

Please print or type in the unshaded areas only
(fill-in areas are spaced for elite type, i.e., 12 characters/inch).

FORM 1 GENERAL	 U.S. ENVIRONMENTAL PROTECTION AGENCY/ECOLOGY GENERAL INFORMATION DEPARTMENT OF ECOLOGY State of Washington Consolidated Permits Program (Read the "General Instructions" before starting.)	1. Current permit I.D.		T/A	C
		WA		14	15

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit a NPDES permit application forms to Ecology. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of **bold-faced terms**.

	MARK "X"				MARK "X"		
	YES	NO	FORM ATTACHED		YES	NO	FORM ATTACHED
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	B. Does or will this facility (either existing or proposed) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
C. Is this facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C) Does this facility operate a cooling water intake structure? (FORM 2C Supplemental)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	D. Is this proposal facility (other than those described in A or B above) which will result in a discharge to waters of the U.S.? (FORM 2D)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Does or will this facility treat, store, or dispose of hazardous wastes ? (FORM 3)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
G. Do you or will you inject at this facility any produced water other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area ? (FORM 5)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area ? (FORM 5)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

III. NAME OF FACILITY

C 1	Pacific Fishermen Shipyard and Electric, LLC
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IV. FACILITY CONTACT

A. NAME & TITLE (last, first, & title)		B. PHONE (area code & no.)	
C 2	Berg, Cherie - Safety, Enviro. & HR Mgr.	206	784 2562
B. EMAIL ADDRESS		C. Does the facility have or can it obtain broadband internet access?	
C 2	cherieb@pfishipyard.com	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX			
C 3	5351 - 24 th Ave. N.W.		
B. CITY OR TOWN		C. STATE	D. ZIP CODE
C 4	Seattle	WA	98107

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER					
C 5	5351 - 24 th Ave. N.W.				
B. COUNTY NAME					
King					
C. CITY OR TOWN		D. STATE	E. ZIP CODE	F. COUNTY CODE	
C 6	Seattle	WA	98107		
7	D. LATITUDE/LONGITUDE (NAD 83 DATUM)				
LATITUDE AS DECIMAL DEGREES - N4		47°	66'	658"	N
LONGITUDE AS DECIMAL DEGREES - W1		-122°	38'	881"	W

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DEPARTMENT OF ECOLOGY

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VII. SIC, NAICS CODES (in order of priority) **AND UBI NUMBER** Place additional on an attachment.

SIC FIRST				SIC. SECOND			
C		(specify)		(specify)			
7	3731	Ship Building and Repairing	7				
EQUIVALENT NAICS FIRST				EQUIVALENT NAICS SECOND			
C		(specify)		(specify)			
7	336611	Ship Building and Repairing	7				

UBI NUMBER -

VIII. OPERATOR INFORMATION

A. NAME						B. Is the name listed in Item VIII-A also the owner?	
C							
8	Pacific Fishermen and Electric, LLC					<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other," specify.)				D. PHONE (area code & no.)			
F = FEDERAL	M = PUBLIC (other than federal or state)	(specify)		C			
S = STATE	O = OTHER (specify)	P		A	206	784	2562
P = PRIVATE							

E. STREET OR PO BOX
5351- 24th Ave, N.W.

F. CITY OR TOWN		G. STATE	H. ZIP CODE	IX. INDIAN LAND	
C				Is the facility located on Indian lands?	
B	Seattle		WA	98107	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water)				D. PSD (Air Emissions from Proposed Sources)			
C	T	I		C	T	B	
9	N		WA-003104-6	9	P		
B. UIC (Underground Injection of Fluids)				E. OTHER (specify)			
C	T	I		(Specify)			
9	U						
C. RCRA (Hazardous Wastes)				E. OTHER (specify)			
C	T	I		(Specify)			
9	R		WAD049972102				

XI. MAP

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

XII. NATURE OF BUSINESS (provide a brief description)

Ship Repair Yard

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
Doug Dixon, General Manager		4/23/19

To ask about the availability of this document in a version for the visually impaired, call the Water Quality Program at 360-407-6600, Relay Service 711, or TTY 877-833-6341.

NDPES PERMIT APPLICATION QUESTIONNAIRE

SUPPLEMENTING FORM 2C

For Shipbuilding and Repair Facilities

I. GENERAL INFORMATION

- A. Name of Facility: *Pacific Fishermen Shipyard and Electric, LLC*
- B. Address: *5351 24th Ave. NW,*
- C. City: *Seattle* State: *Washington* Zip Code: *98107*
- D. Phone No.: *206-784-2562*
- E. Water Way: *Lake Washington Ship Canal*

II. SERVICES PROVIDED IN A TYPICAL YEAR

- A. Do you predominately provide new construction? Yes No
And/or repair? Yes No
- B. What types of vessels, i.e. tugs, fishing vessels, barges, factory ships, etc., do you provide services to?
Fishing vessels, tugs, cruise vessels and yachts,
- C. What hull materials do you work on?
 Wood
 Steel
 Aluminum
 Fiberglass
 Other
- D. Estimate total number of vessels worked on in a typical year? *Approximately 150*
- E. Does the facility have:
 - 1. Drydock Yes No
 - 2. Graving dock Yes No
 - 3. Marineway Yes No
 - 4. Lift Yes No
 - 5. Travel haul Yes No
 - 6. Crane Yes No *Not for lifting vessels*

III. YARD CAPACITY

- A. Capacity of the drydock, marine way, crane, etc., which remove vessels from the water for access to hull?

Code:	001-MR	002-MR	003-SLD
Tonnage:	250T	600T	600T
Overall Length:	75ft.	146ft.	160ft.
Wingwall Length:			
Width:	24ft.	38ft.	35.5ft.
Wingwall Height:			

- B. Describe the location and construction of the drydock, marine way, crane, etc. (see attachment A)
(In addition to a narrative, please attach a site plan of the shipbuilding and repair facility.)

*001- Steel I-beam construction. Carriage pulls out over concrete slab.
002- Steel I-beam construction. Carriage pulls out over concrete slab.
003- Steel lift platform supported on wood piling. Steel deck with steel reinforcement around edge.*

IV. HYDROBLASTING, SANDBLASTING PRACTICES

- A. Of the hulls your yard worked on in the last year, what percentage:
 - 1. Needed the complete hull sandblasted and repainted? *10%*

2. Needed half the hull sandblasted and repainted: *0%*
 3. Needed less than ¼ of the hull sandblasted and repainted? *0%*
 4. What percentage of the hulls only needed a high pressure wash (hydroblasting)? *19%*
 5. What percentage of the hulls only needed a low pressure wash? *70%*
 6. How much of the paint removal consists of sanding and scraping? *10%*
- B. For the sandblasting done in a typical year (the last year if that answer is easier to obtain), how many tons of abrasive material are used? *2.5 tons/year steel grit for recyclable blast booth, 4.5 tons/year Green Diamond every few years for aluminum vessels.*
- C. If possible, estimate the percentage of sandblast grit used on drydocks:
1. In ship holds: *10%*
 2. On ship superstructures: *0*
- D. Estimate the percent of grit used in a sandblast shed? *99%*
- E. How do you store spent sandblast grit? *Steel grit dust and spent Green Diamond stored in enclosed metal hoppers.*
- F. How, how often, and where is the spent sandblast grit disposed of? *As needed, usually bi-annually, spent blast is picked up by Evergreen Recycling and transported to Waste Management.*
- G. Where do you do hydroblasting (high pressure washing of hulls)?
On Marine Railways #001 and #002 and screw lift #003
- H. How far is the hydroblasting area from the nearest waterbody?
Adjacent to Lake Washington Ship Canal
- I. How and where do you discharge your hydroblasting water?
Treated and pumped to King County Industrial Waste per Permit
- J. Do you use an acid solution when hydroblasting? Yes No
If so, which product?
- K. Do you pretreat, i.e., filter, settle, centrifuge, etc., the hydroblasting wash water? Yes No
If so, how? *Settling occurs in the storage tanks that are in between the railways and screw lift and the treatment system and the flocculation and settling that occurs in the clarifier.*

V. PAINTING PRACTICES

- A. What anticorrosive paints are commonly used at your yard? (You may attach manufacturer's data sheets.)
*PPG Ameron 235 (see Attachment B)
International 300 Series (see Attachment C)*
- B. What antifouling paints are commonly used at your yard? (You may attach manufacturer's data sheets.)
*PPG Ameron 214 (see Attachment D)
International Interspeed 640 (see Attachment E)*
- C. Describe the location and construction of the paint storage building or area.
Paint is stored in approved shipping containers, as per the Seattle Fire Department.
- D. Describe the location and construction of the painting booth. Is the floor paved? Are there drains in the painting booth? If yes, where do they drain to?
Paint booth is in the center of the yard, adjacent and connected to the blast booth. Paint booth is completely enclosed, metal, with no floor drains.
- E. Where is paint mixed? *Paint is mixed in the metal mixing shed in center of the yard, adjacent to the blast booth and paint storage containers. NO mixing is allowed in the paint storage containers.*
- F. Do you use drip pans or visquine to contain paint spills?
primarily drip pans.
- G. Do you or vessel owners/operators do touch-up painting or detail painting on vessels from floats?
 Yes No

H. Do you have a still for recycling paint thinners?

Yes No

I. What are your procedures for minimizing waste paint disposal? *Never mix more paint than needed for a job. Purchased paint line and paint gun cleaning stations from Inland Technology, Inc. utilizing EP-921 (see Attachment F)*

J. What waste disposal company disposes of your still bottoms and waste paint?

Stericycle Specialty Waste Solutions, Inc.

K. How often do you dispose of waste paint and still bottoms?

Depends on the amount of work - usually on a quarterly basis.

L. Where and how is waste paint stored prior to disposal?

In 55 gallon drums, in secondary containment, under cover on NW side of property.

VI. ENGINE AND EQUIPMENT REPAIR SERVICES

A. What is the estimated number of engine repairs made annually?

Engine repairs are performed by subcontractors.

B. Describe the facility for storage of waste oil?

In 55 gallon drums, in secondary containment, under cover on NW side of property.

C. How often is stored waste oil disposed of?

Usually on a quarterly basis - depends on amount of work.

D. Is it recycled and if so, by whom? Yes No

Oil Re-Refining Co., Inc.

E. Do you drain engine filters before disposing of the filter?

Yes No

F. Do you have steam cleaning facilities at your yard?

Yes No

G. Do you use dip tanks for cleaning machine parts?

Yes No *We use a solvent tank.*

1. What type of degreasers do you use?

Inland Technology, Inc. Breakthrough FB245 (see Attachment G)

2. What type of recycle/disposal service to you use for solvents and degreasers?

Stericycle Specialty Waste Solutions, Inc.

H. How do you store and dispose of used hydraulic fluids?

Stored in 55 gallon drums. Disposal company is Oil Re-Refining Co., Inc.

I. How do you store and dispose of used antifreeze and coolants?

Stored in 55 gallon drums. Disposal company is Oil Re-Refining Co., Inc.

J. What type of storage do you have for batteries?

Small batteries stored in 5-gallon plastic bucket. Large lead-cell batteries are stored in secondary

K. How often do you dispose of used batteries?

As needed, usually quarterly. Small batteries picked up by Ecobrights NW, large lead-cell batteries picked up by Interstate Batteries.

VII. WASTE DISPOSAL SERVICES

A. Do the services provided by your yard include?

1. Pumping bilge water? Yes No *Subcontracted to certified tank cleaning company.*

2. If so, how frequently? *As needed.*

3. Pumping ballast water? Yes No *Subcontracted to certified tank cleaning company.*

4. If so, how frequently? *As needed.*

5. If so, how is bilge water or ballast water disposed of? *By certified tank cleaning company.*

6. What facilities do you have for receiving sanitary wastes and gray water from docked vessels?

Subcontracted to certified tank cleaning company.

VIII. OTHER WASTE DISPOSAL OR RECYCLING

A. Who, how, and where, if you know, are the following solid wastes disposed of?

1. Sandblast grit *please refer to question IV on page 2.*
2. Scrap metal *Nonferrous metals, Disposal company's Seattle Iron Metal.*
3. Glass - *recycled and picked up by Republic Services*

B. Who, how, and where, if you know, are fiberglass resin and solvents disposed of?

Sterrycle Specialty Waste Solutions, Inc. - fuel blend incineration

IX. OTHER SERVICES

A. Do you supply cooling water to moored or drydocked vessels? Yes No

B. If so, how often? *NA*

X. MANAGEMENT PRACTICES

A. Do you have a maintenance plan for preventing accidental loss of oil, fuel, paint, etc., due to equipment failures? Yes No *(see Attachment H - Spill Control Plan)*

B. Does the plan specifically identify who is responsible for what tasks and how often? Yes No
(See Attachment H - Spill Control Plan)

C. Does the maintenance plan include routine cleaning, sweeping, and vacuuming of docks, paved work areas, and catch basins? Yes No

D. Please provide a copy with the return of the permit application.
(See Attachment I - Best Management Plan [BMP])

E. Do you provide guidance to arriving vessels on pollution prevention practices you expect them to comply with? Yes No

F. If so, please provide a copy with the return of the permit application.
(See Attachment J - Safety, Health & Environmental Requirements for Vessels)

G. Do you have an employee training program which includes pollution prevention practices and worker right-to-know information? Yes No

If you would like that training program included or considered as part of the permit "Best Management Practices," please provide a copy with the return of the permit application. *(See Attachments H & I)*

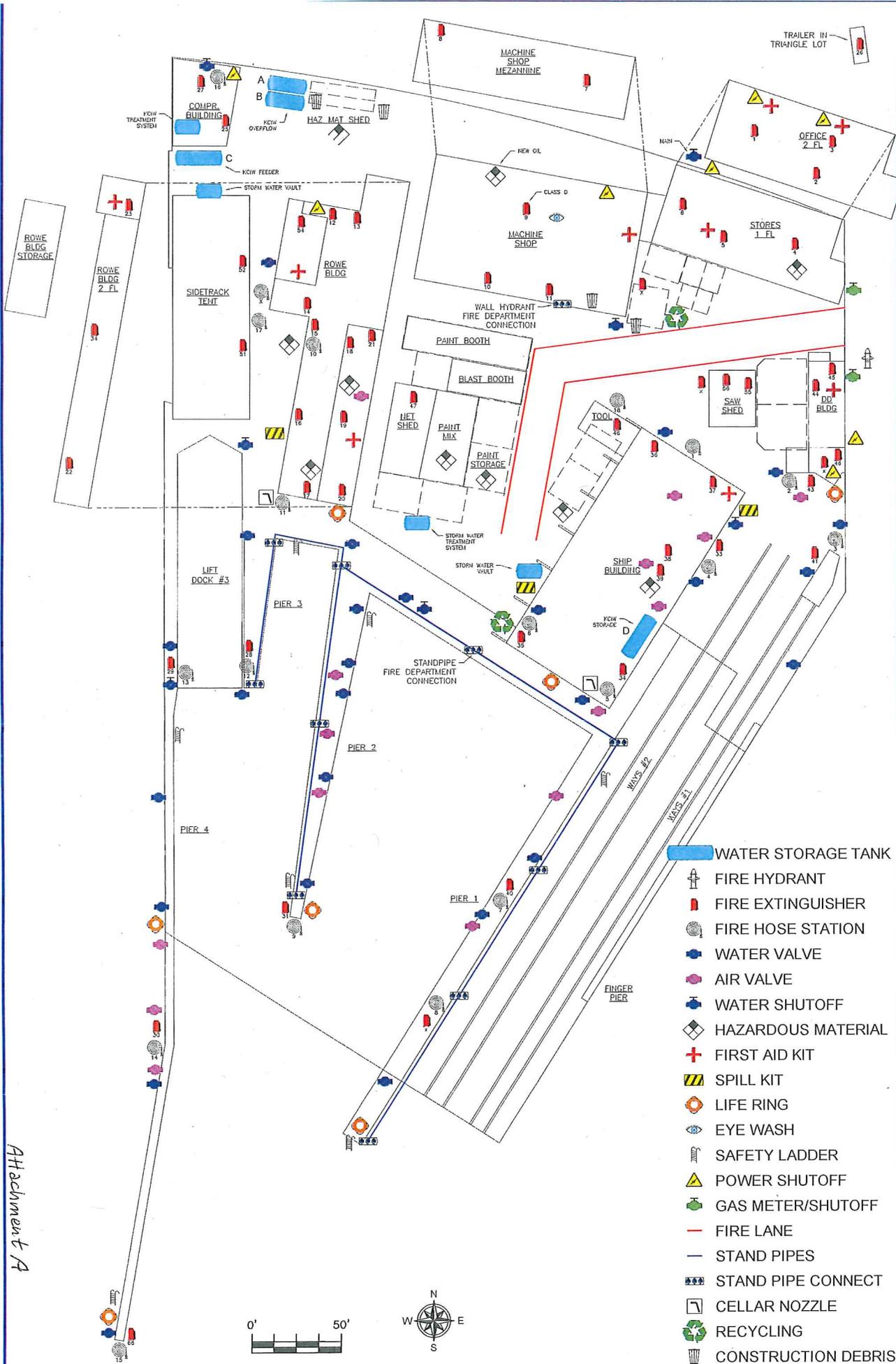
H. Do you have in effect a Spill Prevention and Counter-Measure Plan? Yes No

I. If so, please provide a copy.
(See Attachment H)

XI. SITE PLAN

Please provide a Site Plan locating storm drains, catch basins, oil and waste oil storage areas, paint storage area, paint booth, solvent still, work areas, etc. *(See Attachment K)*

Please provide a location map of the facility. It is sufficient to indicate the site location on a photocopy of a USGS quadrangle map. *(See Attachments L & M)*



- WATER STORAGE TANK
- FIRE HYDRANT
- FIRE EXTINGUISHER
- FIRE HOSE STATION
- WATER VALVE
- AIR VALVE
- WATER SHUTOFF
- HAZARDOUS MATERIAL
- FIRST AID KIT
- SPILL KIT
- LIFE RING
- EYE WASH
- SAFETY LADDER
- POWER SHUTOFF
- GAS METER/SHUTOFF
- FIRE LANE
- STAND PIPES
- STAND PIPE CONNECT
- CELLAR NOZZLE
- RECYCLING
- CONSTRUCTION DEBRIS

Attachment A



SAFETY DATA SHEET



Date of issue/Date of revision 30 April 2016
Version 5.01

Section 1. Identification

Product name : AMERCOAT 235 OFF WHITE 235B3501 RES
Product code : AT235-35/01
Other means of identification : Not available.
Product type : Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Product use : Industrial applications.
Use of the substance/mixture : Coating. Paints. Painting-related materials.
Uses advised against : Not applicable.
Manufacturer : PPG Industries, Inc.
One PPG Place
Pittsburgh, PA 15272
Emergency telephone number : (412) 434-4515 (U.S.)
(514) 645-1320 (Canada)
01-800-00-21-400 (Mexico)
Technical Phone Number : 888-977-4762

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 3
SKIN IRRITATION - Category 2
SERIOUS EYE DAMAGE - Category 1
SKIN SENSITIZATION - Category 1
CARCINOGENICITY - Category 2
TOXIC TO REPRODUCTION (Fertility) - Category 2
TOXIC TO REPRODUCTION (Unborn child) - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 49%

GHS label elements

Section 2. Hazards identification

Hazard pictograms



Signal word

: Danger

Hazard statements

: Flammable liquid and vapor.
 Causes serious eye damage.
 Causes skin irritation.
 May cause an allergic skin reaction.
 Suspected of damaging fertility or the unborn child.
 Suspected of causing cancer.
 May cause respiratory irritation.

Precautionary statements

Prevention

: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Avoid breathing vapor. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace.

Response

: IF exposed or concerned: Get medical attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.

Storage

: Store locked up. Store in a well-ventilated place. Keep cool.

Disposal

: Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements

: Repeated exposure to high vapor concentrations may cause irritation of the respiratory system and permanent brain and nervous system damage. Inhalation of vapor/aerosol concentrations above the recommended exposure limits causes headaches, drowsiness and nausea and may lead to unconsciousness or death. Avoid contact with skin and clothing. Wash thoroughly after handling. Emits toxic fumes when heated.

Hazards not otherwise classified

: Prolonged or repeated contact may dry skin and cause irritation.

Section 3. Composition/information on ingredients

Substance/mixture

: Mixture

Product name

: AMERCOAT 235 OFF WHITE 235B3501 RES

Section 3. Composition/information on ingredients

Ingredient name	%	CAS number
Talc , not containing asbestiform fibres	≥20 - ≤50	14807-96-6
Epoxy resin (MW ≤ 700)	≥10 - ≤20	25068-38-6
titanium dioxide	≥10 - ≤20	13463-67-7
Solvent naphtha (petroleum), light aromatic	≥5.0 - ≤10	64742-95-6
butan-1-ol	≥5.0 - ≤9.4	71-36-3
Polyisocyanate, Alkyl Phenol Blocked	≥1.0 - ≤5.0	Not available.
1,2,4-trimethylbenzene	≥1.0 - ≤5.0	95-63-6
Epoxy Resin (MW≤700)	≥1.0 - ≤5.0	67924-34-9
heptan-2-one	≥1.0 - ≤4.1	110-43-0
cumene	<1.0	98-82-8
4-nonylphenol, branched	<1.0	84852-15-3

SUB codes represent substances without registered CAS Numbers.

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

If ingestion, irritation, any type of overexposure or symptoms of overexposure occur during or persists after use of this product, contact a POISON CONTROL CENTER, EMERGENCY ROOM OR PHYSICIAN immediately; have Safety Data Sheet information available. Never give anything by mouth to an unconscious or convulsing person.

Description of necessary first aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek immediate medical attention.
- Inhalation** : Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.
- Skin contact** : Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.
- Ingestion** : If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do NOT induce vomiting.

Most important symptoms/effects, acute and delayedPotential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : May cause respiratory irritation.
- Skin contact** : Causes skin irritation. Defatting to the skin. May cause an allergic skin reaction.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain
watering
redness

Section 4. First aid measures

- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
dryness
cracking
blistering may occur
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
stomach pains
reduced fetal weight
increase in fetal deaths
skeletal malformations

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO₂, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

- Specific hazards arising from the chemical** : Flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Section 5. Fire-fighting measures

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
halogenated compounds
metal oxide/oxides
- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Special precautions** : Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Vapors are heavier than air and may spread along floors. If this material is part of a multiple component system, read the Safety Data Sheet(s) for the other component or components before blending as the resulting mixture may have the hazards of all of its parts.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Do not store above the following temperature: 35°C (95°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Talc , not containing asbestiform fibres	ACGIH TLV (United States, 3/2015). TWA: 2 mg/m ³ 8 hours. Form: Respirable OSHA PEL Z3 (United States, 2/2013). TWA: 20 mppcf 8 hours. Form: not containing asbestos
Epoxy resin (MW ≤ 700) titanium dioxide	None. OSHA PEL (United States, 2/2013). TWA: 15 mg/m ³ 8 hours. Form: Total dust ACGIH TLV (United States, 3/2015). TWA: 10 mg/m ³ 8 hours.
Solvent naphtha (petroleum), light aromatic	None.

Section 8. Exposure controls/personal protection

butan-1-ol	ACGIH TLV (United States, 3/2015). TWA: 20 ppm 8 hours.
Polyisocyanate, Alkyl Phenol Blocked	OSHA PEL (United States, 2/2013). TWA: 300 mg/m ³ 8 hours.
1,2,4-trimethylbenzene	TWA: 100 ppm 8 hours. None.
Epoxy Resin (MW<=700)	ACGIH TLV (United States, 3/2015). TWA: 123 mg/m ³ 8 hours.
heptan-2-one	TWA: 25 ppm 8 hours. None.
cumene	ACGIH TLV (United States, 3/2015). TWA: 233 mg/m ³ 8 hours.
	TWA: 50 ppm 8 hours.
	OSHA PEL (United States, 2/2013). TWA: 465 mg/m ³ 8 hours.
	TWA: 100 ppm 8 hours.
	ACGIH TLV (United States, 3/2015). TWA: 50 ppm 8 hours.
	OSHA PEL (United States, 2/2013). Absorbed through skin.
	TWA: 245 mg/m ³ 8 hours.
	TWA: 50 ppm 8 hours.
4-nonylphenol, branched	None.

Key to abbreviations

A	= Acceptable Maximum Peak	S	= Potential skin absorption
ACGIH	= American Conference of Governmental Industrial Hygienists.	SR	= Respiratory sensitization
C	= Ceiling Limit	SS	= Skin sensitization
F	= Fume	STEL	= Short term Exposure limit values
IPEL	= Internal Permissible Exposure Limit	TD	= Total dust
OSHA	= Occupational Safety and Health Administration.	TLV	= Threshold Limit Value
R	= Respirable	TWA	= Time Weighted Average
Z	= OSHA 29 CFR 1910.1200 Subpart Z - Toxic and Hazardous Substances		

Consult local authorities for acceptable exposure limits.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
- Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Section 8. Exposure controls/personal protection

Hygiene measures	: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Eye/face protection	: Chemical splash goggles and face shield.
<u>Skin protection</u>	
Hand protection	: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
Gloves	: butyl rubber
Body protection	: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
Other skin protection	: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection	: Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.
Restrictions on use	: Persons with a history of asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used.

Section 9. Physical and chemical properties

Appearance

Physical state	: Liquid.
Color	: Not available.
Odor	: Not available.
Odor threshold	: Not available.
pH	: Not available.
Melting point	: Not available.
Boiling point	: >37.78°C (>100°F)
Flash point	: Closed cup: 36.67°C (98°F)
Material supports combustion.	: <input checked="" type="checkbox"/> es.
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
Flammability (solid, gas)	: Not available.

Section 9. Physical and chemical properties

Lower and upper explosive (flammable) limits	: Lower: 1%
Evaporation rate	: 0.36 (butyl acetate = 1)
Vapor pressure	: 0.77 kPa (5.8 mm Hg) [room temperature]
Vapor density	: Not available.
Relative density	: 1.43
Density (lbs / gal)	: 11.93
Solubility	: Insoluble in the following materials: cold water.
Partition coefficient: n-octanol/water	: Not available.
Viscosity	: Kinematic (40°C (104°F)): >0.21 cm ² /s (>21 cSt)
Volatility	: 34% (v/v), 20.25% (w/w)
% Solid. (w/w)	: 79.75

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: When exposed to high temperatures may produce hazardous decomposition products. Refer to protective measures listed in sections 7 and 8.
Incompatible materials	: Keep away from the following materials to prevent strong exothermic reactions: oxidizing agents, strong alkalis, strong acids.
Hazardous decomposition products	: Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen.

Section 11. Toxicological informationInformation on toxicological effectsAcute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Epoxy resin (MW ≤ 700)	LD50 Dermal	Rabbit	>2 g/kg	-
	LD50 Oral	Rat	>2 g/kg	-
titanium dioxide	LD50 Oral	Rat	>11 g/kg	-
	LD50 Dermal	Rabbit	3.48 g/kg	-
Solvent naphtha (petroleum), light aromatic	LD50 Oral	Rat	8400 mg/kg	-
	LC50 Inhalation Vapor	Rat	24000 mg/m ³	4 hours
	LC50 Inhalation Vapor	Rat	8000 ppm	4 hours

Section 11. Toxicological information

1,2,4-trimethylbenzene	LD50 Dermal	Rabbit	3400 mg/kg	-
	LD50 Oral	Rat	790 mg/kg	-
	LC50 Inhalation Vapor	Rat	18000 mg/m ³	4 hours
heptan-2-one	LD50 Oral	Rat	5 g/kg	-
	LC50 Inhalation Vapor	Rat	>16.7 mg/l	4 hours
	LD50 Dermal	Rabbit	10.206 g/kg	-
cumene	LD50 Oral	Rat	1.6 g/kg	-
	LC50 Inhalation Vapor	Rat	39000 mg/m ³	4 hours
	LD50 Dermal	Rabbit	12.3 g/kg	-
4-nonylphenol, branched	LD50 Oral	Rat	1400 mg/kg	-
	LD50 Dermal	Rabbit	2.14 g/kg	-
	LD50 Oral	Rat	0.58 g/kg	-

Conclusion/Summary : There are no data available on the mixture itself.

Irritation/Corrosion**Conclusion/Summary**

Skin : There are no data available on the mixture itself.

Eyes : There are no data available on the mixture itself.

Respiratory : There are no data available on the mixture itself.

Sensitization**Conclusion/Summary**

Skin : There are no data available on the mixture itself.

Respiratory : There are no data available on the mixture itself.

Mutagenicity

Conclusion/Summary : There are no data available on the mixture itself.

Carcinogenicity

Conclusion/Summary : There are no data available on the mixture itself.

Classification

Product/ingredient name	OSHA	IARC	NTP
titanium dioxide	-	2B	-
cumene	-	2B	Reasonably anticipated to be a human carcinogen.

Carcinogen Classification code:

IARC: 1, 2A, 2B, 3, 4

NTP: Known to be a human carcinogen; Reasonably anticipated to be a human carcinogen

OSHA: +

Not listed/not regulated: -

Reproductive toxicity

Conclusion/Summary : There are no data available on the mixture itself.

Teratogenicity

Conclusion/Summary : There are no data available on the mixture itself.

Specific target organ toxicity (single exposure)

Section 11. Toxicological information

Name	Category
Talc , not containing asbestiform fibres	Category 3
Solvent naphtha (petroleum), light aromatic	Category 3
butan-1-ol	Category 3
Polyisocyanate, Alkyl Phenol Blocked	Category 3
1,2,4-trimethylbenzene	Category 3
cumene	Category 3

Specific target organ toxicity (repeated exposure)

Name	Category
cumene	Category 2

Target organs : Contains material which causes damage to the following organs: brain, central nervous system (CNS).
Contains material which may cause damage to the following organs: blood, kidneys, lungs, liver, peripheral nervous system, cardiovascular system, upper respiratory tract, skin, ears, eye, lens or cornea.

Aspiration hazard

Name	Result
Solvent naphtha (petroleum), light aromatic	ASPIRATION HAZARD - Category 1
cumene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure**potential acute health effects**

Eye contact : Causes serious eye damage.
Inhalation : May cause respiratory irritation.
Skin contact : Causes skin irritation. Defatting to the skin. May cause an allergic skin reaction.
Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain
watering
redness

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
pain or irritation
redness
dryness
cracking
blistering may occur
reduced fetal weight
increase in fetal deaths
skeletal malformations

Section 11. Toxicological information

Ingestion : Adverse symptoms may include the following:
stomach pains
reduced fetal weight
increase in fetal deaths
skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

Conclusion/Summary : There are no data available on the mixture itself. Based on the properties of the isocyanate components and considering toxicological data on similar mixtures, this mixture may cause acute irritation and/or sensitization of the respiratory system, leading to an asthmatic condition, wheezing and tightness of the chest. Repeated exposure may lead to permanent respiratory disability. Exposure to component solvent vapor concentrations in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Solvents may cause some of the above effects by absorption through the skin. There is some evidence that repeated exposure to organic solvent vapors in combination with constant loud noise can cause greater hearing loss than expected from exposure to noise alone. If splashed in the eyes, the liquid may cause irritation and reversible damage. Ingestion may cause nausea, diarrhea and vomiting. This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact.

Short term exposure

Potential immediate effects : There are no data available on the mixture itself.

Potential delayed effects : There are no data available on the mixture itself.

Long term exposure

Potential immediate effects : There are no data available on the mixture itself.

Potential delayed effects : There are no data available on the mixture itself.

Potential chronic health effects

General : Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : Suspected of damaging the unborn child.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : Suspected of damaging fertility.

Numerical measures of toxicity

Acute toxicity estimates

Section 11. Toxicological information

Route	ATE value
Oral	5137.2 mg/kg
Dermal	13129.4 mg/kg
Inhalation (gases)	41392.8 ppm
Inhalation (vapors)	134.9 mg/l
Inhalation (dusts and mists)	13.8 mg/l

Section 12. Ecological informationToxicity

Product/ingredient name	Result	Species	Exposure
titanium dioxide	Acute LC50 >100 mg/l Fresh water	Daphnia - Daphnia magna	48 hours

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
butan-1-ol	0.88	-	low
1,2,4-trimethylbenzene	3.63	120.23	low
heptan-2-one	1.98	-	low
limene	3.66	35.48	low
4-nonylphenol, branched	-	251.19	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 13. Disposal considerations

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees. Section 6. Accidental release measures

14. Transport information

	DOT	IMDG	IATA
UN number	UN1263	UN1263	UN1263
UN proper shipping name	PAINT	PAINT	PAINT
Transport hazard class (es)	3	3	3
Packing group	III	III	III
Environmental hazards	No.	Yes.	No.
Marine pollutant substances	Not applicable.	(Epoxy resin (MW ≤ 700), Solvent naphtha (petroleum), light aromatic)	Not applicable.
Product RQ (lbs)	26523.2	Not applicable.	Not applicable.
RQ substances	(xylene)	Not applicable.	Not applicable.

Additional information

- DOT** : Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
- IMDG** : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.
- IATA** : The environmentally hazardous substance mark may appear if required by other transportation regulations.

Special precautions for user : **Transport within user's premises**: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

United States

United States inventory (TSCA 8b) : All components are listed or exempted.

U.S. Federal regulations :

SARA 302/304

SARA 304 RQ : Not applicable.

Composition/information on ingredients

No products were found.

SARA 311/312

Classification : Fire hazard
 Immediate (acute) health hazard
 Delayed (chronic) health hazard

Section 15. Regulatory informationComposition/information on ingredients

Name	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Talc , not containing asbestiform fibres	No.	No.	No.	Yes.	No.
Epoxy resin (MW ≤ 700)	No.	No.	No.	Yes.	No.
titanium dioxide	No.	No.	No.	No.	Yes.
Solvent naphtha (petroleum), light aromatic	Yes.	No.	No.	Yes.	No.
butan-1-ol	Yes.	No.	No.	Yes.	No.
Polyisocyanate, Alkyl Phenol Blocked	No.	No.	No.	Yes.	No.
1,2,4-trimethylbenzene	Yes.	No.	No.	Yes.	No.
Epoxy Resin (MW≤700)	No.	No.	No.	Yes.	No.
heptan-2-one	Yes.	No.	No.	Yes.	No.
cumene	Yes.	No.	No.	Yes.	Yes.
4-nonylphenol, branched	No.	No.	No.	Yes.	Yes.

SARA 313

	<u>Chemical name</u>	<u>CAS number</u>	<u>Concentration</u>
Supplier notification	: butan-1-ol	71-36-3	3 - 7
	1,2,4-trimethylbenzene	95-63-6	1 - 5

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

Additional environmental information is contained on the Environmental Data Sheet for this product, which can be obtained from your PPG representative.

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

Section 16. Other information**Hazardous Material Information System (U.S.A.)**

Health : 3 * Flammability : 3 Physical hazards : 0

(*) - Chronic effects

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

Health : 3 Flammability : 3 Instability : 0

Date of previous issue : 4/28/2016

Organization that prepared the MSDS : EHS

Section 16. Other information

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973
as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

▼ Indicates information that has changed from previously issued version.

Disclaimer

The information contained in this data sheet is based on present scientific and technical knowledge. The purpose of this information is to draw attention to the health and safety aspects concerning the products supplied by PPG, and to recommend precautionary measures for the storage and handling of the products. No warranty or guarantee is given in respect of the properties of the products. No liability can be accepted for any failure to observe the precautionary measures described in this data sheet or for any misuse of the products.

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H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H411 Toxic to aquatic life with long lasting effects.

P210 Keep away from heat / sparks / open flames / hot surfaces - No smoking.

P260 Do not breathe mist / vapors / spray.

P261 Avoid breathing dust / fume / gas / mist / vapors / spray.

P262 Do not get in eyes, on skin, or on clothing.

P272 Contaminated work clothing should not be allowed out of the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves / eye protection / face protection.

P301+310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P302+352 IF ON SKIN: Wash with soap and water.

P303+361+353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+351+338 IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.

P312 Call a POISON CENTER or doctor / physician if you feel unwell.

P331 Do NOT induce vomiting.

P333+313 If skin irritation or a rash occurs: Get medical advice/attention.

P337 If eye irritation persists:.

P362 Take off contaminated clothing and wash before reuse.

P363 Wash contaminated clothing before reuse.

P370 In case of fire: Use water spray, fog, or regular foam..

P391 Collect spillage.

P403+233 Store in a well ventilated place. Keep container tightly closed.

P501 Dispose of contents / container in accordance with local / national regulations.

HMIS Rating

Health: 2*

Flammability: 3

Reactivity: 0

3. Composition/information on ingredients

This product contains the following substances that present a hazard within the meaning of the relevant State and Federal Hazardous Substances regulations.

