

**SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN
AND
HAZARDOUS MATERIALS MANAGEMENT PLAN**

**Water Pollution Control Plant
Arlington County, Virginia**

**3402 South Glebe Road
Arlington, Virginia 22202**

Date Certified:

December 21, 2015

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 - Calcium Oxide (unhydrated lime) Ferric Chloride, 38%
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- K Tri-Gas & Oil Statement of Fuel Handling Training**

Abbreviations

| | | |
|-------------|---|---|
| AST | - | Above ground Storage Tank |
| CFR | - | Code of Federal Regulations |
| DEQ | - | Virginia Department of Environmental Quality |
| HMMP | - | Hazardous Materials Management Plan |
| LAN | - | Local Area Network |
| SDS | - | Safety Data Sheet |
| OSHA | - | Occupational Safety and Health Act |
| SPCC | - | Spill Prevention Control and Countermeasure |
| WPCB | - | Water Pollution Control Bureau |
| WPCP | - | Water Pollution Control Plant |
| UST | - | Underground Storage Tank |

1. Owner Information and Certification

1.A. Owner Information

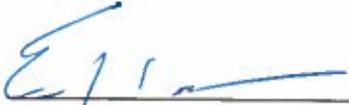
Facility Operator: Thomas A. Broderick, Bureau Chief
Facility Name: Water Pollution Control Plant
Facility Address: 3402 South Glebe Road
Arlington, VA 22202
Owner Name: Arlington County Board
Owner Address: 2100 Clarendon Boulevard
Arlington, VA 22201

1.B. Management Certification

"I have read and am familiar with 40 CFR Part 112 and Chapter 8 of the Arlington County Code. I certify that to the best of my knowledge and belief, this Spill Prevention Control and Countermeasure Plan satisfies the provisions of 40 CFR 112, as well as the Hazardous Materials Management Plan requirements of Chapter 8 of the Arlington County Code. I have the authority to commit the necessary resources to fully implement this plan, and any action items identified in this plan."

| | |
|---|----------|
|  | 12-20-15 |
| Thomas A. Broderick, Chief, Water Pollution Control Bureau | Date |
|  | 12-18-15 |
| Glenn Vance, Operations Manager | Date |
|  | 12-21-15 |
| Frank Palmeri, Maintenance Manager | Date |

1.C. Designated Responsible Individuals

| | |
|---|----------|
|  | 12/16/15 |
| Beau Dodge, SPCC Plan Coordinator | Date |
|  | 12-18-15 |
| Emmanuel Nocon, HHM Coordinator | Date |
|  | 12/16/15 |
| Peter Ceo, WPCB Safety Specialist | Date |

1.D. Professional Certifications

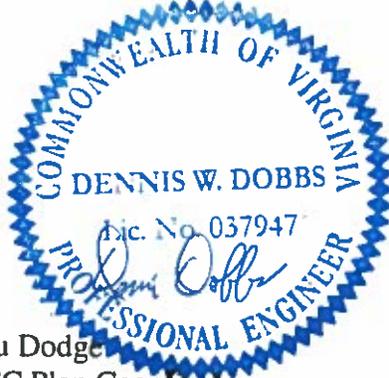
"I hereby certify that I am familiar with the provisions of 40 CFR Part 112, that I or my agent has visited and examined the facility, and I certify that the Spill Prevention Control and Countermeasure Plan has been prepared in accordance with good engineering practices, including consideration of applicable industry standards. I certify that in accordance with this part, the procedures for required inspections and testing have been established, and that this Plan is adequate for the facility. This Plan also meets the requirements of Section 8-10.32.2 of the Arlington County Code."

Name: Dennis W. Dobbs, P.E., CMRP
Plant Planning & Reliability Supervisor

Signature: Dennis W. Dobbs

Registration #: 0402037947 Date: 12/21/2015

Stamp:



Name: Beau Dodge
SPCC Plan Coordinator
Registered Environmental Manager, Registration #854114005

Signature: Beau Dodge

Date: 12/16/2015

1.E. Applicability & Substantial Harm Review

This facility has more than 1,320 gallons of oil stored above ground. Although the petroleum products are stored in such way to prevent the release to the environment, the provisions of 40 CFR Part 112 still apply. This plan has been prepared and implemented as required by 40 CFR 112.

As shown below, it is unlikely that substantial harm could result from the release of oil from this facility, and therefore no Facility Response Plan (Part 112.20) is required.

Applicability of Substantial Harm Criteria

Does the facility transfer oil over-water to or from vessels and does the facility have a total oil storage capacity of greater than or equal to 42,000 gallons? **NO**

Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and, within any storage area, does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation? **NO**

Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Appendix C or a comparable formula) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments? **NO**

Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Appendix C or a comparable formula) such that a discharge from the facility would shut down a public drinking water intake? **NO**

Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last 5 years? **NO**

2. General Facility Description

The Water Pollution Control Plant is a 40 million gallons per day (MGD) tertiary wastewater treatment plant, which includes enhanced biological nutrient removal and improved hydraulic capacity.

A general site plan including the location and contents of chemical and oil storage containers is attached as Figure 1. The Appendix includes floor plans for all referenced structures and a schematic of the tunnel system.

2.A. Location

The facility is approximately 35 acres in size, adjacent to Four Mile Run in South Arlington, Virginia. The major cross streets are South Glebe Road and South Eads Street.

The facility layout and fixed storage areas are diagrammed in Figure 1. Red dots indicate flammable and combustible materials storage, and the blue dots indicated non-flammable, hazardous materials storage. The name of the stored material is noted on the floor plans for each area. The floor plans are contained in the Appendix.

Hazardous materials include: Ferric chloride, 38%, (liquid); sodium hypochlorite, 15% (liquid); hydrochloric acid, 37% (liquid); sodium bisulfite, 30% (liquid); sodium hydroxide, 40% (liquid); methanol 100%, (liquid), phosphoric acid 40% (liquid), and unhydrated lime (solid).

Flammable and combustible materials include: methanol, diesel fuel, lubricants (both liquid and solid), and small quantities of assorted paints and solvents.

Small quantities of household hazardous wastes from Arlington County residents are collected at the Plant, and kept segregated from any of the treatment operations.

