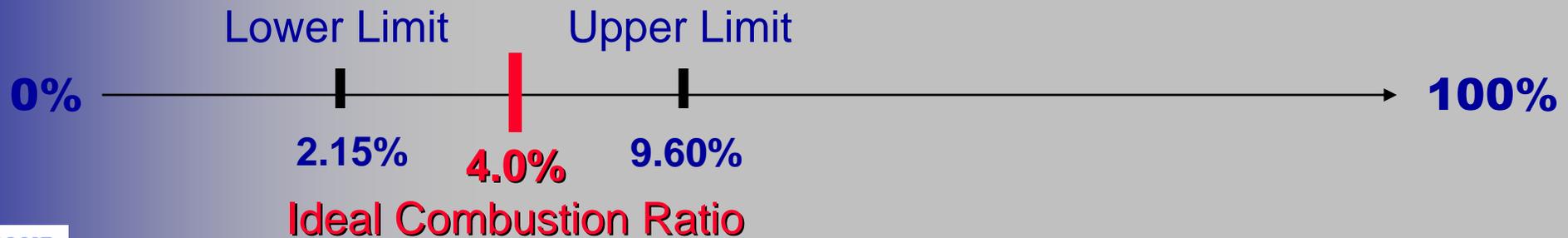
Combustion Ratio

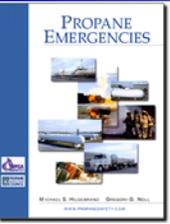
- ◆ Although Propane Vapor Will Burn In Any Mixture Within Its Flammability Limits, Combustion May Not Produce A “Clean Burn.”
- ◆ Insufficient Combustion Produces:
 - ◆ Insufficient Heat
 - ◆ Unburned Gas
 - ◆ Harmful Combustion By-products



Combustion Ratio

- ◆ Most Gas Appliance Burners Are Designed And Adjusted To Burn A Gas Air Mixture. This Mixture Is Commonly Referred To As The Ideal Combustion Ratio.
 - ◆ The Ideal Combustion Ratio For Propane Is 24 Parts Of Air (96%) To 1 Part Of Propane (4%).

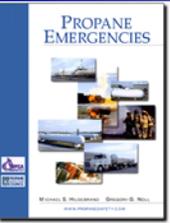




Propane Emergencies Marketer Outreach Toolkit

Ignition Temperature

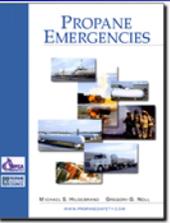
- ◆ Minimum Temperature Needed For A Mixture Of Propane And Air To Ignite.
 - ◆ The Ignition Temperature Of Propane Is Between 920° F For Propane Is Another Flame, Such As The Flame Of A Pilot Burner, Match Or Cigarette Lighter.



Propane Emergencies Marketer Outreach Toolkit

Heat Value

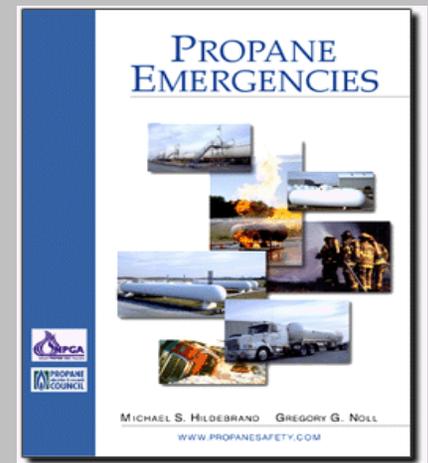
- ◆ The Purpose Of Burning Propane As Efficiently As Possible Is To Develop As Much Heat As Possible Per Cubic Foot Of Propane.
- ◆ The Heat Produced By Burning Propane Is Expressed In Btu's Per Cubic Foot Of Gas Or In Btu's Per Gallon.
- ◆ According To NFPA #58, The Heating Value For Propane (Vapor) Is 2,488 BTU Per Cubic Foot.



Propane Emergencies Market Outreach Toolkit

Summary

Propane Emergencies



SAFETY DATA SHEET

FOR

Liquefied Petroleum Gas (LPGas)

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier Name	Elgas Ltd, A.C.N. 002 749 260
Address	10 Julius Avenue, North Ryde NSW 2113 PO Box 1336, Chatswood NSW 2067 AUSTRALIA
Telephone	(02) 8094 3200
Fax	(02) 9018 0146
Emergency	1800 819 783 (24 hours)
Other Names	Propane, butane, propene or a combination of these products
Uses	As an energy source in the residential, commercial and automotive markets. A feedstock for the petrochemical industry and as refrigerant.

2. HAZARDS IDENTIFICATION

**NOT CLASSIFIED AS HAZARDOUS ACCORDING TO ASCC (NOHSC) CRITERIA.
CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE.**

3. COMPOSITION / INFORMATION ON INGREDIENTS

			CAS Number
Main Components	LP Gas	Composition in accordance with the appropriate LPG Australia specifications and state regulations	68476 – 85 – 7
	Propane		0074 – 98 – 6
	Propene		115 – 07 – 1
	n-Butane		106 – 97 – 8
Minor Components	Iso-Butane		75 – 28 – 5
	Ethane		74 – 84 – 0
	1,3-Butadiene	<0.1%	106 – 99 – 0
Odourant:	Ethyl Mercaptan	Approx 25ppm	75 – 08 – 1

4. FIRST AID MEASURES

In all cases seek medical attention and see the Elgas Super Cold Contact Injuries Hospital Information Sheet for further information and procedures.	
Eye	Treatment for cold burns: Immediately flush with tepid water or with sterile saline solution. Hold eyelids apart and irrigate for 15 minutes. Seek medical attention.
Inhalation	Remove from area of exposure immediately. Be aware of possible explosive atmospheres. If victim is not breathing apply artificial respiration and seek urgent medical attention. Give oxygen if available. Keep warm and rested.
Skin	Cold burns: Remove contaminated clothing and gently flush affected areas with warm water (30 C) for 15 minutes. Apply non-adhesive sterile dressing and treat as for a thermal burn. For large burns, immerse in warm water for 15 minutes. DO NOT apply any form of direct heat. Seek immediate medical attention.
Ingestion	For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor. Ingestion is considered unlikely due to product form.
Advice to Doctor	Treat symptomatically. Severe inhalation over exposure may sensitise the heart to catecholamine induced arrhythmias. Do not administer catecholamines to an overexposed person.

5. FIRE FIGHTING MEASURES

Flammability Highly flammable.
Heating to decomposition produces acrid smoke and irritating fumes.
Product will add fuel to a fire.
Eliminate all ignition sources including cigarettes, open flames, spark producing switches / tools, heaters, naked lights, pilot lights, mobile phones etc. when handling.

Fire and Explosion Highly flammable.
Temperatures in a fire may cause cylinders or pressure vessels to rupture and pressure relief devices to be activated (venting).
Call Fire Brigade. This product will add fuel to a fire.
Cool cylinders and vessels exposed to fire by applying water from a protected location and with water spray directing spray primarily onto the upper surface.
Do not approach any LPGas container suspected of being hot.

Extinguishing Stop flow of gas if safe to do so, such as by closing valves or by activating Emergency Shutdown Systems. If the gas source cannot be isolated, do not extinguish the flame, since re-ignition and explosion could occur.
Await arrival of emergency services.

Drench and cool cylinders or vessels with water spray from protected area at a safe distance.

If it is absolutely necessary to extinguish the flame, use only a dry chemical powder extinguisher.

Do not move cylinders for at least 24 hours. Avoid shock and bumps to cylinders. Evacuate the area of persons not fighting the fire.
Carbon oxides (CO, CO₂) fumes may be produced should burning occur especially within an enclosed space (ie causing a deficiency of oxygen).
Fire fighters should wear full protective clothing and be aware of the risk of possible explosion (especially in a confined space). Flashback may occur along vapour trail.
Where possible, remove cool cylinders from the path of the fire. Do not re-use a fire-exposed vessel or cylinder – seek advice of supplier.

Hazchem Code 2YE (as defined in ADG7 published in 2007)
2WE (as defined in ADG6 published in 1998)

6. ACCIDENTAL RELEASE MEASURES

Spillage As this product has a very low flash point any spillage or leak is a fire and / or explosion hazard. If a leak has not ignited, stop gas flow, isolate sources of ignition and evacuate personnel.

Ensure good ventilation.

Liquid leaks generate large volumes of heavier than air flammable vapour which may travel to remote sources of ignition (eg along drainage systems).
Where appropriate, use water spray to disperse the gas or vapour and to protect personnel attempting to stop leakage.