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
Bisphenol A - Epichlorohydrin CAS Number: 0025068-38-6	25 - 50	Eye Irrit. 2;H319 Skin Irrit. 2;H315 Skin Sens. 1;H317 Aquatic Chronic 2;H411	[1]
Talc CAS Number: 0014807-96-6	10 - 25	----	[1][2]
Aluminum CAS Number: 0007429-90-5	10 - 25	Water react. 2;H261 Pyr. Sol. 1;H250	[1][2]
Kaolin CAS Number: 0001332-58-7	1.0 - 10	----	[1][2]
Petroleum naphtha CAS Number: 0064742-95-6	1.0 - 10	Asp. Tox. 1;H304 Aquatic Chronic 2;H411 (Self Classification)	[1]
Xylenes (o-, m-, p- isomers) CAS Number: 0001330-20-7	1.0 - 10	Flam. Liq. 3;H226 Acute Tox. 4;H332 Acute Tox. 4;H312 Skin Irrit. 2;H315 Eye Irrit. 2;H319 STOT SE 3;H335 Asp. Tox. 1;H304	[1][2]
Benzene, ethyl- CAS Number: 0000100-41-4	1.0 - 10	Flam. Liq. 2;H225 Acute Tox. 4;H332 Asp. Tox. 1;H304	[1][2]

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		Eye Irrit. 2;H319 Skin Irrit. 2;H315 STOT SE 3;H335 STOT RE 2;H373	
1,2,4-Trimethyl benzene CAS Number: 0000095-63-6	1.0 - 10	Flam. Liq. 3;H226 Acute Tox. 4;H332 Eye Irrit. 2;H319 STOT SE 3;H335 Skin Irrit. 2;H315 Aquatic Chronic 2;H411	[1]

[1] Substance classified with a health or environmental hazard.

[2] Substance with a workplace exposure limit.

[3] PBT-substance or vPvB-substance.

*The full texts of the phrases are shown in Section 16.

4. First aid measures

4.1. Description of first aid measures

General	Remove contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean or destroy contaminated shoes.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Eyes	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
Skin	In case of contact, immediately flush skin with soap and plenty of water. Get medical attention immediately.
Ingestion	If swallowed, immediately contact Poison Control Center at 1-800-854-6813. DO NOT induce vomiting unless instructed to do so by medical personnel. Never give anything by mouth to an unconscious person.

4.2. Most important symptoms and effects, both acute and delayed

Overview	NOTICE: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal. Avoid contact with eyes, skin and clothing.
Inhalation	Harmful if inhaled. Causes nose and throat irritation. Vapors may affect the brain or nervous system causing dizziness, headache or nausea.
Eyes	Causes severe eye irritation. Avoid contact with eyes.
Skin	Causes skin irritation. May cause allergic skin reaction. May be harmful if absorbed through the skin.
Ingestion	Harmful if swallowed. May cause abdominal pain, nausea, vomiting, diarrhea, or drowsiness.
Chronic effects	Possible cancer hazard. Contains an ingredient which may cause cancer based on animal data (See Section 2 and Section 15 for each ingredient). Risk of cancer depends on duration and level of exposure.

5. Fire-fighting measures

5.1. Extinguishing media

CAUTION: This product has a very low flashpoint. Use of water spray when fighting fire may be inefficient. CAUTION: For mixtures containing alcohol or polar solvent, alcohol-resistant foam may be more effective. SMALL FIRES: Use dry chemical, CO₂, water spray or regular foam. LARGE FIRES: Use water spray, fog, or regular foam. Do not use straight streams. Move containers from fire area if you can do so without risk.

5.2. Special hazards arising from the substance or mixture

HIGHLY FLAMMABLE MATERIALS: Will be easily ignited by heat, sparks or flames. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks) creating a vapor explosion hazard. Runoff to sewers may create fire or explosion hazard. Containers may explode when heated. Many liquids are lighter than water.

5.3. Advice for fire-fighters

Cool closed containers exposed to fire by spraying them with water. Do not allow run off water and contaminants from fire fighting to enter drains or water courses.

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6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

ELIMINATE ALL IGNITION SOURCES (no smoking, flares, sparks or flames in immediate area). Use only non-sparking equipment to handle spilled material and absorbent. Do not touch or walk through spilled material. Stop leak if you can do so without risk. Prevent entry into waterways, sewers, basements or confined areas. A vapor suppressing foam may be used to reduce vapors. Absorb or cover with dry earth, sand, or other non-combustible material and transfer to containers. Use non-sparking tools to collect absorbed material.

6.2. Environmental precautions

Do not allow spills to enter drains or watercourses.

6.3. Methods and material for containment and cleaning up

CALL CHEMTREC at (800)-424-9300 for emergency response. Isolate spill or leak area immediately for at least 50 meters (150 feet) in all directions. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed spaces before entering. LARGE SPILLS: Consider initial downwind evacuation for at least 300 meters (1000 feet).

7. Handling and storage

7.1. Precautions for safe handling

Handling

Vapors may cause flash fire or ignite explosively.

In Storage

Keep away from heat, sparks and flame.

7.2. Conditions for safe storage, including any incompatibilities

Store between 40-100F (4-38C).

Avoid contact with eyes, skin and clothing.

Strong oxidizing agents.

Do not smoke. Extinguish all flames and pilot lights, and turn off stoves, heaters, electric motors and other sources of ignition during use and until all vapors are gone.

7.3. Specific end use(s)

Close container after each use.

Wash thoroughly after handling.

Prevent build-up of vapors by opening all windows and doors to achieve cross-ventilation.

8. Exposure controls and personal protection

8.1. Control parameters

Exposure

CAS No.	Ingredient	Source	Value
0000095-63-6	1,2,4-Trimethyl benzene	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	25 ppm TWA; 125 mg/m3 TWA
		Supplier	No Established Limit
		OHSA, CAN	No Established Limit
		Mexico	No Established Limit
		Brazil	No Established Limit
0000100-41-4	Benzene, ethyl-	OSHA	100 ppm TWA; 435 mg/m3 TWA 125 ppm STEL; 545 mg/m3 STEL
		ACGIH	20 ppm TWA
		NIOSH	100 ppm TWA; 435 mg/m3 TWA 125 ppm STEL; 545 mg/m3 STEL 800 ppm IDLH (10% LEL)
		Supplier	No Established Limit
		OHSA, CAN	20 ppm TWA

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		Mexico	100 ppm TWA LMPE-PPT; 435 mg/m3 TWA LMPE-PPT125 ppm STEL [LMPE-CT]; 545 mg/m3 STEL [LMPE-CT]
		Brazil	78 ppm TWA LT; 340 mg/m3 TWA LT
0001330-20-7	Xylenes (o-, m-, p- isomers)	OSHA	100 ppm TWA; 435 mg/m3 TWA150 ppm STEL; 655 mg/m3 STEL
		ACGIH	100 ppm TWA150 ppm STEL
		NIOSH	No Established Limit
		Supplier	No Established Limit
		OHSA, CAN	100 ppm TWA150 ppm STEL
		Mexico	100 ppm TWA LMPE-PPT; 435 mg/m3 TWA LMPE-PPT150 ppm STEL [LMPE-CT]; 655 mg/m3 STEL [LMPE-CT]
		Brazil	78 ppm TWA LT; 340 mg/m3 TWA LT
0001332-58-7	Kaolin	OSHA	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
		ACGIH	2 mg/m3 TWA (particulate matter containing no asbestos and
		NIOSH	10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust)
		Supplier	No Established Limit
		OHSA, CAN	2 mg/m3 TWA (containing no Asbestos and
		Mexico	10 mg/m3 TWA LMPE-PPT20 mg/m3 STEL [LMPE-CT]
		Brazil	No Established Limit
0007429-90-5	Aluminum	OSHA	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
		ACGIH	1 mg/m3 TWA (respirable fraction)
		NIOSH	10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust)
		Supplier	No Established Limit
		OHSA, CAN	1 mg/m3 TWA (respirable)
		Mexico	10 mg/m3 TWA LMPE-PPT (dust)
		Brazil	No Established Limit
0014807-96-6	Talc	OSHA	No Established Limit
		ACGIH	2 mg/m3 TWA (particulate matter containing no asbestos and
		NIOSH	2 mg/m3 TWA (containing no Asbestos and
		Supplier	No Established Limit
		OHSA, CAN	2 mg/m3 TWA (containing no Asbestos and
		Mexico	2 mg/m3 TWA LMPE-PPT (respirable fraction)
		Brazil	No Established Limit
0025068-38-6	Bisphenol A - Epichlorohydrin	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	No Established Limit
		OHSA, CAN	No Established Limit
		Mexico	No Established Limit
		Brazil	No Established Limit
0064742-95-6	Petroleum naphtha	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	No Established Limit
		OHSA, CAN	No Established Limit

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	Mexico	No Established Limit
	Brazil	No Established Limit

Health Data

CAS No.	Ingredient	Source	Value
0000095-63-6	1,2,4-Trimethyl benzene	NIOSH	No Established Limit
0000100-41-4	Benzene, ethyl-	NIOSH	Eye skin
0001330-20-7	Xylenes (o-, m-, p- isomers)	NIOSH	Central nervous system depressant; respiratory and eye irritation
0001332-58-7	Kaolin	NIOSH	Skin and mucous membrane injury respiratory effects
0007429-90-5	Aluminum	NIOSH	Lung changes that may lead to pulmonary fibrosis; respiratory and skin irritation
0014807-96-6	Talc	NIOSH	(containing asbestos); Fibrotic pneumoconiosis; (containing no asbestos); Nonmalignant respiratory effects
0025068-38-6	Bisphenol A - Epichlorohydrin	NIOSH	No Established Limit
0064742-95-6	Petroleum naphtha	NIOSH	No Established Limit

Carcinogen Data

CAS No.	Ingredient	Source	Value
0000095-63-6	1,2,4-Trimethyl benzene	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0000100-41-4	Benzene, ethyl-	OSHA	Select Carcinogen: Yes
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: Yes; Group 3: No; Group 4: No;
0001330-20-7	Xylenes (o-, m-, p-isomers)	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: Yes; Group 4: No;
0001332-58-7	Kaolin	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0007429-90-5	Aluminum	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0014807-96-6	Talc	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: Yes; Group 4: No;
0025068-38-6	Bisphenol A - Epichlorohydrin	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0064742-95-6	Petroleum naphtha	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;

8.2. Exposure controls

Respiratory

Select equipment to provide protection from the ingredients listed in Section 3 of this document. Ensure fresh air entry during application and drying. If you experience eye watering, headache or dizziness or if air monitoring demonstrates dust, vapor, or mist levels are above applicable limits, wear an appropriate, properly fitted respirator (NIOSH approved) during and after application. Follow respirator manufacturer's

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directions for respirator use. FOR USERS OF 3M RESPIRATORY PROTECTION ONLY: For information and assistance on 3M occupational health and safety products, call OH&ESD Technical Service toll free in U.S.A. 1-800-243-4630, in Canada call 1-800-267-4414. Please do not contact these numbers regarding other manufacturer's respiratory protection products. 3M does not endorse the accuracy of the information contained in this Material Safety Data Sheet.

Eyes	Avoid contact with eyes. Protective equipment should be selected to provide protection from exposure to the chemicals listed in Section 3 of this document. Depending on the site-specific conditions of use, safety glasses, chemical goggles, and/or head and face protection may be required to prevent contact. The equipment must be thoroughly cleaned, or discarded after each use.
Skin	Protective equipment should be selected to provide protection from exposure to the chemicals listed in Section 3 of this document. Depending on the site-specific conditions of use, protective gloves, apron, boots, head and face protection may be required to prevent contact. The equipment must be thoroughly cleaned, or discarded after each use.
Engineering Controls	Depending on the site-specific conditions of use, provide adequate ventilation.
Other Work Practices	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Use good personal hygiene practices. Wash hands before eating, drinking, using toilet facilities, etc. Promptly remove soiled clothing and wash clothing thoroughly before reuse. Shower after work using plenty of soap and water.

9. Physical and chemical properties

Appearance	Coloured Liquid
Odour threshold	Not Measured
pH	No Established Limit
Melting point / freezing point	Not Measured
Initial boiling point and boiling range	137 (C) 279 (F)
Flash Point	41 (C) 106 (F)
Evaporation rate (Ether = 1)	Not Measured
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	Lower Explosive Limit: 1 Upper Explosive Limit: No Established Limit
vapor pressure (Pa)	Not Measured
Vapor Density	Heavier than air
Specific Gravity	1.38
Partition coefficient n-octanol/water (Log Kow)	Not Measured
Auto-ignition temperature	Not Measured
Decomposition temperature	Not Measured
Viscosity (cSt)	No Established Limit Not Measured
VOC %	Refer to the Technical Data Sheet or label where information is available.

9.2. Other information

No further information

10. Stability and reactivity

10.1. Reactivity

No data available

10.2. Chemical stability

This product is stable and hazardous polymerization will not occur. Not sensitive to mechanical impact. Excessive heat and fumes generation can occur if improperly handled.

10.3. Possibility of hazardous reactions

No data available

10.4. Conditions to avoid

No data available

10.5. Incompatible materials

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Strong oxidizing agents.

10.6. Hazardous decomposition products

HIGHLY FLAMMABLE MATERIALS: Will be easily ignited by heat, sparks or flames. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks) creating a vapor explosion hazard. Runoff to sewers may create fire or explosion hazard. Containers may explode when heated. Many liquids are lighter than water.

11. Toxicological information

Acute toxicity

NOTICE: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LD50, mg/L/4hr	Inhalation Dust/Mist LD50, mg/L/4hr
Bisphenol A - Epichlorohydrin - (25068-38-6)	2,000.00, Rat - Category: 4	2,000.00, Rabbit - Category: 4	No data available	No data available
Talc - (14807-96-6)	No data available	No data available	No data available	No data available
Aluminum - (7429-90-5)	No data available	No data available	No data available	No data available
Kaolin - (1332-58-7)	No data available	No data available	No data available	No data available
Petroleum naphtha - (64742-95-6)	6,800.00, Rat - Category: NA	3,400.00, Rabbit - Category: 5	No data available	No data available
Xylenes (o-, m-, p- isomers) - (1330-20-7)	4,299.00, Rat - Category: 5	1,548.00, Rabbit - Category: 4	20.00, Rat - Category: 4	No data available
Benzene, ethyl- - (100-41-4)	3,500.00, Rat - Category: 5	15,433.00, Rabbit - Category: NA	17.20, Rat - Category: 4	No data available
1,2,4-Trimethyl benzene - (95-63-6)	3,400.00, Rat - Category: 5	3,160.00, Rabbit - Category: 5	18.00, Rat - Category: 4	No data available

Item	Category	Hazard
Acute Toxicity (mouth)	5	May be harmful if swallowed.
Acute Toxicity (skin)	5	May be harmful in contact with skin.
Acute Toxicity (inhalation)	Not Classified	Not Applicable
Skin corrosion/irritation	2	Causes skin irritation.
Eye damage/irritation	2	Causes serious eye irritation.
Sensitization (respiratory)	Not Classified	Not Applicable
Sensitization (skin)	1	May cause an allergic skin reaction.
Germ toxicity	Not Classified	Not Applicable
Carcinogenicity	Not Classified	Not Applicable
Reproductive Toxicity	Not Classified	Not Applicable
Specific target organ systemic toxicity (single exposure)	Not Classified	Not Applicable
Specific target organ systemic Toxicity (repeated exposure)	Not Classified	Not Applicable
Aspiration hazard	Not Classified	Not Applicable

12. Ecological information

12.1. Toxicity

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CERCLA/DOT RQ 119 gal. / 1367 lbs.

System Reference Code 2

- 14.4. Packing group III
- 14.5. Environmental hazards
IMDG Marine Pollutant: Yes (Bisphenol A - Epichlorohydrin)
- 14.6. Special precautions for user
Not Applicable
- 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Not Applicable

15. Regulatory information

Regulatory Overview The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented. All ingredients of this product are listed on the TSCA (Toxic Substance Control Act) Inventory or are not required to be listed on the TSCA Inventory.

WHMIS Classification B3 D2B

DOT Marine Pollutants (10%):

(No Product Ingredients Listed)

DOT Severe Marine Pollutants (1%):

(No Product Ingredients Listed)

EPCRA 311/312 Chemicals and RQs (>.1%) :

Benzene, ethyl- (1000 lb final RQ; 454 kg final RQ)

Xylenes (o-, m-, p- isomers) (100 lb final RQ; 45.4 kg final RQ)

EPCRA 302 Extremely Hazardous (>.1%) :

(No Product Ingredients Listed)

EPCRA 313 Toxic Chemicals (>.1%) :

1,2,4-Trimethyl benzene

Aluminum

Benzene, ethyl-

Xylenes (o-, m-, p- isomers)

Mass RTK Substances (>1%) :

1,2,4-Trimethyl benzene

Aluminum

Benzene, ethyl-

Kaolin

Talc

Xylenes (o-, m-, p- isomers)

Penn RTK Substances (>1%) :

1,2,4-Trimethyl benzene

Aluminum

Benzene, ethyl-

Kaolin

Talc

Xylenes (o-, m-, p- isomers)

Penn Special Hazardous Substances (>.01%) :

(No Product Ingredients Listed)

RCRA Status:

(No Product Ingredients Listed)

N.J. RTK Substances (>1%) :

1,2,4-Trimethyl benzene

Aluminum

Benzene, ethyl-

Kaolin

Talc

Xylenes (o-, m-, p- isomers)

N.J. Special Hazardous Substances (>.01%) :

- Aluminum
- Cumene
- Benzene, ethyl-
- Talc
- Xylenes (o-, m-, p- isomers)

N.J. Env. Hazardous Substances (>.1%) :

- 1,2,4-Trimethyl benzene
- Aluminum
- Benzene, ethyl-
- Xylenes (o-, m-, p- isomers)

Proposition 65 - Carcinogens (>0%):

- Cumene
- Benzene, ethyl-

Proposition 65 - Female Repro Toxins (>0%):

(No Product Ingredients Listed)

Proposition 65 - Male Repro Toxins (>0%):

(No Product Ingredients Listed)

Proposition 65 - Developmental Toxins (>0%):

(No Product Ingredients Listed)

16. Other information

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

The full text of the phrases appearing in section 3 is:

- H225 Highly flammable liquid and vapor.
- H226 Flammable liquid and vapor.
- H250 Catches fire spontaneously if exposed to air.
- H261 In contact with water releases flammable gas.
- H304 May be fatal if swallowed and enters airways.
- H312 Harmful in contact with skin.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.
- H332 Harmful if inhaled.
- H335 May cause respiratory irritation.
- H336 May cause drowsiness or dizziness.
- H372 Causes damage to organs through prolonged or repeated exposure.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H411 Toxic to aquatic life with long lasting effects.

The following sections have changed since the previous revision.

End of Document

SAFETY DATA SHEET



Date of issue/Date of revision 28 April 2016

Version 5

Section 1. Identification

Product name : AMERCOAT 214 RED 214S7070 ANTIFOULI
Product code : AT214-74
Other means of identification : Not available.
Product type : Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Product use : Industrial applications.
Use of the substance/
mixture : Coating. Paints. Painting-related materials.
Uses advised against : Not applicable.

Manufacturer : PPG Industries, Inc.
One PPG Place
Pittsburgh, PA 15272
Emergency telephone
number : (412) 434-4515 (U.S.)
(514) 645-1320 (Canada)
01-800-00-21-400 (Mexico)
Technical Phone Number : 888-977-4762

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 3
ACUTE TOXICITY (oral) - Category 4
SKIN IRRITATION - Category 2
SERIOUS EYE DAMAGE - Category 1
SKIN SENSITIZATION - Category 1
CARCINOGENICITY - Category 2
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (central nervous system (CNS), kidneys and liver) - Category 2
Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 17.8%

GHS label elements

Section 2. Hazards identification

Hazard pictograms



Signal word

: Danger

Hazard statements

: Flammable liquid and vapor.
 Harmful if swallowed.
 Causes serious eye damage.
 Causes skin irritation.
 May cause an allergic skin reaction.
 Suspected of causing cancer.
 May cause damage to organs through prolonged or repeated exposure. (central nervous system (CNS), kidneys, liver)

Precautionary statements

Prevention

: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace.

Response

: Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.

Storage

: Store locked up. Store in a well-ventilated place. Keep cool.

Disposal

: Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements

: Sanding and grinding dusts may be harmful if inhaled. Dried Film of This Paint May Be Harmful If Eaten or Chewed. Contains lead. Exposure to lead dust and fumes adversely affects blood and blood forming tissues, kidneys, liver, the central/peripheral nervous systems and male/female reproductive organs. Lead exposure causes adverse developmental effects including brain damage in children and unborn fetuses. Repeated exposure to high vapor concentrations may cause irritation of the respiratory system and permanent brain and nervous system damage. Inhalation of vapor/aerosol concentrations above the recommended exposure limits causes headaches, drowsiness and nausea and may lead to unconsciousness or death. Avoid contact with skin and clothing. Wash thoroughly after handling. Emits toxic fumes when heated. DANGER - RAGS, STEEL WOOL OR WASTE SOAKED WITH THIS PRODUCT MAY SPONTANEOUSLY CATCH FIRE IF IMPROPERLY DISCARDED. IMMEDIATELY AFTER EACH USE, PLACE RAGS, STEEL WOOL OR WASTE IN A SEALED WATER-FILLED METAL CONTAINER.

Hazards not otherwise classified

: Prolonged or repeated contact may dry skin and cause irritation.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture
Product name : AMERCOAT 214 RED 214S7070 ANTIFOULI

Ingredient name	%	CAS number
copper oxide	≥20 - ≤50	1317-39-1
butan-1-ol	≥5.0 - ≤10	71-36-3
rosin	≥5.0 - ≤10	8050-09-7
xylene	≥5.0 - ≤8.9	1330-20-7
N-ethyltoluene-2-sulphonamide	≥1.0 - ≤4.4	1077-56-1
n-butyl acetate	≥0.10 - ≤2.6	123-86-4
ethylbenzene	<1.0	100-41-4
lead	<0.10	7439-92-1
lead monoxide	<0.10	1317-36-8

SUB codes represent substances without registered CAS Numbers.

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

If ingestion, irritation, any type of overexposure or symptoms of overexposure occur during or persists after use of this product, contact a POISON CONTROL CENTER, EMERGENCY ROOM OR PHYSICIAN immediately; have Safety Data Sheet information available. Never give anything by mouth to an unconscious or convulsing person.

Description of necessary first aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek immediate medical attention.

Inhalation : Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.

Skin contact : Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.

Ingestion : If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do NOT induce vomiting.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye damage.

Inhalation : No known significant effects or critical hazards.

Skin contact : Causes skin irritation. Defatting to the skin. May cause an allergic skin reaction.

Ingestion : Harmful if swallowed.

Over-exposure signs/symptoms

Section 4. First aid measures

- Eye contact** : Adverse symptoms may include the following:
pain
watering
redness
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
dryness
cracking
blistering may occur
- Ingestion** : Adverse symptoms may include the following:
stomach pains

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO₂, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.
- Specific hazards arising from the chemical** : Flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
sulfur oxides
metal oxide/oxides

Section 5. Fire-fighting measures

- Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

- Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Special precautions** : Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Vapors are heavier than air and may spread along floors. Do not apply on toys and other children's articles, furniture, or interior surfaces of any dwelling or facility which may be occupied or used by children. Do not apply on exterior surfaces of dwelling units, such as window sills, porches, stairs, or railings, to which children may be commonly exposed. Materials such as cleaning rags, paper wipes and protective clothing, which are contaminated with the product may spontaneously self-ignite some hours later. To avoid the risks of fires, all contaminated materials should be stored in purpose-built containers or in metal containers with tight-fitting, self-closing lids. Contaminated materials should be removed from the workplace at the end of each working day and be stored outside. If this material is part of a multiple component system, read the Safety Data Sheet(s) for the other component or components before blending as the resulting mixture may have the hazards of all of its parts.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Do not store above the following temperature: 35°C (95°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protectionControl parametersOccupational exposure limits

Ingredient name	Exposure limits
dicopper oxide butan-1-ol	None. ACGIH TLV (United States, 3/2015). TWA: 20 ppm 8 hours. OSHA PEL (United States, 2/2013). TWA: 300 mg/m ³ 8 hours. TWA: 100 ppm 8 hours.
rosin xylene	None. ACGIH TLV (United States, 3/2015). STEL: 651 mg/m ³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 434 mg/m ³ 8 hours. TWA: 100 ppm 8 hours. OSHA PEL (United States, 2/2013). TWA: 435 mg/m ³ 8 hours. TWA: 100 ppm 8 hours.
N-ethyltoluene-2-sulphonamide n-butyl acetate	None. ACGIH TLV (United States, 3/2015). STEL: 200 ppm 15 minutes. TWA: 150 ppm 8 hours. OSHA PEL (United States, 2/2013). TWA: 710 mg/m ³ 8 hours. TWA: 150 ppm 8 hours.
ethylbenzene	ACGIH TLV (United States, 3/2015). TWA: 20 ppm 8 hours. OSHA PEL (United States, 2/2013). TWA: 435 mg/m ³ 8 hours. TWA: 100 ppm 8 hours.
lead	ACGIH TLV (United States, 3/2015). TWA: 0.05 mg/m ³ , (as Pb) 8 hours. OSHA PEL (United States, 2/2013). TWA: 50 µg/m ³ , (as Pb) 8 hours. OSHA PEL (United States). TWA: 50 µg/m ³
lead monoxide	ACGIH TLV (United States, 3/2015). TWA: 0.05 mg/m ³ , (as Pb) 8 hours. OSHA PEL (United States). TWA: 50 µg/m ³ OSHA PEL (United States, 2/2013). TWA: 50 µg/m ³ , (as Pb) 8 hours.

Key to abbreviations

A	= Acceptable Maximum Peak
ACGIH	= American Conference of Governmental Industrial Hygienists.
C	= Ceiling Limit
F	= Fume
IPEL	= Internal Permissible Exposure Limit
OSHA	= Occupational Safety and Health Administration.
R	= Respirable
Z	= OSHA 29 CFR 1910.1200 Subpart Z - Toxic and Hazardous Substances

S	= Potential skin absorption
SR	= Respiratory sensitization
SS	= Skin sensitization
STEL	= Short term Exposure limit values
TD	= Total dust
TLV	= Threshold Limit Value
TWA	= Time Weighted Average

Section 8. Exposure controls/personal protection

Consult local authorities for acceptable exposure limits.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
- Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Chemical splash goggles and face shield.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Gloves** : butyl rubber
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

Section 9. Physical and chemical properties

Appearance

Physical state	: Liquid.
Color	: Not available.
Odor	: Not available.
Odor threshold	: Not available.
pH	: Not available.
Melting point	: Not available.
Boiling point	: >37.78°C (>100°F)
Flash point	: Closed cup: 25.56°C (78°F)
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
Flammability (solid, gas)	: Not available.
Lower and upper explosive (flammable) limits	: Lower: 1.4%
Evaporation rate	: 0.58 (butyl acetate = 1)
Vapor pressure	: 1.1 kPa (8.4 mm Hg) [room temperature]
Vapor density	: Not available.
Relative density	: 2.03
Density (lbs / gal)	: 16.94
Solubility	: Insoluble in the following materials: cold water.
Partition coefficient: n-octanol/water	: Not available.
Viscosity	: Kinematic (40°C (104°F)): >0.21 cm ² /s (>21 cSt)
Volatility	: 48% (v/v), 19.61% (w/w)
% Solid. (w/w)	: 80.39

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: When exposed to high temperatures may produce hazardous decomposition products. Refer to protective measures listed in sections 7 and 8.
Incompatible materials	: Keep away from the following materials to prevent strong exothermic reactions: oxidizing agents, strong alkalis, strong acids.
Hazardous decomposition products	: Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen.

Section 11. Toxicological informationInformation on toxicological effectsAcute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
dicopper oxide butan-1-ol	LD50 Oral	Rat	470 mg/kg	-
	LC50 Inhalation Vapor	Rat	24000 mg/m ³	4 hours
	LC50 Inhalation Vapor	Rat	8000 ppm	4 hours
	LD50 Dermal	Rabbit	3400 mg/kg	-
	LD50 Oral	Rat	790 mg/kg	-
rosin	LD50 Oral	Rat	7600 mg/kg	-
xylene	LC50 Inhalation Gas.	Rat	6670 ppm	4 hours
	LC50 Inhalation Vapor	Rat	5000 ppm	4 hours
	LD50 Dermal	Rabbit	>1.7 g/kg	-
N-ethyltoluene- 2-sulphonamide	LD50 Oral	Rat	4.3 g/kg	-
	LD50 Dermal	Rabbit	1 g/kg	-
	LD50 Oral	Rat	2.25 g/kg	-
n-butyl acetate	LC50 Inhalation Vapor	Rat	>21.1 mg/l	4 hours
	LC50 Inhalation Vapor	Rat	2000 ppm	4 hours
	LD50 Dermal	Rabbit	>17600 mg/kg	-
ethylbenzene	LD50 Oral	Rat	10.768 g/kg	-
	LC50 Inhalation Vapor	Rat	4000 ppm	4 hours
	LD50 Dermal	Rabbit	17.8 g/kg	-
	LD50 Oral	Rat	3.5 g/kg	-

Conclusion/Summary : There are no data available on the mixture itself.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
xylene	Skin - Moderate irritant	Rabbit	-	24 hours 500 mg	-

Conclusion/Summary

Skin : There are no data available on the mixture itself.

Eyes : There are no data available on the mixture itself.

Respiratory : There are no data available on the mixture itself.

SensitizationConclusion/Summary

Skin : There are no data available on the mixture itself.

Respiratory : There are no data available on the mixture itself.

Mutagenicity

Conclusion/Summary : There are no data available on the mixture itself.

Carcinogenicity

Conclusion/Summary : There are no data available on the mixture itself.

Classification

Product/ingredient name	OSHA	IARC	NTP
xylene	-	3	-
ethylbenzene	-	2B	-

Section 11. Toxicological information

Carcinogen Classification code:

IARC: 1, 2A, 2B, 3, 4

NTP: Known to be a human carcinogen; Reasonably anticipated to be a human carcinogen

OSHA: +

Not listed/not regulated: -

Reproductive toxicity**Conclusion/Summary** : There are no data available on the mixture itself.Teratogenicity**Conclusion/Summary** : There are no data available on the mixture itself.Specific target organ toxicity (single exposure)

Name	Category
butan-1-ol	Category 3
xylene	Category 3
n-butyl acetate	Category 3

Specific target organ toxicity (repeated exposure)

Name	Category
xylene	Category 2
ethylbenzene	Category 2

Target organs

: Contains material which causes damage to the following organs: brain.
 Contains material which may cause damage to the following organs: blood, kidneys, lungs, the nervous system, liver, gastrointestinal tract, upper respiratory tract, skin, central nervous system (CNS), ears, eye, lens or cornea.

Aspiration hazard

Name	Result
xylene	ASPIRATION HAZARD - Category 1
ethylbenzene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure

Potential acute health effects

Eye contact : Causes serious eye damage.
Inhalation : No known significant effects or critical hazards.
Skin contact : Causes skin irritation. Defatting to the skin. May cause an allergic skin reaction.
Ingestion : Harmful if swallowed.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
 pain
 watering
 redness

Inhalation : No specific data.

Section 11. Toxicological information

Skin contact : Adverse symptoms may include the following:
pain or irritation
redness
dryness
cracking
blistering may occur

Ingestion : Adverse symptoms may include the following:
stomach pains

Delayed and immediate effects and also chronic effects from short and long term exposure

Conclusion/Summary : There are no data available on the mixture itself. Contains lead. Exposure to lead dust and fumes adversely affects blood and blood forming tissues, kidneys, liver, the central/peripheral nervous systems and male/female reproductive organs. Lead exposure causes adverse developmental effects including brain damage in children and unborn fetuses. Exposure to component solvent vapor concentrations in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Solvents may cause some of the above effects by absorption through the skin. There is some evidence that repeated exposure to organic solvent vapors in combination with constant loud noise can cause greater hearing loss than expected from exposure to noise alone. If splashed in the eyes, the liquid may cause irritation and reversible damage. Ingestion may cause nausea, diarrhea and vomiting. This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact.

Short term exposure

Potential immediate effects : There are no data available on the mixture itself.

Potential delayed effects : There are no data available on the mixture itself.

Long term exposure

Potential immediate effects : There are no data available on the mixture itself.

Potential delayed effects : There are no data available on the mixture itself.

Potential chronic health effects

General : May cause damage to organs through prolonged or repeated exposure. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicityAcute toxicity estimates

Section 11. Toxicological information

Route	ATE value
Oral	831.1 mg/kg
Dermal	7137 mg/kg
Inhalation (gases)	70381.9 ppm
Inhalation (vapors)	116.1 mg/l
Inhalation (dusts and mists)	15.83 mg/l

Section 12. Ecological informationToxicity

Product/ingredient name	Result	Species	Exposure
ethylbenzene	Acute LC50 150 to 200 mg/l Fresh water	Fish - Lepomis macrochirus - Young of the year	96 hours

Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
xylene	-	-	Readily
ethylbenzene	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
butan-1-ol	0.88	-	low
xylene	3.16	7.4 to 18.5	low
n-butyl acetate	1.78	-	low
ethylbenzene	3.15	79.43	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been

Section 13. Disposal considerations

cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees. Section 6. Accidental release measures

14. Transport information

	DOT	IMDG	IATA
UN number	UN1263	UN1263	UN1263
UN proper shipping name	PAINT	PAINT	PAINT
Transport hazard class (es)	3	3	3
Packing group	III	III	III
Environmental hazards	No.	Yes.	No.
Marine pollutant substances	Not applicable.	(dicopper oxide, zinc oxide)	Not applicable.
Product RQ (lbs)	1283.9	Not applicable.	Not applicable.
RQ substances	(xylene, lead)	Not applicable.	Not applicable.

Additional information

- DOT** : Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
- IMDG** : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.
- IATA** : The environmentally hazardous substance mark may appear if required by other transportation regulations.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

United States

United States inventory (TSCA 8b) : All components are listed or exempted.

U.S. Federal regulations :

SARA 302/304

SARA 304 RQ : Not applicable.

Composition/information on ingredients

No products were found.

SARA 311/312

Section 15. Regulatory information

Classification : Fire hazard
 Immediate (acute) health hazard
 Delayed (chronic) health hazard

Composition/information on ingredients

Name	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
dicopper oxide	No.	No.	No.	Yes.	No.
butan-1-ol	Yes.	No.	No.	Yes.	No.
rosin	Yes.	No.	No.	Yes.	No.
xylene	Yes.	No.	No.	Yes.	Yes.
N-ethyltoluene-2-sulphonamide	No.	No.	No.	Yes.	No.
n-butyl acetate	Yes.	No.	No.	Yes.	No.
ethylbenzene	Yes.	No.	No.	Yes.	Yes.

SARA 313

Supplier notification	Chemical name	CAS number	Concentration
	dicopper oxide	1317-39-1	15 - 40
	zinc oxide	1314-13-2	10 - 30
	butan-1-ol	71-36-3	5 - 10
	xylene	1330-20-7	5 - 10
	ethylbenzene	100-41-4	0.1 - 1

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

Additional environmental information is contained on the Environmental Data Sheet for this product, which can be obtained from your PPG representative.

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Section 16. Other information**Hazardous Material Information System (U.S.A.)**

Health : 3 * Flammability : 3 Physical hazards : 1

(*) - Chronic effects

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

Health : 3 Flammability : 3 Instability : 1

Date of previous issue : 12/7/2015

Organization that prepared : EHS

the MSDS

Section 16. Other information

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973
as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

▼ Indicates information that has changed from previously issued version.

Disclaimer

The information contained in this data sheet is based on present scientific and technical knowledge. The purpose of this information is to draw attention to the health and safety aspects concerning the products supplied by PPG, and to recommend precautionary measures for the storage and handling of the products. No warranty or guarantee is given in respect of the properties of the products. No liability can be accepted for any failure to observe the precautionary measures described in this data sheet or for any misuse of the products.

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H410 Very toxic to aquatic life with long lasting effects.

P210 Keep away from heat / sparks / open flames / hot surfaces - No smoking.

P270 Do not eat, drink or smoke when using this product.

P273 Avoid release to the environment.

P280 Wear protective gloves / eye protection / face protection.

P301+310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P302+352 IF ON SKIN: Wash with soap and water.

P303+361+353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+351+338 IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.

P312 Call a POISON CENTER or doctor / physician if you feel unwell.

P330 Rinse mouth.

P362 Take off contaminated clothing and wash before reuse.

P370 In case of fire: Use water spray, fog, or regular foam..

P391 Collect spillage.

P403+233 Store in a well ventilated place. Keep container tightly closed.

P501 Dispose of contents / container in accordance with local / national regulations.

HMIS Rating Health: 2* Flammability: 3 Reactivity: 0

3. Composition/information on ingredients

This product contains the following substances that present a hazard within the meaning of the relevant State and Federal Hazardous Substances regulations.

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
Copper oxide (Cu2O) CAS Number: 0001317-39-1	25 - 50	Acute Tox. 4;H302 Aquatic Acute 1;H400 Aquatic Chronic 1;H410	[1]
Zinc oxide CAS Number: 0001314-13-2	10 - 25	Aquatic Acute 1;H400 Aquatic Chronic 1;H410	[1][2]
Xylenes (o-, m-, p- isomers) CAS Number: 0001330-20-7	10 - 25	Flam. Liq. 3;H226 Acute Tox. 4;H332 Acute Tox. 4;H312 Skin Irrit. 2;H315 Eye Irrit. 2;H319 STOT SE 3;H335 Asp. Tox. 1;H304	[1][2]
Iron oxide CAS Number: 0001309-37-1	1.0 - 10	----	[1][2]
Butanol CAS Number: 0000071-36-3	1.0 - 10	Flam. Liq. 3;H226 Acute Tox. 4;H302 STOT SE 3;H335 Skin Irrit. 2;H315 Eye Dam. 1;H318 STOT SE 3;H336	[1][2]
ETHYLTOLUENESULFONAMIDE CAS Number: 0008047-99-2	1.0 - 10	----	[1]
Benzene, ethyl- CAS Number: 0000100-41-4	1.0 - 10	Flam. Liq. 2;H225 Acute Tox. 4;H332 Asp. Tox. 1;H304 Eye Irrit. 2;H319 Skin Irrit. 2;H315 STOT SE 3;H335 STOT RE 2;H373	[1][2]
Copper oxide CAS Number: 0001317-38-0	1.0 - 10	----	[1]

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[1] Substance classified with a health or environmental hazard.