The Plant maintains a process laboratory in the Operations Control Building floor (3402 South Glebe Road), which contains small quantities of both hazardous and flammable materials.

2.B. Facility Drainage

The topography of the facility is such that all drainage goes to Four Mile Run, either directly overland or by storm drains. Within the facility boundaries, there are four (4) storm drain outlets to Four Mile Run. In addition to the drainage from the WPCP, the storm drains collect water from South Glebe Road, South Eads Street, South Fern Street, South 31st Street, and Jefferson Davis Highway, as well as runoff from other off-site facilities, such as the Washington Metropolitan Area Transit Authority Bus Yard at 3501 South Glebe Road, and Porsche of Arlington on the 3500 block of South Glebe Road. Outfalls at which facility stormwater enters Four Mile Run are noted in Figure 1. A topographic map for the facility is provided in Figure 2.

2.C. SPCC/HMMP Location

To avoid duplication of effort and to facilitate an emergency response by the Fire Department, the Water Pollution Control Bureau has combined the Spill Prevention Control and Countermeasure Plan and the Hazardous Materials Management Plan. Both plans are required by Chapter 8.1 of the Arlington County Code. This plan will be referred to as the SPCC/HMMP in this document.

A copy of the SPCC/HMMP is maintained at two locations in Knox Repository Boxes: at Gate 8 on South Glebe Road, and Gate 3 on 31st Street. The placements of the Knox Repository Boxes were specified by Arlington County Inspection Services. The Knox Boxes contain the SPCC/HMMP, SDSs for all bulk materials used at the plant, keys for opening the Household Hazardous Materials room, and Standard County key #2126 that fits all County padlocks (except for Lock Out Tag Out and Operational Out of Service locks). Keys for the two Knox Repository Boxes are located in the master key box located on the 3rd floor in the OCB (key tag #428). All plant shift supervisors have access to the master key box.

Because of the size of the facility, the variety of materials, and the differing potential spill routes, and specifics of the facility description and site plan are broken into three zones: North, Southeast and the Southwest.

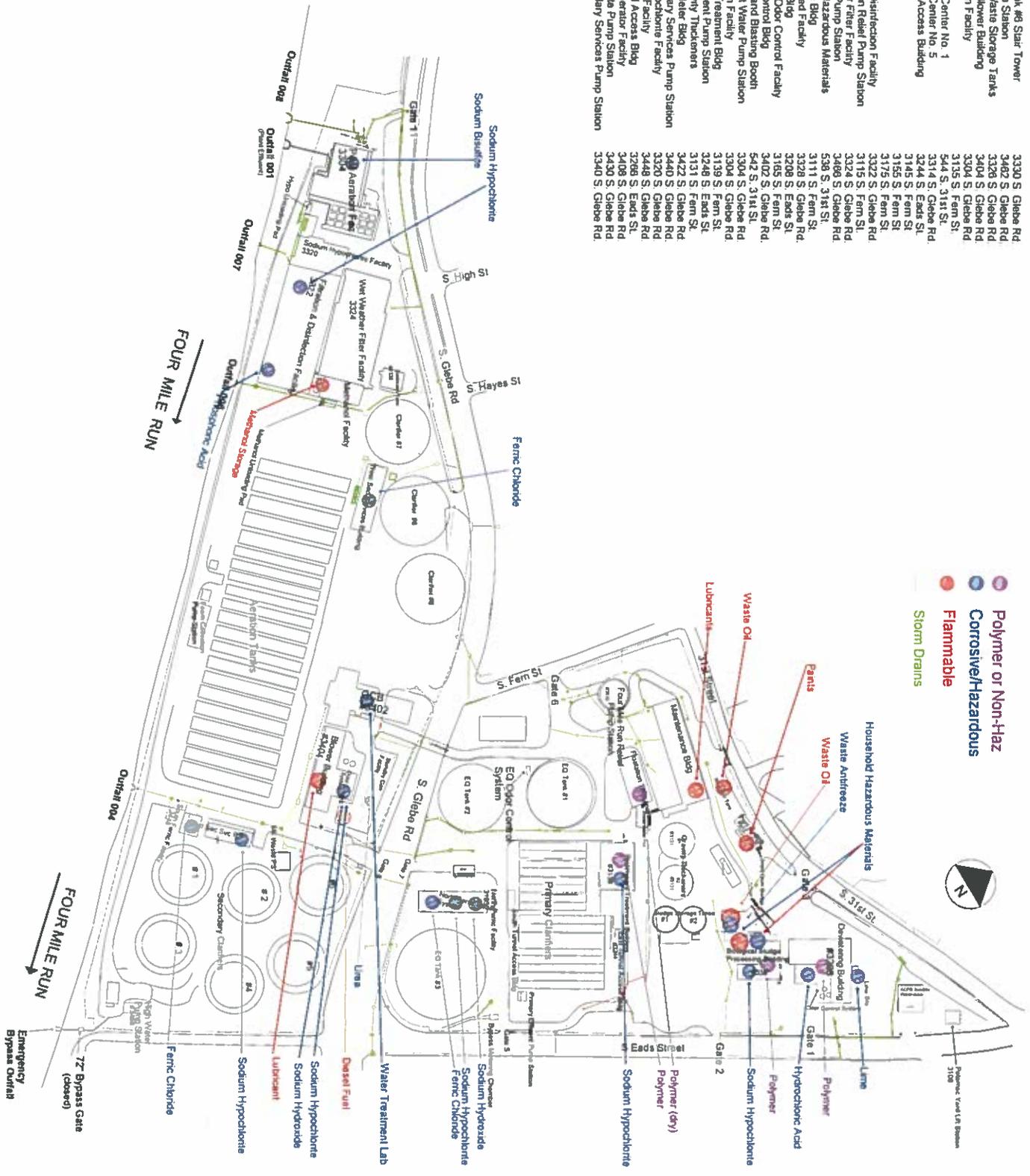
The chemicals included in this SPCC/HMMP are those used, stored or handled in bulk amounts. Chemicals present in quantities less than 120 gallons are not included in this plan, with the exception of oil, for which all containers of 55 gallons or greater are included. A master file (electronic) containing all SDSs is maintained in the WPCP LAN server, and on SharePoint.