Vapour may collect in any confined space.

Gas Cylinders If the cylinder is leaking, eliminate all potential ignition sources and evacuate area of personnel. Inform manufacturer / supplier of leak.
If safe to enter the area, wear appropriate PPE and carefully move the cylinder to a well ventilated remote area, then allow to discharge.
Do not attempt to repair leaking valve or cylinder fusible plugs.

For vessels operate the Emergency Shutdown System (where fitted) and proceed as above.

7. HANDLING AND STORAGE

Precautions for Safe Handling Avoid inhalation of vapour.
Avoid contact with liquid and cold storage containers.
When handling cylinders wear protective footwear and suitable gloves.
Always ensure that cylinders are within test date, are fit for use and are leak checked prior to use.
Do not fill dented, gouged or rusty containers (refer AS2337.1). Only fill cylinders to 80% fill level (ullage tube via decanting or mass via mechanical filling).
The maximum fill level for vessels is dependent upon their size and location as detailed in AS / NZS 1596.

Avoid contact with eyes.

Class 2.1 Flammable Gas products may only be loaded in the same vehicle or packed in the same freight container with the classes of products as permitted in the ADG Code (see references).

Cylinders shall only be transported in an upright, secure position in accordance with the National Road Transport Commission Load Restraint Guide and shall not be dropped.

Conditions for Safe Storage Store and use only in equipment / containers designed for use with this product.
Store and dispense only in well ventilated areas away from heat and sources of ignition.

Do not enter storage vessels. If entry to a vessel is necessary, contact the supplier.

Cylinders and vessels must be properly labelled. Do not remove warning labels. LPGas cylinders shall be stored in accordance with the requirements of the ADG Code, AS 4332 and AS/NZS1596.

Do not store in pits and basements where vapour may collect.
Store cylinders securely in an upright position. Note: forklift cylinders may be stored horizontally.
Store away from incompatible materials particularly oxidising agents. Check vessels and cylinders are clearly labelled.

Do not contaminate cylinders or vessels with other products.

Other Information Product spilt on clothing may give rise to delayed evaporation and subsequent fire hazard.

Check for leaks by sound and smell and by locating with soapy water or with approved detection devices.
Use only equipment and pipework designed and approved (where applicable) for LPGas applications.

Ensure that cylinders cannot be struck by forklift vehicles or by dropped or rolled objects, etc.

Refer to Australian state and territory Dangerous Goods regulations.

Ventilation Maintain adequate ventilation.

Confined areas (eg tanks) should be adequately ventilated and gas tested and must NEVER be entered unless under supervision via a Permit Procedure.

Exposure Standards	Ingredient Name	Occupational Exposure Limits
	LP Gas	NOHSC TWA: 1000 ppm 8 hour(s)
	Butane	NOHSC TWA: 1900 mg/m ³ 8 hour(s) TWA: 800 ppm 8 hour(s)
	Propane	ACGIH TLV TWA: 1000 ppm 8 hour(s)
	Propylene	ACGIH TLV TWA: 500 ppm 8 hour(s)

PPE Wear suitable gloves and overalls to prevent cold burns and frostbite.
In filling operations wear protective clothing including impervious gloves, safety goggles or face shield.

All clothing should be of the anti-static, low flame spread type.
When handling cylinders wear protective footwear.

9. PHYSICAL AND CHEMICAL PROPERTIES

PROPERTY	PROPANE		BUTANE	
Appearance	Colourless Gas		Colourless Gas	
Odour	Characteristic Odour		Characteristic Odour	
Chemical Formula	C₃H₈		C₄H₁₀	
Molecular Weight	44.1		58.1	
Boiling Point	-42^oC		-0.5^oC	
	Liquid at 15 ^o C	Gas at 101 kPa & 15 ^o C	Liquid at 15 ^o C	Gas at 101 kPa & 15 ^o C
Density (kg/m ³)	510	1.86	568	2.47
Relative Density: water = 1.0 air = 1.0	0.510	1.53	0.568	2.00
Litres/tonne	1961	536000	1760	405000
m ³ /tonne	1.961	536	1.760	405
m ³ /m ³ of liquid	1.000	274	1.000	235
Specific heat of liquid (kJ/kg/ ^o C)	2.512		2.386	
Latent heat of vapourisation (MJ/m ³) (MJ/kg = GJ/t)	232 0.358		239 0.372	
Heat combustion (MJ/m ³) (MJ/kg = GJ/t)	25000 50.1	93.3 50.1	28800 49.47	121.9 49.47
Volume of air (m ³) needed to burn 1m ³ of gas		23.7		31.0
Flash point		-104 ^o C		-60 ^o C
Ignition temp.		493-549 ^o C		482-538 ^o C
Max. flame temp.		1970 ^o C		1990 ^o C
Limits of flammability in air (% by vol): upper % lower %		9.6 2.4		8.6 1.9
Other Properties:	Solubility (water): 0.07cm ³ / cm ³			
Other name/numbers:	LPGas	UN 1075		
	Propane	UN 1978		
	Butane	UN 1011		
	IsoButane	UN 1969		

13. DISPOSAL CONSIDERATIONS

Waste Disposal Cylinders should be returned to the manufacturer or supplier for disposal.

Empty cylinders or vessels may contain some remaining product.

Hazard warning labels are a guide to the safe handling of empty packaging and should not be removed. LPGas cylinders or vessels should NEVER be inadvertently disposed of in any land fill facility without being rendered visually and physically unusable before disposal.

'EMPTY' container warning: 'empty' containers can sometimes retain residue (liquid and / or vapour) and can be dangerous.

DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS AND OTHER SOURCES OF IGNITION THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to clean.

Legislation Dispose of in accordance with relevant legislation.

14. TRANSPORT INFORMATION

Transport Transport of LPGas is controlled in accordance with the requirements of the ADG Code and the Load Restraint Guide.

UN Number 1075

Shipping Name PETROLEUM GASES, LIQUEFIED

DG Class 2.1

Subsidiary Risk(s) None Allocated

Packing Group None Allocated

Hazchem Code See Section 5

15. REGULATORY INFORMATION

AICS All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

Poison Schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Principal Retail Centres

NSW Blacktown 22 Holbeche Road
Blacktown NSW 2148
Phone: (02) 9672 0777
Fax: (02) 9672 1481

VIC Mulgrave 331-347 Police Road
Mulgrave VIC 3170
Phone: (03) 9767 7222
Fax: (03) 9767 7372

QLD Brisbane Tanker Street
Lytton QLD 4178
Phone: (07) 3396 2769
Fax: (07) 3893 1495

SA Adelaide 1 Newfield Road
Para Hills West SA 5096
Phone: (08) 8368 4700
Fax: (08) 8349 4624

ACT Canberra 3-5 Geelong Street
Fyshwick ACT 2609
Phone: (02) 6280 6355
Fax: (02) 6280 4217

Swap 'n' Go Contact the principal retail centre in your state or territory

WA Perth 2 Uppsala Place
Canning Vale WA 6155
Phone: (08) 6465 8561
Fax: (08) 6254 2893

Stargas Contact the principal retail centre in your state or territory

NT Darwin 1227 Winnellie Road
Winnellie NT 0821
Phone: (08) 8947 4256

References ALPGA (now Gas Energy Australia) Specification for Liquefied Petroleum Gas for Automotive use 2004.

ALPGA (now Gas Energy Australia) Specification for Liquefied Petroleum Gas for Heating use 2004.