[2] Substance with a workplace exposure limit.

[3] PBT-substance or vPvB-substance.

*The full texts of the phrases are shown in Section 16.

4. First aid measures

4.1. Description of first aid measures

General	Remove contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean or destroy contaminated shoes.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Eyes	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
Skin	In case of contact, immediately flush skin with soap and plenty of water. Get medical attention immediately.
Ingestion	If swallowed, immediately contact Poison Control Center at 1-800-854-6813. DO NOT induce vomiting unless instructed to do so by medical personnel. Never give anything by mouth to an unconscious person.

4.2. Most important symptoms and effects, both acute and delayed

Overview	NOTICE: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal. Avoid contact with eyes, skin and clothing.
Inhalation	Harmful if inhaled. Causes nose and throat irritation. Vapors may affect the brain or nervous system causing dizziness, headache or nausea.
Eyes	Causes severe eye irritation. Avoid contact with eyes.
Skin	Causes skin irritation. May be harmful if absorbed through the skin.
Ingestion	Harmful if swallowed. May cause abdominal pain, nausea, vomiting, diarrhea, or drowsiness.
Chronic effects	Possible cancer hazard. Contains an ingredient which may cause cancer based on animal data (See Section 2 and Section 15 for each ingredient). Risk of cancer depends on duration and level of exposure.

5. Fire-fighting measures

5.1. Extinguishing media

CAUTION: This product has a very low flashpoint. Use of water spray when fighting fire may be inefficient. CAUTION: For mixtures containing alcohol or polar solvent, alcohol-resistant foam may be more effective. SMALL FIRES: Use dry chemical, CO₂, water spray or regular foam. LARGE FIRES: Use water spray, fog, or regular foam. Do not use straight streams. Move containers from fire area if you can do so without risk.

5.2. Special hazards arising from the substance or mixture

HIGHLY FLAMMABLE MATERIALS: Will be easily ignited by heat, sparks or flames. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks) creating a vapor explosion hazard. Runoff to sewers may create fire or explosion hazard. Containers may explode when heated. Many liquids are lighter than water.

5.3. Advice for fire-fighters

Cool closed containers exposed to fire by spraying them with water. Do not allow run off water and contaminants from fire fighting to enter drains or water courses.

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6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

ELIMINATE ALL IGNITION SOURCES (no smoking, flares, sparks or flames in immediate area). Use only non-sparking equipment to handle spilled material and absorbent. Do not touch or walk through spilled material. Stop leak if you can do so without risk. Prevent entry into waterways, sewers, basements or confined areas. A vapor suppressing foam may be used to reduce vapors. Absorb or cover with dry earth, sand, or other non-combustible material and transfer to containers. Use non-sparking tools to collect absorbed material.

6.2. Environmental precautions

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Do not allow spills to enter drains or watercourses.

6.3. Methods and material for containment and cleaning up

CALL CHEMTREC at (800)-424-9300 for emergency response. Isolate spill or leak area immediately for at least 50 meters (150 feet) in all directions. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed spaces before entering. LARGE SPILLS: Consider initial downwind evacuation for at least 300 meters (1000 feet).

7. Handling and storage

7.1. Precautions for safe handling

Handling

Vapors may cause flash fire or ignite explosively.

In Storage

Keep away from heat, sparks and flame.

7.2. Conditions for safe storage, including any incompatibilities

Store between 40-100F (4-38C).

Do not get in eyes, on skin or clothing.

Strong oxidizing agents.

Do not smoke. Extinguish all flames and pilot lights, and turn off stoves, heaters, electric motors and other sources of ignition during use and until all vapors are gone.

7.3. Specific end use(s)

Close container after each use.

Wash thoroughly after handling.

Prevent build-up of vapors by opening all windows and doors to achieve cross-ventilation.

8. Exposure controls and personal protection

8.1. Control parameters

CAS No.	Ingredient	Exposure	
		Source	Value
0000071-36-3	Butanol	OSHA	100 ppm TWA; 300 mg/m3 TWA50 ppm Ceiling; 150 mg/m3 Ceiling
		ACGIH	20 ppm TWA
		NIOSH	50 ppm Ceiling; 150 mg/m3 Ceiling1400 ppm IDLH (10% LEL)
		Supplier	No Established Limit
		OHSA, CAN	20 ppm TWA
		Mexico	No Established Limit
		Brazil	40 ppm TWA LT; 115 mg/m3 TWA LT
0000100-41-4	Benzene, ethyl-	OSHA	100 ppm TWA; 435 mg/m3 TWA125 ppm STEL; 545 mg/m3 STEL
		ACGIH	20 ppm TWA
		NIOSH	100 ppm TWA; 435 mg/m3 TWA125 ppm STEL; 545 mg/m3 STEL800 ppm IDLH (10% LEL)
		Supplier	No Established Limit
		OHSA, CAN	20 ppm TWA
		Mexico	100 ppm TWA LMPE-PPT; 435 mg/m3 TWA LMPE-PPT125 ppm STEL [LMPE-CT]; 545 mg/m3 STEL [LMPE-CT]
		Brazil	78 ppm TWA LT; 340 mg/m3 TWA LT
0001309-37-1	Iron oxide	OSHA	10 mg/m3 TWA (fume); 15 mg/m3 TWA (total dust, listed under Rouge); 5 mg/m3 TWA (respirable fra
		ACGIH	5 mg/m3 TWA (respirable fraction)
		NIOSH	

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			5 mg/m3 TWA (dust and fume, as Fe)2500 mg/m3 IDLH (dust and fume, as Fe)
		Supplier	No Established Limit
		OHSA, CAN	5 mg/m3 TWA (respirable)
		Mexico	5 mg/m3 TWA LMPE-PPT10 mg/m3 STEL [LMPE-CT] (as Fe)
		Brazil	No Established Limit
0001314-13-2	Zinc oxide	OSHA	5 mg/m3 TWA (fume); 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)10 mg/m3 STEL (fume)
		ACGIH	2 mg/m3 TWA (respirable fraction)10 mg/m3 STEL (respirable fraction)
		NIOSH	5 mg/m3 TWA (dust and fume)10 mg/m3 STEL (fume)15 mg/m3 Ceiling (dust)500 mg/m3 IDLH
		Supplier	No Established Limit
		OHSA, CAN	2 mg/m3 TWA (respirable)10 mg/m3 STEL (respirable)
		Mexico	5 mg/m3 TWA LMPE-PPT (fume); 10 mg/m3 TWA LMPE-PPT (dust)10 mg/m3 STEL [LMPE-CT] (fume)
		Brazil	No Established Limit
0001317-38-0	Copper oxide	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	0.1 mg/m3 TWA (fume, as Cu)
		Supplier	No Established Limit
		OHSA, CAN	No Established Limit
		Mexico	No Established Limit
		Brazil	No Established Limit
0001317-39-1	Copper oxide (Cu2O)	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	No Established Limit
		OHSA, CAN	No Established Limit
		Mexico	No Established Limit
		Brazil	No Established Limit
0001330-20-7	Xylenes (o-, m-, p- isomers)	OSHA	100 ppm TWA; 435 mg/m3 TWA150 ppm STEL; 655 mg/m3 STEL
		ACGIH	100 ppm TWA150 ppm STEL
		NIOSH	No Established Limit
		Supplier	No Established Limit
		OHSA, CAN	100 ppm TWA150 ppm STEL
		Mexico	100 ppm TWA LMPE-PPT; 435 mg/m3 TWA LMPE-PPT150 ppm STEL [LMPE-CT]; 655 mg/m3 STEL [LMPE-CT]
		Brazil	78 ppm TWA LT; 340 mg/m3 TWA LT
0008047-99-2	ETHYLTOLUENESULFONAMIDE	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	No Established Limit
		OHSA, CAN	No Established Limit
		Mexico	No Established Limit
		Brazil	No Established Limit

Health Data

CAS No.	Ingredient	Source	Value
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0000071-36-3	Butanol	NIOSH	Eye and mucous membrane irritation CNS depression
0000100-41-4	Benzene, ethyl-	NIOSH	Eye skin
0001309-37-1	Iron oxide	NIOSH	Benign pneumoconiosis termed siderosis
0001314-13-2	Zinc oxide	NIOSH	Metal fume fever
0001317-38-0	Copper oxide	NIOSH	No Established Limit
0001317-39-1	Copper oxide (Cu ₂ O)	NIOSH	No Established Limit
0001330-20-7	Xylenes (o-, m-, p- isomers)	NIOSH	Central nervous system depressant; respiratory and eye irritation
0008047-99-2	ETHYLTOLUENESULFONAMIDE	NIOSH	No Established Limit

Carcinogen Data

CAS No.	Ingredient	Source	Value
0000071-36-3	Butanol	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0000100-41-4	Benzene, ethyl-	OSHA	Select Carcinogen: Yes
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: Yes; Group 3: No; Group 4: No;
0001309-37-1	Iron oxide	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: Yes; Group 4: No;
0001314-13-2	Zinc oxide	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0001317-38-0	Copper oxide	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0001317-39-1	Copper oxide (Cu ₂ O)	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0001330-20-7	Xylenes (o-, m-, p- isomers)	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: Yes; Group 4: No;
0008047-99-2	ETHYLTOLUENESULFONAMIDE	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;

8.2. Exposure controls

Respiratory

Select equipment to provide protection from the ingredients listed in Section 3 of this document. Ensure fresh air entry during application and drying. If you experience eye watering, headache or dizziness or if air monitoring demonstrates dust, vapor, or mist levels are above applicable limits, wear an appropriate, properly fitted respirator (NIOSH approved) during and after application. Follow respirator manufacturer's directions for respirator use. FOR USERS OF 3M RESPIRATORY PROTECTION ONLY: For information and assistance on 3M occupational health and safety products, call OH&ESD Technical Service toll free in U.S.A. 1-800-243-4630, in Canada call 1-800-267-4414. Please do not contact these numbers regarding other manufacturer's respiratory protection products. 3M does not endorse the accuracy of the information contained in this Material Safety Data Sheet.

Eyes

Avoid contact with eyes. Protective equipment should be selected to provide protection from exposure to the chemicals listed in Section 3 of this document.

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	Depending on the site-specific conditions of use, safety glasses, chemical goggles, and/or head and face protection may be required to prevent contact. The equipment must be thoroughly cleaned, or discarded after each use.
Skin	Protective equipment should be selected to provide protection from exposure to the chemicals listed in Section 3 of this document. Depending on the site-specific conditions of use, protective gloves, apron, boots, head and face protection may be required to prevent contact. The equipment must be thoroughly cleaned, or discarded after each use.
Engineering Controls	Depending on the site-specific conditions of use, provide adequate ventilation.
Other Work Practices	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Use good personal hygiene practices. Wash hands before eating, drinking, using toilet facilities, etc. Promptly remove soiled clothing and wash clothing thoroughly before reuse. Shower after work using plenty of soap and water.

9. Physical and chemical properties

Appearance	Coloured Liquid
Odour threshold	Not Measured
pH	No Established Limit
Melting point / freezing point	Not Measured
Initial boiling point and boiling range	93 (C) 200 (F)
Flash Point	28 (C) 82 (F)
Evaporation rate (Ether = 1)	Not Measured
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	Lower Explosive Limit: .6 Upper Explosive Limit: No Established Limit
vapor pressure (Pa)	Not Measured
Vapor Density	Heavier than air
Specific Gravity	2.17
Partition coefficient n-octanol/water (Log Kow)	Not Measured
Auto-ignition temperature	Not Measured
Decomposition temperature	Not Measured
Viscosity (cSt)	No Established Limit Not Measured
VOC %	Refer to the Technical Data Sheet or label where information is available.

9.2. Other information
No further information

10. Stability and reactivity

10.1. Reactivity

No data available

10.2. Chemical stability

This product is stable and hazardous polymerization will not occur. Not sensitive to mechanical impact. Excessive heat and fumes generation can occur if improperly handled.

10.3. Possibility of hazardous reactions

No data available

10.4. Conditions to avoid

No data available

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

HIGHLY FLAMMABLE MATERIALS: Will be easily ignited by heat, sparks or flames. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks) creating a vapor explosion hazard. Runoff to sewers may create fire or explosion hazard. Containers may explode when heated. Many liquids are lighter than water.

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11. Toxicological information

Acute toxicity

NOTICE: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LD50, mg/L/4hr	Inhalation Dust/Mist LD50, mg/L/4hr
Copper oxide (Cu2O) - (1317-39-1)	470.00, Rat - Category: 4	2,000.00, Rabbit - Category: 4	No data available	50.00, Rat - Category: NA
Zinc oxide - (1314-13-2)	5,000.00, Rat - Category: 5	No data available	No data available	2.50, Mouse - Category: 4
Xylenes (o-, m-, p- isomers) - (1330-20-7)	4,299.00, Rat - Category: 5	1,548.00, Rabbit - Category: 4	20.00, Rat - Category: 4	No data available
Iron oxide - (1309-37-1)	10,000.00, Rat - Category: NA	No data available	No data available	No data available
Butanol - (71-36-3)	2,292.00, Rat - Category: 5	3,430.00, Rabbit - Category: 5	No data available	No data available
ETHYLTOLUENESULFONAMIDE - (8047-99-2)	No data available	No data available	No data available	No data available
Benzene, ethyl- - (100-41-4)	3,500.00, Rat - Category: 5	15,433.00, Rabbit - Category: NA	17.20, Rat - Category: 4	No data available
Copper oxide - (1317-38-0)	470.00, Rat - Category: 4	No data available	No data available	No data available

Item	Category	Hazard
Acute Toxicity (mouth)	4	Harmful if swallowed.
Acute Toxicity (skin)	5	May be harmful in contact with skin.
Acute Toxicity (inhalation)	Not Classified	Not Applicable
Skin corrosion/irritation	2	Causes skin irritation.
Eye damage/irritation	1	Causes serious eye damage.
Sensitization (respiratory)	Not Classified	Not Applicable
Sensitization (skin)	Not Classified	Not Applicable
Germ toxicity	Not Classified	Not Applicable
Carcinogenicity	Not Classified	Not Applicable
Reproductive Toxicity	Not Classified	Not Applicable
Specific target organ systemic toxicity (single exposure)	Not Classified	Not Applicable
Specific target organ systemic Toxicity (repeated exposure)	Not Classified	Not Applicable
Aspiration hazard	Not Classified	Not Applicable

12. Ecological information

12.1. Toxicity

No additional information provided for this product. See Section 3 for chemical specific data.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l

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Not Applicable

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not Applicable

15. Regulatory information

Regulatory Overview The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented. All ingredients of this product are listed on the TSCA (Toxic Substance Control Act) Inventory or are not required to be listed on the TSCA Inventory.

WHMIS Classification B2 D2B E

DOT Marine Pollutants (10%):
(No Product Ingredients Listed)

DOT Severe Marine Pollutants (1%):
(No Product Ingredients Listed)

EPCRA 311/312 Chemicals and RQs (>.1%):

Copper (5000 lb final RQ (no reporting of releases of this hazardous substance is required if the diame)

Benzene, ethyl- (1000 lb final RQ; 454 kg final RQ)

Butanol (5000 lb final RQ; 2270 kg final RQ)

Xylenes (o-, m-, p- isomers) (100 lb final RQ; 45.4 kg final RQ)

EPCRA 302 Extremely Hazardous (>.1%):

(No Product Ingredients Listed)

EPCRA 313 Toxic Chemicals (>.1%):

Copper

Benzene, ethyl-

Butanol

Xylenes (o-, m-, p- isomers)

Mass RTK Substances (>1%):

Benzene, ethyl-

Iron oxide

Butanol

Xylenes (o-, m-, p- isomers)

Zinc oxide

Penn RTK Substances (>1%):

Benzene, ethyl-

Iron oxide

Butanol

Xylenes (o-, m-, p- isomers)

Zinc oxide

Penn Special Hazardous Substances (>.01%):

(No Product Ingredients Listed)

RCRA Status:

(No Product Ingredients Listed)

N.J. RTK Substances (>1%):

Benzene, ethyl-

Iron oxide

Butanol

Xylenes (o-, m-, p- isomers)

Zinc oxide

N.J. Special Hazardous Substances (>.01%):

2-Butoxyethanol

Benzene, ethyl-

Butanol

Xylenes (o-, m-, p- isomers)

N.J. Env. Hazardous Substances (>.1%):

Copper

Benzene, ethyl-

Butanol
Xylenes (o-, m-, p- isomers)
Proposition 65 - Carcinogens (>0%):
Cadmium
Benzene, ethyl-
Lead
Quartz
Proposition 65 - Female Repro Toxins (>0%):
Lead
Proposition 65 - Male Repro Toxins (>0%):
Cadmium
Lead
Proposition 65 - Developmental Toxins (>0%):
Cadmium
Lead

16. Other information

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

The full text of the phrases appearing in section 3 is:

H225 Highly flammable liquid and vapor.
H226 Flammable liquid and vapor.
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H312 Harmful in contact with skin.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
H372 Causes damage to organs through prolonged or repeated exposure.
H373 May cause damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

The following sections have changed since the previous revision.

End of Document

SAFETY DATA SHEET

This form complies with OSHA Hazardous Communication Standard, 29 CFR 1910.1200.

SECTION 1- Product and Company Identification

Product: EP-921®

Synonyms: NSNs: 6850-01-381-4408 & 6850-01-381-3300

Company Identification:

Inland Technology Incorporated • 401 East 27th Street • Tacoma, WA 98421

Product Information: 1-800-552-3100

Transportation Emergencies: 1-800-255-3924

Date: May 28, 2015

SDS No. G15023

Product Number: FE921

SECTION 2 – Hazards Identification

CLASSIFICATION:

Flammable liquid: Category 4.

Skin Irritation, Category 2

Eye Irritation, Category 2A

Skin Sensitization, Category 1.

LABEL:

Pictogram:



Signal Word:

Warning

Hazard Statements:

H227: Combustible liquid. H315 – Causes skin irritation. H317 – May cause an allergenic skin reaction.

H319 – Causes serious eye irritation

Precautionary Statements:

Prevention: P210: Keep away from flames and hot surfaces. -- No smoking. P261 – Avoid breathing dust, fume, gas, mist, vapors, spray. P280: Wear protective gloves and eye / face protection.

Response: P303 + P361 + P353 – IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse Skin with water/shower. P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P331: Do NOT induce vomiting. P333 + P313 – IF SKIN irritation or rash occurs: Get medical advice/attention. P337 + P313 – If eye irritation persists: Get medical advice/attention. P370 + P378: In case of fire: Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish.

Storage: P403 + P235: Store in a well-ventilated place. Keep cool. P405: Store locked up.

Disposal: P501 – Dispose of contents/container in accordance with all local, regional, national and international regulations.

SECTION 3 – Composition/Information on Ingredients

SAFETY DATA SHEET: EP-921

COMPONENTS	CAS #	Concentration
Tripropylene glycol methyl ether	25498-49-1	proprietary
Propylene Carbonate	108-32-7	proprietary
d-Limonene	5989-27-5	proprietary

SECTION 4 – First Aid Measures

Emergency and First-Aid Procedures:

Eyes: If eye contact occurs, flush with water for at least 15 minutes or until irritation subsides. If irritation persists contact physician.

Skin: In case of skin contact, remove any contaminated clothing and wash skin thoroughly with soap and water.

Inhalation: If overcome by vapor, remove from exposed area and call physician immediately.

Ingestion: DO NOT induce vomiting; call physician immediately.

If conditions persist, get medical attention.

SECTION 5 - Fire Fighting Measures

Flash point: 146°F PMCC

Flammable Limits: - LEL: .6% UEL: 7%

Autoignition Temperature: N/A

Extinguishing Media: Foam, water spray (fog), dry chemical, or carbon dioxide.

Special Fire Fighting Procedures: Wear air supplied breathing equipment for enclosed and confined spaces or as otherwise needed. Use water to cool container. Water may not extinguish the fire.

Unusual Fire and Explosion Hazards: None known.

SECTION 6 - Accidental Release Measures

Steps to Take in Case Material is Released: Shut off and eliminate all ignitable sources. Stop leak. Contain and collect material. Absorb residue.

SECTION 7 - Handling and Storage

Handling: Avoid contact with skin. Keep away from heat, sparks, and open flame.

Handling temperature and pressure: Ambient

Static Accumulator: This material is a static accumulator. To reduce potential for static discharge, bond and ground containers when transferring material.

Storage: Store away from heat, sparks, and open flame. Keep container sealed when not in use.

Storage temperature and pressure: Ambient

Suitable storage materials and coatings: Carbon steel, stainless steel, most metal containers.

SAFETY DATA SHEET: EP-921

SECTION 8 – Exposure Controls/Personal Protection

COMPONENTS	CAS #	PEL	TLV	OTHER
Tripropylene glycol methyl ether	25498-49-1	Not Listed	Not Listed	
Propylene Carbonate	108-32-7	Not Listed	Not Listed	
d-Limonene	5989-27-5	Not Listed	Not Listed	

Engineering Controls

Ventilation: Mechanical ventilation not normally required unless product is heated and/or is atomized in a confined space.

Other Engineering Controls: Eye wash or sterile eye rinse. Keep container closed. Do not store near heat, flame, or other ignition sources.

Work Practices: Read and understand all cautions, labels, and MSDS before using this product.

Hygiene Practices: Do not have food or drink in the vicinity. Minimize breathing vapor or mist. Avoid prolonged or repeated contact with skin. Wash contaminated clothing before reuse.

Personal Protection Equipment

Respirator: None normally required.

Gloves: Use chemical resistant gloves.

Eye Protection: Use splash goggles or face shield when eye contact may occur.

Other Protective Equipment: None normally required.

SECTION 9 – Physical/Chemical Properties

Initial Boiling Point: 340°F

Vapor Pressure (@ 20°C in mmHg): <1

Evaporation Rate (n-Butyl Acetate=1): <.02

Volatile by Volume: 17%

Specific Gravity (H₂O=1): .98

Vapor Density (air=1): >4

Solubility: very slight (water)

Appearance and Odor: Clear with mild citrus odor

SECTION 10 – Stability and Reactivity Data

Chemical Incompatibility: Avoid contact with strong acids and strong oxidizing agents.

Hazardous Decomposition Products: CO_x and hydrocarbons

Hazardous Polymerization: Will not occur

Stability: Stable

SECTION 11 – Toxicological Information

Signs and Symptoms of Overexposure

Acute Health Effects: Product contacting eyes may cause eye irritation. Low order of acute oral and dermal toxicity.

Chronic Health Effects: Prolonged or repeated skin exposure can lead to mild irritation, defatting and dermatitis.

Carcinogenic Ingredients: None

Primary Routes of Entry: Eyes and inhalation.

SAFETY DATA SHEET: EP-921

Medical Conditions Aggravated by Exposure: May aggravate existing dermatitis.

Tripropylene glycol methyl ether	Oral LD50	>3 gm/kg
	Dermal LD50	>5 gm/kg

Propylene Carbonate	Oral LD50	>5 gm/kg
	Dermal LD50	>3 gm/kg
	Inhalation	>1 gm/m3

d-Limonene	Oral LD50	>5 gm/kg
	Dermal LD50	>5 gm/kg

SECTION 12 – Ecological Information

Ecotoxicological Information:

d-Limonene is classified as oil by the CWA/OPA.

Do not discharge this product into public waters or waterways unless authorized by a National Pollution Discharge Elimination System (NPDES) permit issued by the Environmental Protection Agency (EPA).

Tripropylene glycol methyl ether	LC50 (96 hour)	>11 gm/l
Propylene Carbonate	LC50 (96 hour)	>1 gm/l

Mobility:

d-Limonene is volatile and will partition to air. Tripropylene glycol methyl ether is not volatile but is water soluble.

Persistence and degradability:

This material is expected to biodegrade at a rapid rate and be 'inherently' biodegradable. This product can degrade rapidly in air.

Bio-accumulation: Product is not expected to bioaccumulate

See additional information in sections 6, 13, & 15.

SECTION 13 – Disposal Considerations

Waste Disposal Method: Contact federal, state, county or local environmental regulatory agencies for guidance. This material is considered non-hazardous by RCRA. See Section 15 for further regulatory concerns.

SECTION 14 – Transportation Information

Land transport DOT

SAFETY DATA SHEET: EP-921

Containers of 119 gallons capacity or less: this product is not regulated by DOT.

DOT Class: Not regulated

Containers of 120 gallon capacity or more:

DOT Class: Combustible Liquid

ID-Number: NA1993

Packaging group: III

Proper Shipping Name: Combustible Liquid

Technical Name: (d-Limonene)

Maritime transport IMDG: Not regulated

Air transport IATA: Not regulated

Note: This product is not typically sold in container larger than 55 gallons. In containers of 119 gallons capacity or less, this product is not regulated by DOT.

SECTION 15 – Regulatory Information

EPCRA: This material contains no extremely hazardous substances.

CERCLA (Superfund): This material is not subject to any special reporting under the requirements of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

SARA (301-304): No TPQ for product or any constituents.

SARA (311/312): Reportable Hazard Categories: Fire.

SARA (313) TRI: This material contains no toxic chemicals subject to the reporting requirements of the Toxic Release Program.

RCRA: : This material is considered non-hazardous by characteristic.

RCRA: This material contains no hazardous chemicals listed under RCRA lists or TCLP.

OSHA: Combustible

TSCA: All components of this product are listed on the TSCA inventory. This product does not contain any polychlorinated biphenyls.

SECTION 16 – Other Information

NFPA Hazard code: Health: 1 Flammability: 2 Reactivity: 0

HMIS Hazard code: Health: 1 Flammability: 2 Reactivity: 0

Keep All Chemicals Out of the Reach of Children.

The information and recommendations contained herein are presented in good faith and believed to be correct and reliable to the best of Inland Technology's knowledge. Inland Technology, or its distributors, do not warrant or guarantee reliability, and shall not be liable for any loss or damage arising out of the use thereof. Contact Inland Technology to confirm, in advance of need, that the information is current, applicable, and suitable to each circumstance.

SAFETY DATA SHEET: EP-921

LABEL:

EP-921®



Warning

Combustible liquid. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation

Keep away from flames and hot surfaces. -- No smoking. Avoid breathing dust, fume, gas, mist, vapors, spray. Wear protective gloves and eye / face protection.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse Skin with water/shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Do NOT induce vomiting. IF SKIN irritation or rash occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. In case of fire: Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish.

Store in a well-ventilated place. Keep cool. Store locked up. Dispose of contents/container in accordance with all local, regional, national and international regulations.

Inland Technology Incorporated
401 East 27th Street, Tacoma, WA 98421
253-383-1177

MATERIAL SAFETY DATA SHEET

This form complies with OSHA Hazardous Communication Standard, 29 CFR 1910.1200.

SECTION I

BREAKTHROUGH[®]

Inland Technology Incorporated • 401 East 27th Street • Tacoma, WA 98421

Product Information: 1-800-552-3100

Transportation Emergencies: 1-800-255-3924

Date: July 30, 2010

MSDS No. 04001

Product Number: FB245

Synonyms: N/A

SECTION II - INGREDIENTS AND HAZARD IDENTIFICATION

Substances NOT considered hazardous by OSHA may also be listed.

COMPONENTS	CAS #	PEL	TLV	OTHER
C12 - C13 Paraffinic Hydrocarbons	64742-48-9	Not Listed	Not Listed	

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Initial Boiling Point: 370°F

Specific Gravity (H₂O=1): .77

Vapor Pressure (@ 20°C mmHg): 0.1

Vapor Density (air=1): >5

Evaporation Rate (n-Butyl Acetate=1): <.1

Solubility: Not water soluble

Volatile by Volume: 100%

Appearance and Odor: Clear with mild petroleum odor

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash point by: 150°F PMCC

Flammable Limits LEL: 0.8% **UEL:** 7%

Extinguishing Media: Foam, water spray, dry chemical, carbon dioxide.

Special Fire Fighting Procedures: Use air supplied breathing equipment for enclosed and confined spaces or as otherwise needed.

Unusual Fire and Explosion Hazards: None known.

SECTION V - REACTIVITY DATA

Chemical Incompatibility: Avoid contact with strong acids and strong oxidizing agents.

Hazardous Decomposition Products: CO₂, CO, and hydrocarbons

Hazardous Polymerization: Will not occur

Stability: Stable

MATERIAL SAFETY DATA SHEET: **BREAKTHROUGH**[®]

Inland Technology Incorporated

Product Information: (800) 552-3100

Transportation Emergencies: (800) 255-3924

SECTION VI - HEALTH HAZARD DATA

Signs and Symptoms of Overexposure

Acute Health Effects: Liquid contacting the eyes may cause eye irritation. Low order acute oral and dermal toxicity. Inhalation of vapors can cause irritation to nose, throat and upper respiratory tract.

Chronic Health Effects: Prolonged or repeated skin exposure can lead to mild irritation, defatting and dermatitis.

Carcinogenic Ingredients: None

Primary Routes of Entry: Skin, eyes, and inhalation.

Medical Conditions Aggravated by Exposure: May aggravate existing dermatitis.

Emergency and First-Aid Procedures:

Eyes: If eye contact occurs flush with water for at least 15 minutes or until irritation subsides. If irritation persists contact physician.

Skin: In case of skin contact, remove any contaminated clothing and wash skin thoroughly with soap and water.

Inhalation: If overcome by vapor, remove from exposed area and call physician immediately.

Ingestion: DO NOT induce vomiting; call physician immediately.

If conditions persist, get medical attention.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to Take in Case Material is Released: Shut off and eliminate all ignitable sources. Contain and collect material. Absorb residue.

Waste Disposal Method: Contact federal, state, county or local environmental regulatory agencies for guidance.

Handling and Storage: Use and store away from heat, sparks, and open flame. Keep container sealed when not in use.

SECTION VIII - CONTROL MEASURES

Personal Protection Equipment

Respirator: None normally required

Gloves: Use chemical-resistant gloves, if needed

Eye Protection: Use splash goggles or face shield when eye contact may occur.

Other Protective Equipment: None normally required

Workplace Considerations

Ventilation: Ventilation not normally required, unless product is heated, and/or is atomized in a confined space.

Engineering Controls: Eye wash or sterile eye rinse. Keep container closed. Do not store near heat or flame.

Work Practices: Read and understand all cautions, labels, and MSDS before using this product.

Hygiene Practices: Minimize breathing vapor or mist. Avoid prolonged or repeated contact with skin. Wash contaminated clothing before reuse.

Keep All Chemicals Out of the Reach of Children

The information and recommendations contained herein are presented in good faith and believed to be correct and reliable to the best of Inland Technology's knowledge. Inland Technology, or its distributors, do not warrant or guarantee reliability, and shall not be liable for any loss or damage arising out of the use thereof. Contact Inland to confirm, in advance of need, that the information is current, applicable, and suitable to each circumstance.

PACIFIC FISHERMEN SHIPYARD AND ELECTRIC, LLC

SPILL CONTROL PLAN

Spill Plan Implementation

All release incidents, whether on land or on a vessel, require (1) notification of the Incident Commander (IC); (2) evaluation and implementation of proper response; and (3) documentation of the incident. If the release is to the environment but does not present a threat to public health and has not entered the waterway, the emergency procedures relating to agency notification need not be implemented. However, the remaining applicable procedures are to be carried out.

This Spill Plan will be implemented should the following criteria be met:

- There is an unplanned, sudden, or non-sudden release of oil or hazardous substances to the waterway.
- A fire or explosion that could cause the release of oil or hazardous substances to the waterway.

If a vessel is directly responsible for a spill, the vessel's owner or designated representative is to notify the proper agencies and initiate cleanup procedures. If the vessel's owner or representative does not notify the proper agencies and initiate cleanup, Pacific Fishermen Shipyard & Electric (PFSE) is required by law to do so. PFSE will, upon request of the owner or owner's representative, notify the proper agencies and initiate cleanup procedures.

Assessment and Initial Emergency Response

The General Manager is the designated Incident Commander (IC). The Facilities/Maintenance Manager and Shipyard Manager are designated assistant Incident Commanders and are to be contacted in the event the General Manager is unavailable. Additional personnel available to act as IC are listed on page 3.

1. Upon discovery of a spill incident, the employee is to contact their immediate supervisor. The employee discovering the incident is also responsible for protecting and ensuring their own safety, alerting others in the vicinity, and taking appropriate safe action to control the incident where possible. **In the event of a fire, hazardous material spill, noxious gas leak or explosion, the employee is to call 911.**
2. The immediate supervisor is to contact the Incident Commander (IC).
3. The IC is to account for personnel and assess the incident to determine:
 - Substance involved, its physical state, quantity released, and its location.
 - Possible hazards to human health and the environment.
 - Need for area isolation and/or evacuation.
 - Need for assistance from outside emergency responders.
 - Agency notification requirements. **Initial agency notification should not be delayed until all information is collected.**
4. The Environmental Coordinator (EC) is to notify the appropriate agencies if the release meets reporting requirements. The EC is then to complete an incident report and final report.
5. The IC is to direct response personnel to attempt to stop, contain and clean the release or spill if it can be done safely. PFSE employees are only to cleanup spills that are small and not hazardous in nature. Outside emergency responders are to be contacted for large spills or spills of a hazardous nature. Generally, any spill or leak will be counteracted by following the actions appropriate to the acronym A.S.C.C., meaning:
 - A. = Assess
 - S. = Stop
 - C. = Contain
 - C. = Clean

Assess means to carefully survey the source of the spill, determine the probable causes and appropriate course of action, and mobilize the necessary personnel for response action.

Stop means to curtail the source of the spill by the most expeditious means possible.

Contain means to limit the extent to which the spill can spread. If the spill is in the water, then a boom is to be deployed around the spill. If the spill is on land, then likewise, the spill is to be surrounded and prevented from spreading prior to clean up. Catch basins are to also be isolated and protected.

Clean means to recover the spilled material using all necessary means (absorbent boom, pumps, absorbent pads, etc.) as expeditiously as possible.

Attachment H

6. The IC is to monitor operations that were shut down to ensure that emergency response activities are not endangered.
7. The IC is to ensure that all other appropriate PFSE management has been contacted.
8. The IC is to continue to monitor the incident to ensure the situation is under control.
9. The IC is to coordinate with the PFSE response team or outside responders to ensure cleanup completion.
10. In coordination with the IC, the EC is to ensure that the released substance and any cleanup material contaminated by the release are properly designated and treated, stored, and disposed of in accordance with all local, state and federal regulations.
11. The IC is to coordinate with the response team or outside emergency responders to ensure proper decontamination procedures for personnel and equipment are used.
12. The IC is to implement the necessary steps to ensure that the incident does not recur or spread to other locations after the initial occurrence.
13. The IC is to ensure that all spill response equipment is returned to storage locations in useable condition, and that disposable spill response equipment is replenished.

Spill Response Equipment

Three (3) spill containment kits are located in the yard as follows (see attached site plan):

1. East yard area between the weld shop and large marine railway.
2. Southwest corner of the weld shop.
3. West yard area between the Rowe building and sidetrack.

Spill containment kits are bright yellow containers with the words, "Spill Containment Kit" on the lids. Break the seal and use as needed in the event of a spill.

Contents of the spill containment kits are:

- Four (4) 100' oil absorbent booms or sweeps.
- Four (4) bales of 100 count oil absorbent pads.
- One (1) 50-pound bags of floor dry absorbent granules.

Should the need for more containment material arise, oil absorbent booms, floor dry granules, and oil absorbent pads are located in the equipment storage building (see attached site plan). For minor spills, a small supply of absorbent pads is available in the Storeroom. Leak-proof bags for the containment of contaminated absorbent material that is non-hazardous in nature are located in the Storeroom. A sealable drum for the containment of contaminated absorbent material that is hazardous in nature is located in the hazardous waste storage area.

In extreme emergencies, sandblast sand, rags, sawdust or other absorbent materials may be used to stop or contain a spill from reaching the waterway or catch basins.

Specific types of spills will be treated as follows:

- Leak from Overturned Drum: Stand the drum upright. If the drum is damaged, plug the hole using a wooded plug. If the drum continues to leak, place it in secondary containment and transfer the contents to another drum.
- Leaking Spigot or Valve: First attempt to shut off the valve or spigot. This failing, tighten the valve or spigot. If this fails, stand the drum upright and place it in secondary containment.
- Vehicle or Crane Hydraulic Leak: Secure the machine, top the leak by shutting off the valve or clamping hose. Place containment pan under the leak site and tag-out machinery as inoperable.
- Vehicle or Crane Lube Oil/Fuel Oil or Coolant Leak: Secure the machine and follow the same procedures as vehicle hydraulic leak.
- Spills Entering Waterway: First stop the source of the leak if possible, and then deploy the containment boom to contain the leak. Recover any spilled material using absorbent pads or skimming equipment. For paint chips on the water's surface, use fine mesh nets for retrieval. If necessary, involve other contractors in the spill containment and clean-up phase.