In accordance with 40 CFR 112.7, and to assist in the ease of inspection and review of the SPCC portions of this plan, a regulatory cross reference table is included as an Appendix to this document.

FIGURE 1

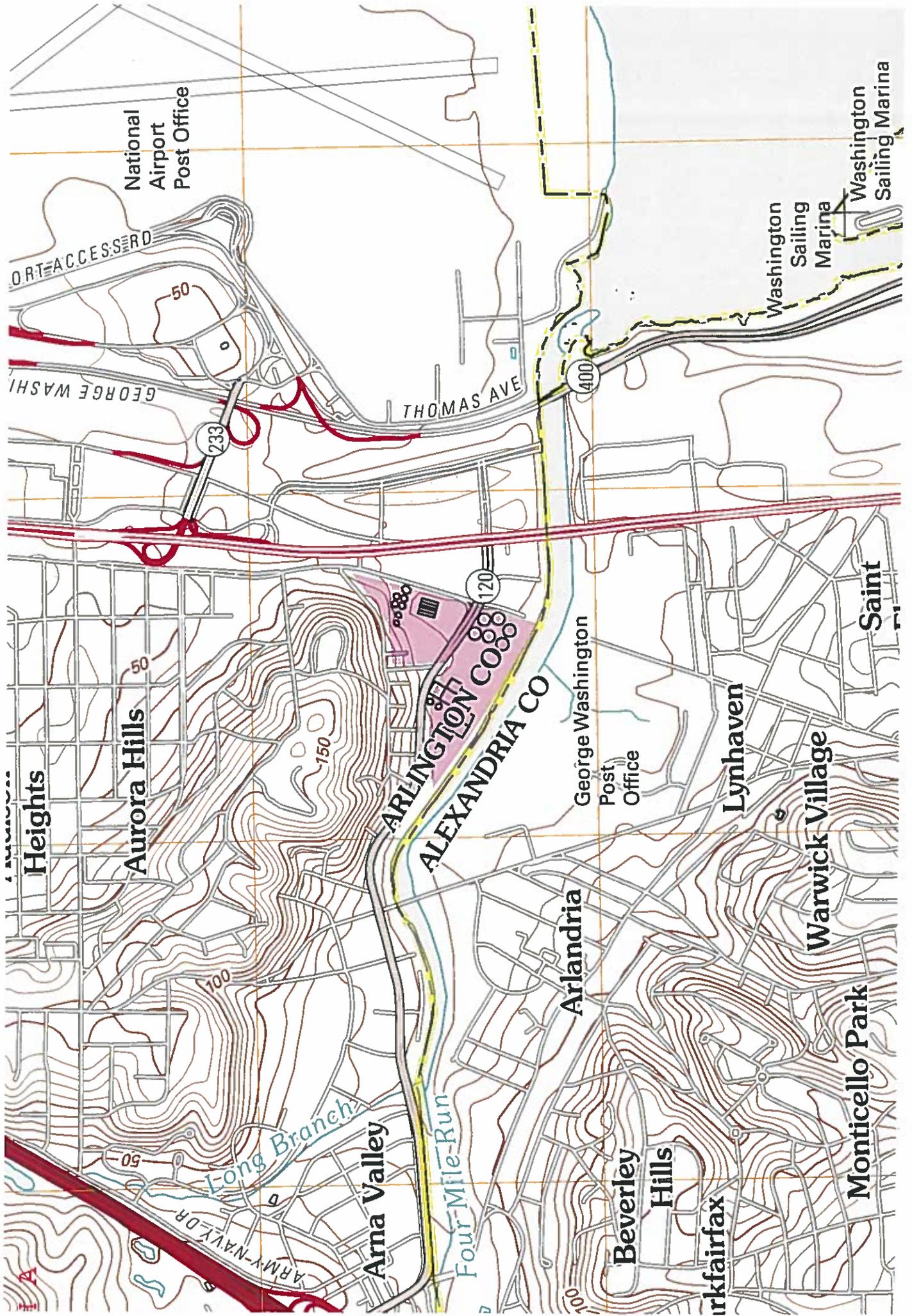
Water Pollution Control Plant Chemical Pollution Storage as of 09/01/15

| BUILDING NAME | ADDRESS |
|--|-------------------|
| Aeration Tank #8 Stair Tower | 3330 S. Glebe Rd |
| ASE-1 Pump Station | 3482 S. Glebe Rd |
| Backwash Waste Storage Tanks | 3326 S. Glebe Rd |
| Secondary Blower Building | 3404 S. Glebe Rd |
| Post Aeration Facility | 3304 S. Glebe Rd |
| DAFT Bldg | 3135 S. Fern St. |
| Distribution Center No. 1 | 544 S. 31st St. |
| Distribution Center No. 5 | 3314 S. Glebe Rd |
| East Tunnel Access Building | 3244 S. Eads St. |
| EQ Tank #1 | 3145 S. Fern St. |
| EQ Tank #2 | 3155 S. Fern St. |
| EQ Tank #3 | 3175 S. Fern St. |
| Filtration & Disinfection Facility | 3322 S. Glebe Rd |
| Four Mile Run Relief Pump Station | 3115 S. Fern St. |
| Wet Weather Filter Facility | 3324 S. Glebe Rd |
| High Water Pump Station | 3486 S. Glebe Rd |
| Household Hazardous Materials Maintenance Bldg | 538 S. 31st St. |
| Methanol Feed Facility | 3111 S. Fern St. |
| Devolting Bldg | 3328 S. Glebe Rd. |
| North Ferrocider Control Facility | 3208 S. Eads St. |
| Operation Control Bldg | 3165 S. Fern St. |
| Part Bldg/Sand Blasting Booth | 3402 S. Glebe Rd. |
| Part Effluent Water Pump Station | 542 S. 31st St. |
| Post Aeration Facility | 3304 S. Glebe Rd |
| Preliminary Treatment Bldg | 3304 S. Glebe Rd |
| Primary Effluent Pump Station | 3139 S. Fern St. |
| Primary Gravit Thickener | 3248 S. Eads St. |
| Secondary Meiler Bldg | 3131 S. Fern St. |
| East Secondary Services Pump Station | 3422 S. Glebe Rd |
| Sodium Hypochlorite Facility | 3440 S. Glebe Rd |
| South Tunnel Access Bldg | 3320 S. Glebe Rd |
| South Ferrocider Facility | 3448 S. Glebe Rd |
| Standby Generator Facility | 3288 S. Eads St. |
| Surface Waste Pump Station | 3408 S. Glebe Rd |
| West Secondary Services Pump Station | 3430 S. Glebe Rd |
| | 3340 S. Glebe Rd |