ACGIH = American Conference of Governmental Industrial Hygienists

CAS Number = Chemical Abstracts Service Registry Number

HAZCHEM Code = Emergency action code of numbers and letters which gives information to emergency services

ICAO = International Civil Aviation Organisation

IATA = International Air Transport Association

IMDG = International Maritime Organisation Rules

NOHSC = National Occupational Health & Safety Commission, Australia

TWA = Time weighted average

STEL = Short term exposure limit

UN Number = United Nations Number, a four digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods
Petroleum and Gas Legislation / Queensland: 2004

Australian Standards as detailed within this document

The Australian Code for the Transport of Dangerous Goods by Road and Rail (commonly known as the ADG Code)

The Load Restraint Guide as prepared by the National Transport Commission

Appendix E -

Propane Guidance Documents and Technical Resources:

G1 – PERC/NPGA CETP for Basic Plant Operations G2

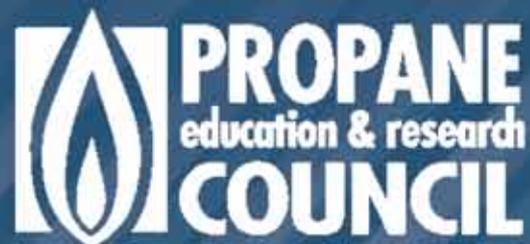
– PERC/NPGA O&M Handbook for LPG Storage

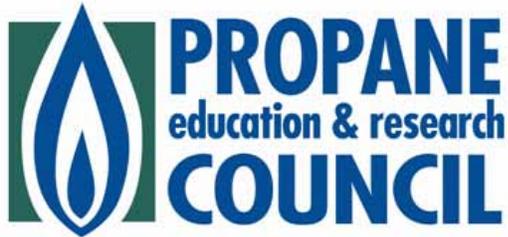
Facilities

G3 – PERC/NPGA Propane Emergencies, Third Edition

CERTIFIED EMPLOYEE TRAINING PROGRAM

Basic Plant Operations





Basic Plant Operations

Basic Plant Operations was developed by the Propane Education & Research Council (PERC), the National Propane Gas Association (NPGA), and many others as part of the industry's commitment to increase the level of safety and reduce accidents throughout the propane industry.

Primarily designed to train employees who work in propane bulk plants, this course provides information, practices, and procedures that support general plant operations tasks.

Course Objectives:

- Identify the main components of a bulk plant.
- Operate the propane liquid supply system.
- Inspect and fill DOT containers.
- Inspect and fill vehicle mounted ASME tanks.
- Requalify DOT cylinders by visual inspection.
- Maintain cylinders and ASME tanks.
- Unload a cargo tank motor vehicle.
- Maintain bulk plant systems and equipment.

NOTICE AND DISCLAIMER CONCERNING LIABILITY

The Propane Education & Research Council (PERC) is a non-profit 501(c)6 trade organization authorized by the Propane Education and Research Act of 1996 (PERA), Public Law 104-284. PERC was created to enhance consumer and employee safety and training, to provide for research and development of clean and efficient propane utilization equipment, and to inform and educate the public about safety and other issues associated with the use of propane.”

PERC is governed by a 21-member Board of Directors appointed by the National Propane Gas Association (NPGA) and the Gas Processors Association (GPA). PERC program beneficiaries include propane retail marketers, producers, transporters, and agricultural cooperatives, as well as representatives of allied service and supply industries (the industry members).

The recommendations, standards, or recommended practices, as reflected in this document, were developed by independent consultants retained by PERC. While PERC administers the process of obtaining the information, it does not independently test or verify the accuracy of the information or methods used to collect the data that supports the conclusions or recommendations reflected in this document. PERC, NPGA, GPA, and the industry members disclaim any and all liability for any personal injury, property damage, business losses, or other damages of any nature whatsoever, whether special, indirect, consequential, or compensatory, directly or indirectly resulting from the publication, use, or reliance on this document, or any information, apparatus, method, process, or similar item disclosed in this document. This disclaimer of liability shall apply even if such loss or damage results, in whole or in part, from any acts or omissions of or by any negligence on the part of PERC, NPGA, GPA, the industry members, or any persons who contributed to the development of the information contained in this document.

PERC, NPGA, GPA, and the industry members make no warranty or guaranty as to the accuracy or completeness of any information published in this document.

Text and code references found in this document are based on the 2011 edition of NFPA 58: Liquefied Petroleum Gas Code. The procedures and information in this document are intended to implement the standards set forth in the documents referenced with capabilities of the personnel and equipment available. It does not create new standards or criteria for compliance. The order of steps in any procedure may or may not be of importance. This material is not sold nor is it a product of any consulting or engineering activity.

Users of this document should consult the law of their individual jurisdictions for codes, standards, and legal requirements applicable to them. This document is not intended nor should it be construed to (1) set forth policies or procedures that are the general custom or practice in the propane industry; (2) to establish the legal standards of care owed by propane distributors to their customers; or (3) to prevent the user from using different methods to implement applicable codes, standards, or legal requirements.

By disseminating or publishing this document, PERC is not undertaking to render any professional or other service to or on behalf of any person or entity. PERC, NPGA, GPA, and the industry members are not undertaking to perform any duty owed by any person or entity to any third party. Anyone reading or using this document should rely on his or her own judgment or, as appropriate, should seek the advice of a competent professional in determining the exercise of reasonable care in any and all circumstances.

Propane Education & Research Council

1140 Connecticut Ave., NW, Suite 1075
Washington, DC 20036

<http://www.propanecouncil.org> | <http://www.propanesafety.com>

© PERC 2011 Propane Education & Research Council. All Rights Reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without written permission.

TABLE OF CONTENTS

BASIC PLANT OPERATIONS1

COURSE OVERVIEW AND OBJECTIVES, 3

Safety Mission, 3

Who Should Take This Course, 4

Course Purpose and Objectives, 5

Course Format, 6

Course Resources and References, 7

Summary, 9

LESSON 3 – PROPANE CONTAINERS, 39

Similarities, 42

Summary, 43

Discovery - What About Your Plant?, 44

MODULE 1 QUIZ, 45

MODULE 1: IDENTIFY THE MAIN COMPONENTS OF A BULK PLANT11

LESSON 1 – RECEIVING, STORAGE, AND CONTAINER FILLING SYSTEMS, 13

Unloading Systems, 14

Bulk Storage Tanks, 16

Learning Activity – Bulk Storage Tanks, 17

Bulk Storage Tank Components, 18

Container Filling Systems, 20

Summary, 21

Discovery – What About Your Plant?, 23

LESSON 2 – HAZARDS AND PRECAUTIONS, 25

Learning Activity – Ignition Temperature, 27

Fire Hazards, 28

Ignition Sources, 29

Static Discharges, 31

Combustible Materials and Flammable Liquids, 32

Learning Activity – Boiling Point of

Propane, 33

Personal Injury Hazards, 34

Codes and Regulations, 35

Summary, 36

Discovery – Ignition Sources, 37

MODULE 2: OPERATE THE PROPANE LIQUID SUPPLY SYSTEM49

LESSON 1 – OPEN THE LIQUID SUPPLY LINE, 51

Liquid Supply System Components, 52

Liquid Outlet Valve Configurations, 53

Emergency Shutoff Mechanisms, 55

Operating a Manual Shutoff Valve, 59

Precautions Before Opening Valves, 60

Open the Supply Line to the Pump, 61

Discovery – What's in Your Plant?, 62

LESSON 2 – HOW AN EXCESS FLOW VALVE WORKS IN A LIQUID LINE, 63

What Makes It Close?, 64

Check for Understanding, 66

LESSON 3 – DETECTING CONTAMINATION IN STORED PROPANE, 67

Introduction, 67

Potential Hazards, 68

Temperature/Pressure Relationship for Propane, 69

How to Detect Contamination, 70

LESSON 4 – OPERATE WITH MULTIPLE STORAGE TANKS OF DIFFERENT DIAMETERS, 71

Introduction, 71
 Filling Levels Aligned at The Same Elevation, 72
 Filling Levels Not Aligned, 73
 Check for Understanding, 74

LESSON 5 – SHUT DOWN AND SECURE THE LIQUID SUPPLY SYSTEM, 75

Introduction, 75
 When is Shutdown Necessary? 76
 Shutdown Procedure, 77
 Case Study — Securing the Liquid Supply System, 78
 MODULE SUMMARY, 79
 MODULE 2 QUIZ, 81

MODULE 3: INSPECT AND FILL DOT CYLINDERS85

LESSON 1 – IDENTIFY DOT CYLINDERS, 87

Small Portable Cylinders, 89
 Motor Fuel Cylinders, 91
 Large Portable Cylinders, 93
 Stationary Cylinders, 94
 Liquid and Vapor Service, 95
 Fill by Weight or Volume, 96
 Check for Understanding, 97
 Discovery — Filling DOT Cylinders, 98

LESSON 2 – INSPECT DOT CYLINDERS BEFORE FILLING, 99

Inspect Valves and Fittings, 100
 Exceptions to OPD Requirement, 102
 Inspect the Shell, Neck, and Foot rings, 103
 Is Purging Required?, 104
 Verify Labels, 105
 Verify the DOT Manufacturer's Code, 106
 Identify a Condemned Cylinder, 107
 Is Requalification Required?, 108
 Learning Activity — Requalification of DOT Cylinders, 109

What if a Cylinder Fails Inspection?, 110
 Summary and Inspection Checklist, 111
 Case Study — Inspecting Portable Cylinders, Case #1, 112
 Case Study — Inspecting Portable Cylinders, Case #2, 113