Notification/Contact Information

In the event the Incident Commander (IC) is unavailable, the following additional personnel are to serve as IC, in the order given, in the event the person above them is not available, to supervise the spill cleanup, determine if outside emergency responders are needed, and to ensure the legally required notifications to response agencies are made:

NAME	EXTENSION	CELL PHONE
Doug Dixon – General Manager	324	(206) 718-0253
Tom Harbin – Shipyard Manager	323	(206) 730-0569
Tyler Adams – Stores, Safety & Environmental Compliance Manager	331	(206) 909-7914
Cherie Berg – Safety, Environmental & HR Manager	327	(206) 852-5429
Steven Tucker – Facilities Manager	335	(206) 858-2438
David Rodriguez – Laborer Foreman	215	(206) 618-7668

Agencies to be notified:

- | | |
|-------------------------------------|----------------|
| 1) National Response Center | 1-800-424-8802 |
| 2) USCG Emergency Response | (206) 217-6002 |
| 3) Washington Department of Ecology | (425) 649-7000 |

In the event of a spill emergency or other emergency that could result in environmental contamination, any or all of the following agencies can be contacted for assistance:

- 1) For assistance with clean up procedures involving a large spill or spill of a hazardous nature, call:
NRC Environmental Services 800-899-4672
- 2) For the appropriate disposal of absorbent material related to spills that are non-hazardous in nature, (such as oil, antifreeze) call: Safety-Kleen Corp. (253) 939-2022
- 3) For the appropriate disposal of absorbent material related to spills that are hazardous in nature (such as paint) call: FBN Enterprises (425) 466-9642

Yard Storage and Handling

Several areas within the shipyard are set aside for the storage of materials that could be hazardous to the environment.

- A. Bulk Paint is stored in 5-gallon containers on shelving in an SFD approved closed metal container adjacent to the paint mixing shed.
- B. New Paint Product for Use and/or Resale is stored in 5-gallon containers on shelving in a 2nd SFD approved closed metal container adjacent to the paint mixing shed.
- C. Bulk Oils are stored in 55-gallon drums, on racks, in secondary containment capable of containing 110% of the largest single container, inside of the Machine Shop. These products consist of some lube oil and machine lubricants that are used on a regular basis.
- D. Waste Products - Used paint waste streams and waste oil and used coolant are temporarily stored in 55-gallon drums in the hazardous material containment area along the N.W. fence area, pending transportation and disposal by approved means. The material is stored undercover in secondary containment capable of containing 110% of the largest single container. New product is also stored along the N.W. fence area, undercover and in secondary containment capable of containing 110% of the largest single container.
- E. Additional Facilities - Although not defined as storage facilities, the following are devices within the facility which act to prevent spills.
 - 1) Dry-dock Sumps - Containment sumps have been permanently installed in all three (3) dry docks to not only collect wash water for treatment, but to also act as an emergency collection sump in the event of a spill on the dry-dock. The collected water is treated and transferred to King County Industrial Waste per permit requirements.
 - 2) Paint Containment Pans - The paint department utilizes paint containment pans for all paint operations. When paint or related products are removed from the paint storage area, the product is immediately placed into a containment pan where it remains during use. All mixing and application is done with the product in the containment pan. The containment pans are transportable, so they can be moved to each job site.

Disposal Procedure for Recovered Material

- If spill contractors are needed, only Ecology-certified response contractors may undertake onsite emergency response for a spill and are to take immediate action to collect and remove the spilled material, including any absorbent material.
- For PFSE employees, collected absorbent pads, booms or other material used in the clean up of spills not of a hazardous nature, are to be bagged in proper, leak-proof containment bags, tightly sealed, and labeled with the date, time and contents, and vessel, if applicable. For spills of a hazardous nature, the collected absorbent material is to be collected in sealable drums and labeled with all appropriate hazardous waste information as required by state and federal law. Depending on the nature of the material collected, the collected material is either to be stored in secondary containment in the waste oil containment area located outside of the Machine Shop, or in secondary containment in the hazardous material containment area outside of the paint storage shed where they will be picked up and disposed of by an accredited disposal contractor.

Training and Indoctrination

All new employees will be instructed in spill prevention, reporting, containment and clean-up procedures as part of their pre-employment indoctrination given by the Safety and Environmental Department.

All current employees will review this plan annually during a regularly scheduled monthly safety meeting.

Pacific Fishermen Shipyard

PFI Marine Electric

Three Marine Railways and Lift Dock to 160 ft. x 600 Tons
Professional Ship and Yacht Repair Since 1946

Tel: 206-784-2562
Fax: 206-784-1986
info@pacificfishermen.com

UL Certified Switchboard Panel Shop
PFI Electric Dutch Harbor

5351 24th Ave NW
Seattle, WA 98107
www.pacificfishermen.com

PLAN FOR BEST MANAGEMENT PRACTICES (BMP)

1. The Best Management Practices (BMP) Operating Plan has been developed and implemented in compliance with the provisions of The State of Washington Water Pollution Control Law, Chapter 90.48 Revised Code of Washington; The Clean Water Act, Title 33 United States Code, Section 1251 et seq.; The Washington Clean Air Act RCW 70.94; and The Puget Sound Clean Air Agency, Regulation I, 9.15.
2. The Best Management Practices (BMP) Operating Plan is necessary to prevent to the degree feasible the discharge of sandblast grit, paint chips, paint overspray, fugitive dust, and pressure wash water from entering into state waters or the atmosphere. This BMP Operating Plan is also to prevent the discharge of oil or other hazardous materials in the waters of the state.
3. It shall be the responsibility of the Safety and Environmental Manager to monitor the BMP Plan for compliance. It shall also be the responsibility of each employee concerned with the various aspects of the BMP Plan to ensure compliance as only a team effort can make the plan work. Non-compliance could result in an adverse impact on the environment as well as an adverse monetary impact on Pacific Fishermen, Inc.
4. This BMP Plan shall not preclude any employee from taking impromptu action deemed necessary to resolve a problem or correct a situation that could result in a pollution incident. All employees are encouraged to make recommendations that may improve upon this plan. The BMP Plan shall be comprised of the following preventative and corrective measures:
 - A) The yard area, marine railways, and screw dry dock shall be cleaned on a regular basis to minimize the possibility that runoff will carry sandblasting material or other debris into the receiving water. Cleanup of areas contributing runoff shall consist of mechanical or manual methods to sweep up and collect the debris. Collected sandblasting debris shall be stored with the spent grit. The spent sandblasting grit, dust, or other debris shall not accumulate in the yard work areas to an extent that could be judged to be more than a minor deposition by vehicular or pedestrian traffic between regular cleanup efforts. This responsibility has been delegated to the Laborer Foreman.

Attachment I

Pacific Fishermen Shipyard and Electric, LLC
Plan for Best Management Practices (BMP)
As Required by the State of Washington Department of Ecology
Page 2

- B) Solid chemicals, chemical solutions, paints, oils, solvents, acids, caustic solutions and waste materials, including used batteries and fluorescent lamps, shall be stored in a manner which will prevent the inadvertent entry of these materials into waters of the state, including ground waters, or municipal sewer systems and in a manner that will prevent spillage by overfilling, tipping, or rupture. In addition, the following practices shall be used:
- a. All liquid products shall be stored on durable impervious surfaces and behind berms, or in secondary containment.
 - b. Waste liquids shall be stored under cover such as tarpaulins or roofed structures or in a closed storage vessel.
 - c. Non-compatible chemicals shall be segregated and securely stored in separate containment areas that prevent mixing of incompatible or reactive materials.
 - d. Concentrated waste or spilled chemicals shall be transported off-site for disposal at a facility approved by the Department of Ecology or appropriate County Health Department. These materials shall not be discharged to any sewer or any state waters.
 - e. It shall be the responsibility of the craft foreman utilizing any of the above materials to ensure that the proper preventative and/or corrective measures are complied with.
- C) All metal finishing chemical solution, caustic wash, and rinse-water tanks shall be stored in diked areas with drains to intercept contained overflows and spills. The intercepted chemical spill shall be recycled back to the chemical solution tank. It must be handled or disposed of in such manner as to prevent its discharge into state waters.

NOTE: Metal finishing by chemical process is not presently performed at this facility. In the event the process is utilized in the future, the preventative and corrective measures stated above will be complied with. Once instituted, it will be the responsibility of the Machine Shop Foreman to ensure compliance.

Pacific Fishermen Shipyard and Electric, LLC
Plan for Best Management Practices (BMP)
As Required by the State of Washington Department of Ecology
Page 3

- D) No discharge of oil or hazardous material to state waters is permitted. However, in the event of an accidental discharge of oil or hazardous material into waters of the state or onto land with a potential for entry into state waters, representatives of the Department of Ecology, the National Response Center, and the United States Coast Guard shall be notified immediately.
- a. Oil containment booms shall be conveniently stored so as to be immediately deployable in the event of a spill.
 - b. Cleanup efforts shall commence immediately and be completed as soon as possible, taking precedence over normal work, and shall include proper disposal of any spilled material and used cleanup materials.
 - c. Cleanup of oil/hazardous material spills shall be in accordance with an approved Spill Prevention Control and Countermeasure Plan.
 - d. No emulsifiers or dispersants are to be used in waters of the state without approval from the Director of the Department of Ecology.
- E) Drip pans or other protective devices shall be required for all oil transfer operations to catch incidental spillage and drips from hose nozzles, hose racks, drums or barrels.
- Note: For compliance with item's "D" & "E" above, refer to Pacific Fishermen's operations manual under Removal of Oily Waste, Sludge, and Other Hazardous Substances From Vessels – Spill Prevention and Emergency Cleanup Procedures.
- F) Washing of vessels with soaps or detergents while pier side is prohibited. Low pressure or brush scrubbing is permitted as long as paint flaking or residue is not released into waters of the state.
- G) It shall be unlawful for any person to cause or allow visible emissions of fugitive dust unless reasonable precautions are employed to minimize emissions. Dust and overspray from abrasive blasting and painting in yard facilities shall be controlled with structures, drapes or tarpaulins to the extent feasible to minimize the spreading of wind blown materials and their entry into state waters, adjacent properties, shipyard areas not protected by containment and runoff wastewater processing, or the release of volatile organic compounds (VOCs) into the atmosphere. Operations are to be moderated when the possibility of winds rouse fugitive emissions into state waters, adjacent properties, shipyard areas not protected by containment and runoff wastewater processing, or the release of VOCs into the atmosphere. Frequent clean up of the marine railways and yard areas shall be undertaken to prevent abrasive blasting wastes from being washed into storm drains or adjacent waterway.

Because of limited access around the marine railways, the water level respective to the marine railway carriage, and the need for the carriage to move, it is not feasible to construct permanent structures around or adjoining the marine railways. Therefore, feasible controls to prevent and minimize the entry of abrasive blasting grit, dust, and paint overspray will be of a temporary nature and will vary with the type of work done on a vessel.

Pacific Fishermen Shipyard and Electric, LLC
Plan for Best Management Practices (BMP)
As Required by the State of Washington Department of Ecology
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Feasible methods of control, when appropriate, include but are not limited to plastic barriers beneath accessible portions of the hull and plastic barriers hung from the bow and stern of the vessel or from structures erected for that purpose. The bottom edge of tarpaulins shall be weighted if necessary to remain in place during a light breeze. When sandblasting vessel superstructures, plywood and/or plastic sheeting shall be used to cover openings and open areas between decks including but not limited to scuppers, railings, freeing ports, ladders, and doorways.

To the extent feasible, Pacific Fishermen, Inc. will minimize the entry and dispersion of anti-fouling paint constituents into waters of the state. Because of the position of the changing water level relative to the marine railway carriage, it is not feasible to construct a dam, horizontal trench, or sump to contain or intercept run-off generated by washing vessel hulls. Therefore, feasible restrictions shall be used to minimize the entry of paint constituents into state waters by using sea curtains, adsorbent oil booms, or other similar devices.

- H) All spent sandblast grit shall be removed from the submerged concrete portions of the marine railways to minimize leachate formations from the sandblast grit and entrained paint particulates, as the water level permits.
- I) The mixing of paints and solvents shall be carried out in locations and under conditions such that no spill shall enter state waters.
 - a. Drip pans or other protective devices shall be required for all paint mixing and solvent transfer operations, unless the mixing operation is carried out in controlled areas away from storm drains, surface waters, shorelines and piers.
 - b. Paint and solvent spills shall be treated as oil spills and shall be prevented from reaching storm drains and subsequent discharge into state waters.
- J. It shall be the responsibility of the dockmaster, laborer and painter foreman, to ensure that the preventive and corrective measures stated in items “F, G, H, & I” above are complied with. Any questions concerning compliance will be referred to the Safety and Environmental Manager.
- M. In-Water Vessel Maintenance – Surface Preparation BMPs

The cleaning of any portion of a vessel’s hull below the waterline while the vessel is afloat is prohibited.

Pacific Fishermen Shipyard and Electric, LLC
Plan for Best Management Practices (BMP)
As Required by the State of Washington Department of Ecology
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The following types of surface preparation activities are allowed to be conducted on a vessel's hull above the waterline while it is at a permitted shipyard facility. These activities are only allowed provided that containment and collection BMP measures are in effect to prevent the introduction of dust, dirt, debris, or any other pollutants generated from these surfaced preparation operations from being deposited on or entering into waters of the state:

1. Mechanical hand preparation such as scraping or wire brushing;
2. Conventional mechanical grinding, sanding, needle gunning, or use of other powered mechanical abrading tools;
3. Conventional abrasive blasting on the vessel's hull while it is in the water is prohibited;
4. Innovative abrasive blasting systems or ultra-high water pressure systems for surface preparation will be allowed to be conducted on a vessel's hull while it is in the water provided that it has been demonstrated beforehand to the Department of Ecology's satisfaction that such methods do not release generated pollutants into waters of the state.

N. In Water Vessel Maintenance – Paint and Coating Application BMPs

The following methods of paint and coating applications to a vessel's hull while in the water at an NPDES permitted shipyard are allowed provided that all containment, collection, and spill prevention BMPs are in place before any such applications are made to a vessel's hull:

1. Application by roller;
2. Application by brush;
3. Conventional spray-coating applications to a vessel's hull while that vessel is in the water are prohibited;
4. Innovative spray-paint or spray-coating application methods will be allowed to be conducted on a vessel's hull while it is in the water provided that it has been demonstrated before-hand to the Department of Ecology's satisfaction that such methods do not release generated pollutants into waters of the state.

Pacific Fishermen Shipyard and Electric, LLC
Plan for Best Management Practices (BMP)
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O. BMPs For Floats Used For In-Water Vessel Maintenance:

Floats are defined as free-floating, unattached work platforms capable of moving back and forth along the length of the ship and around its hull.

Floats shall at all times maintain a minimum of 2” of freeboard at the flat’s lowest point during all phases of maintenance operations. The minimum 2” freeboard requirement must be maintained with all scaffolding configurations and personnel on board the float to prevent paints, cleaning materials, petroleum products, and all other liquids and unsecured materials from entering into the water from the float.

Any container of paint, marine coating, or any other liquid product for painting or surface preparation must be provided with secondary containment when used on board a float. All roller pans used on a float must be provided with secondary spill containment. Secondary spill containment capacity is equal to the entire volume of the container plus 10% of the volume of that same container.

P. Documentation Requirements For In-Water Vessel Maintenance BMPs

Documentation requirements will be in effect for any in-water surface preparation operations of one hour or more in duration and any in-water coating or painting operation involving ½ gallon or more of paint or marine coating.

Documentation requirements will consist, at a minimum, of one or more representative photographs of all in-water vessel maintenance BMPs which are implemented for surface preparation operations and all painting and coating operations. All such photographs shall be dated and maintained in a logbook with all necessary descriptive narrative of the in-water vessel maintenance BMPs being documented. These records shall be made available to a Department of Ecology inspector upon request and will be retained on site for at least three (3) years.

Reviewed July 10, 2018

P:\Environmental\Best Management Practices (BMPs)\Pacific Fishermen BMPs

PACIFIC FISHERMEN SHIPYARD & ELECTRIC, LLC
VESSEL OWNERS, CREW and SUBCONTRACTORS
SAFETY, HEALTH and ENVIRONMENTAL REQUIREMENTS

June 09

While a vessel is moored alongside or in dry dock at Pacific Fishermen Shipyard (PFI) it is the obligation of the vessel owners, crew and subcontractors to comply with all applicable federal, state and local regulations and PFI's Best Management Practices (BMPs) for the protection of safety, health and the environment. In the event that the shipyard or vessel engages a subcontractor, or subcontractors engage additional subcontractors for any portion of a contract or vessel routine maintenance, it is the lead contractor's responsibility (Shipyard or Vessel Owner) to establish these work rules for all lower tier subcontractors and owners to familiarize their crew. PFI may stop or suspend work performed by the crew or subcontractor should the crew or subcontractor fail to comply with the minimum requirements. Minimum requirements include compliance with all Occupational Safety and Health Administration (OSHA), Department of Safety and Health (DOSH), Department of Ecology (DOE), Puget Sound Clean Air Agency (PSCAA) and Seattle Fire Department (SFD) regulations (see reference list at end) and the following:

VESSEL WASTE DISCHARGE

All waste discharge overboard valves are to be kept closed. Sewage (Black Water), treated or raw and Gray Water from sinks, deck drains and washing machines may not be discharged overboard. Those vessels equipped to discharge into shore-side holding tanks may do so only by coordinating with PFI's assigned ship superintendent who will make holding tanks available. The vessel is to be responsible for assuring that the connection to the holding tank or pumping facility is maintained.

Under no circumstances are bilges to be pumped, or garbage or refuse of any kind to be thrown over the vessel's side. The vessel's crew is to contact PFI's assigned ship superintendent in regard to refuse tanks and refuse cans.

LIQUID TRANSFERS

No liquid transfer such as fuel oil, fresh water, ballast, etc., will be made without specific authorization from PFI's assigned ship superintendent.

FUEL OIL VENTS

When fuel oil vents on common manifolds are disconnected to work on individual empty tanks, all remaining tank vents are to be positively sealed with wood tapered plugs or equivalent.

TANK CAPACITIES

When production repair work is being performed, tanks shall not exceed 90% capacity to allow for expansion and changing conditions.

WATER CONNECTIONS

When a cross-connection is made to the sanitary line, the sanitary line must be broken at the discharge of the sanitary pump and the line blanked off, and then the line chlorinated before connection. No other water connections are permitted. Yard personnel must make all water connections.

EXTERIOR HULL CLEANING AND PRESERVATION

The cleaning of any portion of a vessel's hull below the waterline while the vessel is afloat is prohibited.

When exterior hull cleaning and preservation is not performed by PFI personnel, it is the responsibility of the vessel's personnel and subcontractors to comply with all PFI rules when performing exterior hull, house or superstructure cleaning. Under no circumstances is any exterior hull, deck, house or superstructure washing to be performed while the vessel is moored at pier-side such as to allow the discharge of wash water and debris to enter into the waterway.

Attachment J

No blasting, sanding, grinding or painting is allowed to be performed when the vessel is docked pier-side such that material is discharged overboard. Regular cleanup of excess paint, paint chips, protective coating materials and abrasives is to be undertaken as part of the work process, to the extent technically feasible, as to prevent their discharge overboard. Tarps are to be draped from the vessel's hull to the pier or work float to prevent any debris from entering into the ship canal. Piers and vessel's open deck grating are to be covered with tarps or visqueen to prevent dust or debris from falling through the deck boards. Deck drains and scuppers leading overboard must be sealed. Should wind conditions arise that do not allow for effective containment of materials, work is to stop until weather conditions improve or other acceptable means of containment are used to prevent the discharge of materials.

All open and unopened containers, pails, roller pans and oil drums on docks, floats or vessels, including vessels in dry dock, containing hazardous liquids such as paints, solvents, fuels, oil, etc., that may spill into the waterway are to be kept in an effective containment tray or drip pan. This includes open containers onboard a vessel on the exterior and interior decks when the scuppers or drains that discharge overboard are not plugged, whether in the water or on dry dock. Unopened containers on a vessel will not need secondary containment.

Vacuums, tarps, visqueen and secondary containment pans are available in the PFI store for sale. PFI tools and equipment are not to be used by vessel's owners, crew or subcontractors.

The following types of surface preparation activities are allowed to be conducted on a vessel's hull above the waterline while it is at a permitted shipyard facility. These activities are only allowed provided that containment and collection BMP measures are in effect to prevent the introduction of dust, dirt, debris, or any other pollutants generated from these surface preparation operations from being deposited on or entering into waters of the state:

1. Mechanical hand preparation such as scraping or wire brushing;
2. Conventional mechanical grinding, sanding, needle gunning, or use of other powered mechanical abrading tools; and
3. Conventional abrasive blasting on the vessel's hull while it is in the water is prohibited.

In Water Vessel Maintenance – Paint and Coating Application BMPs

The following methods of paint and coating applications to a vessel's hull while in the water at an NPDES permitted shipyard are allowed provided that all containment, collection, and spill prevention BMPs are in place before any such applications are made to a vessel's hull:

1. Application by roller;
2. Application by brush; and
3. Conventional spray-coating applications to a vessel's hull while that vessel is in the water are prohibited.

BMPs for Floats Used For In-Water Vessel Maintenance:

Floats are defined as free-floating, unattached work platforms capable of moving back and forth along the length of the ship and around its hull.

Floats shall at all times maintain a minimum of 2" of freeboard at the float's lowest point during all phases of maintenance operations. The minimum 2" freeboard requirement must be maintained with all scaffolding configurations and personnel on board the float to prevent paints, cleaning materials, petroleum products, and all other liquids and unsecured materials from entering into the water from the float.

Any container of paint, marine coating, or any other liquid product for painting or surface preparation must be provided with secondary containment when used on board a float. All roller pans used on a float must be provided with secondary spill containment. Secondary spill containment capacity is equal to the entire volume of the container plus 10% of the volume of that same container.

Vessels are responsible for any release of hazardous and non-hazardous material into the environment which their crew or subcontractor may cause, as well as for any penalties that may be imposed for such releases. Please be aware that PFI is obligated to inform the regulatory agencies of the release of any hazardous material into the environment.

VESSEL EXTERIOR MACHINERY REPAIRS

Vessel personnel and contractors and/or subcontractors who perform repairs on machinery equipment that contain liquids such as hydraulic oil, motor oil, etc., are to make sure that prior to starting work on the machinery, all precautions have been taken to prevent any discharges of liquids into state waters. This may mean that all deck drains, scuppers, overboards, etc., be dammed with material that would not allow such liquids from spilling into the state waters.

Vessel personnel and contractors and/or subcontractors are to keep the work area cleaned on a regular basis as part of the work process, and not allow an excessive amount of material to accumulate so as to create a safety or environmental hazard. Any and all absorbent materials are to be picked up as soon as they are spent and replaced with fresh material. Spent absorbents must be disposed of properly and not placed into the trash receptacles. For proper disposal of spent materials, see the PFI assigned ship superintendent. The work area is to be cleaned prior to the end of each shift.

HAZARDOUS MATERIAL/WASTE DISPOSAL

Vessel personnel and contractors and/or subcontractors are not to dispose of any hazardous materials such as paints, solvents, fuels, oil, etc. into PFI's drums or trash containers. PFI is responsible only for the disposal of hazardous waste generated onsite, whether by PFI employees, vessel personnel, or contractors and/or subcontractors. Please see the assigned ship superintendent to arrange for the proper disposal of any hazardous waste generated onsite.

For hazardous waste not generated onsite (waste that was onboard a vessel prior to arrival at PFI), please see the assigned ship superintendent to obtain a list of approved hazardous waste disposal companies. Small amounts of hazardous waste (less than 220 lbs. in a month's time) may be disposed of without obtaining a Washington State ID number for hazardous waste disposal. All drums and containers are to be properly sealed and labeled as to their contents. Any and all previous markings are to be removed or covered up, and a strip of duct tape with the information as to what material is in the drum, the date and the vessel from which it came is to be placed on the drum.

Universal wastes such as, fluorescent lighting fixtures and tubes, electronics equipment, monitors, radios, TVs, etc. are not to be placed into PFI trash. See PFI Environmental Manager for proper disposal of universal wastes - no exceptions.

AIR POLLUTION

It is the responsibility of the vessel and its personnel and contractors and/or subcontractors to comply with all applicable federal, state, local statutes and ordinances with regards to air pollution from vessel operation and exterior vessel maintenance. Spray painting by vessel's crew or contractors and/or subcontractors must be pre-approved in writing by PFI, and follow the standards set by the Puget Sound Clean Air Agency (PSCAA).

It shall be unlawful for any person to cause or allow visible emissions of fugitive dust unless reasonable precautions are employed to minimize emissions. Dust and overspray from abrasive blasting and painting in yard facilities shall be controlled with structures, drapes or tarpaulins to the extent feasible to minimize the spreading of wind blown materials and their entry into state waters, adjacent properties, shipyard areas not protected by containment and runoff wastewater processing, or the release of volatile organic compounds (VOCs) into the atmosphere. Operations are to be moderated when the possibility of winds rouse fugitive emissions into state waters, adjacent properties, shipyard areas not protected by containment and runoff wastewater processing, or the release of VOCs into the atmosphere.

Feasible methods of control, when appropriate, include, but are not limited to, plastic barriers beneath accessible portions of the hull and plastic barriers hung from the bow and stern of the vessel or from structures erected for that purpose. The bottom edge of tarpaulins shall be weighted if necessary to remain in place during a light breeze. When sandblasting vessel superstructures, plywood and/or plastic sheeting shall be used to cover openings and open areas between decks including but not limited to scuppers, railings, freeing ports, ladders, and doorways.

ASBESTOS AND LEAD PAINTS

Standards for the control, handling and disposal of materials containing or potentially containing asbestos and lead materials are subject to specific and strict federal, state and local regulations, as well as PFI's internal guidelines and rules. PFI will not abate asbestos or lead containing materials. Only certified subcontractors are authorized to abate asbestos or lead containing material at PFI. To ensure compliance with all standards, any work involving material containing, or suspect of containing asbestos or lead MUST be coordinated with the assigned PFI ship superintendent prior to commencement.

PROCEDURES TO FOLLOW WHEN ENCOUNTERING PRESUMED ASBESTOS CONTAINING MATERIAL (PACM) OR POSSIBLE LEAD PAINTS

In the event anyone encounters a suspect material that may contain asbestos or lead paint during the work process, THE MATERIAL IS NOT TO BE DISTURBED. Notify the assigned PFI ship superintendent immediately. For material suspect of containing asbestos, the material will be presumed asbestos containing material (PACM) until it has been tested and proven that either it is asbestos containing material (ACM), or that it does not contain asbestos. Lead test kits are available in the Ship's Chandlery Store and Toolroom and must be used on all vessels built prior to 1990 on any paint before sanding, grinding, sandblasting, waterblasting or welding.

At the time of notification to the assigned ship superintendent, a determination will be made regarding a qualified abatement contractor to take samples of the suspect material. DO NOT attempt to take samples yourself. Only trained and certified persons are allowed to take samples and remove any presumed asbestos containing material (PACM) in accordance with the Occupational Safety & Health Administration (OSHA) Standard 29 CFR 1915.1001 (k) (5) (ii) (B).

FIRE PROTECTION

It is required that the vessel's personnel observe and practice good safety procedures for the protection of life and property. The following is a listing of the minimum safety and emergency procedures to be followed while at PFI

1. In accordance with the Seattle Fire Department's Administrative Rules, all hot work that is performed at PFI must be performed by employees of the company, or by employees of contractors and/or subcontractors that are either hired by the company or under the direct operational control of the company and with the company's prior approval. Under special directions from the Seattle Fire Department and until further notice, contractors and/or subcontractors are not allowed to perform hot work under PFI's hot work permit, but must contact the Seattle Fire Department to obtain a separate hot work permit. Vessel personnel are not to perform their own hot work. All outside contractors and/or subcontractors are to be familiar with the Seattle Fire Department's Administrative Rulings 26.01.06 and 26.02.04 prior to performing any hot work, and all hot work is to be pre-approved by the PFI assigned ship superintendent. Contractors and/or subcontractors are also to provide the assigned ship superintendent with copies of their SFD Hot Work Permit, a copy of their Fire Safety Plan in accordance with OSHA 20 CFR 1915 Subpart P Subsection 1915.502, and their USL&H, General and Pollution liability documents. These documents are to be kept on file at PFI.

2. A qualified fire watch is required for all hot work to be performed. The vessel's personnel may be used as fire watches in areas without foam insulation only after being trained on the duties of a fire watch or have proof of prior training, per OSHA regulation 1915.504 Fire Watch Requirements. For areas involving foam, only a certified Shipyard Competent Person (SCP) may be used as a fire watch. Persons appointed as fire watches are also to read and sign a copy of the Seattle Fire Department's permit conditions indicating they have read and understand the duties and responsibilities of a fire watch. Contractors and/or subcontractors are to have the required fire extinguishers and trained fire watches. Should they not have any trained fire watches available, PFI will provide them with one or more trained fire watches. All fire watches, including certified SCPs, are to be trained in accordance with 20 CFR 1915.504 Fire Watches.
3. In case of a fire onboard, it must be immediately reported. During regular work hours, (6:00 am to 230 pm), notify a responsible person at the nearest phone or in the yard store of the location and type of fire. After regular working hours, report the fire to the Fire Department by calling 911. There is a pay phone located next to the main gate.

If work onboard is being performed by PFI personnel, they have been instructed to carry out certain emergency procedures as set forth in the PFI Fire Safety Plan. In the event of a fire, PFI personnel are to utilize yard cell phones or the yard paging system for reporting purposes. PFI employees are not trained to combat a fire beyond the incipient stage. PFI employees have been instructed to attempt to contain a fire at the point of origin using a water hose or dry chemical fire extinguisher. Once a single fire extinguisher has been depleted, or the fire cannot be put out using the water hose, the area is to be immediately evacuated. All doors, hatches, etc. are to be closed behind the last person to exit a space so as to delay the spread of the fire. If the smoke in the area or structural stability of the area is of concern, the area is also to be evacuated.

Craft Foreman and Administrative Office Supervisors are to conduct a head count to ensure all personnel are accounted for. Contractors and/or subcontractors and visitors must report to the main office. Note: A ship's crew may opt to not evacuate and combat the fire if trained and equipped to do so. The decision is left to the Ship's Captain or Chief Engineer and is to be determined prior to the arrival of the vessel at PFI, and the PFI Superintendent notified.

4. Flammable and/or red label materials are not to be used until approved for use by the assigned PFI ship superintendent.
5. All flammable liquids are to be stored and transported in approved safety containers and lockers. Paints, thinners, and all other hazardous materials are to be covered when not in use. "No Smoking" signs are to be posted and the rule enforced in areas where a fire exposure exists.
6. In case of personal injury requiring emergency medical assistance, follow the outlined above for reporting a fire. Vessels crew and subcontractors are to report all injuries incurred to the PFI Safety Manager or the facility office.

IN YARD TRAFFIC RULES

1. The yard speed limit is 3 MPH.
2. Shipyard inside parking is reserved for vessel owners, captains and key personnel on a space available basis. Some spaces may be designated by the shipyard as reserved on a case by case basis. For crew and subcontractors, all yard traffic is restricted to commercial vehicles only and limited to those required for job performance. All parking is restricted to on-street parking outside of the yard.
3. Parking of vehicles on the piers or fire lanes is prohibited except to load and unload. All vehicles parked for loading and unloading **MUST NOT BE LEFT UNATTENDED, AND KEYS ARE TO BE LEFT IN THE IGNITION.** Unattended vehicles may be towed at the owner's expense.

4. Vehicles authorized to park inside the yard must park in the yard parking areas.
 - a) In front of the store; or
 - b) In a designated parking stall.
5. Vehicles entering into the yard do so at their own risk. PFI assumes no liability for damage of any type.
6. Equipment or material damaged by the negligent operation of a vehicle within the yard is to be the liability of the driver and/or the employer they represent.
7. PFI assumes **NO LIABILITY** for any paint overspray on vehicles while parked on the facility's premises.

VESSEL SAFETY

1. Vessel personnel are not operate the anchor windlass, or in any way test the equipment or the anchor chain handling gear while the vessel is in dry dock with out prior approval from the PFI assigned ship superintendent.
2. Vessel personnel are not to operate the propulsion system without specific authorization from the PFI assigned ship superintendent.
3. Owners are responsible for their protection of their vessels.
4. PFI will not be responsible for any of the vessel's machinery, piping, electrical equipment or wiring, beyond the connections by yard workmen, unless specifically ordered to perform work on such equipment by a properly authorized representative of the vessel's owner.
5. Unless PFI is specifically contracted for caretaker's services, the vessel's owner and crew are responsible for the proper securing of their vessel while in the yard. If adequate moorage cleats are not available, please see the PFI assigned ship superintendent. Any damages to docks or vessels as a result of contact are the responsibility of the vessel.
6. All personal effects on board the vessel, and all cargo, stores and equipment on board the vessel are under the sole custody of the vessel personnel. PFI will exercise due diligence to assist in their protection, but cannot accept responsibility for their safety.

CREW and SUBCONTRACTOR SAFETY

Personal protective equipment (PPE) to be worn by the crew and subcontractors:

- Fall protection
- Safety hard hats of non-conductive material
- Safety boots
- Eye protection
- Hearing protection
- Respiratory protection

GENERAL SAFETY RULES

1. Housekeeping: The crew and subcontractor are to be responsible for the cleanliness of the job site and are to maintain a clean work area as part of the production process.
2. A designated area will be provided for the storage of the crew and subcontractor's materials, equipment and tools. The storage area will be located to assure minimum contact with yard employees.
3. Tools, materials or equipment are to be returned to the designated area at the end of each day, or otherwise barricaded or secured to prevent falling or the creation of tripping or blocking hazards.

4. Entry into all tanks is prohibited until authorized by a Shipyard Competent Person (SCP) and posted on an OSHA 74 Log at the boarding plank.
5. Crew and subcontractors are to erect barricades and are to post warning signs that will call attention to any inherent hazards which are present. Illumination is to be used if necessary. Any radiography should be performed while yard personnel remain a safe distance from the source.
6. Material Safety Data Sheets are required for all hazardous substances.
7. Ladders and scaffolding: Ladders are to always be adequately secured to a fixed structure and extend 36" above the working level or deck. Defective or faulty ladders are prohibited and must be removed from service. Scaffolding is to be properly erected and secured. Hand rails, mid rails and toe rails are required when working 5 feet or more above a solid surface. When necessary, to prevent tools and/or materials from falling onto workers below, toe boards of not less than 1" x 4" lumber or other solid material is to be installed. No scaffold is to rest upon piping, wiring or machinery. Ladders are to be secured at the top.
8. Crew and subcontractors are to secure permission and instructions from the assigned ship superintendent before working on any electrical circuit, piping, yard equipment, in power or transformer rooms, or restricted areas. If it is necessary to close electrical circuits, lockout/tagout controls are to be established to prevent opening of circuits by unauthorized personnel.
9. Crew and subcontractors are to exercise special care in the use of ropes, chainfalls, or other hoisting equipment used to raise materials overhead. Slings and wire ropes are not to be loaded beyond SAFE WORKING LOADS (SWL). Lifting equipment must have up-to-date service records and all safety features in place.
10. Crew and subcontractors are to provide drop cloths or tarpaulins to protect yard property, and use best management practices to not allow hazardous materials to be released into the environment. All open grating and deck scuppers must be covered when using grinders, needle guns, sanding or painting.
11. All cylinders of compressed gases are to be stored in an upright position and secured against upset. Protective caps must be on all cylinders when not in use.
12. Spray painting and the use of MEK or thinners is prohibited by vessel owners and crews.
13. All vessels built prior to 1990 must undergo a lead paint check prior to the start of surface preparation.
14. Only explosion-proof (non-sparking) tools and equipment are to be used where flammable liquids or vapors are present, and the insulation of all the power and lighting cables are to be in good condition, with no tape repairs to the insulation, and there is to be no connections within 50 feet of the operation.
15. Crew and subcontractors are to arrange for first aid or medical care for their employees, and are to report the facts of all serious accidents to the PFI assigned ship superintendent. A first aid kit and trained person must be on site at all times.
16. Persons responsible for PFI safety have the right to specify and enforce corrections of any unsafe acts or conditions.
17. Crew and subcontractors engaged in painting, cleaning or other operations on the outside of vessels or buildings must follow PSCAA's Regulation I, Article 9, Section 9.16 for Spray Coating Operations.
18. Crew and subcontractors are encouraged to seek the assistance of the PFI assigned ship superintendent on any matter involving the safety of persons or protection of company property.
19. All work performed in the PFI yard or on board vessels at the docks are subject to the Federal Occupational Safety and Health Regulations of the U.S. Department of Labor, Rules of the National Fire Protection Association, State Division of Industrial, and the local Fire Department. Copies of the rules for the National Fire Protection Association and regulations of the Seattle Fire Department are also available in the main office.

Agency Telephone Numbers

The following phone numbers are to be called in sequence in the event of a spill or release into the environment.