2.C.a Facility Map (Figure 1)

FIGURE 2



National Airport Post Office

Washington Sailing Marina
Washington Sailing Marina

GEORGE WASHINGTON
233

THOMAS AVE

400

Heights

Aurora Hills

ARLINGTON CO
ALEXANDRIA CO

George Washington Post Office

Lynhaven

Warwick Village

Saint

Arlandria

Beverley Hills

irkfairfax

Monticello Park

Arna Valley

Long Branch

Four Mile Run

ARMY-NAVY DR

LA

3. North Zone

3.A. Description

This area includes the biosolids dewatering and loading building, the warehouse/maintenance building, the Preliminary Treatment Building, sludge storage tanks, Gravity Thickener Building, Potomac Yards Lift Station, North Ferric Facility, the HHM Collection facility, the Fire Department Storage (Butler) Building, the Four Mile Run Pump Station, and the Dissolved Air Floatation Thickener Building.

Entry to this area is through Gate 3 on 31st Street, Gate 6 at 3151 South Fern Street, Gate 7 on South Glebe Road, and Gates 1, 2, and 5 on South Eads Street. All padlocks are keyed to the same County key, which is included in the key sets placed in the Knox Repository Boxes. WPCB staff will attempt to unlock and open the gates for the Fire Department. The Fire Department does have the authority to cut the locks if necessary.

All drainage in this area enters Four Mile Run at a single point (Outfall No. 004). All floor drains in structures within this area drain to the influent entering the plant. There are no floor drains that discharge to the storm sewers.

A pipe gallery is used to distribute service utilities throughout the plant. The pipe gallery is also used to transfer sodium hypochlorite from the Southside of the plant (Sodium Hypochlorite Building, 3320 South Glebe Road) to the Preliminary Treatment Building (3139 South Fern Street). The pipe gallery is an underground concrete structure, and does not allow pollutants access to the environment. The sodium hypochlorite transfer line used through the plant is either a high density plastic or a steel reinforced rubber hose, inserted inside of a plastic or ductile iron pipe. The pipe gallery is detailed in the Appendix section of this plan.

In addition to the pipe gallery, there are also a series of Utility Tunnels which allow WPCB staff access to portions of the plant underground. These tunnels are detailed in the Appendix.

The North Ferric Facility includes odor control and ferric feed system. Chemicals stored in this building include ferric chloride, sodium hypochlorite, and sodium hydroxide.

The Household Hazardous Materials facility was constructed in the Biosolids Building (3208 South Eads Street), and completed in March of 2009. The facility is a modification of the existing structure, with the addition of new walls, doors, and fire suppression systems.

3.B. North Zone Storage Summary

3.B.a. Chemicals Storage

| Building and Address | Chemical Stored | Maximum Amount Stored | Type of Storage | Comments |
|--|---|---|--|--|
| Biological Solids Processing Building 538 South 31st Street | Polymer (liquid) Sodium Hypochlorite, 15% (liquid) | 7,500 gallons 7,500 gallons | AST AST | Located in basement with containment Release would be contained within the building |
| HHM Facility | Misc. Hazardous Materials Misc. Flammable Materials | 10 drums of pesticide 10 drums of flammable and/or combustible materials | Cement block structure w/ internal containment | Fire Marshal/Inspection Services Approved |
| Dewatering Building 3208 South Eads Street | Hydrochloric Acid 37%, Sodium Hypochlorite, 15% (liquid) Lime, unhydrated (solid) | 550 gallons 3,750 gallons 300,000 lbs | 55 gal drums AST AST | Material stored in Chemical Storage Room with spill containment Exterior silo |
| Maintenance & Warehouse 3111 South Fern Street | Janitorial Supplies Equipment Supplies | <100 lbs <100 lbs | Dry storage | |
| Preliminary Treatment Building 3139 South Fern Street | Sodium Hypochlorite, 15% (liquid) Polymer (liquid) | 3,750 gallons 11,250 gallons | AST | Tanks located in building with containment |
| North Ferric Facility 3165 South Fern Street | Ferric Chloride, 38% Sodium Hypochlorite, 15% Sodium Hydroxide, 25% | 40,200 gallons 11,000 gallons 11,000 gallons | AST AST AST | Tanks located in building with containment |
| Dissolved Air Flootation Thickener Building | Polymer (dry) | 11,000 lbs | Pallets | 55 lb bags |

3.B.b. North Oil Storage

| Building and Address | Contents | Capacity (gallons) | Containment & Type | Drainage Direction |
|---|-----------------------------------|--------------------|---|--|
| Maintenance & Warehouse 3111 South Fern Street | Waste Oil (liquid) | 350 | Yes: AST w/ secondary containment | Release from tank: Downhill to storm drain (Outfall 004) |
| | Lubricating Oils (liquid & solid) | 2,500 | Yes: Drums in secured & Bermed containment room | NA |
| HHM Facility 538 South 31 st Street | Waste Oil | 350 | Yes: Integral containment | NA: Storage area is bermed from storm drain |

This zone contains approximately 236 pieces of equipment that contain oil, with a total combined capacity of about 741 gallons. The largest capacity of a single piece of equipment (80 gallons), is the paint can compactor located in the Biological Sludge Processing Building (BIO). A complete list of oil containing equipment is contained in the Appendix.

3.C. Floor Plans

Attached in the appendix are the following floor plans:

- Bio Building (538 South 31st Street) – Basement
- Household Hazardous Material Facility (538 South 31st Street)- Westside
- Preliminary Treatment Building (3139 South Fern Street)
- Warehouse/Maintenance (3111 South Fern Street)
- Dewatering Building (3208 South Eads Street)
- North Ferric Facility (3165 South Fern Street)
- Dissolved Air Floatation Thickener Building

The locations of hazardous materials are noted on each floor plan.