LESSON 3 – FILL A DOT CYLINDER BY WEIGHT, 115

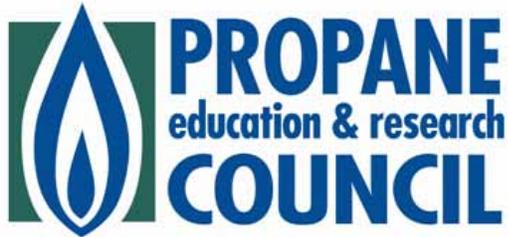
Platform Scales, 116
 Learning Activity – Target Scale Weight Calculation, 117
 Setting the Target Weight , 118
 Single-Beam and Double Beam Scales, 119
 Digital Scales, 120
 Shutting Off the Propane, 121
 Automatic Shutoff Systems for Mechanical Scales, 122
 Daily Scale Maintenance, 124
 Filling Procedure, 125
 Summary of Filling Procedure, 132

LESSON 4 – FILL A DOT CYLINDER BY VOLUME, 133

Fixed Maximum Liquid Level Gauge, 134
 Valve Configurations, 135
 Filling Procedure, 136
 Summary of Filling Procedure, 142
 Case Study — Filling by Volume, 143

LESSON 5 – OBSERVE SAFETY PRECAUTIONS WHEN FILLING CONTAINERS, 145

Exercise Caution with Hoses and Connections, 146
 Protect Yourself and Others, 148
 Avoid Injuries when Handling Heavy Objects, 149
 Avoid Slips, Trips, and Falls, 150
 Eliminate Fire Hazards, 151
 Know and Follow Emergency Procedures, 152
 Safety Summary, 153
 Case Study – Safety Precautions - Case #1, 154
 Case Study – Safety Precautions – Case #2, 155
 Case Study – Safety Precautions – Case #3, 156
 Case Study – Safety Precautions – Case #4, 157
 Case Study – Safety Precautions – Case #5, 158
 Case Study – Safety Precautions – Case #6, 159



Basic Plant Operations

Basic Plant Operations was developed by the Propane Education & Research Council (PERC), the National Propane Gas Association (NPGA), and many others as part of the industry's commitment to increase the level of safety and reduce accidents throughout the propane industry.

Primarily designed to train employees who work in propane bulk plants, this course provides information, practices, and procedures that support general plant operations tasks.

Course Objectives:

- Identify the main components of a bulk plant.
- Operate the propane liquid supply system.
- Inspect and fill DOT containers.
- Inspect and fill vehicle mounted ASME tanks.
- Requalify DOT cylinders by visual inspection.
- Maintain cylinders and ASME tanks.
- Unload a cargo tank motor vehicle.
- Maintain bulk plant systems and equipment.

NOTICE AND DISCLAIMER CONCERNING LIABILITY

The Propane Education & Research Council (PERC) is a non-profit 501(c)6 trade organization authorized by the Propane Education and Research Act of 1996 (PERA), Public Law 104-284. PERC was created to enhance consumer and employee safety and training, to provide for research and development of clean and efficient propane utilization equipment, and to inform and educate the public about safety and other issues associated with the use of propane.”

PERC is governed by a 21-member Board of Directors appointed by the National Propane Gas Association (NPGA) and the Gas Processors Association (GPA). PERC program beneficiaries include propane retail marketers, producers, transporters, and agricultural cooperatives, as well as representatives of allied service and supply industries (the industry members).

The recommendations, standards, or recommended practices, as reflected in this document, were developed by independent consultants retained by PERC. While PERC administers the process of obtaining the information, it does not independently test or verify the accuracy of the information or methods used to collect the data that supports the conclusions or recommendations reflected in this document. PERC, NPGA, GPA, and the industry members disclaim any and all liability for any personal injury, property damage, business losses, or other damages of any nature whatsoever, whether special, indirect, consequential, or compensatory, directly or indirectly resulting from the publication, use, or reliance on this document, or any information, apparatus, method, process, or similar item disclosed in this document. This disclaimer of liability shall apply even if such loss or damage results, in whole or in part, from any acts or omissions of or by any negligence on the part of PERC, NPGA, GPA, the industry members, or any persons who contributed to the development of the information contained in this document.

PERC, NPGA, GPA, and the industry members make no warranty or guaranty as to the accuracy or completeness of any information published in this document.

Text and code references found in this document are based on the 2011 edition of NFPA 58: Liquefied Petroleum Gas Code. The procedures and information in this document are intended to implement the standards set forth in the documents referenced with capabilities of the personnel and equipment available. It does not create new standards or criteria for compliance. The order of steps in any procedure may or may not be of importance. This material is not sold nor is it a product of any consulting or engineering activity.

Users of this document should consult the law of their individual jurisdictions for codes, standards, and legal requirements applicable to them. This document is not intended nor should it be construed to (1) set forth policies or procedures that are the general custom or practice in the propane industry; (2) to establish the legal standards of care owed by propane distributors to their customers; or (3) to prevent the user from using different methods to implement applicable codes, standards, or legal requirements.

By disseminating or publishing this document, PERC is not undertaking to render any professional or other service to or on behalf of any person or entity. PERC, NPGA, GPA, and the industry members are not undertaking to perform any duty owed by any person or entity to any third party. Anyone reading or using this document should rely on his or her own judgment or, as appropriate, should seek the advice of a competent professional in determining the exercise of reasonable care in any and all circumstances.

Propane Education & Research Council

1140 Connecticut Ave., NW, Suite 1075
Washington, DC 20036

<http://www.propanecouncil.org> | <http://www.propanesafety.com>

© PERC 2011 Propane Education & Research Council. All Rights Reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without written permission.

TABLE OF CONTENTS

BASIC PLANT OPERATIONS1

COURSE OVERVIEW AND OBJECTIVES, 3

Safety Mission, 3

Who Should Take This Course, 4

Course Purpose and Objectives, 5

Course Format, 6

Course Resources and References, 7

Summary, 9

MODULE 1: IDENTIFY THE MAIN COMPONENTS OF A BULK PLANT11

LESSON 1 – RECEIVING, STORAGE, AND CONTAINER FILLING SYSTEMS, 13

Unloading Systems, 14

Bulk Storage Tanks, 16

Learning Activity – Bulk Storage Tanks, 17

Bulk Storage Tank Components, 18

Container Filling Systems, 20

Summary, 21

Discovery – What About Your Plant?, 23

LESSON 2 – HAZARDS AND PRECAUTIONS, 25

Learning Activity – Ignition Temperature, 27

Fire Hazards, 28

Ignition Sources, 29

Static Discharges, 31

Combustible Materials and Flammable Liquids, 32

Learning Activity – Boiling Point of

Propane, 33

Personal Injury Hazards, 34

Codes and Regulations, 35

Summary, 36

Discovery – Ignition Sources, 37

LESSON 3 – PROPANE CONTAINERS, 39

Similarities, 42

Summary, 43

Discovery - What About Your Plant?, 44

MODULE 1 QUIZ, 45

MODULE 2: OPERATE THE PROPANE LIQUID SUPPLY SYSTEM49

LESSON 1 – OPEN THE LIQUID SUPPLY LINE, 51

Liquid Supply System Components, 52

Liquid Outlet Valve Configurations, 53

Emergency Shutoff Mechanisms, 55

Operating a Manual Shutoff Valve, 59

Precautions Before Opening Valves, 60

Open the Supply Line to the Pump, 61

Discovery – What’s in Your Plant?, 62

LESSON 2 – HOW AN EXCESS FLOW VALVE WORKS IN A LIQUID LINE, 63

What Makes It Close?, 64

Check for Understanding, 66

LESSON 3 – DETECTING CONTAMINATION IN STORED PROPANE, 67

Introduction, 67

Potential Hazards, 68

Temperature/Pressure Relationship for Propane, 69

How to Detect Contamination, 70

LESSON 4 – OPERATE WITH MULTIPLE STORAGE TANKS OF DIFFERENT DIAMETERS, 71

Introduction, 71
 Filling Levels Aligned at The Same Elevation, 72
 Filling Levels Not Aligned, 73
 Check for Understanding, 74

LESSON 5 – SHUT DOWN AND SECURE THE LIQUID SUPPLY SYSTEM, 75

Introduction, 75
 When is Shutdown Necessary? 76
 Shutdown Procedure, 77
 Case Study — Securing the Liquid Supply System, 78
 MODULE SUMMARY, 79
 MODULE 2 QUIZ, 81