- | | |
|---|----------------|
| 1. National Response Center (NRC) | 1-800-424-8802 |
| 2. U S Coast Guard Marine Safety/Spill Response | 206-217-6002 |
| 3. Washington Department of Ecology | 425-649-7000 |

In an extreme emergency call

911

PFI EMERGENCY CONTACTS

NAME	EXTENTION No.	CELL PHONE
Doug Dixon/General Manager**	324	206-718-0253
Tom Harbin/Shipyard Manager*	323	206 730-0569
Cherie Berg/Safety, Environmental & HR Manager	327	206 852-5429
Larry Ward, Facilities Maintenance Manager	335	206-335-2979
Taylor Pennock/Laborer Supervisor	215	206 769-8217
Jeremy McWhirter/PFI Marine Electric Manager	333	206 909-7897
Tyler Adams/Safety and Environmental Compliance Manager		206-909-7914

** Incident Commander (IC)

* Assistant Incident Commander (AIC)

References:

- >29 CFR Part 1910, Occupational Safety and Health Standards
- >29 CFR Part 1915, Safety and Health Regulations for Ship Repairing
- >29 CFR Part 1916, Safety and Health Regulations for Shipbuilding
- >29 CFR Part 1917, Safety and Health Regulations for Shipbreaking
- >29 CFR Part 1918, Safety and Health Regulations for Longshoring
- >Safety Standards for Ship Repair, Shipbuilding and Shipbreaking, Chapter 296-304 WAC.
- >General Safety and Health Standards Chapter 296-24 WAC
- >General Health Standards Chapter 296-62 WAC
- >General Health Standards Chapter 296-800 WAC

>Seattle Fire Department Administrative Rulings 26.01.06 and 26.02.04



5281

5280

40'

5279

BAY

SOLE

SEATTLE

CANAL

Salmon Bay

LAKE

Chittenden Locks

WASHINGTON SHIP

Webster Sch

Ballard

Adams Sch

Sunset Hill

Power Sta

Ballard Playg

MARKET ST

AVE

24TH

240

James Moore Junior High

Salmon Bay

528

276

NATION

34503E.A1.01_ES042007001SEA - Fig_01_Location_Pacific_Fishermen_Near_Locks_v2 - 4apr07 - gr

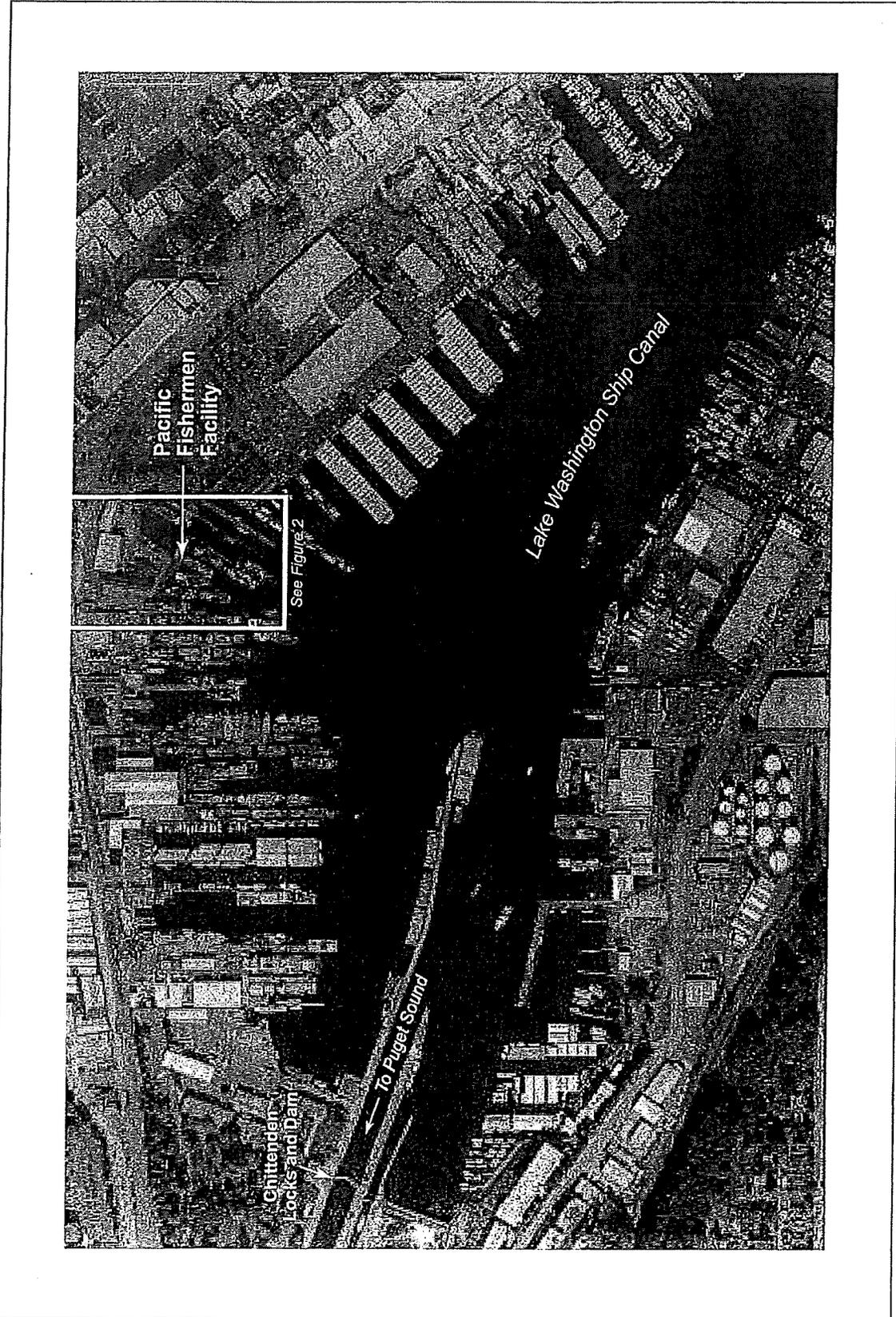


Figure 1
Location of Pacific Fishermen Facility
Near the Chittenden Locks and Dam

IV. Narrative Description of Pollutant Sources

A. For each outfall, provide an estimate of the area (include units) of impervious surfaces (including paved areas and building roofs) drained to the outfall, and an estimate of the total surface area drained by the outfall.

Outfall Number	Area of Impervious Surface (provide units)	Total Area Drained (provide units)	Outfall Number	Area of Impervious Surface (provide units)	Total Area Drained (provide units)
#14	23,545 square feet	23,545 square feet	#10	50,268	50,268

B. Provide a narrative description of significant materials that are currently or in the past three years have been treated, stored or disposed in a manner to allow exposure to storm water; method of treatment, storage, or disposal; past and present materials management practices employed to minimize contact by these materials with storm water runoff; materials loading and access areas; and the location, manner, and frequency in which pesticides, herbicides, soil conditioners, and fertilizers are applied.

Pacific Fishermen Shipyard and Electric, LLC activity follows a written plan for Best Management Practices (BMP) to minimize storm water from contacting materials both in our process areas and our industrial areas. Attached please find a copy of our BMP Plan.

Both process water and industrial storm water is treated prior to discharge.

Hazardous materials such as paints, solvents, oils and antifreeze are stored in approved containment structures under cover. Galvanized and brass material is stored in our yard under cover or under tarp to the extent possible to prevent contamination of rain water. Hazardous waste is removed on a regular basis to prevent accumulation above permitted amounts.

Water blasting is done on the marine railways or screwlift dock. Abrasive blasting is performed in the enclosed recyclable blast booth or the wheelabrator, both connected to an industrial dust collection system to minimize fugitive dust. Occassionally abrasive blasting is performed in the enclosed tent structure of the sidetrack area. Spent steel abrasive blast dust is collected and stored in closed steel hoppers, and spent abrasive blast (either Black Magic or Green Diamond) is collected and stored in closed super bags. Spent steel abrasive dust, spent Black Magic abrasive blast, and spent Green Diamond abrasive blast is transported by Evergreen Recycling to an appropriate Waste Management landfill.

C. For each outfall, provide the location and a description of existing structural and nonstructural control measures to reduce pollutants in storm water runoff, and a description of the treatment the storm water receives, including the schedule and type of maintenance for control and treatment measures and the ultimate disposal of any solid or fluid wastes other than by discharge.

Outfall Number	Treatment	List Codes from Table 2F-1
#14	<i>Industrial work area drainage is completely separated from all other areas. A passive filtration treatment facility, StormwaterRx, has been installed with a pump and plumbing for discharge of industrial storm water to outfall #14 in accordance with our approved mixing zone report. The entire facility is paved to preclude possible contaminated industrial storm water from entering ground water. Due to the downhill slope from the pier bulkhead toward a depression in the shipyard property, all industrial storm water is passively contained by the existing depression and existing storm water collection facility even during 100 year storm events. Hazardous materials such as paints, solvents, oils and antifreeze are stored in approved containment structures under cover. Galvanized and brass material is stored in our yard under cover or under a tarp to the extent possible to prevent contamination of rain water. Hazardous waste is removed on a regular basis to prevent accumulation above permitted amounts. Process work area (such as marine railways and screw lift dock) drainage, including all process area storm water and waste water, is physically segregated from all other areas. Process water is separately treated and has no outfall because it is collected, treated and discharged to King Count Industrial Waste per our Industrial Waste Permit.</i>	<i>1-H 1-U 1-V 2-C 4-B (Discharge to fresh water mixing zone thru diffuser)</i>
#10	<i>Collection drains from exempt parking areas and downspout roof drains throughout the site have been collected into a common drainage system from their origins and are strictly segregated to prevent contaminations of storm water and discharged through exempt outfall #10.</i>	

V. Non Stormwater Discharges

A. I certify under penalty of law that the outfall(s) covered by this application have been tested or evaluated for the presence of nonstormwater discharges, and that all nonstormwater discharges from these outfall(s) are identified in either an accompanying Form 2C or Form 2E application for the outfall.

Name of Official Title (*type or print*)

Doug Dixon, General Manager

Signature

Date Signed

B. provide a description of the method used, the date of any testing, and the onsite drainage points that were directly observed during a test.

#10 Outfall is all exempt area drains; no testing.

Testing of industrial storm water is performed on a monthly basis in accordance with our NPDES Permit. Industrial storm water is drained by existing slope to one storm water vault which pumps to a settling tank prior to flowing into our passive filtration StormwaterRx treatment system. Treated effluent drains by gravity into an accumulation tank from which it will be pumped intermittently thru our mixing zone diffuser as allowed per our NPDES Permit. Storm water is pumped to Outfall #14 at a 65 gpm discharge rate in accordance with our approved mixing zone report.

All process water is collected, treated with pH precipitation, flocculation and separation by a plate clarifier. The separated material is concentrated by a plate filter press with the resultant filter cake being disposed of to Republic; the material has been tested by approved means according to DOE requirements and does not designate as hazardous waste. The clarified water is discharged to King County Industrial Waste via the Seattle city sewer as required by state and federal law.

VI. Significant Leaks or Spills

Provide existing information regarding the history of significant leaks or spills of toxic or hazardous pollutants at the facility in the last three years, including the approximate date and location of the spill or leak, and the type and amount of material released.

Please see the attached Pacific Fishermen Shipyard and Electric, LLC spill log for the past 3 years.

VII. Discharge Information

A,B,C, & D: See instruction before proceeding. Complete one set of tables for each outfall. Annotate the outfall number in the space provided. Tables VII-A, VII-B, and VII-C are included on separate sheets numbered VII-1 and VII-2.

E. Potential discharges not covered by analysis - is any toxic pollutant listed in table 2F-2, 2F-3, or 2F-4, a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

Yes (list all such pollutants below)

No (go to Section IX)

Oil and grease are used in equipment installed, serviced or utilized as part of our operations in the shipyard. Fecal coliform may be present on piping removed from or serviced on vessels in the yard.

Please see the attached list of chemicals which have been determined to be or have been present in the shipyard generally as a component of some product such as paint or an alloy of a metal used in our work. Almost none of the items listed are present in a pure or elemental form. Note that surfactants listed in Table 2F-2 are listed as wetting agents on our list. Our list may not include all chemicals present in our yard due to the changes that manufacturers make in their products on an ongoing basis. Paint manufacturers may change their product content and the percentages of the components in their product at any time. For this reason, the attached list is our best effort to be all inclusive but is not represented to be so.

VIII. Biological Toxicity Testing Data

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

Yes (list all such pollutants below)

No (go to Section IX)

IX. Contact analysis Information

Were any of the analysis reported in item VII performed by a contact laboratory or consulting firm?

Yes (list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below)

No (go to Section X)

A. Name	B. Address	C. Area Code & Phone No.	D. Pollutants Analyzed

X. Certification

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

A. Name & Official Title (type or print)

Doug Dixon, General Manager

B. Area Code and Phone No.

206-784-2562

C. Signature

D. Date Signed

4/23/19

Industrial storm water is collected in an underground vault which accumulates storm water until a float switch acitivates a pump which discharges to our treatment system. Pretreatment consists of a plastic settle tank which overflows into the StormwaterRx system which uses settling, floatation, precipitation, filtration and/or adsorption to remove pollutants. Effluent from the treatment system is accumulated in a 2000 gallon steel tank (interior coated with FDA approved paint) prior to discharge at 85 gallons per minute into Lake Washington Ship Canal thru a diffuser that meets the design requirements of our mixing zone study. As a result of the above, our discharge happens only when we accumulate enough storm water. Our system is not continuous flow, but more of a batch system due to the design requirement for the mixing zone of an 85 gallon a minute discharge.

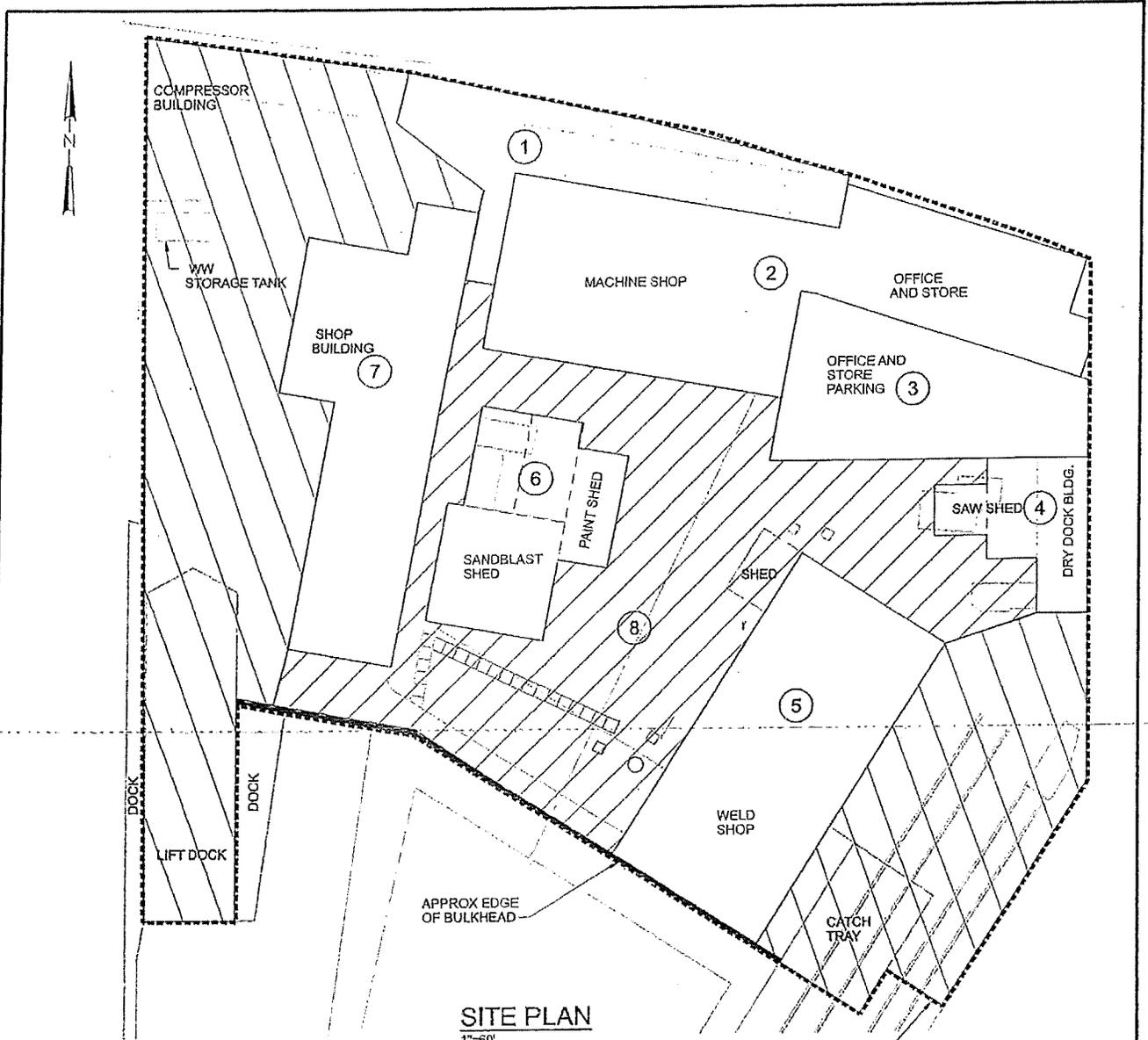
ATTACHMENTS TO EPA FORM 2F

PACIFIC FISHERMEN SHIPYARD AND ELECTRIC, LLC

Due April 2, 2014

The following are Attachments sent with form 2F:

1. List of Attachments (1 page)
2. Site Plan showing Industrial Storm Water Runoff Areas – 2A
3. Site Plan showing Outfall #14 Mixing Zone Diffuser – 2B
4. Plan for Best Management Practices [BMP] – 2C
5. Pacific Fishermen Shipyard and Electric, LLC Spill Log for last 3 years – 2D
6. List of chemicals that are/have been in Pacific Fishermen Shipyard and Electric, LLC – 2E
7. Three Year History of Copper & Zinc in Pacific Fishermen Shipyard Industrial Storm Water -2F
8. Industrial Storm Water lab test results from January 2016 to December 2018 for Copper, Zinc, Arsenic and Lead - 2G. Note: No measurable rain event during normal operating hours in May, July, August, September or October.
9. StormwaterRx Operation and Maintenance Manual - 2H
10. Outfall Evaluation Inspection Report with Photographic Verification – 2I
11. Solid Waste Plan – 2J



SITE PLAN
1"=60'

SITE BOUNDARY
USED FOR
STORM RUNOFF
CALCULATIONS

LEGEND	AREA TYPE	AREA NO.	AREA (SQ. FT.)
	EXEMPT AREAS: PARKING LOTS, ROOFS (TO SEPARATE STORM DRAINS)	①	5,437
		②	13,315
		③	8,066
		④	2,461
		⑤	9,599
		⑥	4,716
		⑦	8,674
		SUBTOTAL:	
	INDUSTRIAL STORMWATER AREA	⑧	23,545
	SITE BOUNDARY	SUBTOTAL:	108,912

PACIFIC FISHERMEN SHIPYARD
INDUSTRIAL STORMWATER RUNOFF AREAS

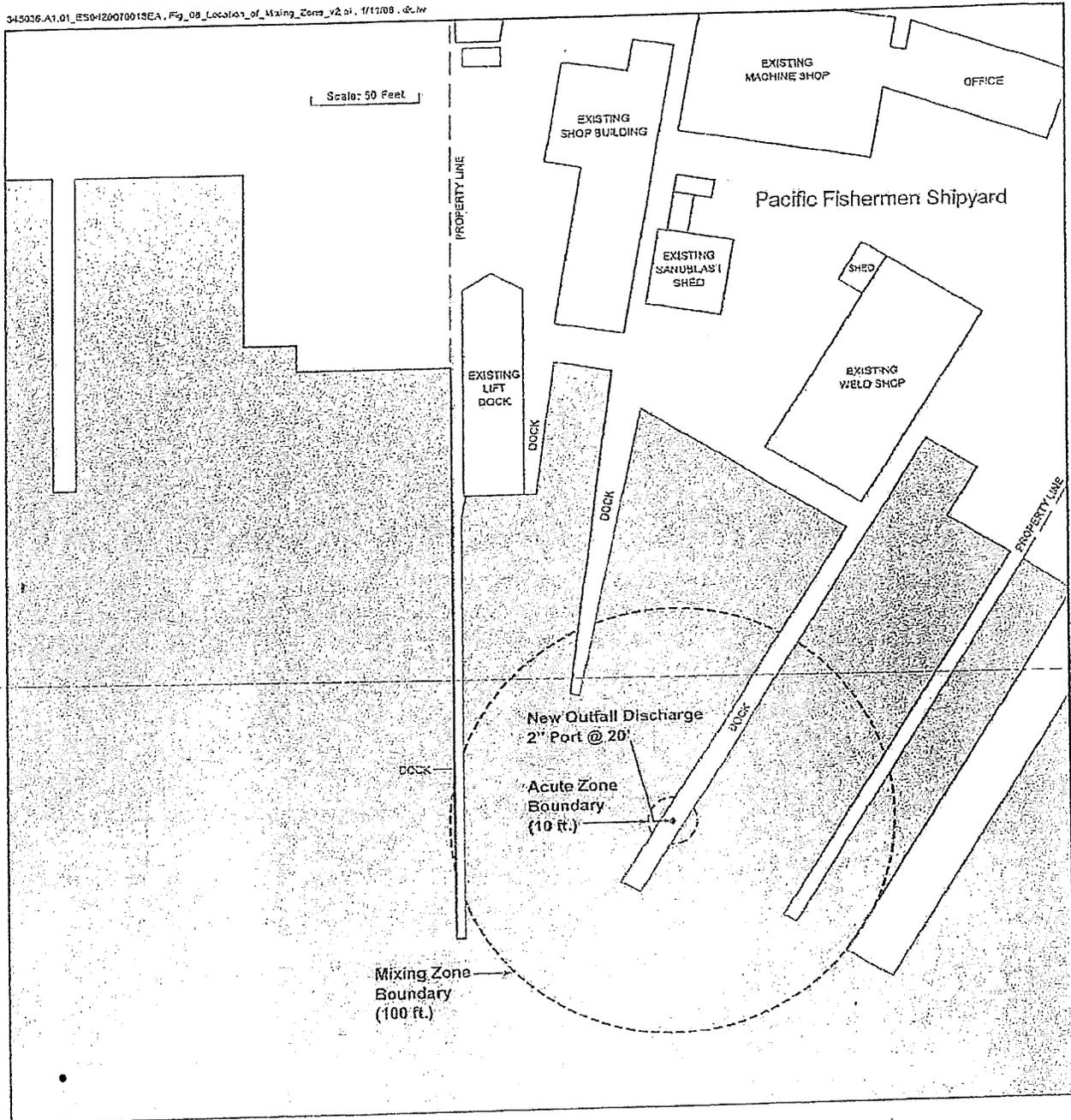


Figure A-1 Pacific Fishermen Site Plan

Pacific Fishermen Shipyard

PFI Marine Electric

Three Marine Railways and Lift Dock to 160 ft. x 600 Tons
Professional Ship and Yacht Repair Since 1946

Tel: 206-784-2562
Fax: 206-784-1986
info@pacificfishermen.com

UL Certified Switchboard Panel Shop
PFI Electric Dutch Harbor

5351 24th Ave NW
Seattle, WA 98107
www.pacificfishermen.com

PLAN FOR BEST MANAGEMENT PRACTICES (BMP)

1. The Best Management Practices (BMP) Operating Plan has been developed and implemented in compliance with the provisions of The State of Washington Water Pollution Control Law, Chapter 90.48 Revised Code of Washington; The Clean Water Act, Title 33 United States Code, Section 1251 et seq.; The Washington Clean Air Act RCW 70.94; and The Puget Sound Clean Air Agency, Regulation I, 9.15.
2. The Best Management Practices (BMP) Operating Plan is necessary to prevent to the degree feasible the discharge of sandblast grit, paint chips, paint overspray, fugitive dust, and pressure wash water from entering into state waters or the atmosphere. This BMP Operating Plan is also to prevent the discharge of oil or other hazardous materials in the waters of the state.
3. It shall be the responsibility of the Safety and Environmental Manager to monitor the BMP Plan for compliance. It shall also be the responsibility of each employee concerned with the various aspects of the BMP Plan to ensure compliance as only a team effort can make the plan work. Non-compliance could result in an adverse impact on the environment as well as an adverse monetary impact on Pacific Fishermen, Inc.
4. This BMP Plan shall not preclude any employee from taking impromptu action deemed necessary to resolve a problem or correct a situation that could result in a pollution incident. All employees are encouraged to make recommendations that may improve upon this plan. The BMP Plan shall be comprised of the following preventative and corrective measures:
 - A) The yard area, marine railways, and screw dry dock shall be cleaned on a regular basis to minimize the possibility that runoff will carry sandblasting material or other debris into the receiving water. Cleanup of areas contributing runoff shall consist of mechanical or manual methods to sweep up and collect the debris. Collected sandblasting debris shall be stored with the spent grit. The spent sandblasting grit, dust, or other debris shall not accumulate in the yard work areas to an extent that could be judged to be more than a minor deposition by vehicular or pedestrian traffic between regular cleanup efforts. This responsibility has been delegated to the Laborer Foreman.

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Plan for Best Management Practices (BMP)
As Required by the State of Washington Department of Ecology
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- B) Solid chemicals, chemical solutions, paints, oils, solvents, acids, caustic solutions and waste materials, including used batteries and fluorescent lamps, shall be stored in a manner which will prevent the inadvertent entry of these materials into waters of the state, including ground waters, or municipal sewer systems and in a manner that will prevent spillage by overfilling, tipping, or rupture. In addition, the following practices shall be used:
- a. All liquid products shall be stored on durable impervious surfaces and behind berms, or in secondary containment.
 - b. Waste liquids shall be stored under cover such as tarpaulins or roofed structures or in a closed storage vessel.
 - c. Non-compatible chemicals shall be segregated and securely stored in separate containment areas that prevent mixing of incompatible or reactive materials.
 - d. Concentrated waste or spilled chemicals shall be transported off-site for disposal at a facility approved by the Department of Ecology or appropriate County Health Department. These materials shall not be discharged to any sewer or any state waters.
 - e. It shall be the responsibility of the craft foreman utilizing any of the above materials to ensure that the proper preventative and/or corrective measures are complied with.
- C) All metal finishing chemical solution, caustic wash, and rinse-water tanks shall be stored in diked areas with drains to intercept contained overflows and spills. The intercepted chemical spill shall be recycled back to the chemical solution tank. It must be handled or disposed of in such manner as to prevent its discharge into state waters.

NOTE: Metal finishing by chemical process is not presently performed at this facility. In the event the process is utilized in the future, the preventative and corrective measures stated above will be complied with. Once instituted, it will be the responsibility of the Machine Shop Foreman to ensure compliance.

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- D) No discharge of oil or hazardous material to state waters is permitted. However, in the event of an accidental discharge of oil or hazardous material into waters of the state or onto land with a potential for entry into state waters, representatives of the Department of Ecology, the National Response Center, and the United States Coast Guard shall be notified immediately.
- a. Oil containment booms shall be conveniently stored so as to be immediately deployable in the event of a spill.
 - b. Cleanup efforts shall commence immediately and be completed as soon as possible, taking precedence over normal work, and shall include proper disposal of any spilled material and used cleanup materials.
 - c. Cleanup of oil/hazardous material spills shall be in accordance with an approved Spill Prevention Control and Countermeasure Plan.
 - d. No emulsifiers or dispersants are to be used in waters of the state without approval from the Director of the Department of Ecology.
- E) Drip pans or other protective devices shall be required for all oil transfer operations to catch incidental spillage and drips from hose nozzles, hose racks, drums or barrels.
- Note: For compliance with item's "D" & "E" above, refer to Pacific Fishermen's operations manual under Removal of Oily Waste, Sludge, and Other Hazardous Substances From Vessels – Spill Prevention and Emergency Cleanup Procedures.
- F) Washing of vessels with soaps or detergents while pier side is prohibited. Low pressure or brush scrubbing is permitted as long as paint flaking or residue is not released into waters of the state.
- G) It shall be unlawful for any person to cause or allow visible emissions of fugitive dust unless reasonable precautions are employed to minimize emissions. Dust and overspray from abrasive blasting and painting in yard facilities shall be controlled with structures, drapes or tarpaulins to the extent feasible to minimize the spreading of wind blown materials and their entry into state waters, adjacent properties, shipyard areas not protected by containment and runoff wastewater processing, or the release of volatile organic compounds (VOCs) into the atmosphere. Operations are to be moderated when the possibility of winds rouse fugitive emissions into state waters, adjacent properties, shipyard areas not protected by containment and runoff wastewater processing, or the release of VOCs into the atmosphere. Frequent clean up of the marine railways and yard areas shall be undertaken to prevent abrasive blasting wastes from being washed into storm drains or adjacent waterway.

Because of limited access around the marine railways, the water level respective to the marine railway carriage, and the need for the carriage to move, it is not feasible to construct permanent structures around or adjoining the marine railways. Therefore, feasible controls to prevent and minimize the entry of abrasive blasting grit, dust, and paint overspray will be of a temporary nature and will vary with the type of work done on a vessel.

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Feasible methods of control, when appropriate, include but are not limited to plastic barriers beneath accessible portions of the hull and plastic barriers hung from the bow and stern of the vessel or from structures erected for that purpose. The bottom edge of tarpaulins shall be weighted if necessary to remain in place during a light breeze. When sandblasting vessel superstructures, plywood and/or plastic sheeting shall be used to cover openings and open areas between decks including but not limited to scuppers, railings, freeing ports, ladders, and doorways.

To the extent feasible, Pacific Fishermen, Inc. will minimize the entry and dispersion of anti-fouling paint constituents into waters of the state. Because of the position of the changing water level relative to the marine railway carriage, it is not feasible to construct a dam, horizontal trench, or sump to contain or intercept run-off generated by washing vessel hulls. Therefore, feasible restrictions shall be used to minimize the entry of paint constituents into state waters by using sea curtains, adsorbent oil booms, or other similar devices.

- H) All spent sandblast grit shall be removed from the submerged concrete portions of the marine railways to minimize leachate formations from the sandblast grit and entrained paint particulates, as the water level permits.
- I) The mixing of paints and solvents shall be carried out in locations and under conditions such that no spill shall enter state waters.
 - a. Drip pans or other protective devices shall be required for all paint mixing and solvent transfer operations, unless the mixing operation is carried out in controlled areas away from storm drains, surface waters, shorelines and piers.
 - b. Paint and solvent spills shall be treated as oil spills and shall be prevented from reaching storm drains and subsequent discharge into state waters.
- J. It shall be the responsibility of the dockmaster, laborer and painter foreman, to ensure that the preventive and corrective measures stated in items “F, G, H, & I” above are complied with. Any questions concerning compliance will be referred to the Safety and Environmental Manager.
- M. In-Water Vessel Maintenance – Surface Preparation BMPs

The cleaning of any portion of a vessel’s hull below the waterline while the vessel is afloat is prohibited.

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The following types of surface preparation activities are allowed to be conducted on a vessel's hull above the waterline while it is at a permitted shipyard facility. These activities are only allowed provided that containment and collection BMP measures are in effect to prevent the introduction of dust, dirt, debris, or any other pollutants generated from these surfaced preparation operations from being deposited on or entering into waters of the state:

1. Mechanical hand preparation such as scraping or wire brushing;
2. Conventional mechanical grinding, sanding, needle gunning, or use of other powered mechanical abrading tools;
3. Conventional abrasive blasting on the vessel's hull while it is in the water is prohibited;
4. Innovative abrasive blasting systems or ultra-high water pressure systems for surface preparation will be allowed to be conducted on a vessel's hull while it is in the water provided that it has been demonstrated beforehand to the Department of Ecology's satisfaction that such methods do not release generated pollutants into waters of the state.

N. In Water Vessel Maintenance – Paint and Coating Application BMPs

The following methods of paint and coating applications to a vessel's hull while in the water at an NPDES permitted shipyard are allowed provided that all containment, collection, and spill prevention BMPs are in place before any such applications are made to a vessel's hull:

1. Application by roller;
2. Application by brush;
3. Conventional spray-coating applications to a vessel's hull while that vessel is in the water are prohibited;
4. Innovative spray-paint or spray-coating application methods will be allowed to be conducted on a vessel's hull while it is in the water provided that it has been demonstrated before-hand to the Department of Ecology's satisfaction that such methods do not release generated pollutants into waters of the state.

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O. BMPs For Floats Used For In-Water Vessel Maintenance:

Floats are defined as free-floating, unattached work platforms capable of moving back and forth along the length of the ship and around its hull.

Floats shall at all times maintain a minimum of 2" of freeboard at the flat's lowest point during all phases of maintenance operations. The minimum 2" freeboard requirement must be maintained with all scaffolding configurations and personnel on board the float to prevent paints, cleaning materials, petroleum products, and all other liquids and unsecured materials from entering into the water from the float.

Any container of paint, marine coating, or any other liquid product for painting or surface preparation must be provided with secondary containment when used on board a float. All roller pans used on a float must be provided with secondary spill containment. Secondary spill containment capacity is equal to the entire volume of the container plus 10% of the volume of that same container.

P. Documentation Requirements For In-Water Vessel Maintenance BMPs

Documentation requirements will be in effect for any in-water surface preparation operations of one hour or more in duration and any in-water coating or painting operation involving ½ gallon or more of paint or marine coating.

Documentation requirements will consist, at a minimum, of one or more representative photographs of all in-water vessel maintenance BMPs which are implemented for surface preparation operations and all painting and coating operations. All such photographs shall be dated and maintained in a logbook with all necessary descriptive narrative of the in-water vessel maintenance BMPs being documented. These records shall be made available to a Department of Ecology inspector upon request and will be retained on site for at least three (3) years.

Reviewed July 10, 2018

P:\Environmental\Best Management Practices (BMPs)\Pacific Fishermen BMPs

PACIFIC FISHERMEN SHIPYARD AND ELECTRIC, LLC
SPILL LOG 2015 - 2018

- 01/25/18 Phantom spill noticed by Tyler Adams, Safety and Environmental Compliance Manager, at 9:20 a.m. Investigated by Mr. Adams and Doug Dixon, General Manager. Unknown substance; large sheen in and around our facility, no odor, broken up areas, milky with some rainbow sections. NRC #1202809 Brent – Notified 9:32 a.m. USCG notified 9:35 a.m. DOE notified 9:38 a.m. Trevor Brent follow up call at 10:00 a.m. Will be out to see if a source can be determined.
- 05/09/17 At approximately 8:40 a.m. on Tuesday May 09, 2017, a hydraulic oil spill occurred involving the vessel Commodore. The responsible party was the vessel Commodore. A hole blew in the vessel's crane knuckle hose causing hydraulic oil, less than 1 quart, to spray over the side of the vessel into the waters of the Salmon Bay Ship Canal. Containment booms and absorbent pads were immediately deployed and cleanup procedures initiated. The vessel's crew notified the NRC #1177846, the USCG, and the DOE #672883. Period of noncompliance was on Tuesday, May 09, 2017, from approximately 8:40 a.m. until approximately 2:00 p.m. Inspect crane hose(s) on a regular basis and replace if necessary.
- 01/11/17 At approximately 8:40 a.m. on Wednesday, January 11, 2017, a hydraulic oil spill occurred involving the vessel Sea Storm. Company machinists had been working on the engine room piping and verbally advised the vessel's crew to not start any equipment on the vessel while repairs were in progress. The vessel's crew started the main engine and, due to a clutch failure, hydraulic oil exited a pipe on the main deck which caused approximately 1 to 2 gallons of hydraulic oil to flow out the open scuppers and into the Salmon Bay waterway. Containment booms and absorbent oil pads were immediately deployed and cleanup procedures initiated. Per the Shipyard Manager, Tom Harbin, the Company would assume responsibility for the spill and Company representative Cherie Berg, Safety Environmental and Human Resource Manager, notified the appropriate agencies listed below. The NRC was contacted at approximately 9:10 a.m. but Ms. Berg was placed on hold. At approximately 9:22 a.m. the incident was reported to A. Greer; Incident #1168323. The USCG, Lt. Tess, was notified of the incident at approximately 9:17 a.m. At approximately 9:55 a.m. a representative named Cory from the USCG telephoned requesting additional information/clarification of the spill and advised Ms. Berg the Company will receive a Letter of Warning. The DOE Spill Response was notified of the incident at approximately 9:31 a.m. Two representatives from the DOE arrived onsite to investigate; Andy Quast/Spill Response, and Greg Fitzgearld/Spill Prevention. The DOE Inspectors were escorted to the scene by Company representative, Tyler Adams, Safety and Environmental Compliance Manager. Cleanup procedures were completed at 2:00 p.m. on Wednesday, January 11, 2017. Actions to prevent future occurrence: use lock out system to prevent vessel or vessel component start up and close scuppers when vessel work is being performed. The DOE inspectors decided the vessel was responsible for the spill, but questioned the 1 to 2 gallons' amount, believing, by appearance, it was possibly 10 to 15 gallons. Mr. Quast asked Mr. Adams to weigh the recovered boom and pads to determine how much hydraulic oil was recovered. That will be accomplished as soon as possible.

PACIFIC FISHERMEN SHIPYARD AND ELECTRIC, LLC

SPILL LOG 2015 – 2018

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- 01/08/16 On Friday, January 08, 2016, at approximately 10:20 a.m. the vessel Alaska Endeavor had a diesel/soap spill. The vessel was responsible for the spill and the vessel reported the spill; Case #1137599. Crew member were cleaning one of the fish holds that contained rain water and soap (Dawn). The crew used a hose to discharge the fish hold on to the man deck of the vessel. The discharge hose the crew used had residual diesel and the watery soap with diesel ran overboard through open scuppers in to the ship canal. Exact quantity unknown but was estimated to be less than a gallon. Cleanup procedures were initiated by the crew using absorbent pads to pick up the residual diesel. Clean up procedures were completed by approximately 12:00 p.m. The period of noncompliance, including exact dates and times: Period of noncompliance was on Friday, January 08, 2016, from approximately 10:20 a.m. until approximately 12:00 p.m. The steps taken, or to be taken, to reduce, eliminate, and prevent recurrence of the noncompliance: The vessel crew needs retraining by the vessel's owner. The vessel arrived the night preceding the spill and had not yet been given a copy of Pacific Fishermen Shipyard and Electric's Safety and Environmental Requirements. The vessel owner was given a copy of the requirements by Management at the time of the spill and an Acknowledgement of Receipt was signed and returned.
- 01/14/15 F/V Anita J was responsible for an oil spill. The spill occurred at 10:30 a.m. when vessel's crew started up the vessel's crane on the main deck and a line sprung a leak. Approximately 2 pints ran out the open scupper(s) in to the Salmon Bay waterway. A containment boom and spill pads were immediately deployed and the vessel's Captain notified USCG and the DOE and representative arrived onsite to investigate. Clean up procedures were completed by 4:00 p.m. same day. In future have hydraulic contractor on board to monitor hydraulic hose use after system is serviced.