3.D. Potential Types of Spills: Spill Volumes and Rates

**3.D.a. Biological Sludge Processing Building (BIO)
538 South 31st Street**

The Biological Sludge Processing Building (538 South 31st Street) is unused except for the basement area and the west side. The basement contains three (3) 7500 gallon ASTs, of which one is used for liquid polymer and one is used for sodium hypochlorite. The remaining tank is not in service at this time.

The Household Hazardous Materials (HHM) facility is located in the west portion of the Biological Sludge Building, and stores HHM collected from Arlington households. This facility became operational in March of 2009. The facility has four separated rooms

holding the materials collected by the program. The rooms have a containment berm and fire suppression systems. Flammable and combustible materials are segregated from non-flammable and non-combustibles. A 4 inch berm separates the area around the storage rooms, paint storage, waste oil and antifreeze tanks from the storm drains and parking lot. There are two (2) sanitary sewer cleanout drains within the bermed area that can be used for disposing of spilled chemicals provided they are compatible with the treatment processes.

The Drop and Swap Initiative (DSI) first piloted in spring 2014 (FY14) is a material reuse initiative that seeks to expand material resource conservation efforts within Arlington County by promoting sustainable use of HHM products collected by the program that may have otherwise been disposed of as wastes. The DSI weather-proof/spill-proof cabinets are located on the west side of the DWB, just north of the HHM facility.

DSI objectives are to:

- Reduce overall HHM Program disposal costs;
- Provide an economic incentive for residents participating in the program;
- Create public education opportunities for proper HHM use and storage within the home; and,
- Demonstrate the County's on-going commitment to environmental stewardship.

DSI offers to the community beneficial reuse opportunities for selected HHM products determined to be usable, low-toxicity products that pose minimal human health and safety risks when used for their intended purposes as per manufacturers' instructions.

Wastes generated by households are classified as non-hazardous by RCRA, regardless of their hazardous characteristics.

All transfers are supervised by designated WPCB staff. Materials from citizens are accepted by designated WPCB staff and immediately segregated. Removal of materials collected by the program is by a permitted hazardous waste contractor, less than 90 days after the container becomes full. Materials removed for disposal are shipped following appropriate DOT regulations. Shipping manifests and other program documentation are maintained in the HHM Coordinator's Office.

The waste oil tank is not accessible to traffic and the fill-port is locked. Material is added to the tank by WPCB staff and removed by the contractor through the use of a vacuum line.

Sodium Hypochlorite (liquid) 15%

NFPA 2-0-1 C

This tank contains 7500 gallons of a 15% solution of sodium hypochlorite. The fill-pipe for this tank is located on the east side of the Biological Sludge Processing Building, and has a containment pit. The fill-pipe has a containment pit and a lock.

The tank has a 3 foot containment wall separating it from the rest of the basement. In the event that containment fails, all product would be contained within the basement of the building. Any releases within the Bio-Building are captured in the basement and are discharged via a sump pump to Preliminary Treatment Building (3139 South Fern Street). Surfaces surrounding the Bio-Building are paved and impervious. Drainage in this area goes to Stormwater Outfall 004.

Copolymer Acrylamide (liquid)

Located in the basement of the Biological Sludge Processing Building, this tank contains up to 7500 gallons of a solution of copolymer acrylamide (polymer). The fill-pipe for this tank is located on the north side of the Biological Sludge Processing Building. The fill-pipe is locked.

3.D.b. Dewatering Building (DWB)
3208 South Eads Street

Operations staff inspect all areas of the Dewatering Building (3208 South Eads Street) daily, and monitor all tank transfers.

Hydrochloric acid in the Dewatering Building is stored in the basement on spill pallets in 55-gallon drums. There is a spill kit located in the basement.

Sodium hypochlorite is transferred from the Biological Storage Building as needed, through piping internal to the buildings. All floor drains lead to the primary process.

Sodium Hypochlorite (liquid), 15%

NFPA 2-0-1 C

A 15% solution of sodium hypochlorite is stored in a 3750 gallon fiberglass tank on the ground floor of the Dewatering Building. The tank has overflow protection. Sodium hypochlorite is transferred by pipe to the Dewatering Building from the Biological Sludge Process Building.

Copolymer Acrylamide (liquid)

Also located on the ground floor of the Dewatering Building, this tank contains up to 3750 gallons of a solution of copolymer acrylamide (polymer). The polymer is transferred by pipe to the Dewatering Building from the Biological Sludge Processing Building.

Lime (solid)

NFPA 1-0-1 W

Lime is received at the north end of the Dewatering Building. Approximately 2-3 pounds of lime may be released during transfer from the tank truck to the hoppers. The lime storage hopper is visually inspected daily. Any spilled material is swept up and added to the hopper. The Dewatering Building generally receives 46,000 pounds of unhydrated lime (quick lime) every three days by tanker truck. Deliveries arrive between 7 a.m. and 7 p.m. during the week. Lime is added to the dewatered sludge as a pathogen and vector control agent, making the sludge suitable for land application.

Hydrochloric Acid 37%

55-gallon drums of hydrochloric acid are received by truck on pallets, on the east side of the DWB. The pallets are moved off of the truck by means of a forklift; then taken inside of the DWB to the basement for storage. The acid is used in the odor control process. When needed, a forklift retrieves a pallet from the basement, and transports it to the asphalt driveway next to the odor control facility. Then, a manual transfer pump is used to move the acid into the odor control process. There is a spill kit located in the basement where the acid is stored; inside the acid room on the ground floor behind the outer door; and a third kit is located outside in front of the Bio Building transfer station. Should a spill occur while transferring the acid, it would drain towards a storm grate located in the middle of the asphalt driveway, which eventually discharges through Outfall 4. Because of the great distance from the storm grate to the Outfall, there would be ample time to capture the spill in the sewer before it reached the Outfall.