MODULE 3: INSPECT AND FILL DOT CYLINDERS85

LESSON 1 – IDENTIFY DOT CYLINDERS, 87

Small Portable Cylinders, 89
 Motor Fuel Cylinders, 91
 Large Portable Cylinders, 93
 Stationary Cylinders, 94
 Liquid and Vapor Service, 95
 Fill by Weight or Volume, 96
 Check for Understanding, 97
 Discovery — Filling DOT Cylinders, 98

LESSON 2 – INSPECT DOT CYLINDERS BEFORE FILLING, 99

Inspect Valves and Fittings, 100
 Exceptions to OPD Requirement, 102
 Inspect the Shell, Neck, and Foot rings, 103
 Is Purging Required?, 104
 Verify Labels, 105
 Verify the DOT Manufacturer's Code, 106
 Identify a Condemned Cylinder, 107
 Is Requalification Required?, 108
 Learning Activity — Requalification of DOT Cylinders, 109

What if a Cylinder Fails Inspection?, 110
 Summary and Inspection Checklist, 111
 Case Study — Inspecting Portable Cylinders, Case #1, 112
 Case Study — Inspecting Portable Cylinders, Case #2, 113

LESSON 3 – FILL A DOT CYLINDER BY WEIGHT, 115

Platform Scales, 116
 Learning Activity – Target Scale Weight Calculation, 117
 Setting the Target Weight, 118
 Single-Beam and Double Beam Scales, 119
 Digital Scales, 120
 Shutting Off the Propane, 121
 Automatic Shutoff Systems for Mechanical Scales, 122
 Daily Scale Maintenance, 124
 Filling Procedure, 125
 Summary of Filling Procedure, 132

LESSON 4 – FILL A DOT CYLINDER BY VOLUME, 133

Fixed Maximum Liquid Level Gauge, 134
 Valve Configurations, 135
 Filling Procedure, 136
 Summary of Filling Procedure, 142
 Case Study — Filling by Volume, 143

LESSON 5 – OBSERVE SAFETY PRECAUTIONS WHEN FILLING CONTAINERS, 145

Exercise Caution with Hoses and Connections, 146
 Protect Yourself and Others, 148
 Avoid Injuries when Handling Heavy Objects, 149
 Avoid Slips, Trips, and Falls, 150
 Eliminate Fire Hazards, 151
 Know and Follow Emergency Procedures, 152
 Safety Summary, 153
 Case Study – Safety Precautions - Case #1, 154
 Case Study – Safety Precautions – Case #2, 155
 Case Study – Safety Precautions – Case #3, 156
 Case Study – Safety Precautions – Case #4, 157
 Case Study – Safety Precautions – Case #5, 158
 Case Study – Safety Precautions – Case #6, 159

LESSON 6 – INSPECT AND FILL A COMPOSITE CYLINDER, 161	
Procedures, 162	
MODULE SUMMARY, 163	
MODULE 3 QUIZ, 165	

MODULE 4: INSPECT AND FILL VEHICLE-MOUNTED ASME TANKS173

LESSON 1 – INSPECT AN ASME TANK BEFORE FILLING, 175	
Features of Vehicle-Mounted ASME Tanks, 176	
Use of an OPD for Filling, 178	
Inspect Valves, Tank, and Connections, 179	
Verify Labels, 180	

LESSON 2 – FILL A VEHICLE-MOUNTED ASME TANK, 181	
System Components, 182	
Metering Systems, 183	
Breakaway Devices, 184	
Filling Connections on the Vehicle, 185	
Filling Procedure, 186	
Summary of Filling Procedure, 192	

LESSON 3 – RECOVER FROM A BREAKAWAY, 193	
Recovery Procedure, 194	
Case Study – Safety Precautions, 195	
MODULE 4 QUIZ, 197	

MODULE 5: REQUALIFY DOT CYLINDERS BY VISUAL INSPECTION199

LESSON 1 – DOT REQUALIFICATION REQUIREMENTS, 201	
DOT Cylinders, 202	
Requalification Schedule, 203	
Requalification Personnel, 204	
Requalification Records and Reports, 205	
Requalification Facility Records, 206	
Records and Reports, 207	
Records Retention, 208	
Check for Understanding, 209	
Summary, 210	

LESSON 2 – REQUALIFICATION PROCESS OVERVIEW, 211	
Requalification Process Overview, 212	
Prepare for the Inspection, 213	
Inspect the Cylinder, 214	
Leak Test the Cylinder, 215	
Process the Cylinder, 216	
Summary, 217	
Check for Understanding, 218	

LESSON 3 – PREPARE FOR REQUALIFICATION, 219	
Prepare for Inspection, 220	
Requalification Periods for DOT Cylinders, 221	
Check for Understanding, 223	
Visual Inspection Report, 224	
Empty the Cylinder, 225	
Clean and Prepare the Cylinder, 226	
Check for Understanding, 227	
Summary, 228	

LESSON 4 – PERFORM AN INSPECTION ON A STEEL CYLINDER, 229	
Fire Damage, 230	
Rejection Criteria for Fire Exposure, 232	
Condemnation Criteria for Fire Exposure, 233	
Check for Understanding, 234	
Cylinder Distortion, 235	
Measure Distortions, 236	
Condemnation Criteria for General Distortion, 237	
Cylinder Leaning, 238	

LESSON 6 – INSPECT AND FILL A COMPOSITE CYLINDER, 161	
Procedures, 162	
MODULE SUMMARY, 163	
MODULE 3 QUIZ, 165	

MODULE 4: INSPECT AND FILL VEHICLE-MOUNTED ASME TANKS173

LESSON 1 – INSPECT AN ASME TANK BEFORE FILLING, 175	
Features of Vehicle-Mounted ASME Tanks, 176	
Use of an OPD for Filling, 178	
Inspect Valves, Tank, and Connections, 179	
Verify Labels, 180	

LESSON 2 – FILL A VEHICLE-MOUNTED ASME TANK, 181	
System Components, 182	
Metering Systems, 183	
Breakaway Devices, 184	
Filling Connections on the Vehicle, 185	
Filling Procedure, 186	
Summary of Filling Procedure, 192	

LESSON 3 – RECOVER FROM A BREAKAWAY, 193	
Recovery Procedure, 194	
Case Study – Safety Precautions, 195	
MODULE 4 QUIZ, 197	

MODULE 5: REQUALIFY DOT CYLINDERS BY VISUAL INSPECTION199

LESSON 1 – DOT REQUALIFICATION REQUIREMENTS, 201	
DOT Cylinders, 202	
Requalification Schedule, 203	
Requalification Personnel, 204	
Requalification Records and Reports, 205	
Requalification Facility Records, 206	
Records and Reports, 207	
Records Retention, 208	
Check for Understanding, 209	
Summary, 210	

LESSON 2 – REQUALIFICATION PROCESS OVERVIEW, 211	
Requalification Process Overview, 212	
Prepare for the Inspection, 213	
Inspect the Cylinder, 214	
Leak Test the Cylinder, 215	
Process the Cylinder, 216	
Summary, 217	
Check for Understanding, 218	

LESSON 3 – PREPARE FOR REQUALIFICATION, 219	
Prepare for Inspection, 220	
Requalification Periods for DOT Cylinders, 221	
Check for Understanding, 223	
Visual Inspection Report, 224	
Empty the Cylinder, 225	
Clean and Prepare the Cylinder, 226	
Check for Understanding, 227	
Summary, 228	

LESSON 4 – PERFORM AN INSPECTION ON A STEEL CYLINDER, 229	
Fire Damage, 230	
Rejection Criteria for Fire Exposure, 232	
Condemnation Criteria for Fire Exposure, 233	
Check for Understanding, 234	
Cylinder Distortion, 235	
Measure Distortions, 236	
Condemnation Criteria for General Distortion, 237	
Cylinder Leaning, 238	

Damage to Valve Openings (Neck), 239
 Requalification Restrictions for Valve Opening
 Damage, 241
 Rejection Criteria for Valve Opening Damage, 242
 Condemnation Criteria for Valve Opening
 Damage, 242
 Check for Understanding, 243
 Damage to Cylinder Attachments, 244
 Requalification Restrictions for Cylinder Attachment
 Damage, 246
 Rejection Criteria for Cylinder Attachment
 Damage, 247
 Check for Understanding, 248
 Dents, 249
 Damage Limits for Cylinder Dents, 250
 Condemnation Criteria for Cylinder Dents, 251
 Learning Activity – Requalification of DOT
 Cylinders, 252
 Cuts, Gouges, or Digs, 253
 Damage Limits for Cuts, Gouges,
 and Digs, 254
 Condemnation Criteria for Cylinder Cuts, Gouges,
 and Digs, 256
 Check for Understanding, 257
 Isolated Pitting, Line Corrosion, and General
 Corrosion, 258
 Corrosion Damage Limits, 260
 Condemnation Criteria for Cylinder Corrosion , 262
 Check for Understanding, 263
 Tare Weight Check, 264
 Condemnation Criteria for Cylinder Weight, 265
 Check for Understanding, 266
 Summary, 267