Pacific Fishermen Shipyard and Electric, LLC List of Chemicals Updated 2016

(2-methoxymethylethoxy)propanol
(Gamma-mercaptopropyl)trimethoxysilane
1 Decene Homopolumer, Hydrogenated
1,1,1 Trichloroethane
1,1,1-Trichloroethane
1,1,-Dichloro-1-fluoroethane
1,1-Difluoroethane
1,2,4-Trimethyl benzene
1,2,4-trimethylbenzene
1,2,5 triazine-2,4,6-triamine, polymer with formaldehyde, butylated
1,2,-ethanediamine, n,n'-bis(2-aminoethyl)-
1,2=Butylene Oxide
1,2-diaminoethane
1,2-ethanediamine
1,2-ethanediamine, n,n'-bis(1,3- dimethylbutylidene)-
1,3,5-Trimethyl Benzene
1,3,5-trimethylbenzene
1,3-Benzenedimethanamine
1,3-bis(2,3-epoxypropoxy)-2,2-dimethylpropane
1,3-dioxalan-2-one, 4-methyl-
1,4-dihydroxybenzene
1,6-diisocyanato
1,6-hexanediamine, c,c,c-trimethyl-
12-Hydroxystearic Acid
142Solvent
1-Acetyl-2phenylhydrazine
1-Acetyl-2-phenylhydrazine
1-Butanol
1-Butoxy-2-propanol
1-methoxy-2-propanol
1-Methoxy-2-Propanol Acetate
1-methoxypropan-2-ol
1-Propenamine, 3-(Trimethoxysilyl)-
2-(2-butoxyethoxy) Ethanol
2-(2-butoxyethoxy)ethanol
2-(2-Butoxyethoxy)-ethanol
2-(2-Methoxyethoxy)-ethanol
2,2,4-trimethyl-1,3-pentanediol-mono isobutyrate
2,2,4-Trimethylpentane
2,2-Dimethylbutane
2,3-Dimethylbutane
2,3-epoxypropyl neodecanoate
2,4,6-Tri((Dimethylamino)Methyl)Phenol
2,4,6-Tri(diamethylaminomethyl)phenol
2,4,6-Tris(diemethylaminomethyl)phenol

2,4,6-tris(dimethylaminomethyl) phenol
2,4,6-tris(dimethylaminomethyl)phenol
2,5-Pyrrolidinedione, 3-dodecyl-1-(2,2,6,6-tetramethyl-4-piperidinyloxy)
2,6-Dimethyl-4-heptanone
2-aminoethanol
2-butanone
2-butanone oxime
2-Butoxyethanol
2-Ethyl Hexanoic Acid, Sodium Salt
2-ethylhexanoic acid, zirconium salt
2-heptanone
2-Hydroxyethyl Ethers Of Cashew Nutshell Liquid
2-hydroxyethyl methacrylate
2-methoxy-1-methylethyl acetate
2-methoxy-1-methylethyl acetate (light green markers only)
2-Methoxy-1-Propanol Acetate
2-methoxypropanol
2-Methyl Pentane
2-Methyl-1-propanol
2-Methylpentane
2-methylpropan-1-ol
2-Naphthalenecarboxamide, 4-[[4-(aminocarbonyl)phenyl]azo]-N-(1-ethoxyphenyl)-3-hydroxy-
2-pentanone, 4-methyl-
2-Piperazin-1-Ylethylamine
2-propanoic acid, ethyl ester, polymer with 2-ethylhexyl 2-propenoate
2-Propanol
2-propanol, 1-methoxy-, acetate
2-Propanone
2-Propenoic acid, sodium salt, polymer with 2-propenamide
2-Propoxyethanol
3,5-trimethylbenzene
3,6-diazaoctanethylenediamin
3,6-diazaoctanethylenediamin
3-aminomethyl-3,5,5-trimethylcyclohexylamine
3-aminopropyltriethoxysilane
3-epoxypropane, reaction products with 3-aminomethyl-3,5,
3-Ethyl-2-Methyl-2-(3-Methylbutyl)-1,3-Oxazolidine
3-isocyanatomethyl-3,5,5 trimethyl cyclohexyl isocyanate
3-Methyl Pentane
3-Methylhexane
3-Methylpentane
4,4'-[(3,3'-dichloro[1,1'-biphenyl]-4,4'-diyl)bis(azo)]bis[2,4-dihydro-5-methyl-2-(p-tolyl)-3H-pyrazol-3-one]
4,4'-Diphenylmethane diisocyanate (MDI)
4,4'-Diphenylmethanebisbaleimide
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2
4,4'-Methylenediphenyl diisocyanate
4,5-Dichloro-2noctyl-4-isothiazolin-3-one

4,6-Dimethyl-2-Heptanone
4-chlorobenzotrifluoride
4-isocyanatosulphonyltoluene
4-Nonylphenol
4-nonylphenol, branched
4-Vinylcyclohexene
5-trimethylcyclohexylamine
A neutral salt of triethanolamine & a natural fatty acid
Acetic acid
Acetic Acid Ester
Acetic acid, ethyl ester
acetic acid, hexyl ester
Acetone
Acetylene Black
Acid anhydride
Acrylic copolymer
Acrylic Polymer-A
Acrylic Polymer-B
Acrylic Polymer-C
Acrylic Polymer-D
Acrylic Polymer-E
Acrylic Polymer-F
acrylic resin
Acrylonitrile-Butadiene Polymer
Additive
Additives (one or more of alkyl amide, calcium alkaryl sulfonate/phenate, zinc dithiophosphate, polyolefin ester, 68649)
Alcohol
Alcohols, C9-11, ethoxylated
Aliphatic Amine
Aliphatic Amines
Aliphatic Hydrocarbon
Aliphatic Hydrocarbon
Aliphatic hydrocarbons
Aliphatic Petroleum Distillates
Aliphatic Polysocyanate Resin
Alkyd resin
Alkyd Resin-A
Alkyl Isocyanate Silane
alkyl phenol blocked polyisocyanate
Alkylated phenolic polyamine
Alkylated polyamine
Alkylated polyamine adduct
Alkylbenzenes
Alkylglycidyl Ether
Alkylphenol
Aloe vera
Alpha Alumina

Aliphatic Solvent
Alumina Cement
Aluminium
Aluminium chloride, anhydrous
Aluminium hydroxide
Aluminium Oxide (Non-Fibrous)
Aluminium oxide and or Bauxite
Alumino Silicate
Aluminum Thiocyanic acid, copper (1+) salt
Aluminum
Aluminum benzoate fatty acid complex
Aluminum chloride, basic
Aluminum complex
Aluminum Hydrate
aluminum hydroxide
Aluminum Oxide
Aluminum Silicate
amine adduct
amine compound
Amino Polymer
Aminoethylethanolamine
Ammonia
Ammonium Chloride
Ammonium Fluoborate
Ammonium Phosphate
Ammonium sulfate
Amorphous Fumed Silica
Amorphous silica
Amorphous silica precipitated synthetic zeolite
An aliphatic polyol
Anhydrite
Anhydrous Potassium Hydroxide
Animal and vegetable fat
anthophyllite, nonasbestiform
Anticorrosion Agent Kasil #1
Antifoam Agent Sag 720 - Mixture
Antifoam agents
antigorite
Antimony
Antimony dialkyldithiocarbamate
Antimony trioxide
Antioxidant
Aramid Fiber
Aromatic Hydrocarbon
Aromatic Hydrocarbon-A
Aromatic Hydrocarbon-B
Aromatic naphtha

Aromatic naphtha urethane prepolymer
Aromatic Petroleum Naphtha Solvent
Arsenic
Arylic Polymer
Asphalt (Petroleum)
Asphalt, petroleum fumes
Automatic transmission fluid
Bactericide Doqicil
Barium
Barium Carbonate
Barium Fluoride
Barium Sulate
Barium sulfate
batanone
Benz(a)anthracene
Benzene
benzene 1-chloro-4-(trifluoromethyl)
benzene, (1-methylethyl)-
Benzene, 1,2,4-trimethyl-
benzene, dimethyl-
Benzene, ethenyl-, homopolymer (oligomeric)
benzene, ethyl-
Benzene, Methyl-
Benzene, Propyl-
benzene,1,2,4-trimethyl-
benzenemethanol
Benzenesulfonamide, N-ethyl-2-methyl-
benzenesulfonic acid, dimethyl-, sodium salt
Benzoyl Peroxide
Benzyl Alcohol
Beryllium
Beta-pinene, alpha-pinene, dipentene, beta-phellandrene polymer
Bis A/ Epichlorohydrin
Bis(1,2,2,6,6,-pentamethyl-4-piperdiny) sebacate
bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate
bis(1,2,2,6,6-pentamethyl-4-piperidyl)sebacate
Bisamide mixture
Bisphenol A
Bisphenol A - Epichlorohydrin polymer
Bisphenol A diglycidyl ether resin
Bisphenol A Epoxy Resin
Bisphenol A fumarate resin
Bisphenol A-(epichlorhydrin)
Bisphenol A/Epichlorohydrin Polymer
Bisphenol F Epoxy Resin
Bisphenol-A type epoxy resin
Bisphenol-Epichlorohydrin Type Polymer

Bisphenol-Epichlorohydrin Polymer
Bisphenol-F type epoxy resin
Black Iron Oxide
Borax
Boric acid
Boron
bus[(dimethylamino)methyl]phenol
Butan-1-ol
butanamide, 2-((2-methoxy-4-nitrophenyl)azo) -n-(2-methoxyphenyl)-3-oxo-
Butane
Butane-1-ol
Butanedioic Acid, Dimethyl Ester
Butanol
Butanone
Butanone oxime
Butyl acetate
Butyl alcohol
Butyl Benzyl Phthalate
Butyl Cellosolve Acetate
Butyl-B-Cyclopropyl-6-(methylthio)-1,3,5-triazine
c.i. pigment green 7
c.i. pigment yellow 42
C12-C13 Paraffinic Hydrocarbons, Hydrotreated
C14-17, chlorinated paraffin
Carbon Black
Calcium
Cadmium
Cadmium Chromium
Calcined Kaolin
Calcium
Calcium carbonate
Calcium Carbonate (Limestone)
Calcium chloride
Calcium Dinonylnaphthalene Sulfonate
Calcium Fluoride
Calcium Hydroxide
calcium metasilicate
Calcium oxide
Calcium silicate
Calcium Sulfonate
Calcium Zinc Resinate
Calcium Oxide
Calcium Carbonate
Calcium fluoride
Carbamic acid, Butyl-, 3-iodo-2-propynyl ester
Carbitol acetate
Carbon

Carbon black
Carbon black, respirable powder
Carbon dioxide
Carbon monoxide
Carbonic acid, cyclic propylene ester
Carboxylic Acid Amine Soap
Carboxylic acid anhydride
Cashew Of Nutshell Liquid
Cashew, nutshell liq., polymer with diethylenetria
castor oil derivative
Castung
Cellulose
Cellulose acetate butyrate
Ceramic Microspheres
Chlorinated paraffin, C14-C17
chlorite
Chlorocarbons
Chlorodifluoromethane
Chlorophenylmethylpolysiloxane
Chlorotoluene
Chromium
Chromium and chromium alloys or compounds
Chromium Oxide
Cickel
Citrus, ext
Clay
Clay (kaolin)
Cleaning Aid
Clycerin
CMC (high vics.)
CMC (low visc.)
Cobalt
Cobalt 2-ethylhexanoate
Cobalt and compounds
Cobalt carboxylate
Cobalt chloride
Cobalt Compounds
Cobalt Neodecanoate
Colophony
Colorants
Columbium
Complex mixture
Complex mixture of diamid waxes
Copper
Copper (gold marker only)
Copper oxide
Copper(+1) oxide

coumarone-indene resin
COzol 210
Cristobalite
Cryolite
Crystalline Free Silica
Crystalline Silica
Crystalline Silica (Quartz)
Crystalline silica, quartz
Crystalline silica, respirable powder
Crystalline silicon
Cumene
Cumene hydroperoxide
Cupric Hydroxide
Cupric oxide
Cuprous oxide
Cycloaliphatic amine Preparation
Cyclohexanamine, 4,4'-methylenebis-
Cyclohexane
cyclohexanemethanamine, 5-amino-1,3,3-trimethyl-
Cyclohexanemethanamine, 5-amino-1,3,3-trimethyl-, reaction products with bisphenol A diglycidyl ether homopolymers
Cyclohexanone
Cyclohexene, 1-methyl-4-(1-methylethenyl)
Cyclohexene, 1-methyl-4-(1-methylethenyl)-, (R)-; (D-Limonene)
Cyclohexene, 1-methyl-4-(1-methylethenyl)-, (R)-; (D-Limonene)
Cyclopentane, Methyl-
Destillates, petroleum, solvent-refined light paraffinic
Diacetone Alcohol
Dialkyl (alkyl) dithiophosphoric acid, zinc salt
Dichloromethane
Dicopper oxide
Diesel Fuel
Diethanolamine
Diethanolamine salt of stearic acid
Diethyl Carbonate
Diethylene glycol monomethyl ether
Diethylene Triamine
Diethylenetriamine
Diethylene glycol dibenzoate
Diglycidyl Ether Of Bisphenol A
Diglycidyl Ether of Bisphenol A
Diglycidyl Ether of Bisphenol A (DGEBA)
Diisobutyl Ketone
Diisocyanate 4,4-Diphenylmethane
Diisocyanate (MDI)
Diisodecyl phthalate
Diketopyrrolopyrrole red pigment
Dimethacrylate ester

Dimethyl Ether
Dimethyl glutarate
Dimethyl Ketone
Dimethyl phthalate
Dimethylbenzene
Dioxosilane
Dipentene
Diphenylmethane diisocyanate (MDI) Mixed isomers
Dipropylene glycol methyl ether
Dipropylene glycol monomethyl ether (dpmp)
Dipropylene glycol monomethyl ether acetate
Diquat Dibromide
Disodium metasilicate
Disodium tetraborate decahydrate
distillate (petroleum), steam-cracked, plumers with light steam-cracked petroleum naphtha
Distillated (petroleum), hydrotreated heavy naphthenic
Distillates (petroleum) hydrotreated light
Distillates (petroleum), hydrotreated heavy naphthenic
Distillates (petroleum), hydrotreated light
Distillates (petroleum), hydrotreated middle
Distillates Petroleum, Hydrotreated Heavy
Distillates Petroleum, Hydrotreated Light
Distillates Petroleum, Hydrotreated Med
Distillates, petroleum, severely hydrotreated heavy naphthenic
distillates, petroleum, solvent-dewaced heavy paraffinic petroleim distillates
Diye FD & C Blue 1 #5601
D-limonene
Elcohols, C12-16, ethoxylated
Enzymes
Epichlorohydric (ECH)
Epinphrine
Epoxy phenol novalac resin
Epoxy Phenol Novolac Resin
Epoxy resin
Epoxy resin (MW 700-1200)
Epoxy Resin, Liquid
Epoxy Resin-A
Epoxy Resin-B
Erthylene Glycol
Ethane
Ethanol
Ethanol, 2-Butoxy-
Ethanol,2-(2-ethoxy ethoxy)-, acetate
Ethanolamine
Ethonol
Ethyl 2-cyaniacrylate
Ethyl 3-Ethoxy Propionate

Ethyl 3-ethoxypropionate
Ethyl Acetate
Ethyl alcohol
Ethyl Alcohol
Ethyl Benzene
Ethyl cyanoacrylate
Ethyl Mercaptan
Ethyl Triacetoxysilane
Ethylbenzene
Ethylene Amines
Ethylene diamine
Ethylene Glocol
Ethylene glycol
Ethylene glycol monobutyl ether
Ethylene Glycol Monobutyl Ether Acetate
Ethylene propylene copolymer
Ethylenediamine
Ethylenediamine; 1,2-diaminoethane
Ethyltoluenesulfonamide
Exempt Chlorinated Hydrocarbon Solvent
Exempt mineral spirits
Fatty Acid, Tall-Oil, Potassium Salts
Fatty Acid-C18-unsaturated, dimers, reaction products with polyethylenepolyamines
Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine
Fatty acids, c18-unsatd., dimers, polymers with disphenol a and epichlorohydrin
Fatty acids, c18-unsatd., dimers, polymers with ta
Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines
Fatty acids, tall-oil, maleated, compds. With triethanolamine
Fatty amine carbohydrate complex
Fatty ester
Ferric ferrocyanide
Ferrosferric Oxide
Fibrous Glass
Fillers
Flow control additive
Fluazifop-p-butyl
Fluorides
Fluorspar
Formaldehyde
Formaldehyde polymer with 1,3, dimethylbenzene
Formaldehyde, oligomeric reaction products with phenol and m-phenylenebis (methylamine)
Formaldehyde, polymer with 1,3-dimethylbenzene
Formaldehyde, polymer with benzenamine, hydrogenated
Fullers earth magnesium aluminum silicate
Fumed Amorphous Silica
Fumed Silica
Furfuryl alcohol

Gallium
Gasoline, motor fuel
Glass, oxide, chemicals
Glycerol
Glycerol esters of Rosin Acids
Glycidyl ether of 3-alkyl phenol
glycine, n,n'-1,2-ethanediybison- (carboxymethyl)-, tetrasodium salt
Glycine,nn-1,2-ethaneduylbis
Glycol Ether
Graphite
Graphite Powder
Gypsum
Heavy aromatic naphtha
Heavy Naphthenic Petroleum Oil
Heavy Paraffinic Oil
Heptakis(dispropyleneglycol)-triphosphate
heptan-2-one
Heptane
Heptane, branched, cyclic and linear
Heptanes
Hexamethylene diisocyanate
Hexamethylene diisocyanate homopolymer
Hexamethylene diisocyanate, oligomers
Hexamethylene-di-isocyanate
Hexane
Hexane, 1,6-diisocyanato-, homopolymer
Hexanedioic Acid, Dimethyl Ester
Hexanes
Hexanoic acid, 2-ethyl-,cobalt(2+) salt
Hexyl Aceate Isomers
Hexylene glycol
Hexamethylene-di-isocyanate
Hexane
High flash naphtha
Higher Oligomers of MDI
Highly refined mineral oil (C15-C50)
Highly refined petroleum oils
Hydrocarbon Propellant
Hydrocarbons, C9, aromatic, (<0.1% Benzene)
Hydrocarbons, c9-unsatd., polyimd.
Hydrochloric Acid, Petroleum, Natural or Synthetic oils
Hydrogen chloride
Hydrogen peroxide
Hydrogen sulfide
Hydrogen sulphide
Hydroquinone
Hydrotreated light distillate

Hydrotreated light distillate (petroleum)
Hydrotreated light petroleum distillates
Hydrous Aluminium Silicate
Hydrous Magnesium Silicate
Hydrous Magnesium Silicate-A
Hydrous Magnesium Silicate
Hydroxyalkyl methacrylate
Hydroxybenzene
Hydroxyethylpiperazine
Inorganic pigment
Inorganic salt
Iron
Iron dioxide
Iron oxide
Iron Oxide Pigments
Iron oxide/magnetite
Iron oxides
Isobutane
Isobutane (residual blowing agent)
Isobutyl acetate
Iso-Butyl acetate
Isobutyl alcohol
Isobutyl isobutyrate
Isobutylene
Isobutylene-isoprene polymer
Isocyanic Acid, Methylenedi-P-Phenylene Ester
Isoindolinone pigment
Isophorone diamine
Isopropanol
Isopropyl Acetate
Iso-Propyl acetate
Isopropyl alcohol
Isopropyl alcohol
Isopropyl alcohol
Isopropyl myristate
Isopropyl Alcohol
Jojoba
Kaliumkryolith Trikaliumhexafluoroaluminat
Kaolin
Kaoline
Kerosene
Kerosine, petroleum
Kerosine, petroleum, hydrodesulfurized
Lead
Lead
Lead monoxide
Lead Oxide

Lead Sulfate
Lead Naphthenate
Light aliphatic solvent naphtha
Light aliphatic solvent naphtha (petroleum)
Ligroine (VM&P Naphtha)
Limestone
Limestone and/or calcium carbonate
Limestone/Marble
Linseed oil
Liquidified Petroleum Gas
Lithium compounds
Lithium Hydroxide
Lt. Aliphatic Hydrocarbon Solvent
LVP Aliphatic Hydrocarbon
Magnetite
Magnesium Carbonate
Magnesium chloride
Magnesium Montmorillonite-A
Magnesium oxide
Magnesium oxide fume
Magnesium Silicate
Magnesium Silicate, Hydrated
Manganese
Manganese and/or manganese alloys and compounds
Manganese drier
MBT
Med. Aliphatic Hydrocarbon Solvent
Med. Aliphatic Hydrocarbon Solvent
Medium aliphatic solvent naphtha
Medium Mineral Spirits
Mercury
Methacrylate/aliphatic & naphthenic hydrocarbon
Methacrylic acid
Methane, Dichlorodifluoro
Methanol
Methycyclohexane
Methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate
Methyl alcohol
Methyl Alcohol
Methyl Amyl Ketone
Methyl chloroform (1,1,1-trichloroethane)
Methyl Chloroform (1,1,1-trichloroethane)(sara III)
Methyl epoxystearate and tetraethylene pentamine
Methyl ethyl Ketone
Methyl ethyl ketone peroxide
Methyl Ethyl Ketoxime
Methyl Isoamyl Ketone

Methyl Isobutyl Carbinol
Methyl Isobutyl Ketone
Methyl methacrylate
Methyl n-Amyl Ketone
Methyl N-Propyl Ketone
Methyl Oximino Silane
Methyl Paraben
Methyl Pyrrolidone
Methyl Triacetoxysilane
Methylcyclohexane
Methylcyclopentane
Methylene Bis (penylisocyanate) (MDI)
Methylene Bis (Phenylisocyanate) (MDI)
Methylene Bisphenyl Isocyanate
Methylisobutyl ketone
Metyl Ethyl Ketone
Mica
Mica-potassium aluminum silicate
Microbes
Milled Fiber
Mineral oil
Mineral Oil (heavy)
Mineral Oil /64742-54-7/64741-88-4
Mineral silicates
Mineral Spirits
Mineral spirits (isoparaffin solvent)
Mineral Spirits (stoddard solvents)
Mineral spirits 350
Mixed dibasic acids
Mixture / water-based emulsion
Mixture of cycloaliphatic amines
Modified Polyethoxylated Alcohol
Molubdenum alloys
Molybdenum
Molybdenum
Molybdenum Disulfide
Mono-ammonium phosphate
Monoazo pigment
Monoethanolamine
Morpholine
Mullite
Mustard Oil
m-ylene-alpha,alpha'-diamine
N,N-Dialkyltoluidines
Naphta (petroleum), heavy alkylate
Naphtha
Naphtha (Petroleum)

Naphtha (petroleum), heavy aromatic
Naphtha (petroleum), hydrodesulfurized heavy
Naphtha (petroleum), hydrotreated light
Naphtha, Light Steam-Cracked Arom., Piperylene Cone., Polymd
Naphtha, medium aliphatic (mineral spirits)
Naphthalene
Naphthenic acid, copper salt (copper salts of organic acid)
Naphthenic acids, zinc salt
Naphthenic distillate
Naphthenic Petroleum Distillate
Natural Metyl Ester
n-Butane
n-Butanol
N-Butyl acetate
n-Butyl aclohol
N-Butyl Alcohol
N-Butyl methacrylate
neodecanoic acid, cobalt salt
neodecanoic acid, oxiranylmethyl ester
Nepheline syenite
Nepheline Syenlte
N-ethyltoluene-2-sulphonamide
n-Heptane
N-Hexane
Nickel
Ninguno
Niobium
Niobium alloys
Niphatic Petroleum Distillates
Nitrile Rubber
Nitrocellulose
Nitrogen
NJTS 80100337-5010
n-methyl-2-propanol acetate
Nonionic surfactant
Non-Volatile Components
Nonyl Phenol
Nonylphenol polyethoxate (nonionic surfactant)
Nonylphenoxy Poly(ethyleneoxy) Ethanol
Norvey "turbine" oil
N-Pentyl Propionate
N-Propyl Bromide
Nutrients
nutshell liquid, polymer with ethylenediamine and formaldehyde
Octadecanoic acid
Octylisothiazolone
Odorless mineral spirits

Oil mist, if generated
Olyisocynate Prepolymer based on MDI
Organoclay
Ortho Dichlorobenzene
Orthophosphoric acid
Oxalic acid, dihydrate
Oxidized asphalt
Oximino silane
Oxirane, 025085-99-82,2'-4-Butylidenebisphenyleneoxymethylene
oxirane, mono((c12-c14-alkoxy)methyl) derivatives
Oxirane, mono[(C12-14-alkyloxy)methyl] derivs.
oxirane,2,2'-((1-methylethylidene)bis(4,1-phenyleneoxymethylene))bis-
oxirane,2,2'-((1-methylethylidene)bis(4,1-phenyleneoxymethylene))bis, homopolymer
Oxohexyl acetate
Oxygen
Para Dichlorobenzene
Parachlorobenzo Trifluoride
Parachlorobenzotrifluoride
Paraffinic distillate
Paraffinic Mineral Oil
p-Chloro-a,a,a-trifluorotoluene
p-Chlorobenzotrifluoride
Pentane
Pertrolatum
Petroleum
Petroleum Base Oil
Petroleum distillates
Petroleum Distillates (Hydrotreated Heavy Naphthenic)
Petroleum Distillates (stoddard Solvent)
Petroleum distillates hydrotreated heavy naphthenic
Petroleum distillates hydrotreated heavy paraffinic
Petroleum distillates solvent-refined heavy naphthenic
Petroleum distillates solvent-refined heavy paraffinic
Petroleum distillates stoddard solvent
Petroleum distillates, hydrotreated light
Petroleum hydrocarbon
Petroleum hydrocarbon oil
Petroleum naphtha
Petroleum naphtha, heavy alkylate
Petroleum Oil, aliphatic
Petroleum Wax
phenol
phenol, 2,4,6-tris((dimethylamino)methyl)-
Phenol, 2,4,6-tris[(dimethylamino)methyl]]
phenol, 2-nonyl-, branched
phenol, 4,4'-(1-methylethylidene)bis, polymer with (chloromethyl) oxirane
phenol, 4,4'-(1-methylethylidene)bis, polymer with 2,2'-((1-methylethylidene)bis(4,1-phenyleneoxymethylene))b

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'[[1-methylethylidene) bis(4,1=phenyleneoxymethylene)]b
Phenol, methylstyrenated
Phenol, polymer with formaldehyde, glycidyl ether
Phenol, Styrenated
Phenol,2,4,6-tris((dimethylamino)methyl)
Phenol-Formaldehyde Resin
Phenolic Resin
Phenolic Resin NJTS# 04499600-6305P
Phenolphthalein
Phosphoric Acid
Phosphoric Acid, Calcium Salt
Phosphorodithioic acid, O,O-di-C1-14-alkyl esters, zinc salts
Phosphorodithioic acid, O-O-DI-C1-14-ALKYL esters, zinc salt
Phosphorus
Phthalo Green (copper phthalocyanine)
Phthalocyanine blue pigment
Phthalocyanine green pigment
Pigment red 5021B
Pine oil
Pinus sylvestris extract
Poly (diemethylsiloxane), Hydroxy terminated
Poly Alkoxylated Hydroxyalkyl Thiol
Poly(ethylene glycol-ran-propylene glycol) monobutyl ether
Poly(oxy-1,2-ethanediyl), α -(4-nonylphenyl)- ω -hydroxy-,branched
Poly(tetrafluoroethylene)
Poly[oxy(methyl-1,2-ethanediyl)], α -(2-aminomethylethyl)- ω -(2-aminomethylethoxy)-
Polyalkylene Amine
Polyalkylene glycol
Polyalkylene Glycol non Hazardous
Polyaluminum chloride
Polyamide
Polyamide Polymer
Polyamide Resin
Polyaminoamide
Polybutylene
Polychlorinated rubber
Polydimethylsiloxane
Polyester of Adipic acid
Polyester Resin
Polyether Glycol
Polyethers
Polyethylene
Polyethylene glycol monococoate
Polyethyleneglycol
Polyethylenepolyamines
Polyglocol dimethacrylate
Polyglycol dimethacrylate

Polyglycol dioctanoate
Polyglycol oleate
Polyisocyanate based on MDI 2,2-Diphenylmethane
Polyisocyanate, Alkyl Phenol Blocked
Polyisoprene
Polyketimine
Polymer
Polymer Base
Polymer of epoxy resin and diphenol A
Polymercaptan hardener
Polymeric Diphenylmethane Diisocyanate
Polymeric Diphenylmethane Diisocyanate (pMDI)
Polymeric Isocyanates
Polymeric MDI
Polymethylenepolyphenyl Isocyanate
Polyoxyethylene hexylether Phospate
Polypropylene
Polysiloxane
Polysulfide polymer
Polyvinyl Butyral Resin-A
Polyvinyl Butyral Resin-B
Polyvinyl Chloride Resin
Portland Cement
Potassium Cryolite
Potassium fluoride
Potassium Hydroxide
Potassium Hydroxide
Potassium Silicate
Potassium tetraborate tetrahydrate
Potassium Titanate
Precipitated Silica gel - Crystalline free
Propan-2-ol
Propane
propanoic acid, 3-ethoxy,-, ethyl ester
Propellant
Propionic Acid, N-Butyl Ester
Propoxypropanol
Proprietary Detergent
Proprietary silane
Propylated triphenyl phosphate mixture
Propylene
Propylene glycol
Propylene Glycol Methyl Ether
Propylene Glycol Methyl Ether Aceate
Propylene Glycol Methyl ether acetate
Propylene Glycol Monomethyl Ether
Propylene glycol monomethyl ether acetate

Propylene oxide
Pseudocumene
P-tert-Butylphenol
PTFE (Polytetrafluoroethylene)
Quartz
Quartz (Crystalline Silicon
Quartz (Crystalline Silicon Dioxide
Quartz (SiO₂)
Quartz-Crystalline Silica
Quaternary ammonium bentonite
quaternary ammonium compounds, bis(hydrogenated tallow alkyl)di-methyl, salts with bentonite
Quinacridone pigment
Resin
Reaction of epichlorohydrin and bisphenol A
Reaction products of triethylenetetramine and propylene oxide
Reaction products of triethylenetetramine with phenol/formaldehyde
Reactive Silane
Red Iron Oxide Light
Refined soybean Oil
Reinforced thermosetting plastic
Residual oils (petroleum), solvent dewaxed
Residual oils, petroleum, solvent-refined
Resins
Rosin
Rutile titanium dioxide
Saccharin
Salicylic Acid
Saturated hydrocarbon
Selenium
Severely hydrotreated heavy naphthenic petroleum distillates
Shellac
Silicone oil methyl hydrogen polysiloxane
Silica
Silica (quartz)
Silica Alumina Ceramic
Silica Amorphous
Silica cristoballite
Silica gel
Silica, amorphous
Silica, amorphous, fumed, cryst.-free
Silica, amorphous, fumed, crystal-free
Silica, amorphous, fumed, crystalline-free
Silica, Crystalline
Silica, Crystalline Quartz
Silica, Fumed Amorphous
Silicaes and other binders
Silicate Binder

Silicates
Silicia
Silicic acid, sodium salt
Silicon
Silicon and/or silicon alloys and compounds
Silicon Dioxide
Silicon dioxide, amorphous
Silicon Silicate
Silicone Resin
Silver
Small amounts of phosgene
Sodium
Sodium Aluminium Sulfosilicate
Sodium chloride
Sodium Cryolite
Sodium dodecylbenzenesulfonate
Sodium Fluoaluminate
Sodium fluoride
Sodium hydroxide
Sodium hypochlorite
Sodium mercaptobezothiazole
Sodium metasilicate
Sodium metasilicate
sodium metasilicate pentahydrate
Sodium nitrate
Sodium nitrite
Sodium Petroleum Sulfonate
Sodium Salt of Boron Acid
Sodium silicate
Sodium xylene sulfonate
Sodium xylenesulphonate
Soluable hydrocarbon oil
Solvent dewaxed light
Solvent naphtha
Solvent naphtha (petroleum)
Solvent naphtha (petroleum), heavy arom.
Solvent Naphtha (Petroleum), light aliph
Solvent naphtha (petroleum), light arom
Solvent naphtha (petroleum), light arom.
Solvent naphtha (petroleum), light aromatic
Solvent naphtha (petroleum), medium aliph
Solvent naphtha (petroleum), medium aliphatic
Solvent naphtha petroleum medium aliphatic
solvent naphtha, petroleum, medium aliph.
Solvent Refined hydrotreated heavy paraffinic distillate, hydrotreated heavy paraffinic distillate, lubricating oil
Sorbitan trioleate
Soya oil

Soybean derivative
Starch Gum
Stearic acid
STLC
Stoddard solvent
Stoddard solvent (mineral spirits)
Stoddard solvent LD50
Stoddard solvent mineral spirits
Straight-run middle distillates
Strontium Carbonate
Strontium
Strontium Chromate
Strontium Phosphate
Styrene
Styrene acrylate copolymer
styrene acrylic copolymer
Styrene Monomer
Styrene-Butadiene Polymer
Styrene-Ethylene/Propylene Block Copolymer
Substituted aminophenol
Sulfuric Acid
sulfuric acid, barium salt
Synthetic amorphous silica
Talc
Tale
T-Butyl Acetate
tert-butyl alcohol
Tertiary amine
Tetrachloroethylene
Tetraethylenepentamine
Tetrahydrofuran
Tetrahydrofuran (THF)
Tetrasodium EDTA
Tetrasodium ethylene diamine tetraacetate
Thallium
Thickener
Trimethylpentanediol Isobutyrate
Titanium
Titanium dioxide
titanium oxide
Titanium dioxide
Titanium dioxide
Toluene
Toluene diisocyanate
Toluene Diisocyanate
Toluene-1,3-Diisocyanate
Toluene

trans-dichloroethylene
tremolite, nonasbestiform
Tri Calcium Phosphate
Tri-aryl phosphate
Tributyltin methacrylate
Tricalcium phosphate
Tricresyl Phosphate
Tricresyl Phosphate (mixed isomers)
Triethanolamine
Triethanolamine salt of stearic acid
Triethanolamine, TEA
Triethyl amine
Triethylene tetramine
Triethylene triamine
Triethylenetetramine
Trietylenetetramine
Trimethyl benzene
Trimethylbenzene
Trimethylenebenzene
Trimethylhexane-1,6-diamine
Tri-ortho-cresyl Phosphate
Triphosphoric Acid, Aluminum Salt
Tris (dimethylaminomethyl) phenol
Trixylenyl Phosphate
Trizinc bis
Trizinc diphosphate
Turpentine, oil
Unsaturated Polyester
Urea
Urea-formaldehyde polymer
Urethane Polymer
Urethane Prepolymer
V. M. & P. Naphtha
V.M & P. Naphtha
Varnish makers & painter (VM&P) naphtha
Vegetable Oil
Vegetable Oil
Vegetable Oil, essential
Vinyl Acetate
Vinyl chloride
Vitamin E
VM & P naphtha
VM&P Naphtha
Volatile organic compound
Volatile organic content
Water
Wax

Wheat germ extract
White mineral oil
White mineral oil (petroleum), highly refined
White mineral oil, solvent refined
White petrolatum USP
White Spirit
Wollastinite
Wollastonite
Xylene
Xylene (mixed isomers)
Xylenes
Xylenes (o-, m-, p- isomers)
Xylenes(l-,m-,p- Isomers)
Xylenes(o-, m-,p- isomers)
Yellow 14 pigment - diaza dye
Yellow Iron Oxide
Zeolite
Zinc
Zinc Chromate
Zinc compound
Zinc Dithiophosphate
Zinc Molybdate
Zinc oxide
Zinc oxide tris (dispentylidithiocarbamate-S,S')antimony
Zinc Phosphate
Zinc Phosphate-Zinc Oxide
Zinc pyrithione
Zincs
Zincs Chloride
Zincs oxide
Zincs stearate VR
Ziram (ISO)
Zirconium 2-ethylhexanoate
Zirconium Oxide