3.D.c. Maintenance/ Warehouse 3111 South Fern Street

Lubrication Oil Storage Room

This room has a maximum capacity of approximately fifty, 55-gallon drums. The room has a 7 inch berm protecting the entrance from the parking lot. Because this area is bermed, it does not have a spill kit. The lubricating oils and greases are used by the facility for lubrication of industrial machinery necessary to process sewage. Types of machinery include pumps, gear boxes, and motors. Lubricating oils and greases are transferred to appropriate containers in the Lubrication Oil Storage Room, and transported to the job site by motor vehicle. All vehicles have oil spill kits. Any spill is cleaned up with rags or absorbent, which are then deposited in a used rag storage drum. The storage drum is removed as necessary by a licensed contractor. Because chlorinated solvents are not used at the facility and the rags are not soaked, the rags are not classified as a hazardous waste.

Janitorial and Equipment Supplies

The janitorial supplies are used to clean the facility and include materials such as laundry soap, floor cleaners, and disinfectants. The combined inventory of janitorial supplies is generally less than 100 pounds. The most recent inventory is contained in the Appendix. The Equipment Supplies are used for servicing a variety of equipment on the facility, but primarily the stand-by pumps situated at the plant and lift stations. Equipment supplies include materials such as penetrating oil, engine degreaser, and diesel fuel additive.

The Warehouse stores empty gasoline and kerosene cans in a flammable cabinet, as well as flammable aerosols. Dry detergents, which are alkali, are stored on shelves in a caged area. The Warehouse also stores spill response equipment, including absorbent and booms.

Waste Oil (liquid)

The 350 gallon AST for the waste oil is a double-walled tank, which has integral secondary containment. Waste oil is transferred by Plant personnel to the tank from the top, and the oil-removal contractor pumps out the oil from the top. Maximum amount of oil that could be spilled during transfer would be one gallon. Any spilled material is cleaned up with rags and deposited in the used rag storage drum. The rag storage drum is removed as necessary by a licensed contractor. Because chlorinated solvents are not used at the facility and the rags are not soaked, the rags are not classified as a hazardous waste.

3.D.d. Preliminary Treatment Building (PTB)

3139 South Fern
Street

There are three (3) 3750 gallon tanks containing polymer and one 3750 gallon tank containing sodium hypochlorite located at this building. The entire surface around the PTB is paved and impervious. The trench drains surrounding the PTB as well as the Waste Hauler Station, directly discharge to the primary settling tanks.

Sodium Hypochlorite (liquid) 15%

NFPA 2-0-1 C

A 3750 gallon tank is located within the PTB, which has an integral containment system within the floor. Any release from the storage tank would be contained within the floor system and pumped into the primary settling tanks. The storage room is isolated from the control room, and staff does not have to pass through the storage room to exit the building.

The receiving valve for the tank is located in the east wall of the PTB and is secured with a valve lock. A wall separates the receiving area from the primary settling tanks. In front of the PTB is a trench drain, which drains to the sewage entering the PTB. Most releases in this area would flow to the trench drain. In the event of a catastrophic rupture of a tanker delivering product to the facility, material may enter the storm drains on the north side of the building. However, during normal operations, the maximum amount that could be released would be no more than 10 gallons due to monitoring by Operations staff. Operations staff also monitors all transfers from the tanker truck to the storage tank and the tanker-truck operator is required to be observing the transfer operation at all times.

In addition to the receiving pipe, the sodium hypochlorite tank can be filled by the double wall transfer-line from the Sodium Hypochlorite Facility (SHF) (3304 South Glebe Road). The transfer-line passes through a pipe gallery, and is monitored during material transfer.

Copolymer Acrylamide (liquid)

Also located on the ground floor of the PTB, these tanks contain up to 3750 gallons each of a solution of copolymer acrylamide (polymer). The receiving valve for the tanks is located on the west wall of the PTB. Most releases in this area would flow to the trench

drain. In the event of a catastrophic rupture of a tanker delivering product to the facility, material may enter the storm drains on the north side of the building. However, during normal operations, the maximum amount that could be released would be no more than 10 gallons due to monitoring by Operations staff. Operations staff also monitors all transfers from the tanker truck to the storage tank and the tanker-truck operator is required to be observing the transfer operation at all times. The fill pipe is locked.

3.D.e. North Ferric Facility (NFF)
3165 South Fern
Street

This structure houses four (4) above ground storage tanks (ASTs) containing ferric chloride, sodium hypochlorite, and sodium hydroxide. Each tank is in a separate containment structure capable of containing the entire tank in the event of a catastrophic rupture. Chemical unloading is conducted at an unloading pad approximately 50 feet from the building. Chemicals are transported between the unloading pad to the tanks in double-walled, above ground pipes. The pipes drop underground approximately 10 feet from the building and go into the building.

The chemical unloading pad is surrounded by a berm with a central drain to capture a release from an unloading truck, and captured material goes to a containment pit. The chemical fill-ports are not segregated, sharing a common containment area. Material released from the chemical fill-ports also goes to the containment pit. The containment pit is plumbed to the storm sewer through a valve tied into the chemical fill-port control panel. However, the valve is permanently closed, and the sump is periodically pumped out by Operations.

During chemical unloading, a small amount (less than 10 gallons) of chemical may be released during hose disconnection. Operations staff monitors all transfers from the tanker truck to the storage tank and the tanker-truck operator is required to be visually monitoring the transfer operation at all times.

Countermeasures maintained in this area include corrosive spill kit for ferric chloride and sodium hypochlorite, and a specialty absorbent (Spill-X C®) for sodium hydroxide.

Ferric Chloride (liquid) 38%

NFPA 3-0-2 C

The North Ferric Facility contains two (2), 10,100 gallon tanks, each in a separate containment structure and are isolated from the sodium hydroxide and sodium hypochlorite. All piping between the building and the fill-ports is see-through and double walled. Any breach of the transfer line would be visible.

Sodium Hypochlorite (liquid) 15%

NFPA 2-0-1 C

There is one, 11,000 gallon tank for this chemical. It is in the same room as the sodium hydroxide, but in a separate containment area. The piping is the same as that for the ferric chloride: see-through and double walled, so any breach of the transfer line would be visible.