LESSON 5 – TEST FOR LEAKS, 269

Leak Test, 270
 Threaded Opening Leaks, 272
 Reseal and Retest Valve Threaded
 Openings, 272
 Rejection Criteria for Cylinder Leaks, 273
 Condemnation Criteria for Cylinder Leaks 273
 Summary, 274

LESSON 6 – PROCESS THE CYLINDER, 275

Cylinder Passed Inspection (OK), 276
 Cylinder Rejected (RM), 277
 Cylinder Scrapped/Condemned (SC), 278
 Check for Understanding, 279
 Summary, 280

LESSON 7 – SPECIAL REQUALIFICATION CONSIDERATIONS FOR CERTAIN CYLINDER MATERIALS AND TYPES, 281

Requalify Aluminum Cylinders, 282
 Minimum Allowable Design Thickness for Steel
 Cylinders, 284
 Requalify Composite Cylinders, 285
 Requalify Stationary DOT Cylinders, 286
 Requalify Motor Fuel/Forklift Cylinders, 287
 Requalify Outdoor Equipment Cylinders, 288
 Check for Understanding, 289
 Summary, 290

LESSON 8 – MODULE SUMMARY, 291

Requirements for Requalifying DOT Cylinders, 292
 The Visual Inspection Procedure, 293
 Dot Cylinder Requalification By Visual Inspection
 Chart, 294
 Disposition of Cylinders after Inspection, 295
 Marking Cylinders, 296
 Special Requirements for Certain Cylinder
 Types, 297
 MODULE 5 QUIZ, 299

MODULE 6: MAINTAIN CYLINDERS AND ASME TANKS307

LESSON 1 – PREPARE NEW CYLINDERS RECEIVED AT THE BULK PLANT, 309

New Cylinder Inspection, 310
 Verify Purging, 311
 Why is it Bad to Have Air in a Cylinder?, 312
 Purge Cylinder with Propane Vapor, 313
 Purge Cylinder with Vacuum Pump, 315
 Check for Understanding, 316
 Summary, 317

LESSON 2 – METHODS FOR REMOVING PROPANE FROM A CONTAINER, 319

Accepted Methods for Propane Removal, 320
 Propane Removal Hazards and Precautions by Method, 321
 When Is Venting Appropriate?, 322
 When is Evacuation Appropriate?, 323
 When is Flaring Appropriate?, 324
 Check for Understanding, 325
 Summary, 326

LESSON 3 – EVACUATE DOT CYLINDERS, 327

Purpose of Evacuation, 328
 Evacuating Liquid Propane , 329
 Differential Pressure Evacuation (Gravity Method) , 330
 Compressor System Evacuation, 331
 Scavenging System Path, 332
 Compressor System Evacuation on Liquid Service Cylinders, 333
 Compressor System Evacuation on Vapor Service Cylinders, 334
 Check for Understanding, 335
 Learning Activity – Evacuating Cylinders, 336
 Summary, 337

LESSON 4 – PREPARE ASME TANKS FOR INSTALLATION, 339

ASME Tank Manufacturing Standards and Data Plates, 340
 Hazardous Material Markings, 341
 ASME Tank Inspection, 342
 Verify Pressure and Data Plate Information, 343
 Check Welds and Fittings for Leaks, 344
 Verify the Proper Functioning of Valves and Fittings, 346
 Inspect Pressure Relief Valves , 347
 Inspect Service Valves, 348
 Inspect Filler Valves, 349
 Inspect Vapor Equalizing Valves, 350
 Inspect Actuated Liquid Withdrawal Excess Flow Valves, 351
 Examine Tank Shell and Heads for Defects for Damage, 353
 Cracks, 354
 Dents, 355
 Bulges, 357

Cuts or Gouges, 357
 Fire Damage, 358
 Corrosion , 359
 Evaluate the Tank Protective Coating, 360
 Check for Understanding, 361
 Summary, 362

LESSON 5 – EVACUATE ASME TANKS AT THE BULK PLANT, 363

Hazards and Safety Precautions for Evacuating Propane Liquid, 364
 Safety Guidelines When Transferring Propane, 365
 Evacuation Equipment, 366
 Portable Compressors, 367
 Bobtail Pumps, 368
 Liquid Transfer Hoses, 369
 Vapor Hoses with Portable Compressor, 370
 Vapor Hose with Bobtail Pump, 371
 Liquid Withdrawal Valves, 372
 Transfer Valves, 373
 Unloading Adapter, 374
 Sight Gauge, 375
 Check for Understanding, 376
 Propane Evacuation Process, 377
 Container Configurations, 378
 Portable Compressor Method, 379
 Bobtail Pump Method, 386
 Check for Understanding, 392
 Summary, 393

LESSON 6 – REPAIR AND REPLACE CONTAINER VALVES, 395

Reasons to Replace Valves and Fittings , 396
 Additional Reasons for Valve Replacement, 397
 Safety Precautions for Replacing Valves and Fittings, 398
 Check for Understanding, 399
 Inspect Pressure Relief Valves, 400
 Inspect Filler Valves, 401
 Inspect Service Valves, 402
 Inspect Cylinder Neck Threads, 403
 Check for Understanding, 404
 Valve Replacement Procedure, 405
 Service Float Gauges, 416
 Install Dip Tubes, 417
 Check for Understanding, 418

Summary, 419

LESSON 7 – INJECT METHANOL, 421

Methanol Characteristics and Potential Hazards, 422
 Injecting Methanol under Different Container Pressures, 423
 Guide for Use of Methanol with Propane Tanks , 424
 Prepare to Inject Methanol into a Negative Pressure Container, 425
 Inject Methanol into Negative Pressure Container, 426
 Steps to Take Post Injection into a Negative Pressure Container, 427
 Prepare to Inject Methanol into a Positive Pressure Container , 428
 Inject Methanol into a Positive Pressure Container, 429
 Steps to take Post Injection into a Positive Pressure Container, 430
 Methanol Storage Indoors, 431
 Methanol Storage Outdoors, 432
 Labeling Storage Containers, 433
 Check for Understanding, 434
 Summary, 435

LESSON 8 – FLARE PROPANE VAPOR FROM CONTAINERS, 437

Venting Versus Flaring, 438
 Flaring Burners, 439
 Flaring Procedures, 440
 Emergency Egress, 448
 Check for Understanding, 449
 Summary, 450

LESSON 9 – AUTO-REFRIGERATION, 451

Signs and Consequences of Auto-Refrigeration, 452
 What Causes Auto-Refrigeration?, 453
 Resulting Hazards, 454
 How to Avoid the Hazard, 455
 Check for Understanding, 456

LESSON 10 – APPLY PROTECTIVE COATINGS TO PROPANE STORAGE CONTAINERS, 457

Safety Precautions, 458
 Paint Tanks and Cylinders, 458
 Painting Procedure, 459

Case Study – Maintaining Propane Containers, 465
 Summary, 466

LESSON 11 – RECOGNIZE ANHYDROUS AMMONIA CONTAMINATION, 467

Physical Properties, 468
 Anhydrous Ammonia Hazards, 469
 Recognizing and Testing for Anhydrous Ammonia Contamination in Portable Containers, 470
 Recognizing Anhydrous Ammonia Contamination in Bulk Tanks, 471
 Test Propane for Anhydrous Ammonia Contamination, 472
 Testing Procedure for Anhydrous Ammonia Contamination, 473
 Check for Understanding , 475
 Summary, 476
 MODULE 6 QUIZ, 477

MODULE 7: UNLOAD A CARGO TANK MOTOR VEHICLE (CTMV)485

LESSON 1 – CHARACTERISTICS OF BULKHEADS AND PLANT PIPING, 487
 Bulkhead Components, 488
 Breakaway Systems, 489
 Emergency Shutdown System, 490

LESSON 2 – CHARACTERISTICS OF CTMVS, 491
 Components of a Cargo Tank, 492
 Liquid and Vapor Connections, 493
 Emergency Activation System, 495