Pacific Fishermen Shipyard and Electric, LLC 3 Year History of Storm Water Test Results													
Facility Name	Permit ID	DMR Date	Monitor Point Desc.	Sample	Number of Storm Water Events	Copper Limit 71 ug/L	Zinc Limit 1091 ug/L	Lead Limit Report ug/L	Arsenic Limit Report ug/L	Oil Limit 5 mg/L	Turbidity Limit 5 NTU	pH Limit 6.0-9.0	Parameter
Pacific Fishermen	WA0031046	12/28/18	Outfall 14	Grab	1	<5	<5	<1	<1	<3	-0.2	6.4	Parameter
Pacific Fishermen	WA0031046	11/28/18	Outfall 14	Grab	1	<5	<5	<1	<1	<3	-0.45	6.4	Parameter
Pacific Fishermen	WA0031046	10/28/18	Outfall 14	Grab	1	ND	ND	ND	ND	ND	ND	ND	Parameter
Pacific Fishermen	WA0031046	09/28/18	Outfall 14	Grab	1	ND	ND	ND	ND	ND	ND	ND	Parameter
Pacific Fishermen	WA0031046	08/28/18	Outfall 14	Grab	1	ND	ND	ND	ND	ND	ND	ND	Parameter
Pacific Fishermen	WA0031046	07/28/18	Outfall 14	Grab	1	ND	ND	ND	ND	ND	ND	ND	Parameter
Pacific Fishermen	WA0031046	06/28/18	Outfall 14	Grab	1	31	56.9	<1	<1	<3	-0.29	6.8	Parameter
Pacific Fishermen	WA0031046	05/28/18	Outfall 14	Grab	1	ND	ND	ND	ND	ND	ND	ND	Parameter
Pacific Fishermen	WA0031046	04/28/18	Outfall 14	Grab	1	7.83	23	<1	<1	<3	0.00	6.7	Parameter
Pacific Fishermen	WA0031046	03/28/18	Outfall 14	Grab	1	7.23	18.2	<1	<1	<3	-1.1	6.8	Parameter
Pacific Fishermen	WA0031046	02/28/18	Outfall 14	Grab	1	6.24	38.8	<1	<1	<3	-0.16	7.1	Parameter
Pacific Fishermen	WA0031046	01/28/18	Outfall 14	Grab	1	5.67	24.2	<1	<1	<3	0.00	6.6	Parameter
Pacific Fishermen	WA0031046	12/28/17	Outfall 14	Grab	1	<5	12.9	<1	<1	<3	0.93	6.6	Parameter
Pacific Fishermen	WA0031046	11/28/17	Outfall 14	Grab	1	16.2	67.8	<1	<1	<3	0.25	6.7	Parameter
Pacific Fishermen	WA0031046	10/28/17	Outfall 14	Grab	1	<5	14.8	<1	<1	<3	0	6.2	Parameter
Pacific Fishermen	WA0031046	09/28/17	Outfall 14	Grab	1	44.4	26.8	<1	1.31	<3	1.8	6.8	Parameter
Pacific Fishermen	WA0031046	08/28/17	Outfall 14	Grab	1	ND	ND	ND	ND	ND	ND	ND	Parameter
Pacific Fishermen	WA0031046	07/28/17	Outfall 14	Grab	1	ND	ND	ND	ND	ND	ND	ND	Parameter
Pacific Fishermen	WA0031046	06/28/17	Outfall 14	Grab	1	5.19	19.7	<1	<1	<3	-1.1	6.8	Parameter
Pacific Fishermen	WA0031046	05/28/17	Outfall 14	Grab	1	14.9	36.7	<1	<1	<3	-0.5	6.9	Parameter
Pacific Fishermen	WA0031046	04/28/17	Outfall 14	Grab	1	<5	16.6	<1	<1	<3	-0.3	6.9	Parameter
Pacific Fishermen	WA0031046	03/28/17	Outfall 14	Grab	1	<5	21.9	<1	<1	<3	-1.4	6.9	Parameter
Pacific Fishermen	WA0031046	02/28/17	Outfall 14	Grab	1	<5	9.21	<1	<1	<3	2.9	6.7	Parameter
Pacific Fishermen	WA0031046	01/28/17	Outfall 14	Grab	1	<5	9.15	<1	<1	<3	-0.50	7.2	Parameter
Pacific Fishermen	WA0031046	12/28/16	Outfall 14	Grab	1	18.3	35.3	1.08	<1	<5	1.4	6.6	Parameter
Pacific Fishermen	WA0031046	11/28/16	Outfall 14	Grab	1	<5	21.1	<1	<1	<5	-0.8	6.6	Parameter
Pacific Fishermen	WA0031046	10/28/16	Outfall 14	Grab	1	5.72	19.2	<1	<1	<3	-1.3	6.9	Parameter
Pacific Fishermen	WA0031046	09/28/16	Outfall 14	Grab	1	ND	ND	ND	ND	ND	ND	ND	Parameter
Pacific Fishermen	WA0031046	08/28/16	Outfall 14	Grab	1	<5	19	<1	<1	<3	-0.2	7.0	Parameter
Pacific Fishermen	WA0031046	07/28/16	Outfall 14	Grab	1	ND	ND	ND	ND	ND	ND	ND	Parameter
Pacific Fishermen	WA0031046	06/28/16	Outfall 14	Grab	1	22	64.4	<1	<1	<3	-1.1	7.1	Parameter
Pacific Fishermen	WA0031046	05/28/16	Outfall 14	Grab	1	43.8	107	<1	<1	<3	1.2	7.2	Parameter
Pacific Fishermen	WA0031046	04/28/16	Outfall 14	Grab	1	27.5	115	<1	1.77	<3	1.5	7.2	Parameter
Pacific Fishermen	WA0031046	03/28/16	Outfall 14	Grab	1	20.5	51.6	<1	<1	<3	-0.4	7.2	Parameter
Pacific Fishermen	WA0031046	02/28/16	Outfall 14	Grab	1	20.3	101	<1	3.1	<3	-0.5	6.7	Parameter
Pacific Fishermen	WA0031046	01/28/16	Outfall 14	Grab	1	8.43	42.8	<1	<1	<3	-0.4	7.2	Parameter

*ND=No Discharge Due to Lack of Rain

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/23/18

Date Received: 01/16/18

Project: Stormwater Mixing Zone Discharge, F&BI 801199

Date Analyzed: 01/16/18

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR pH
USING EPA METHOD 9040C

<u>Sample ID</u> Laboratory ID	<u>pH</u>	<u>Date Analyzed</u>	<u>Time Analyzed</u>
Mixing Zone Discharge 801199-01	6.6	01/16/18	17:04

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/23/18

Date Received: 01/16/18

Project: Stormwater Mixing Zone Discharge, F&BI 801199

Date Analyzed: 01/16/18

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TURBIDITY
USING METHOD SM2130B
Results Reported as NTU**

<u>Sample ID</u> Laboratory ID	<u>Date Sampled</u>	<u>Time Sampled</u>	<u>Turbidity</u>
Mixing Zone Discharge 801199-01	01/16/18	10:05	<0.5
Mixing Zone Background 801199-02	01/16/18	11:00	<0.5
Method Blank			<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/23/18

Date Received: 01/16/18

Project: Stormwater Mixing Zone Discharge, F&BI 801199

Date Extracted: 01/18/18

Date Analyzed: 01/19/18

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR OIL AND GREASE USING EPA METHOD 1664**

Results Reported as mg/L (ppm)

<u>Sample ID</u> Laboratory ID	<u>Oil and Grease</u>
Mixing Zone Discharge 801199-01	<3
Method Blank	<3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Mixing Zone Discharge	Client:	Pacific Fishermen
Date Received:	01/16/18	Project:	Stormwater Mixing Zone Discharge
Date Extracted:	01/17/18	Lab ID:	801199-01
Date Analyzed:	01/17/18	Data File:	801199-01.077
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Copper	5.67
Lead	<1
Zinc	29.7

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Pacific Fishermen
Date Received:	NA	Project:	Stormwater Mixing Zone Discharge
Date Extracted:	01/17/18	Lab ID:	I8-029 mb2
Date Analyzed:	01/17/18	Data File:	I8-029 mb2.076
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Copper	<5
Lead	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/23/18

Date Received: 01/16/18

Project: Stormwater Mixing Zone Discharge, F&BI 801199

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES
FOR pH BY METHOD 9040C**

Laboratory Code: 801199-01 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
pH	6.6	6.6	0	0-20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/23/18

Date Received: 01/16/18

Project: Stormwater Mixing Zone Discharge, F&BI 801199

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES FOR TURBIDITY
USING METHOD SM2130B**

Laboratory Code: 801189-02 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Turbidity	NTU	1.2	1.4	15	0-20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/23/18

Date Received: 01/16/18

Project: Stormwater Mixing Zone Discharge, F&BI 801199

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR OIL AND GREASE
USING EPA METHOD 1664**

Laboratory Code: Laboratory Control Sample

<u>Analyte</u>	<u>Reporting Units</u>	<u>Spike Level</u>	<u>Percent Recovery LCS</u>	<u>Percent Recovery LCSD</u>	<u>Acceptance Criteria</u>	<u>RPD (Limit 11)</u>
Oil and Grease	mg/L (ppm)	40	98	102	78-114	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/23/18

Date Received: 01/16/18

Project: Stormwater Mixing Zone Discharge, F&BI 801199

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8**

Laboratory Code: 801138-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	7.89	115	118	70-130	3
Copper	ug/L (ppb)	20	<5	99	102	70-130	3
Lead	ug/L (ppb)	10	<1	88	88	70-130	0
Zinc	ug/L (ppb)	50	<5	99	101	70-130	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	111	85-115
Copper	ug/L (ppb)	20	108	85-115
Lead	ug/L (ppb)	10	109	85-115
Zinc	ug/L (ppb)	50	97	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.
- c - The presence of the analyte may be due to carryover from previous sample injections.
- cf - The sample was centrifuged prior to analysis.
- d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.
- dv - Insufficient sample volume was available to achieve normal reporting limits.
- f - The sample was laboratory filtered prior to analysis.
- fb - The analyte was detected in the method blank.
- fc - The compound is a common laboratory and field contaminant.
- hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.
- hs - Headspace was present in the container used for analysis.
- ht - The analysis was performed outside the method or client-specified holding time requirement.
- ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.
- j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.
- J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.
- jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.
- js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- lc - The presence of the analyte is likely due to laboratory contamination.
- L - The reported concentration was generated from a library search.
- nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.
- pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.
- ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.
- vo - The value reported fell outside the control limits established for this analyte.
- x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

Send Report To: **Cherie K. Berg** 801199 **ML 01/16/18** **HEB**

Company: **Pacific Fishermen Shipyard & Electric, LLC** **Project Name/NO.** **PO#**

Address: **5351 24th Ave. NW** **STORMWATER MIXING ZONE DISCHARGE**

City: **Seattle** State: **Washington** ZIP: **98107** **REMARKS**

Phone # **(206) 784-2562** Fax # **(206) 784-1986**

Page # **1** of **1** **TURNAROUND TIME** **Standard (2 Weeks)** **RUSH**

Rush charges authorized by: **SAMPLE DISPOSAL**

Dispose after 30 days

Return samples

Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED								Notes	
						Turbidity	Oil and Grease	Copper	Lead	Zinc	Arsenic	pH (1 dec. place)	RCRA 8 TCLP		
Marine Railway #1															
Marine Railway #1 Background															
Marine Railway #2															
Marine Railway #2 Background															
Screwlift dock #3															
Screwlift dock #3 Background															
Mixing Zone Discharge															
Mixing Zone Discharge Background	01A-C	1/16/18	10:05	WATER	3	X	X	X	X	X	X	X			
Mixing Zone Background	02	1/16/18	11:00	WATER	1	X									
Flock Plant Clarifier															

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
Relinquished by: <i>[Signature]</i>		LARRY A WARD		Pacific Fishermen Shipyard		1/16/18	11:35
Received by: <i>[Signature]</i>		VINH		Friedman & Bruya		1/16/18	11:35
Relinquished by:							
Received by:							

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

Samples received at 13 oC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/15/18

Date Received: 02/28/18

Project: Stormwater Mixing Zone Discharge, F&BI 802447

Date Analyzed: 02/28/18

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR pH
USING EPA METHOD 9040C**

<u>Sample ID</u> Laboratory ID	<u>pH</u>	<u>Date Analyzed</u>	<u>Time Analyzed</u>
Mixing Zone Discharge 802447	7.1	02/28/18	15:20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/15/18

Date Received: 02/28/18

Project: Stormwater Mixing Zone Discharge, F&BI 802447

Date Analyzed: 03/01/18

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TURBIDITY
USING METHOD SM2130B
Results Reported as NTU**

<u>Sample ID</u> Laboratory ID	<u>Date</u> <u>Sampled</u>	<u>Time</u> <u>Sampled</u>	<u>Turbidity</u>
Mixing Zone Discharge 802447-01	02/28/18	08:00	<0.5
Mixing Zone Background 802447-02	02/28/18	08:20	0.66
Method Blank			<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/15/18

Date Received: 02/28/18

Project: Stormwater Mixing Zone Discharge, F&BI 802447

Date Extracted: 03/01/18

Date Analyzed: 03/01/18

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR OIL AND GREASE USING EPA METHOD 1664**

Results Reported as mg/L (ppm)

<u>Sample ID</u> Laboratory ID	<u>Oil and Grease</u>
Mixing Zone Discharge 802447-01	<3
Method Blank	<3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Mixing Zone Discharge	Client:	Pacific Fishermen
Date Received:	02/28/18	Project:	Stormwater Mixing Zone Discharge
Date Extracted:	03/02/18	Lab ID:	802447-01
Date Analyzed:	03/02/18	Data File:	802447-01.142
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Copper	6.24
Lead	<1
Zinc	38.8

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Pacific Fishermen
Date Received:	NA	Project:	Stormwater Mixing Zone Discharge
Date Extracted:	03/02/18	Lab ID:	I8-141 mb
Date Analyzed:	03/06/18	Data File:	I8-141 mb rr.061
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Copper	<5
Lead	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/15/18

Date Received: 02/28/18

Project: Stormwater Mixing Zone Discharge, F&BI 802447

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES
FOR pH BY METHOD 9040C**

Laboratory Code: 802430-01 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
pH	7.3	7.3	nm	0-20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/15/18

Date Received: 02/28/18

Project: Stormwater Mixing Zone Discharge, F&BI 802447

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES FOR TURBIDITY
USING METHOD SM2130B**

Laboratory Code: 802447-02 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Turbidity	NTU	0.66	0.68	3	0-20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/15/18

Date Received: 02/28/18

Project: Stormwater Mixing Zone Discharge, F&BI 802447

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR OIL AND GREASE
USING EPA METHOD 1664**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 11)
Oil and Grease	mg/L (ppm)	40	99	98	78-114	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/15/18

Date Received: 02/28/18

Project: Stormwater Mixing Zone Discharge, F&BI 802447

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8**

Laboratory Code: 802445-02

(Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	100	99	70-130	1
Copper	ug/L (ppb)	20	<5	100	100	70-130	0
Lead	ug/L (ppb)	10	<1	89	90	70-130	1
Zinc	ug/L (ppb)	50	12.2	104	105	70-130	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	104	85-115
Copper	ug/L (ppb)	20	109	85-115
Lead	ug/L (ppb)	10	102	85-115
Zinc	ug/L (ppb)	50	111	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.
- c - The presence of the analyte may be due to carryover from previous sample injections.
- cf - The sample was centrifuged prior to analysis.
- d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.
- dv - Insufficient sample volume was available to achieve normal reporting limits.
- f - The sample was laboratory filtered prior to analysis.
- fb - The analyte was detected in the method blank.
- fc - The compound is a common laboratory and field contaminant.
- hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.
- hs - Headspace was present in the container used for analysis.
- ht - The analysis was performed outside the method or client-specified holding time requirement.
- ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.
- j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.
- J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.
- jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.
- js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- lc - The presence of the analyte is likely due to laboratory contamination.
- L - The reported concentration was generated from a library search.
- nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.
- pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.
- ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.
- vo - The value reported fell outside the control limits established for this analyte.
- x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

Send Report To: Cherie K. Berg 802447

SAMPLERS (signature)

ML 02-28-18

Page # 1 of 1

TURNAROUND TIME
X Standard (2 Weeks) AY
RUSH

Company: Pacific Fishermen Shipyard & Electric, LLC

PROJECT NAME/NO.

PO#

Address: 5351 24th Ave. NW

STORMWATER MIXING ZONE DISCHARGE

Rush charges authorized by:

City: Seattle State: Washington ZIP: 98107

REMARKS

SAMPLE DISPOSAL
X Dispose after 30 days
Return samples
Will call with instructions

Phone # (206) 784-2562 Fax # (206) 784-1986

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	Turbidity	Oil and Grease	Copper	Lead	Zinc	Arsenic	pH (1 dec. place)	RCRA 8 TCLP	ANALYSES REQUESTED		Notes
Marine Railway #1																
Marine Railway #1 Background																
Marine Railway #2																
Marine Railway #2 Background																
Screwlift dock #3																
Screwlift dock #3 Background																
Mixing Zone Discharge	01A-C	2-28-18	8:00	Water	3	X	X	X	X	X	X	X				
Mixing Zone Background	02	2-28-18	8:10	Water	1	X										15 °C
Flock Plant Clarifier																

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029

Relinquished by:

Tyler Adams

Pacific Fishermen Shipyard

DATE

2-28-18 2:45

Received by:

Dave

Friedman & Bruya

DATE

2-28-18 2:45

Ph: (206) 285-8282

Fax (206) 283-5044

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/04/18

Date Received: 03/27/18

Project: Stormwater Mixing Zone Discharge, F&BI 803426

Date Analyzed: 03/27/18

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR pH
USING EPA METHOD 9040C**

<u>Sample ID</u> Laboratory ID	<u>pH</u>	<u>Date Analyzed</u>	<u>Time Analyzed</u>
Mixing Zone Discharge 803426-01	6.8	03/27/18	07:45

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/04/18

Date Received: 03/27/18

Project: Stormwater Mixing Zone Discharge, F&BI 803426

Date Analyzed: 03/27/18

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TURBIDITY
USING METHOD SM2130B
Results Reported as NTU**

<u>Sample ID</u> Laboratory ID	<u>Date</u> <u>Sampled</u>	<u>Time</u> <u>Sampled</u>	<u>Turbidity</u>
Mixing Zone Discharge 803426-01	03/27/18	07:45	<0.5
Mixing Zone Background 803426-02	03/27/18	07:15	1.6
Method Blank			<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/04/18

Date Received: 03/27/18

Project: Stormwater Mixing Zone Discharge, F&BI 803426

Date Extracted: 03/29/18

Date Analyzed: 03/30/18

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR OIL AND GREASE USING EPA METHOD 1664**

Results Reported as mg/L (ppm)

<u>Sample ID</u> Laboratory ID	<u>Oil and Grease</u>
Mixing Zone Discharge 803426-01	<3
Method Blank	<3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Mixing Zone Discharge	Client:	Pacific Fishermen
Date Received:	03/27/18	Project:	Stormwater Mixing Zone Discharge
Date Extracted:	03/27/18	Lab ID:	803426-01
Date Analyzed:	03/28/18	Data File:	803426-01.074
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Copper	7.23
Lead	<1
Zinc	18.2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Pacific Fishermen
Date Received:	NA	Project:	Stormwater Mixing Zone Discharge
Date Extracted:	03/27/18	Lab ID:	I8-193 mb
Date Analyzed:	03/28/18	Data File:	I8-193 mb rr.056
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Copper	<5
Lead	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/04/18

Date Received: 03/27/18

Project: Stormwater Mixing Zone Discharge, F&BI 803426

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES
FOR pH BY METHOD 9040C**

Laboratory Code: 803426-01 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
pH	6.8	6.9	1	0-20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/04/18

Date Received: 03/27/18

Project: Stormwater Mixing Zone Discharge, F&BI 803426

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES FOR TURBIDITY
USING METHOD SM2130B**

Laboratory Code: 803426-02 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Turbidity	NTU	1.6	1.7	6	0-20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/04/18

Date Received: 03/27/18

Project: Stormwater Mixing Zone Discharge, F&BI 803426

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR OIL AND GREASE
USING EPA METHOD 1664**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 11)
Oil and Grease	mg/L (ppm)	40	96	94	78-114	2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/04/18

Date Received: 03/27/18

Project: Stormwater Mixing Zone Discharge, F&BI 803426

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8**

Laboratory Code: 803433-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	104	106	70-130	2
Copper	ug/L (ppb)	20	86.6	91	90	70-130	1
Lead	ug/L (ppb)	10	2.95	100	102	70-130	2
Zinc	ug/L (ppb)	50	116	91	92	70-130	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	103	85-115
Copper	ug/L (ppb)	20	97	85-115
Lead	ug/L (ppb)	10	103	85-115
Zinc	ug/L (ppb)	50	104	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.
- c - The presence of the analyte may be due to carryover from previous sample injections.
- cf - The sample was centrifuged prior to analysis.
- d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.
- dv - Insufficient sample volume was available to achieve normal reporting limits.
- f - The sample was laboratory filtered prior to analysis.
- fb - The analyte was detected in the method blank.
- fc - The compound is a common laboratory and field contaminant.
- hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.
- hs - Headspace was present in the container used for analysis.
- ht - The analysis was performed outside the method or client-specified holding time requirement.
- ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.
- j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.
- J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.
- jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.
- js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- lc - The presence of the analyte is likely due to laboratory contamination.
- L - The reported concentration was generated from a library search.
- nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.
- pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.
- ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.
- vo - The value reported fell outside the control limits established for this analyte.
- x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

803426

Send Report To: Cherie K. Berg

Company: Pacific Fishermen Shipyard & Electric, LLC

Address: 5351 24th Ave. NW

City: Seattle State: Washington ZIP: 98107

Phone # (206) 784-2562 Fax # (206) 784-1986

SAMPLES (signature)

PROJECT NAME/NO.

STORMWATER MIXING ZONE DISCHARGE

REMARKS

ME 03-27-18

PO#

Page # 1 of 1

TURNAROUND TIME

X Standard (2 Weeks) AZS

RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

X Dispose after 30 days

Return samples

Will call with instructions

ANALYSES REQUESTED

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	Turbidity	Oil and Grease	Copper	Lead	Zinc	Arsenic	pH (1 dec. place)	RCRA 8 TCLP	Notes
Marine Railway #1														
Marine Railway #1 Backround														
Marine Railway #2														
Marine Railway #2 Backround														
Screwlift dock #3														
Screwlift dock #3 Backround														
Mixing Zone Discharge	01A-C	3-27-18	7:45	Water	3	X	X	X	X	X	X			
Mixing Zone Backround	02	3-27-18	7:15	Water	1	X								
Flock Plant Clarifier														

Friedman & Bruya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

Fax (206) 283-5044

SIGNATURE

Relinquished by: [Signature]

Received by: [Signature]

Relinquished by: [Signature]

Received by: [Signature]

PRINT NAME

Tyler Adams

Elizabeth Weber Bruya

COMPANY

Pacific Fishermen Shipyard

Friedman & Bruya

DATE

3-27-18

3-27-18

TIME

9:05

9:05

Samples received at 10 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/16/18

Date Received: 04/30/18

Project: Stormwater Mixing Zone Discharge, F&BI 804526

Date Analyzed: 05/01/18

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR pH
USING EPA METHOD 9040C**

<u>Sample ID</u> Laboratory ID	<u>pH</u>	<u>Date Analyzed</u>	<u>Time Analyzed</u>
Mixing Zone Discharge 804526-01	6.7	05/01/18	12:41

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/16/18

Date Received: 04/30/18

Project: Stormwater Mixing Zone Discharge, F&BI 804526

Date Analyzed: 05/01/18

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TURBIDITY
USING METHOD SM2130B
Results Reported as NTU**

<u>Sample ID</u> Laboratory ID	<u>Date</u> <u>Sampled</u>	<u>Time</u> <u>Sampled</u>	<u>Turbidity</u>
Mixing Zone Discharge 804526-01	04/30/18	08:50	<0.5
Mixing Zone Background 804526-02	04/30/18	09:10	<0.5
Method Blank			<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/16/18

Date Received: 04/30/18

Project: Stormwater Mixing Zone Discharge, F&BI 804526

Date Extracted: 05/10/18

Date Analyzed: 05/11/18

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR OIL AND GREASE USING EPA METHOD 1664**

Results Reported as mg/L (ppm)

<u>Sample ID</u>	<u>Oil and Grease</u>
Laboratory ID	
Mixing Zone Discharge	<3
804526-01	
Method Blank	<3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Mixing Zone Discharge	Client:	Pacific Fishermen
Date Received:	04/30/18	Project:	Stormwater Mixing Zone Discharge
Date Extracted:	05/02/18	Lab ID:	804526-01
Date Analyzed:	05/03/18	Data File:	804526-01.065
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Copper	7.83
Lead	<1
Zinc	23.0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Pacific Fishermen
Date Received:	NA	Project:	Stormwater Mixing Zone Discharge
Date Extracted:	05/02/18	Lab ID:	I8-280 mb
Date Analyzed:	05/03/18	Data File:	I8-280 mb.032
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Copper	<5
Lead	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/16/18

Date Received: 04/30/18

Project: Stormwater Mixing Zone Discharge, F&BI 804526

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES
FOR pH BY METHOD 9040C**

Laboratory Code: 804526-01 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
pH	6.7	6.8	1	0-20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/16/18

Date Received: 04/30/18

Project: Stormwater Mixing Zone Discharge, F&BI 804526

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES FOR TURBIDITY
USING METHOD SM2130B**

Laboratory Code: 804539-02 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Turbidity	NTU	0.72	0.78	8	0-20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/16/18

Date Received: 04/30/18

Project: Stormwater Mixing Zone Discharge, F&BI 804526

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR OIL AND GREASE
USING EPA METHOD 1664**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 11)
Oil and Grease	mg/L (ppm)	40	87	99	78-114	13 vo

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/16/18

Date Received: 04/30/18

Project: Stormwater Mixing Zone Discharge, F&BI 804526

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8**

Laboratory Code: 804476-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	106	107	70-130	1
Copper	ug/L (ppb)	20	<5	94	99	70-130	5
Lead	ug/L (ppb)	10	<1	98	100	70-130	2
Zinc	ug/L (ppb)	50	<5	100	102	70-130	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	103	85-115
Copper	ug/L (ppb)	20	100	85-115
Lead	ug/L (ppb)	10	103	85-115
Zinc	ug/L (ppb)	50	101	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
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- j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.
- J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.
- jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.
- js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- lc - The presence of the analyte is likely due to laboratory contamination.
- L - The reported concentration was generated from a library search.
- nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.
- pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.
- ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.
- vo - The value reported fell outside the control limits established for this analyte.
- x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

Send Report To: **Cherie K. Bere** 804 526
 Company: **Pacific Fishermen Shipyard & Electric, LLC**
 Address: **5351 24th Ave. NW**
 City: **Seattle** State: **Washington** ZIP: **98107**
 Phone # **(206) 784-2562** Fax # **(206) 784-1986**

SAMPLERS *(Signature)* ML 04-30-18
 PROJECT NAME/NO. **PO#**
 STORMWATER MIXING ZONE DISCHARGE
 REMARKS

Page # 1 of 1
 TURNAROUND TIME
 Standard (2 Weeks) **ATL**
 RUSH
 Rush charges authorized by:
 SAMPLE DISPOSAL
 Dispose after 30 days
 Return samples
 Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED							Notes		
						Turbidity	Oil and Grease	Copper	Lead	Zinc	Arsenic	pH (1 dec. place)		RCRA 8 TCLP	
Marine Railway #1															
Marine Railway #1 Background															
Marine Railway #2															
Marine Railway #2 Background															
Screwlift dock #3															
Screwlift dock #3 Background															
Mixing Zone Discharge	01A-C	4-30-18	8:50	Water	3	X	X	X	X	X	X	X			
Mixing Zone Background	02	4-30-18	9:10	Water	1	X									
Flock Plant Clarifier															

Friedman & Bruya, Inc.
 3012 16th Avenue West
 Seattle, WA 98119-2029
 Ph. (206) 285-8282
 Fax (206) 283-5044

Relinquished by: *(Signature)*
 Received by: *(Signature)*
 Relinquished by: *(Signature)*
 Received by:

PRINT NAME: **Tyler Adams**
Nhan Phan

COMPANY: **Pacific Fishermen Shipyard**
Friedman & Bruya

DATE: **4/30/18**
4/30/18

TIME: **9:25**
9:25

Samples received at: **16 °C**

**NO MEASURABLE RAIN EVENT
NO DISCHARGE**

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/22/18

Date Received: 06/13/18

Project: Stormwater Mixing Zone Discharge, F&BI 806219

Date Analyzed: 06/13/18

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR pH
USING EPA METHOD 9040C**

Sample ID
Laboratory ID

pH

Mixing Zone Discharge
806219-01

6.8

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/22/18

Date Received: 06/13/18

Project: Stormwater Mixing Zone Discharge, F&BI 806219

Date Analyzed: 06/13/18

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TURBIDITY
USING METHOD SM2130B
Results Reported as NTU**

<u>Sample ID</u> Laboratory ID	<u>Date</u> <u>Sampled</u>	<u>Time</u> <u>Sampled</u>	<u>Turbidity</u>
Mixing Zone Discharge 806219-01	06/13/18	09:15	<0.5
Mixing Zone Background 806219-02	06/13/18	08:50	0.79
Method Blank			<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/22/18

Date Received: 06/13/18

Project: Stormwater Mixing Zone Discharge, F&BI 806219

Date Extracted: 06/14/18

Date Analyzed: 06/15/15

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR OIL AND GREASE USING EPA METHOD 1664**

Results Reported as mg/L (ppm)

<u>Sample ID</u>	<u>Oil and Grease</u>
Laboratory ID	
Mixing Zone Discharge	<3
806219-01	
Method Blank	<3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Mixing Zone Discharge	Client:	Pacific Fishermen
Date Received:	06/13/18	Project:	Stormwater Mixing Zone Discharge
Date Extracted:	06/14/18	Lab ID:	806219-01
Date Analyzed:	06/14/18	Data File:	806219-01.079
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Copper	31.0
Lead	<1
Zinc	56.9

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Pacific Fishermen
Date Received:	NA	Project:	Stormwater Mixing Zone Discharge
Date Extracted:	06/14/18	Lab ID:	I8-390 mb
Date Analyzed:	06/14/18	Data File:	I8-390 mb.046
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Copper	<5
Lead	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/22/18

Date Received: 06/13/18

Project: Stormwater Mixing Zone Discharge, F&BI 806219

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES
FOR pH BY METHOD 9040C**

Laboratory Code: 806219-01 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
pH	6.8	6.9	1	0-20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/22/18

Date Received: 06/13/18

Project: Stormwater Mixing Zone Discharge, F&BI 806219

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES FOR TURBIDITY
USING METHOD SM2130B**

Laboratory Code: 806219-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Turbidity	NTU	<0.5	<0.5	0	0-20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/22/18

Date Received: 06/13/18

Project: Stormwater Mixing Zone Discharge, F&BI 806219

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR OIL AND GREASE
USING EPA METHOD 1664**

Laboratory Code: Laboratory Control Sample

<u>Analyte</u>	<u>Reporting Units</u>	<u>Spike Level</u>	<u>Percent Recovery LCS</u>	<u>Percent Recovery LCSD</u>	<u>Acceptance Criteria</u>	<u>RPD (Limit 11)</u>
Oil and Grease	mg/L (ppm)	40	91	96	78-114	5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/22/18

Date Received: 06/13/18

Project: Stormwater Mixing Zone Discharge, F&BI 806219

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8**

Laboratory Code: 806128-02 rex (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	99	99	70-130	0
Copper	ug/L (ppb)	20	<5	99	101	70-130	2
Lead	ug/L (ppb)	10	<1	90	87	70-130	3
Zinc	ug/L (ppb)	50	<5	95	96	70-130	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	98	85-115
Copper	ug/L (ppb)	20	105	85-115
Lead	ug/L (ppb)	10	97	85-115
Zinc	ug/L (ppb)	50	99	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
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- cf - The sample was centrifuged prior to analysis.
- d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.
- dv - Insufficient sample volume was available to achieve normal reporting limits.
- f - The sample was laboratory filtered prior to analysis.
- fb - The analyte was detected in the method blank.
- fc - The compound is a common laboratory and field contaminant.
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- hs - Headspace was present in the container used for analysis.
- ht - The analysis was performed outside the method or client-specified holding time requirement.
- ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.
- j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.
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- jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.
- js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
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- L - The reported concentration was generated from a library search.
- nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.
- pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.
- ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.
- vo - The value reported fell outside the control limits established for this analyte.
- x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

SAMPLERS (signature) ML06-13-18
 PROJECT NAME/NO. PO#
 STORMWATER MIXING ZONE DISCHARGE
 REMARKS

Send Report To: Cherie K. Bere 806819
 Company: Pacific Fishermen Shipyard & Electric, LLC
 Address: 5351 24th Ave. NW
 City: Seattle State: Washington ZIP: 98107
 Phone # (206) 784-2562 Fax # (206) 784-1986

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED							Notes		
						Turbidity	Oil and Grease	Copper	Lead	Zinc	Arsenic	pH (1 dec. place)		RCRA 8 TCLP	
Marine Railway #1															
Marine Railway #1 Background															
Marine Railway #2															
Marine Railway #2 Background															
Screwlift dock #3															
Screwlift dock #3 Background															
Mixing Zone Discharge	01A-C	6-13-18	9:15	water	3	X	X	X	X	X	X	X			
Mixing Zone Background	02	6-13-18	8:50	water	1	X									
Flock Plant Clarifier															Samples received at 14 °C

Friedman & Bruya, Inc.
 3012 16th Avenue West
 Seattle, WA 98119-2029
 Ph. (206) 285-8282
 Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<u>[Signature]</u>	Tyler Adams	Pacific Fishermen Shipyard	6-13-18	11:00
<u>[Signature]</u>	Dhan Phan	Friedman & Bruya	6-13-18	11:00
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

**NO MEASURABLE RAIN EVENT
NO DISCHARGE**

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/06/18

Date Received: 11/27/18

Project: Stormwater Mixing Zone Discharge, F&BI 811419

Date Analyzed: 11/27/18

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR pH
USING EPA METHOD 9040C

Sample ID

pH

Laboratory ID

Mixing Zone Discharge

6.4

811419-01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/06/18

Date Received: 11/27/18

Project: Stormwater Mixing Zone Discharge, F&BI 811419

Date Analyzed: 11/27/18

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TURBIDITY
USING METHOD SM2130B
Results Reported as NTU**

<u>Sample ID</u> Laboratory ID	<u>Date</u> <u>Sampled</u>	<u>Time</u> <u>Sampled</u>	<u>Turbidity</u>
Mixing Zone Discharge 811419-01	11/27/18	09:50	<0.5
Mixing Zone Background 811419-02	11/27/18	10:00	0.95
Method Blank			<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/06/18

Date Received: 11/27/18

Project: Stormwater Mixing Zone Discharge, F&BI 811419

Date Extracted: 11/29/18

Date Analyzed: 11/30/18

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR OIL AND GREASE USING EPA METHOD 1664**

Results Reported as mg/L (ppm)

<u>Sample ID</u> Laboratory ID	<u>Oil and Grease</u>
Mixing Zone Discharge 811419-01	<5 j
Method Blank	<3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Mixing Zone Discharge	Client:	Pacific Fishermen
Date Received:	11/27/18	Project:	Stormwater Mixing Zone Discharge
Date Extracted:	11/29/18	Lab ID:	811419-01
Date Analyzed:	11/30/18	Data File:	811419-01.066
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Copper	<5
Lead	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Pacific Fishermen
Date Received:	NA	Project:	Stormwater Mixing Zone Discharge
Date Extracted:	11/29/18	Lab ID:	I8-816 mb
Date Analyzed:	11/30/18	Data File:	I8-816 mb.041
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Copper	<5
Lead	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/06/18

Date Received: 11/27/18

Project: Stormwater Mixing Zone Discharge, F&BI 811419

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES
FOR pH BY METHOD 9040C**

Laboratory Code: 811419-01 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
pH	6.4	6.1	4	0-20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/06/18

Date Received: 11/27/18

Project: Stormwater Mixing Zone Discharge, F&BI 811419

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES FOR TURBIDITY
USING METHOD SM2130B**

Laboratory Code: 811419-02 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Turbidity	NTU	0.95	0.81	16	0-20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/06/18

Date Received: 11/27/18

Project: Stormwater Mixing Zone Discharge, F&BI 811419

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR OIL AND GREASE
USING EPA METHOD 1664**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 11)
Oil and Grease	mg/L (ppm)	40	97	95	78-114	2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/06/18

Date Received: 11/27/18

Project: Stormwater Mixing Zone Discharge, F&BI 811419

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 811396-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.04	107	105	75-125	2
Copper	ug/L (ppb)	20	<5	102	98	75-125	4
Lead	ug/L (ppb)	10	<1	103	100	75-125	3
Zinc	ug/L (ppb)	50	7.05	102	101	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	105	80-120
Copper	ug/L (ppb)	20	105	80-120
Lead	ug/L (ppb)	10	105	80-120
Zinc	ug/L (ppb)	50	105	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.
- c - The presence of the analyte may be due to carryover from previous sample injections.
- cf - The sample was centrifuged prior to analysis.
- d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.
- dv - Insufficient sample volume was available to achieve normal reporting limits.
- f - The sample was laboratory filtered prior to analysis.
- fb - The analyte was detected in the method blank.
- fc - The compound is a common laboratory and field contaminant.
- hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.
- hs - Headspace was present in the container used for analysis.
- ht - The analysis was performed outside the method or client-specified holding time requirement.
- ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.
- j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.
- J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.
- jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.
- js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- lc - The presence of the analyte is likely due to laboratory contamination.
- L - The reported concentration was generated from a library search.
- nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.
- pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.
- ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.
- vo - The value reported fell outside the control limits established for this analyte.
- x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/02/19

Date Received: 12/18/18

Project: Stormwater Mixing Zone Discharge, F&BI 812249

Date Analyzed: 12/18/18

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR pH
USING EPA METHOD 9040C**

Sample ID
Laboratory ID

pH

Mixing Zone Discharge
812249-01

6.4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/02/19

Date Received: 12/18/18

Project: Stormwater Mixing Zone Discharge, F&BI 812249

Date Analyzed: 12/18/18

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TURBIDITY
USING METHOD SM2130B
Results Reported as NTU**

<u>Sample ID</u> Laboratory ID	<u>Date</u> <u>Sampled</u>	<u>Time</u> <u>Sampled</u>	<u>Turbidity</u>
Mixing Zone Discharge 812249-01	12/18/18	09:45	<0.5
Mixing Zone Background 812249-02	12/18/18	09:48	0.70
Method Blank			<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/02/19

Date Received: 12/18/18

Project: Stormwater Mixing Zone Discharge, F&BI 812249

Date Extracted: 12/27/18

Date Analyzed: 12/28/18

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR OIL AND GREASE USING EPA METHOD 1664**

Results Reported as mg/L (ppm)

<u>Sample ID</u> Laboratory ID	<u>Oil and Grease</u>
Mixing Zone Discharge 812249-01	<3
Method Blank	<3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Mixing Zone Discharge	Client:	Pacific Fishermen
Date Received:	12/18/18	Project:	Stormwater Mixing Zone Discharge
Date Extracted:	12/18/18	Lab ID:	812249-01
Date Analyzed:	12/18/18	Data File:	812249-01.096
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Copper	<5
Lead	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Pacific Fishermen
Date Received:	NA	Project:	Stormwater Mixing Zone Discharge
Date Extracted:	12/18/18	Lab ID:	I8-866 mb2
Date Analyzed:	12/18/18	Data File:	I8-866 mb2.095
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Copper	<5
Lead	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/02/19

Date Received: 12/18/18

Project: Stormwater Mixing Zone Discharge, F&BI 812249

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES
FOR pH BY METHOD 9040C**

Laboratory Code: 812259-01 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
pH	5.8	5.7	1	0-20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/02/19

Date Received: 12/18/18

Project: Stormwater Mixing Zone Discharge, F&BI 812249

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES FOR TURBIDITY
USING METHOD SM2130B**

Laboratory Code: 812249-02 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Turbidity	NTU	0.70	0.72	4	0-20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/02/19

Date Received: 12/18/18

Project: Stormwater Mixing Zone Discharge, F&BI 812249

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR OIL AND GREASE
USING EPA METHOD 1664**

Laboratory Code: Laboratory Control Sample

<u>Analyte</u>	<u>Reporting Units</u>	<u>Spike Level</u>	<u>Percent Recovery LCS</u>	<u>Percent Recovery LCSD</u>	<u>Acceptance Criteria</u>	<u>RPD (Limit 11)</u>
Oil and Grease	mg/L (ppm)	40	95	90	78-114	5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/02/19

Date Received: 12/18/18

Project: Stormwater Mixing Zone Discharge, F&BI 812249

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 812234-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	8.88	107	116	75-125	8
Copper	ug/L (ppb)	20	<5	89	95	75-125	7
Lead	ug/L (ppb)	10	<1	97	104	75-125	7
Zinc	ug/L (ppb)	50	12.4	82	88	75-125	7

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	104	80-120
Copper	ug/L (ppb)	20	106	80-120
Lead	ug/L (ppb)	10	107	80-120
Zinc	ug/L (ppb)	50	98	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.
- c - The presence of the analyte may be due to carryover from previous sample injections.
- cf - The sample was centrifuged prior to analysis.
- d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.
- dv - Insufficient sample volume was available to achieve normal reporting limits.
- f - The sample was laboratory filtered prior to analysis.
- fb - The analyte was detected in the method blank.
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- ht - The analysis was performed outside the method or client-specified holding time requirement.
- ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.
- j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.
- J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.
- jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.
- js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- lc - The presence of the analyte is likely due to laboratory contamination.
- L - The reported concentration was generated from a library search.
- nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.
- pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.
- ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.
- vo - The value reported fell outside the control limits established for this analyte.
- x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

Send Report To: Cherie K. Bere

812249

SAMPLERS Signature

ML 12/18/18

Page # 1 of 1

Company: Pacific Fishermen Shipyard & Electric, LLC

PROJECT NAME/NO.