Sodium Hydroxide (liquid) 25%

NFPA 4-0-2 C

The building contains one, 11,000 gallon for this material. It is located in the same room as the sodium hypochlorite and has separate containment. The piping is the same as that for the ferric chloride: see-through and double walled, so any breach of the transfer line would be visible.

3.D.f. Dissolved Air Floatation Thickener Bldg (DAFT)

This structure contains 55 lb. bags of polymer, stored on pallets. Bags arrive on pallets that are transferred from the delivery trucks into the building using a forklift. Dry spills would be swept up and the polymer evaluated for reuse.

3.E. Potential Chemical Incompatibilities

Ferric chloride: This material is about 10% hydrochloric acid and is corrosive to many metals. Reaction with zinc or brass could liberate hydrogen gas. Mixing with hypochlorite solution will liberate chlorine gas.

Lime (solid): The material used at the plant is calcium oxide (CaO), also called unhydrated lime or quicklime. This material is very corrosive and has an exothermic reaction with water. Large amounts of lime in contact with water will generate sufficient heat to ignite wood and other materials. Heat of hydration is 490 Btu/pound. Calcium oxide may also release heat when in contact with acids, steam, and many organic materials.

Sodium hydroxide: This material is a strong base and extremely corrosive. Contact with metals such as aluminum, magnesium, tin, and zinc can cause the formation of flammable hydrogen gas. It reacts exothermically with acids and water.

Sodium hypochlorite: This material is basic and corrosive to some metals. Contact with acids (such as ferric chloride) or ammonia will release chlorine gas.

Hydrochloric (Muriatic) Acid: This chemical is a strong acid and is corrosive to many metals. Hydrochloric acid will react exothermically (producing heat) if mixed with water, or basic materials such as sodium hydroxide and sodium hypochlorite. Mixing with sodium hypochlorite may produce chlorine gas.

Polymer: The Plant uses a combination of solid and liquid anionic polyacrylamide from various manufacturers. These polymers are not listed as hazardous materials, but will cause extremely slippery conditions when wet. Polymers may decompose when exposed to heat or oxidizing agents, releasing toxic materials, such as carbon monoxide, carbon dioxide, ammonia, and acrylamide - a potent neurotoxin and carcinogenic. Avoid contact with oxidizing agents such as sodium hypochlorite.

3.F. Spill Prevention and Control Measures

3.F.a. Labeling & Placarding

The WPCB has an active Safety Awareness program, and follows all “Right-To-Know/Understand” requirements. All appropriate placarding and labeling requirements are followed.

3.F.b. Monitoring

Chemical handling is monitored by the shift supervisor and operators. Operators regularly make rounds that cover the entire plant every 12 hours, 7 days per week. All Operators have two-way radios for immediate communication with other Operations staff. In the event of a release, an announcement will be made on the radio. The Operator will contact the Shift Supervisor, who will decide if the spill requires a call to the Emergency Communication Center (911). Following the initial call to 911, the Notification Procedures detailed in Section 11 shall be followed.

3.F.c. Handling

Staff are informed of all hazardous materials that they work with or could come in contact with as required by the “Worker Right To Know/Understand” program. Personnel are trained/instructed to handle hazardous materials in the manner specified in the respective SDSs. All oil-handling personnel are trained in the operation and maintenance of equipment to prevent discharges. All vehicles contain a spill response kit in the event of a spill. All WPCB Operators have been provided with personal protective equipment which includes gloves, safety shoes, eye protection, and protective clothing for use when working around hazardous materials at the facility. Operations staff are trained in the use of the equipment when hired. See Section 10 for details on training.

3.F.d. Transfer Operations

All transfer operations are monitored by WPCB staff. If material is released during transfer, the transfer is immediately terminated and the release is reported to the Shift Supervisor. The Shift Supervisor will decide if the spill requires a call to the Emergency Communication Center (911). Additional notifications shall be made as specified in Section 11.

Prior to all deliveries, Operations staff check the available capacity of the holding tanks. The delivery will be allowed to take place if the volume of the delivery does not exceed the available capacity of the holding tank. Operations staff are required to sign the bill of lading indicating that they checked the holding capacity of the receiving tank.

Hypochlorite is periodically transferred from the SHF (3320 South Glebe Road) to the Preliminary Treatment Building (3139 South Fern Street) sodium hypochlorite tank. The hypochlorite is transferred by either a high density plastic pipe or a steel reinforced rubber hose inside a support pipe. The support pipe is either PVC or

ductile iron, depending on plant location.

On the north side of the plant, there is presently no alarm in the pipe gallery. Operations staff physically monitor the transfer operation. All pipe transfers are physically monitored by staff during the transfer. Staff is in contact with each other and the Control Center (3402 South Glebe Road) by radio. In the event of a release, the transfer can be immediately terminated and the proper authorities will be notified as specified in Section 11.

Fuel delivery trucks are considered "mobile refuelers" and are exempt from the secondary containment requirements ((40cfr112.8(c)(11)). Fuel delivery is currently provided by Tri-Gas & Oil Co. The contractor is responsible for mitigating any release during refueling operations. The contractor only delivers sufficient fuel to refill the storage tank, and visually observes level while filling the tank. Although Tri-Gas does not have written delivery procedures, all drivers are trained in the proper DOT/EPA delivery procedures. The letter stating this is included in the Appendix.

3.F.e. Inspections, Tests, and Records

Facility personnel inspect the facility during each day of the normal work schedule. Operations staff inspects tanks visually for leaks once per shift, and is documented on the station checklist. All leaks and other problems are referred to maintenance and reported to the supervisor. Any deficiencies or problems will be noted in the appropriate logs, and any corrective action taken will be recorded. The recorded results of the inspections and visual tank tests will be kept with this plan in the maintenance records and/or the environmental files, for a period of at least three years.