LESSON 3 – HAZARDS AND PRECAUTIONS, 497
 Hazards and Precautions for All Propane Transfers, 498
 Qualified Person in Attendance, 499
 Valves and Hoses, 500
 Auto-Refrigeration, 501
 Unloading into Multiple Tanks, 502
 When Equipment Malunctions Occur, 503

LESSON 4 – MEASURE THE LIQUID LEVEL IN A TANK, 505

Float Gauge, 506

Rotary Gauge, 507

LESSON 5 – DETERMINE THE AMOUNT OF PROPANE TO BE UNLOADED, 509

Verify the Contents of a Cargo Tank, 510

Determine the Available Capacity in Storage Tanks, 511

Learning Activity – Calculating Available Capacity in Bulk Storage Tanks, 512

LESSON 6 – UNLOAD A BOBTAIL USING THE BOBTAIL PUMP, 513

Position the Bobtail, 514

Connect the Hoses and Check for Leaks, 515

Start the Transfer, 516

End the Transfer, 517

LESSON 7 – SAFELY DISCONNECT THE BOBTAIL LIQUID HOSE, 519

Avoid Auto-Refrigeration when Bleeding Down a Riser, 520

How to Avoid the Hazard, 524

Disconnect and Store the Hoses, 525

LESSON 8 – EMPTY THE BOBTAIL LIQUID HOSE, 527

Venting a Bobtail Hose, 528

Avoid Hazards Posed by Auto-Refrigeration, 530

LESSON 9 – UNLOAD A CARGO TRANSPORT USING THE TRANSPORT PUMP, 531

Position the Cargo Transport, 532

Connect the Hoses and Check for Leaks, 533

Start the Transfer, 534

End the Transfer, 535

LESSON 10 – SAFELY DISCONNECT THE TRANSPORT LIQUID HOSE, 537

How Auto-Refrigeration Can Develop, 538

Learning Activity – Avoiding an Injury When Disconnecting a Hose, 541

How to Avoid the Hazard, 542

Disconnect and Store the Hoses, 543

Case Study – Handling Valves and Hoses, 544

MODULE SUMMARY, 545

MODULE 7 QUIZ, 547

MODULE 8: MAINTAIN BULK PLANT SYSTEMS AND EQUIPMENT551

LESSON 1 – OBSERVE SAFETY PRECAUTIONS WHEN PERFORMING MAINTENANCE

ACTIVITIES, 553

Avoid Fire Hazards, 554

Avoid Personal Injury, 556

Summary, 557

LESSON 2 – INSPECT AND MAINTAIN BULK PLANT SYSTEMS AND EQUIPMENT, 559

Maintenance Procedures and Checklists, 560

Sample Inspection Checklist, 561

Servicing Equipment, 562

LESSON 3 – FOLLOW AND MAINTAIN BULK PLANT PROCEDURES, 563

Required Procedures, 564

Summary, 565

Case Study – Written Instructions and Recordkeeping

– Case #1, 566

Case Study – Written Instructions and Recordkeeping

– Case #2, 567

MODULE 8 QUIZ, 569

MODULE 9: BULK PLANT TASKS REQUIRING ADDITIONAL TRAINING571

Loading and Securing Cylinders for Transport, 572

Loading a Bobtail, 573

Loading and Securing an ASME Tank for

Transport, 574

Loading a Cargo Transport, 575

Unloading a Rail Car, 576

CHECK YOUR WORK577
CETP PRE-CERTIFICATION REVIEW583
GLOSSARY597
RESOURCES613

OPERATIONS & MAINTENANCE HANDBOOK

for

LP-GAS BULK STORAGE FACILITIES



Operations & Maintenance Handbook for LP-Gas Bulk Storage Facilities

Notice and Disclaimer Concerning Liability	i
Propane Education & Research Council Industry Feedback Form	ii
Section 1: Introduction – Purpose, Scope and Use of Handbook	4
Background and Purpose	4
Scope of Handbook	5
Using This Handbook	6
Accessibility and Review.....	7
Section 2: General Facility Information	8
Section 3: Emergency Procedures Plan	9
Section 4: General Operations & Safety Requirements.....	11
Site Accessibility	11
Site Signage and Markings	11
Control of Combustible Materials and Ignition Sources	11
Combustible Materials	12
Facility Ignition Sources	14
Containers – General Requirements.....	14
Site Storage.....	16
Labeling.....	16
Container Filling.....	17
General Requirements for LP-Gas Transfer Operations	18
Section 5: Plant Operations Procedures	20
5.1 Bulk Plant Operating Procedures	22
5.1.1 Bulk Storage Containers	22
5.1.2 Loading a Cargo Tank Motor Vehicle (CTMV) Using a Plant Pump	23
5.1.3 Loading a Cargo Tank Motor Vehicle (CTMV) Using a Plant Compressor	26
5.1.4 Unloading a Cargo Tank Motor Vehicle	30
5.1.5 Unloading a LP-Gas Railcar Using the Plant Compressor.....	34
5.1.6 Preparation and Transportation of DOT Cylinders.....	44
5.1.7 Preparation and Transportation of ASME Containers.....	55
5.1.7.3 DOT Regulations Pertaining to Transporting ASME Containers	59
5.1.8 Evacuation of Containers	62
5.1.9 Purging of Containers.....	76
5.1.10 Dispensing LP-Gas.....	81
5.2 Vapor Distribution Systems.....	88
Section 6: General Maintenance and Inspection Requirements	90
Maintenance Manuals.....	90

Maintenance Procedures	90
Maintenance Record Keeping.....	90
Maintenance Personnel - Training	91
Physical Protection of Equipment	91
Container Condition	91
Corrosion Control.....	92
Containers and Appurtenances.....	93
Emergency Shutoff Valves.....	94
Hose Inspection and Maintenance.....	94
Chart 6.1 (Sample) Preventive Maintenance Records	95
Chart 6.2 (Sample) Fixed Equipment Log Repairs, Replacements and Unscheduled Maintenance	96
Chart 6.3 (Sample) ESV & Back Check Valve Testing Log.....	97
Section 7: Maintenance & Inspection Checklist Procedure	98
Section Purpose and Objectives	98
Scope and Application of Section	98
Content of Section	99
Maintenance and Inspection Procedural Checklist.....	100
Appendix 7.1.....	117
Bulk Storage Containers	117
Piping	124
Liquid Pump.....	127
Bulkheads.....	132
Tank Car Unloading Tower	140
Scales.....	144
Meters (For Retail Sales Only).....	146
Vaporizers	148
Regulators	148
Electrical Systems	149
Section 8: Maintenance of Fire Protection Equipment	152
Section Purpose and Objectives	152
References	152
General Requirements.....	152
8.1 Portable Fire Extinguishers	152
Chart 8.1 (Sample) Maintenance & Inspection Record Portable Fire Extinguishers	155
8.2 Water-Base Fire Protection Systems	156
Chart 8.2 (Sample) Maintenance & Inspection Record Water-Base Fire Protection Systems.....	157
Section 9: Manufacturers' Equipment Information	158
Appendix A: References.....	159

PROPANE EMERGENCIES

THIRD EDITION

*Developed for the emergency response community and propane industry
in cooperation with the National Propane Gas Association and with
funding from the Propane Education & Research Council by:*

MICHAEL S. HILDEBRAND • GREGORY G. NOLL

Special Notice: As the third edition was going to press, new information concerning the fire safety of composite propane cylinders was developed by the authors. This supplements material found on pages 61-62 of this edition. You can download more information on this issue at www.propanesafety.com.

PUBLISHED BY:

RED HAT PUBLISHING COMPANY, INC.
Chester, Maryland 21619
1-800-603-7700, 410-604-2540 • FAX 410-604-2541
www.redhatpub.com

PRODUCED BY:

LIGHTWORKS PHOTOGRAPHY AND DESIGN
Chester, Maryland 21619

Executive Producer: George Dodson

Production Coordinator/Designer: Kathleen Lawyer, Lightworks Design

Photographer: George Dodson, Lightworks Photography

Special Graphics: Michael Marks and George Dodson

Editor: Patricia M. Daly

Copyright © 2007 Propane Education & Research Council, Eight Step Incident Management Process[®], Michael Hildebrand and Gregory Noll

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by means, electronic or mechanical, including photocopying and recording, or by any information storage and retrieval system, without permission in writing from the Propane Education & Research Council.

Third Edition

LIBRARY OF CONGRESS NUMBER: 99-074121

ALSO AVAILABLE: The companion Facilitator's Guide by Michael Callan and companion video for Propane Emergencies by Emergency Film Group.