PO#

TURNAROUND TIME
Standard (2 Weeks)
RUSH

Address: 5351 24th Ave, NW

STORMWATER MIXING ZONE DISCHARGE

Rush charges authorized by:

City: Seattle State: Washington ZIP: 98107

REMARKS

SAMPLE DISPOSAL
X Dispose after 30 days
Return samples
Will call with instructions

Phone # (206) 784-2562 Fax # (206) 784-1986

ANALYSES REQUESTED

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED								Notes	
						Turbidity	Oil and Grease	Copper	Lead	Zinc	Arsenic	pH (1 dec. place)	RCRA 8 TCLP		
Marine Railway #1															
Marine Railway #1 Background															
Marine Railway #2															
Marine Railway #2 Background															
Screwlift dock #3															
Screwlift dock #3 Background															
Mixing Zone Discharge	01A-C	12-18-18	9:45	Water	3	X	X	X	X	X	X				
Mixing Zone Background	02	12-18-18	9:45	Water	1	X									
Flock Plant Clarifier															

Samples received at 11 °C

SIGNATURE

PRINT NAME

COMPANY

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

Relinquished by:

Tyler Adams

Pacific Fishermen Shipyard

12-18-18

12:30

Received by:

Dwan Plavin

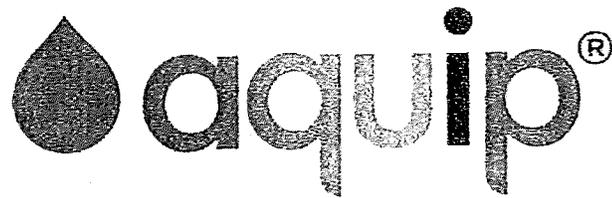
Friedman & Bruya

12/18/18

12:30

Relinquished by:

Received by:



Operation & Maintenance Manual

January 2009



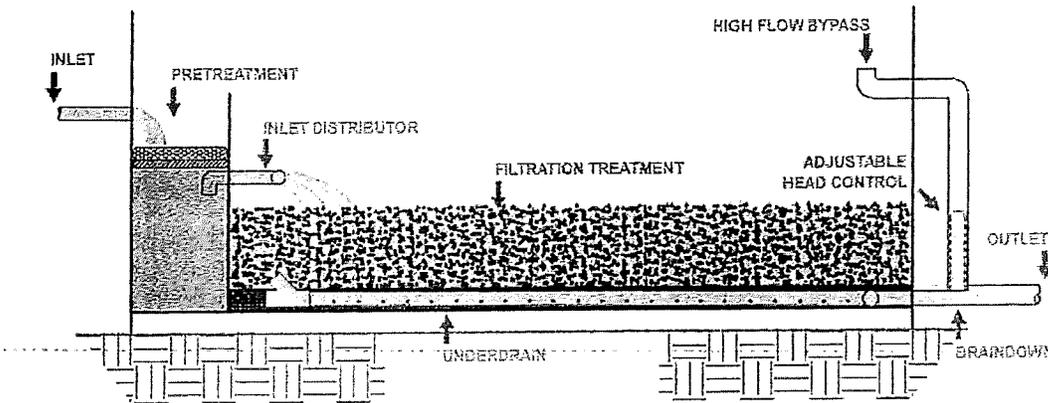
www.stormwaterx.com

122 Southeast 27th Avenue
Portland, OR 97214

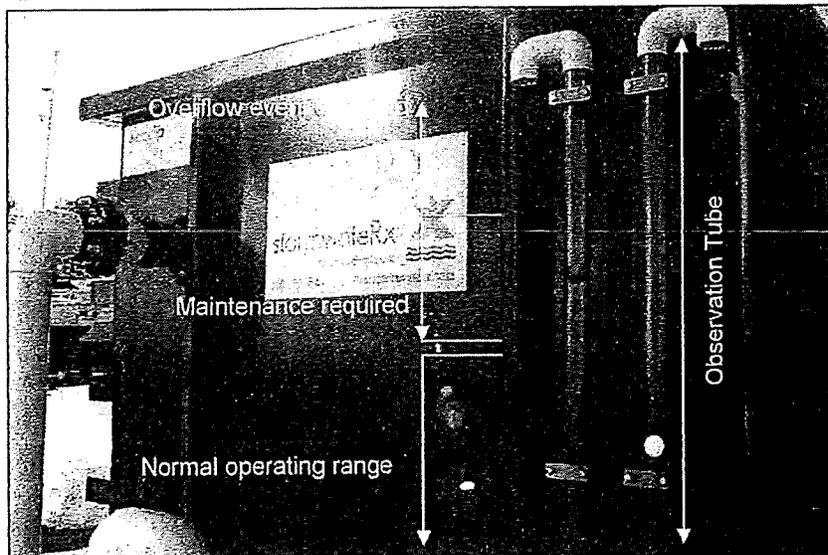
(800) 680-3543

Introduction and System Description

Aquip is a passive adsorptive filtration technology designed specifically for reduction of stormwater pollutants such as suspended solids, turbidity, heavy metals and oils from stormwater. Aquip is a patent-pending system that uses a pre-treatment chamber followed by a series of inert and adsorptive (depending on configuration) filtration media to effectively trap pollutants in a package that is flexible and affordable. Pollutant removal within the pre-treatment chamber occurs by gravity settling and in the filtration chamber pollutant removal occurs through a combination of chemical complexing, adsorption, micro-sedimentation and filtration. Aquip effectively removes both particulate and dissolved metals.



Stormwater flows by gravity through Aquip. An internal emergency overflow exists at the outlet side of Aquip. Stormwater would overflow the filtration chamber if the filter bed becomes plugged. The system is equipped with a Passive Level Indicator that indicates the operating condition of the filter bed. The Observation Tube (yellow float ball) provides the real-time water level inside the structure. The High Level Indicator (red float ball) marks the historic high water level inside the structure and has three label markers.



StormwaterRx

- **Normal operating range:** indicates the filter bed retains adequate hydraulic conductivity and is operating within design parameters.
- **Maintenance required:** indicates the filter bed is becoming occluded and will require maintenance soon. The label provides StormwaterRx contact phone number to coordinate maintenance or replacement of the filtration media.
- **Overflow event occurred:** indicates the filter bed has reduced filtration capacity and that partially treated stormwater may have overflowed the system. This level indicates the owner should contact state regulators, if required, to notify them of the overflow.

Normal maintenance inspection would indicate that the filter bed is becoming occluded long before an emergency overflow condition would occur, allowing the owner to perform short term or long term maintenance to the system to restore system capacity.

The Aquip engineered filtration media layers result in optimal hydraulics and pollutant removal through the system. The foundation of the Aquip design is an amended sand filter, a technology with widely known performance characteristics and broad regulatory recognition.

Figure 1: Above Ground Installation

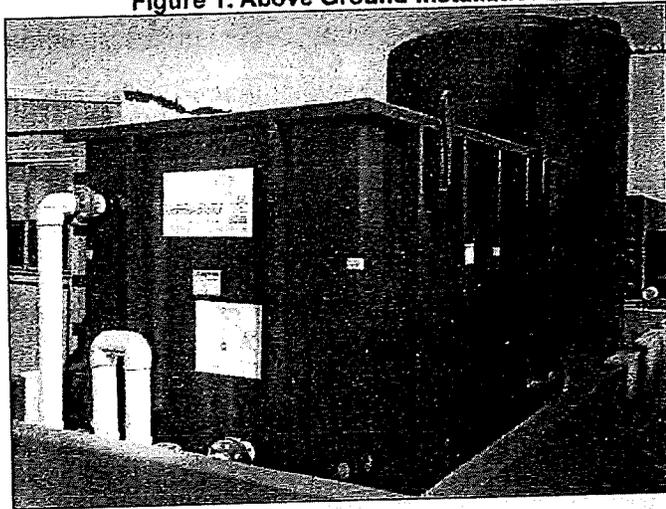
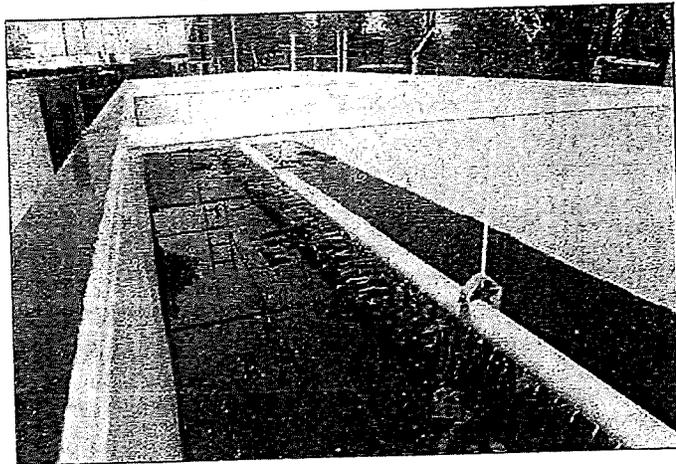


Figure 2: Top View of Aquip



StormwaterRx

Aquip uses a passive pH compensation process that is a benefit of its adsorptive filtration media. The media causes a pH buffering effect within the Aquip such that heavy metals are nearer their minimum solubility prior to entering the inert media filter layer where the metals are removed as precipitates by micro-sedimentation. Because of the low alkalinity common to most stormwater, particularly those from facilities where most of the surface is impervious (paved), the pH buffering effect is temporary and the pH neutralizes prior to discharge from the filtration chamber. This feature, in concert with the patent-pending flow regime within the Aquip promotes high suspended solids and heavy metal removal efficiency for this passive stormwater reclamation process.

For some sites a high level of oil is of primary concern. In these cases an optional oil separation module in place of the pH buffering allows for pre-treatment of oils prior to the filtration chamber. The combination of pre-treatment, inert and/or adsorptive media in Aquip depends on the pollutants of concern at a specific site. The table below provides a description of the most typical models.

Table 1: Aquip Model Descriptions

System Size	Tank Material	Pretreatment Media	Filtration Chamber Media
50	S: Steel	B: Buffering	E: Enhanced (inert & sorptive)
80	C: Concrete	O: Coalescing	I: Inert
110	U: Owner Supplied	X: Settling (no media)	
170			
210			
Example: Model 210SBE			

The "Installed Aquip Project Specifications" sheet will provide the details of the system installed at your site. Refer to this document for details on your site-specific Aquip system.

Maintenance Guidelines

The Aquip, like all filtration systems, requires periodic maintenance to restore the system to its original effectiveness. StormwaterRx has provided a site specific design dependent on the pollutants of concern and site use. Therefore, the maintenance interval will vary depending on the site and rainfall conditions. Regular inspections of the system can help determine the typical maintenance interval and level of maintenance required. The degrees of maintenance, which are described in the table below, are Routine, Seasonal and Full.

Table 2: Levels of Aquip Maintenance

Level	Description
Routine	Rake the top layer of media to regenerate the filter media and regain capacity. Typically routine maintenance should be performed every two- to three months dependent on the frequency of rainfall.
Seasonal	Replace the top layer of inert filtration media and the top filter fabric. Typically should be performed at the end of the rainy season.
Full	Replace all layers of filtration media and filter fabric. Full maintenance should typically be performed every two years.

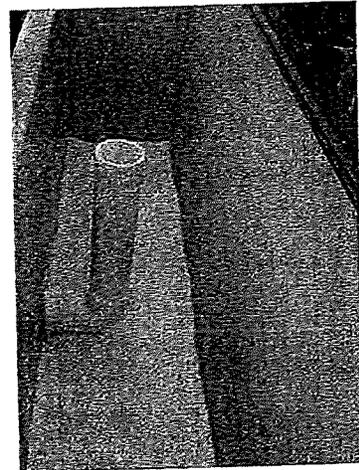
Inspection and Maintenance Intervals

After installation, the Aquip should be inspected monthly during the first rainy season to establish site-specific inspection and maintenance intervals. Thereafter, inspections should be completed before the wet-weather season and after a major storm event. An Inspection Report is included at the end of this manual and should be completed with each inspection. A copy should also be added to your Stormwater Pollution Prevention Plan.

The following inspection procedure should generally be followed for Aquip systems:

1. Safety equipment should be set up if the system is near vehicle and pedestrian traffic. For buried Aquip systems, follow Occupational Safety & Health Administration (OSHA) guidelines for confined space entry.
2. Remove the 1/2" threaded plug, located on the filtration chamber side of the baffle wall separating the pretreatment and filtration chambers, and let the water in the pretreatment chamber drain to the filtration chamber. For Model O, do not remove plug.
3. For pretreatment Model B (buffering) the buffering media will need to be replaced over time. Measure the depth of buffering media to support grate. If there is less than one (1) inch of media, new media is required. See Pretreatment Chamber Maintenance below.
4. For pretreatment Models O and X, determine the depth of sludge in the pretreatment chamber sump by inserting a 7/8-inch diameter or smaller rod (or stick) into the sump. Lower the rod down slowly, feeling for the point at which resistance is noticeable; this is likely the top of the sludge layer. Make a notch or mark on the rod and continue to lower the rod to the bottom of the pretreatment chamber. The distance between these two points is the depth of accumulated sludge. If a foot or more of sediment has accumulated, the pre-treatment chamber should be vacuumed out. An alternative method of determining the sludge thickness is to note sludge staining on the rod once it is withdrawn.
5. Note the condition of the inlet distributor to determine if it contains any debris. Remove the debris by unscrewing the end cap to access the inside of the distributor. Hose out the solids into the filter chamber.
6. Note if there is standing water in the filtration chamber and the height of the scum line on the filtration chamber sidewall. If there is standing water on top of the filter bed and it has not recently rained (in the prior 12 hours), the solids removal capacity of the filter has likely been met and a full maintenance will be required. If the scum line is more than a foot above the media (as shown in Figure 4, left photo) then routine maintenance is required. If the scum line is at the high flow bypass (as shown in Figure 5, right photo) then a full maintenance is required.

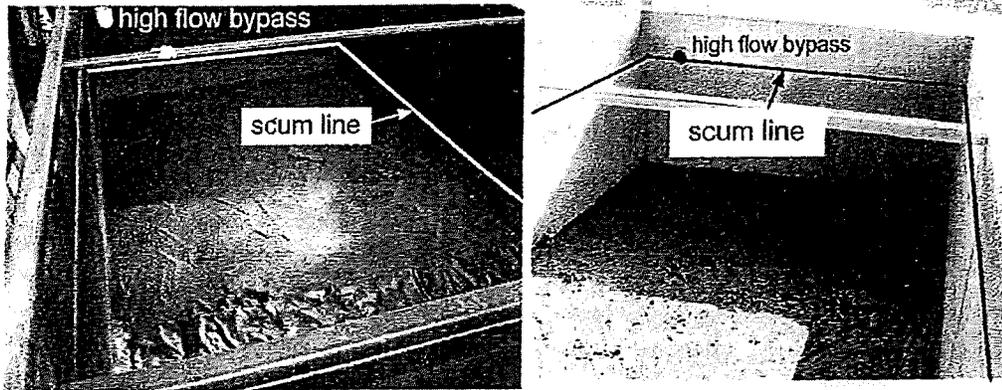
Figure 2: Pretreatment Chamber with Buffering Media (Model B)



Safety Note:

Prior to lifting or moving the Aquip system, all filter media must be removed.

Figures 4 & 5: Scum Lines for Various Maintenance Requirements
 (Left photo = Routine Maintenance Required; Right photo = Full Maintenance Required)

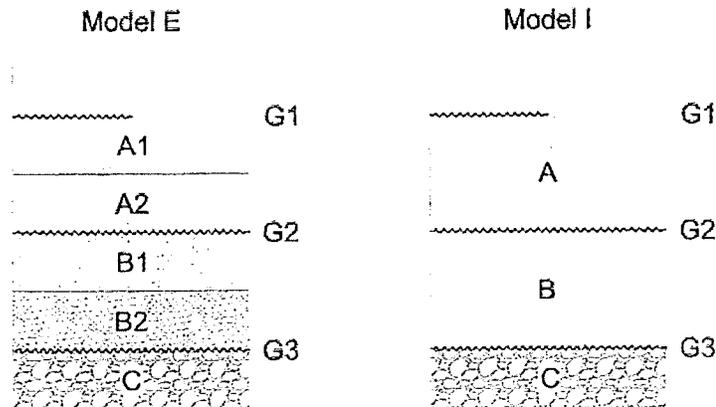


7. Turn the top filter fabric (labeled G1 in Figure 7) and note the level of sediment accumulated on and within the filter media (Media Layer A). A shovel inserted into the top layer of media will come out muddy or stained as particulates begin to fill available pore spaces in the filter media.
8. Inspect the geotextile filter fabric, G1, covering the top layer of media. This fabric should be flat and spread evenly under the inlet distributor.



Figure 6: Shows media is spent

Figure 7: Filtration Chamber Media Layer Configuration



StormwaterRx

Routine maintenance is required if the scum line on the sidewall of the filter chamber is more than a foot above the top of the filter bed or if appreciable sediment has accumulated on top of the filter media.

Seasonal maintenance is required at the end of the wet season (or just before the next wet season). Seasonal maintenance would also be required if there is more than one (1) foot of standing water above the filter surface 12 hours after a rain event. This indicates the top layer of filter media is plugged or draining too slowly to effectively treat the required runoff volume from the site.

Full maintenance is required if one of the following is determined from inspection:

1. The most recent scum line is at the same height as the overflow bypass elbow,
2. Routine maintenance does not restore flow capacity, and/or
3. Pollutants in effluent exceed the pre-designated acceptable pollution removal limits.

Maintenance Procedure

This maintenance procedure is meant to provide general guidelines for maintenance of Aquip. Please refer to Figure 7 for media layer nomenclature.

Important: OSHA rules for confined space entry must be followed if Aquip is housed in an enclosed structure.

Routine Maintenance

1. If system is near vehicle and pedestrian traffic, set up safety equipment.
2. Remove the top layer of geotextile filter fabric (G1).
3. Accumulated silt and debris on top of the media filter bed, which can form a crust, should be removed when their depth exceeds 1/2-inch or when the crust becomes cemented. The sediment should be scraped off and removed during dry periods with the steel maintenance shovel provided.
4. Once sediment is removed, the design permeability of the filtration media can typically be restored by then striating (scraping or scouring) the surface layer of the media with the steel maintenance rake provided. Rake the top three to six inches of media layer A to regenerate the filter media. This should reclaim approximately 75% of the hydraulic capacity and 90% of the performance capacity.
5. Remove any accumulated sediment sitting on the top layer A.
6. Re-install the filter fabric layer (G1) on the top layer A.

Seasonal Maintenance

1. If system is near vehicle and pedestrian traffic, set up safety equipment.
2. If needed, flush out inlet distributor to remove any trapped debris.
3. Remove and dispose of the top layer of geotextile filter fabric (G1).
4. Excavate spent filter media (Layer A) down to the first layer of geotextile filter fabric (G2). A shovel or vactor truck may be used to remove the filter media. See material disposal guidance below.
5. Remove filter fabric G2 and inspect the underlying filter media (Media Layer B.)
6. Rake the top three to six inches of media to regenerate the filter media layer B. Level and smooth the filter media.

StormwaterRx

7. Re-install the filter fabric layer (G2) on the layer B.
8. Install new inert filter media (Media Layer A) and filter fabric layers (G1) on top layer A (available from StormwaterRx).

Full Maintenance

1. If system is near vehicle and pedestrian traffic, set up safety equipment.
2. If needed, flush out inlet distributor to remove any trapped debris.
3. Remove and dispose of the top layer of geotextile filter fabric (G1). A vacuum truck or shovel can be used to remove all spent media down to the bottom geotextile fabric layer (G3). The bottom gravel layer C should not be removed.
4. Install a new geotextile fabric layer (G3) on top of layer C.
5. Refill media layers and filter fabric separators as shown in Figure 7 (specified by StormwaterRx. Media should be added in uniform level layers. Each media layer should be level before adding the next media layer.
6. Install a new geotextile fabric layer (G1) on top layer of media.

Pretreatment Chamber Maintenance

The maintenance procedure of the pretreatment chamber is dependent on the type of media in this chamber:

1. Model B (Buffering):
 - a. Contact StormwaterRx for replacement media.
 - b. Vacuum out spent media and remove grates.
 - c. Inspect grates for any tears in fabric. Contact StormwaterRx if the filter fabric needs to be repaired.
 - d. Vacuum out all water, floating oil & debris, and accumulated sediment from pretreatment chamber.
 - e. Replace grates.
 - f. Load new media in a uniform level layer on grates.
2. Model O (Coalescing) and X (Settling):
 - a. Vacuum out all water, floating oil & debris, and accumulated sediment from pretreatment chamber.

Material Disposal

Water and sediment removed from the Aquip filter must be disposed of in accordance with all applicable waste disposal regulations. The removed accumulated sediment in the Aquip can typically be sent to the local landfill. Follow local regulations for standard guidelines for solid waste disposal.

Freezing Weather Conditions

The filtration chamber in the Aquip is designed to drain down between storm events; therefore freezing is of no concern within this chamber. The pretreatment chamber has standing water and the preparation for freezing weather conditions depends on the design conditions of the Aquip system.

For systems with an upstream above ground storage tank:

StormwaterRx

1. StormwaterRx recommends insulating or trace heating* the force main lines for this condition.
2. If the storage tank is full of water, drain down the storage tank through the Aquip system.
3. Once the storage tank has fully drained down, open the inlet sample port located on the inlet pipe to the Aquip. This will drain down the pretreatment chamber.
4. Close diaphragm valve between the storage tank and Aquip. Keep valve closed until freezing conditions have ended.

For systems with an underground pump discharging directly to the Aquip (including below ground storage tanks):

1. StormwaterRx recommends insulating or trace heating* all above-ground piping to the Aquip system..
2. Turnoff pump.
3. Open the inlet sample port located on the inlet pipe to the Aquip to drain down the pretreatment chamber.
4. Close diaphragm valve and keep closed until freezing conditions have ended.

Important: StormwaterRx recommends heat tracing all above-ground piping to the Aquip system for systems installed in freezing climates.

*Trace heating is a system used to maintain or raise the temperature of pipes and vessels. An electrical heating element runs in contact along the length of pipe and is covered with thermal insulation to retain heat.

Maintenance Support

If you have any questions about maintenance procedures contact StormwaterRx at (800) 680-3543. Please have your Aquip Model number ready.

Inspection Report



www.stormwaterx.com
122 Southeast 27th Avenue
Portland, OR 97214
(800) 630-3543

Inspection Date: _____

Location: _____

Months in Service: _____

Personnel: _____

System Size: _____

System Type: Above Ground Below Ground

Condition of Buffer Media Bags: Good Replacement Bags Needed
Details: _____

Condition of Inlet Distributor: Free of Debris Plugged with Debris
Details: _____

Height of Scum Line: _____

Condition of Filter Fabric: Good Fair Poor
Details: _____

Accumulated Sediment Depth: _____

Depth of Occlusion in Filter Media: _____

Minor Maintenance Activities Completed:

Unplugged Inlet Distributor: Yes No Details: _____

Replace Filter Fabric Yes No Details: _____

Raked Top Media Layer: Yes No Details: _____

Maintenance Required: None Partial Full

Other Notes:

Maintenance Report



www.stormwaterx.com
122 Southeast 27th Avenue
Portland, OR 97214
(800) 680-3543

Maintenance Date: _____

Location: _____

Months in Service: _____

Personnel: _____

System Size: _____

System Type: Above Ground Below Ground

Condition of Inlet Distributor: Free of Debris Plugged with Debris

Details: _____

Height of Scum Line: _____

Accumulated Sediment Depth: _____

Maintenance Activities Completed:

- Replaced Buffer Media Bags: Yes No Details: _____
- Unplugged Inlet Distributor: Yes No Details: _____
- Replaced Filter Fabric Yes No Details: _____
- Replaced Top Media Layer: Yes No Details: _____
- Replaced All Media Layers: Yes No Details: _____

Other Notes:

Blackwater Marine, LLC



NIKISKI, AK ~ SEATTLE, WA

BLACKWATER MARINE, LLC

12019 76 Place NE ~ Kirkland, Wa 98034
425-828-6434 office ~ 425-216-1121 fax

P O Box 8505 ~ Nikiski, AK 99635
907-776-5551 office ~ 907-776-8836 fax

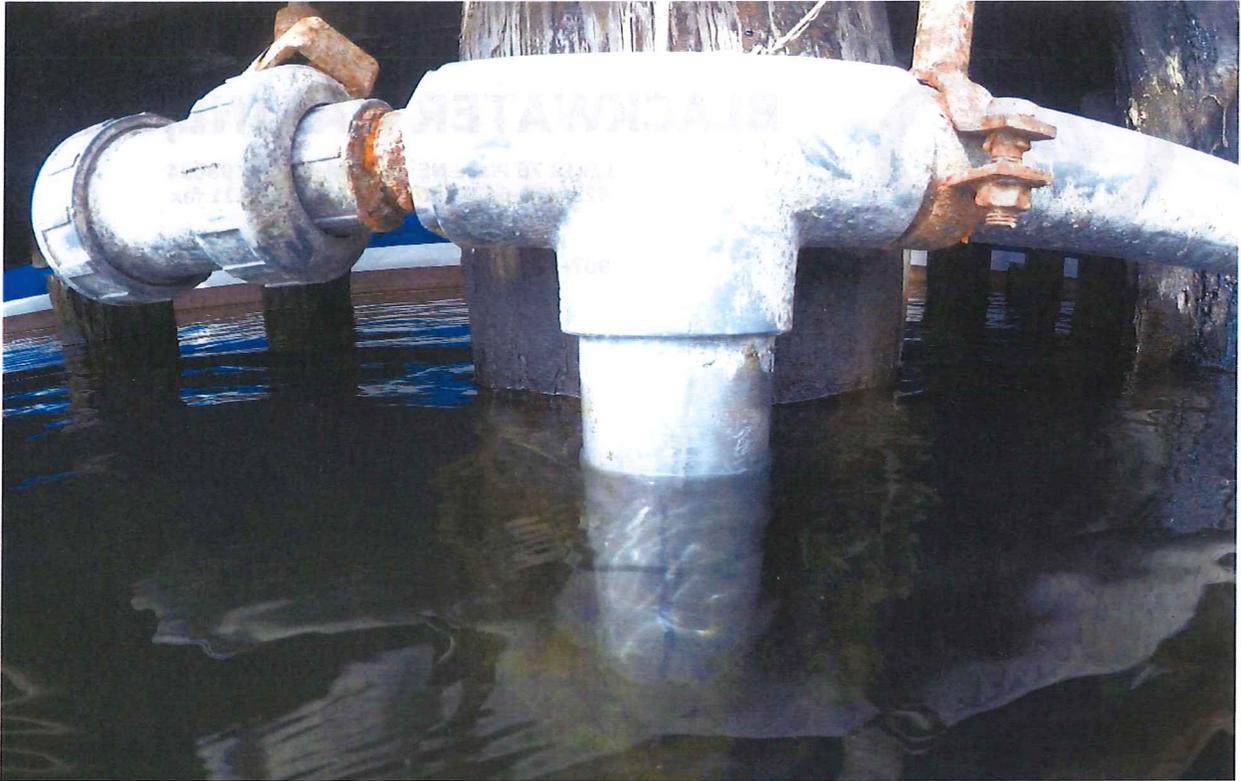
Pacific Fishermen Outfall Inspection

(March, 10th 2019)

Blackwater Marine, LLC arrived at the docks of Pacific Fishermen, Lake Washington, Seattle, Washington on the 10th day of March, 2019. Dive team members consisted of George Lulham, Supervisor; Jeff Wanner, Diver; Joe Ontiveros, Tender; Sammy Scharf, Tender; to perform the inspection of the outfall on the crane pad dock. Dive equipment consisted of a shallow air package, underwater video unit, underwater still photo camera and necessary miscellaneous hand tools to complete said project.

The diver started the inspection at the lake surface, the outfall pipe is constructed of PVC pipe. The pipe runs along the underside of the dock. A "T" that is blanked transitions the pipe into a 90-degree turn that enters the water. The pipe is connected to a vertical piling with steel brackets. The outfall terminates approximately one foot from the mud line in a T that is blanked on one side and a 90-degree elbow on the other. (see attached photos)

The diver reported that the bottom is flat under and in the vicinity of the outfall discharge point showing no evidence of a buildup of sediment associated with the outfall. The outfall assembly was intact and appeared to be operating properly.







**PACIFIC FISHERMEN SHIPYARD AND ELECTRIC, LLC
SOLID WASTE PLAN**

Pacific Fishermen Shipyard and Electric, LLC disposes of solid waste in accordance with the Minimum Functional Standards for Solid Waste Handling, Chapter 173-304 WAC. Republic Services is contracted for solid waste pick-up and disposal.

Non-hazardous liquid wastes are disposed of in accordance with Chapter 173-303 WAC. FBN Enterprises, Inc, Broker, is contracted to schedule pick-up and disposal of non-hazardous liquid wastes.

Dangerous liquid wastes are disposed of in accordance with Chapter 173-303 WAC. FBN Enterprises, Inc., Broker, is contracted to schedule pick-up and disposal of dangerous or hazardous liquid wastes.

All hazardous solid wastes such as sandblast grit, are disposed of in accordance with Chapter 173-303 WAC. Evergreen Recycling, Inc. is contracted to pick-up and dispose of all hazardous solid wastes.

All solid waste products are segregated into recyclable and non-recyclable. Metals are stored in bins around the production area. Non-recyclable wastes are stored in a covered dumpster. All wastes are disposed of by authorized contract firms.

Paper, cardboard, glass and plastic is to be placed in the recycling container outside of the store and picked up by Republic Services.

Large batteries are to be placed outside the store, in secondary containment and undercover, and picked up by Interstate Batteries.

Fluorescent lamps, high-intensity discharge lamps, light ballasts, mercury thermostats, and small batteries are to be placed inside the Storeroom and picked up by EcoLights Northwest. Electronics, including TVs, are to be placed outside the store, in secondary containment and undercover, for pick up by EcoLights Northwest.

Only Seattle Iron and Metal may remove scrap material or used equipment. No Employee or customer usage without a cash sale receipt or permission from the General Manager. Seattle Iron and Metal has agreed to accept, conditionally, empty/punctured metal spray cans, and metal paint cans that have been wiped clean and dry. Only the Company Paint Foreman and Paint Crew are authorized to recycle metal spray cans and/or metal paint cans.

Storage locations:	Steel - Separate bin outside the weld shop
Aluminum -	Separate bin outside the weld shop
Zinc -	Separate bin inside the weld shop
Brass -	Separate bin inside the machine shop

Control of Large Solid Materials

Prior to flooding and sinking, floatable and low density waste, such as wood, plastic, and miscellaneous trash, such as paper, insulation, and packaging, must be removed from the screw lift dock and marine railway floors.

Sediment traps in the storm water drainage systems for the screw lift dock, marine railways, and yard are to be inspected on a monthly basis and cleaned or replaced as necessary to ensure the traps properly intercept and retain solids entering the drainage system.

PACIFIC FISHERMEN SHIPYARD AND ELECTRIC, LLC
SOLID WASTE PLAN
PAGE 2

The local health department or district establishes standards on the use and integrity of solid waste containers. These local regulations are to meet or exceed the State Minimum Functional Standards, WAC 173-304-200, that state:

(1) Applicability. These standards apply to all persons storing containerized solid waste generated on-site, and to all persons who are engaged in the collection and transportation of solid waste of more than one single family residence or single family farm including collection and transportation of septage and septic tank pumpings.

(2) On-site storage standards.

(a) The owner or occupant of any premises, business establishment, or industry shall be responsible for the safe and sanitary storage of all containerized solid wastes accumulated at that premises.

(b) The owner, operator, or occupant of any premises, business establishment, or industry shall store containerized solid wastes in containers that meet the following requirements:

(i) Disposable containers shall be sufficiently strong to allow lifting without breakage and shall be thirty-two gallons in capacity or less where manual handling is practiced;

(ii) Reusable containers, except for detachable containers, shall be:

(A) Rigid and durable;

(B) Corrosion resistant;

(C) Nonabsorbent and water tight;

(D) Rodent-proof and easily cleanable;

(E) Equipped with a close fitting cover;

(F) Suitable for handling with no sharp edges or other hazardous conditions; and

(G) Equal to or less than thirty-two gallons in volume where manual handling is practiced.

(iii) Detachable containers shall be durable, corrosion-resistant, nonabsorbent, non-leaking and having either a solid cover or screen cover to prevent littering.

(3) Collection and transportation standards.

(a) All persons collecting or transporting solid waste shall avoid littering, or the creation of other nuisances at the loading point, during transport and for the proper unloading of the solid waste at a permitted transfer station, or other permitted solid waste handling site.

(b) Vehicles or containers used for the collection and transportation of solid waste shall be tightly covered or screened where littering may occur, durable and of easily cleanable construction. Where garbage is being collected or transported, containers shall be cleaned as necessary to prevent nuisances, odors and insect breeding and shall be maintained in good repair.

(c) Vehicles or containers used for the collection and transportation of any solid waste shall be loaded and moved in such manner that the contents will not fail, leak in quantities to cause a nuisance, or spill therefrom. Where such spillage or leakage does occur, the waste shall be picked up immediately by the collector or transporter and returned to the vehicle or container and the area otherwise properly cleaned.

For material such as gravel, sand, topsoil, compost, logs, sawdust, and wood chips; lumber and other building materials; and concrete and metal products, Pacific Fishermen to select the following practices appropriate to the type of material:

Build a covered area. The area upon which the material is stored is to be paved. Secondary containment as necessary.