For more information on how to obtain copies of these materials visit us at www.propanesafety.com.

TABLE OF CONTENTS

SECTION 1

INTRODUCTION, SCOPE AND PURPOSE	1
Introduction	2
Scope Of This Book	2
The Players	3
Summary	8

SECTION 2

PHYSICAL AND CHEMICAL PROPERTIES OF PROPANE	9
Processing and Refining LP-Gases	11
LP-Gas Blends.....	11
LP-Gas Physical and Chemical Properties	12
Physical Properties.....	12
Specific Gravity and Vapor Density	12
Specific Gravity of Liquids.....	12
Vapor Density	14
Odorization of Propane.....	14
Effects of Pressure and Temperature on Propane	15
The Effect of Heat on Liquids	15
Liquids and Boiling Points.....	16
Storing Liquids Above Their Normal Boiling Points	16
Storing Liquids in a Closed Container	17
Storing Propane in a Closed Container	17
Chemical Properties and Combustion Characteristics	20
Flammable Limits	20
Combustion Ratio	21
Ignition Temperature.....	21
Heat Value.....	21
Products of Complete Combustion.....	21
Products of Incomplete Combustion	22
Summary	22

SECTION 3

STANDARDS, CODES AND REGULATIONS	25
Standards and Codes	27
Voluntary Consensus Standards.....	27
American National Standards Institute (ANSI)	27
American Society of Mechanical Engineers (ASME).....	28
International Code Council (ICC)	29
National Fire Protection Association (NFPA).....	29
NFPA LP-Gas Standards	30
SCAN 3-A—Propane Gas Industry Voluntary Initiates For Improving Public Safety	34
NFPA Hazmat Emergency Response Standards	36
NFPA 471	36
NFPA 472.....	36
NFPA 473.....	39
Testing Laboratories	39
Regulations	39
Federal Regulations	39
Department of Labor.....	40
OSHA 1910.120 Levels of Emergency Responders.....	41
Department of Transportation	45
Other Federal Regulatory Agencies	46
State and Local Government Regulations.....	46
Summary	46

SECTION 4

NON-BULK AND BULK CONTAINER DESIGN AND CONSTRUCTION FEATURES	49
Basic Categories and Types of Containers	51
Definitions of Containers.....	51
Basic Features of Containers	52
Container.....	52
DOT Portable Cylinders	56
Basic Features of Cylinders.....	56
Types of DOT Cylinders.....	57
SCAN 4-A—DOT Propane Service Cylinders and Emergency Response Issues	59
Exchange Service Cylinders	63

Stationary Service Cylinders.....	64
Motor Fuel Service Cylinders.....	64
Cylinder Markings.....	66
Design or Manufacturing Code.....	66
Water Capacity of the Cylinder.....	67
Tare Weight of the Cylinder.....	68
Retest Date.....	68
DOT Portable Tanks.....	68
Basic Features of DOT Portable Tanks.....	69
Data Plate Information.....	70
ASME Mobile/Motor Fuel Tanks.....	71
Recreational Vehicles.....	71
Lift Truck Tanks.....	71
Motor Fuel Tanks for Road Vehicles.....	72
Mobile/Motor Fuel Tank Construction Features.....	73
ASME Stationary Tanks.....	75
Structure of ASME Stationary Tanks.....	76
Data Plate Markings.....	80
Summary.....	81

SECTION 5

BULK TRANSPORTATION DESIGN AND CONSTRUCTION FEATURES.....	83
Bobtails and Cargo Tank Trucks.....	85
General Features.....	85
Safety Features.....	90
Tank Accessories.....	94
Inspections and Tests.....	98
DOT Railroad Tank Cars.....	98
General Features.....	100
Tank Car Fittings.....	102
Tank Car Markings.....	104
SCAN 5-A—DOT 112 Railroad Tank Car Fittings.....	105
Intermodal Containers.....	108
Pressure Tank Containers.....	108
Tank Container Fittings.....	109
Tank Container Safety Devices.....	110
Inspection and Maintenance.....	111
Summary.....	111

SECTION 6

BULK PLANTS AND BULK STORAGE TANKS	113
Basic Features of Bulk Storage Facilities	115
Bulk Storage Tanks	115
Tank Installations	116
Tank Valves and Accessories	116
Tank Markings	121
SCAN 6-A Product Release Prevention and Incident Preparedness Review . . .	122
Unloading Stations	123
Truck Unloading Stations	123
Rail Unloading Stations	124
Delivery Systems	126
Bulk Propane Delivery Systems	126
Other Support Buildings and Tanks	128
Summary	129

SECTION 7

GENERAL EMERGENCY RESPONSE PROCEDURES	131
National Incident Management System (NIMS)	132
ICS Elements.....	134
Strategy and Tactical Decision-Making	135
Strategy.....	135
Tactics.....	137
Tactical Decision-Making Framework	138
Tactical Procedure Based on The Eight Step Process[®]	139
Step 1: Site Management.....	139
Step 2: Identify the Problem.....	140
Step 3: Hazard and Risk Evaluation	142
Step 4: Select Personal Protective Clothing and Equipment	144
Step 5: Information Management and resource Coordination	145
Step 6: Implement Response Objectives.....	147
Step 7: Decon and Clean-Up Operations	149
Step 8: Terminate the Incident	150
Summary	151

SECTION 8

TACTICAL RESPONSE GUIDELINES FOR PROPANE EMERGENCIES	153
Hazard and Risk Evaluation	154
Hazard Assessment	155

Risk Assessment.....	155
Sizing-Up Risks.....	155
Safety	157
SCAN 8-A—Boiling Liquid Expanding Vapor Explosion (BLEVE)	158
Tactical Scenarios	166
Scenario 1—Cylinder Overfill Incident in a Home.....	166
Scenario 2—Carbon Monoxide Incident in an Auto Shop.....	169
Scenario 3—Removing Exposed Propane Tanks From a Structure on Fire.....	174
Scenario 4—Underground Propane Tank Leak.....	177
Scenario 5—MC-331 Cargo Tank Truck with Propane Liquid Leak.....	180
Scenario 6—BBQ Grill Fire Next to a Home.....	184
Scenario 7—Fire Involving Stationary Tank on a Farm.....	187
Scenario 8—Propane Fueled Delivery Truck Fire.....	190
Scenario 9—Fire Involving Bobtail Delivery Truck.....	194
Scenario 10—Overturned Railroad Tank Car with Fire.....	198
Scenario 11—Gas Release Involving Stationary Tank.....	201
Scenario 12—Fire Involving Stationary Tank.....	204
Scenario 13—Underground Propane Tank Fire.....	208
Scenario 14—Barbeque Grill Fire on Third Floor Balcony of an Apartment Building.....	211
Scenario 15—Automobile Leaking Propane in Parking Garage.....	214
Scenario 16—Overturned MC-331 Cargo Tank Truck.....	218
Scenario 17—Motor Fuel Cylinder Burning on a Forklift.....	222
Scenario 18—Leak on Intermodal Pressure Tank Container.....	227
Scenario 19—Emergency Planning for a Propane Bulk Plant.....	232
Scenario 20—Developing Credible Scenarios for Emergency.....	237
Summary	241

SECTION 9

PRODUCT REMOVAL, TRANSFER, AND RECOVERY OPERATIONS	243
Product and Container Recovery Issues	245
Site Safety and Control Issues	247
Damage Assessment of Pressurized Containers	247
Causes of Container Failure.....	248
Damage Assessment.....	249
Scan 9-A—Examples of Pressurized Container Damage	251
Product Removal and Transfer Operations	252
Surveying The Container.....	252
Grounding and Bonding.....	254
Product Transfer Methods	255
Pumps.....	255

Vapor Compressor	256
Vapor Compressor with a Liquid Pump.....	258
Vapor Pressure Differential	258
Vapor and Liquid Flaring.....	259
Scan 9-B—Autorefrigeration and Flaring Operations	262
Vehicle and Cargo Tank Recovery	265
Factors For Approving Lifting.....	265
Scan 9-C—Wreckers and Cranes: Types and Terminology	267
Scan 9-D—Basic Steps for Uprighting an MC-331 Bobtail Truck	268
Scan 9-E—Basic Steps for Uprighting an MC-331 Pup Trailer	269
Scan 9-F—Basic Steps for Uprighting an MC-331 Transport Vehicle.....	270
Use of Air Bags	271
Summary	271
APPENDIX A—REFERENCES AND SUGGESTED READINGS	273
APPENDIX B—GLOSSARY OF TERMS	277