3.F.f. Countermeasures

The plant maintains sufficient absorbent to remove a minimum of 500 gallons of liquid. The most recent inventory is included in the Appendix. Sufficient quantities of absorbent to absorb at least 500 gallons of corrosive and oily liquid are located in the Warehouse (3111 S. Fern St). Spill kits are located throughout the Plant at bulk storage areas and contain the appropriate absorbent type (Universal or Oil-Only). All universal absorbents used for corrosive liquids are compatible with both acidic and basic liquids. For hydrochloric or phosphoric acid, the WPCP stocks Spill-X A®, which is compatible with strong acids and serves to neutralize and absorb the acid. For sodium hydroxide, the WPCP has Spill- X C®, which is compatible with strong bases and will neutralize and absorb the hydroxide. The plant has spill control kits located at potential release points throughout the plant. A map detailing these points is contained in the Appendix. Individual spill kits are designed to handle either 18 gallons of aggressive liquids or spilled petroleum based product. Bulk spill supplies are located in the Warehouse. Spill supply location and capacity are detailed in the table below.

| Location and Capacity of Absorbent Materials: North side | | |
|--|--|--------------------------|
| Location | Chemical Compatibility | Absorbent Capacity |
| Dewatering Building (3208 South Eads Street) Basement Acid Storage Room | Corrosive liquids Spill-X A® | 18 gallons 5 gallons |
| Preliminary Treatment Building (3139 South Fern Street) Inside east stairwell Inside west stairwell | Corrosive liquids Corrosive liquids | 18 gallons 18 gallons |
| North Ferric Facility (3165 South Fern Street) | Corrosive liquids Spill-X C® | 18 gallons 5 gallons |
| HHM Facility 536 South 31 st Street | Corrosive Liquids Petroleum Based Liquids Oil | 18 gallons 18 gallons |
| Maintenance/Warehouse (Connex) | Corrosive liquids Petroleum-based liquids | 18 gallons 18 gallons |

3.G. Hazard Assessment – Hydrochloric Acid

Hydrochloric acid is used in conjunction with sodium hypochlorite in the odor control system (wet scrubber) for the Dewatering Building. Operations and maintenance staff are instructed annually on the reaction and physical hazards of hydrochloric acid (Spill Response Training).

3.G.a. Hazard Identification

Hydrochloric acid is an extremely corrosive mineral acid. Acute hazards include:

Skin: Contact causes severe burns and rapid tissue destruction.

Ingestion: Severe damage to mucous membranes, mouth, throat, and stomach.

Eye: Can cause corneal burns and permanent eye damage and blindness.

Inhalation: Although hydrochloric acid is not volatile, mists and vapors can cause severe lung damage and is a suspected carcinogen (chronic exposure).

Hydrochloric acid fumes can readily occur during transfers. WPCP staff working in the acid storage area or during transfer are required wear acid proof boots, gloves, face shield and either Tyvek or rain/chemical suit.

3.G.b. Release Protection

The hydrochloric acid is currently stored in 55-gallon drums located in the basement of the DWB. The drums are stored on secondary spill pallets. Should a spill occur that is not captured by the pallet, a spill kit is located nearby. In the event of an unobserved acid spill, all floor drains in the basement are directed to the sanitary sewer. The release of hydrochloric acid into the environment is possible during transfer operations. Currently, the

drums are moved from the basement to the odor control area of the DWB – located outside. Then, each drum is emptied using a manual transfer pump. Spills onto the asphalt driveway are possible – which, if not immediately contained with countermeasures, would flow into a nearby storm catch basin. Operations is exploring alternative solutions to the manual transferring of the hydrochloric acid into the odor control system.

3.G.c. Emergency Response

Operations and maintenance staff are trained to handle small, incidental spills (<20 gallons) and there are spill kits and specialty absorbent in the acid storage room and basement. Specialty absorbent is Spill-XA®, and will absorb and neutralize strong acids. In situations in which spills are greater than 20 gallons, or uncontrolled, the Emergency Communications Center (911) shall be called.

4. Southeast Zone

4.A. Description

This area of the plant is on the South side of South Glebe Road, adjacent to Four Mile Run, and east of a line drawn between Operations Control Building, and Four Mile Run. The operations within this area are the aeration and settling of activated sludge. Entry to this area is through Gate 8. Drainage in this area flows both overland and through storm drains to Four Mile Run. A pipe gallery is used to distribute service utilities throughout the plant. The pipe gallery is also used to transfer sodium hypochlorite from the SHF (3320 South Glebe Road) to the Preliminary Treatment Building (3139 South Fern Street), as well as secondary operations located on the southeast side. Southeast areas include the Secondary Services Pump Station (3440 South Glebe Road), Secondary Clarifiers (1-6), the Surface Waste Pump Station, the South Ferric Facility (SFF), the Secondary Blower Building (SBB), the Standby Generator Facility (SGF), and the Operations Control Building (OCB). The sodium hypochlorite transfer line used through the plant is either a high density plastic pipe or a steel reinforced rubber hose, inserted inside of a plastic or ductile iron pipe. The pipe connects to a well on the lowest side of the pipe gallery which is fitted with a float switch. If the hose fails, product will flow down to the well and trigger a visual alarm in the SHF Control Room located in the AWT Building (3304 South Glebe Road). This will alert Operations staff to the release. The map in the Appendix contains a schematic of the pipe gallery which contains transfer lines for ferric chloride and sodium hypochlorite.

4.B. Southeast Storage Summary

4.B.a. Chemical Storage

| Building (Number) | Chemical Stored | Maximum Amount Stored | Type of Storage | Comments |
|--|-----------------------------|------------------------------|------------------------|---|
| Blower Building (3404 South Glebe Road) | Sodium hypochlorite, 15% | 2,700 gallons | AST | Inside building with containment structure |
| | Sodium hydroxide, 40% | 7,800 gallons | AST | |
| Operations Control Building Laboratory (3402 South Glebe Road) | Acetone | 4 Liters | Flammable Cabinet | |
| | Hexane | 8 Liters | | |
| | 2-Propanol | 1 Liter | | |
| | Bromine Water | 20 ml | | |
| | Chloroform | 2 Liters | | |
| | Ethylene Glycol | 4 Liters | | |
| | Formaldehyde | 450 ml | | |
| | Freon 113 | 4 Liters | | |
| | Hexadecane | 500 ml | | |
| | Hexadecane/stearic Acid | 60 ml | | |
| | Hexane redistilled | 50 ml | | |
| | Phenolphthalein Indicator | 500 g | | |
| | Polyoxyethylene nonylphenol | 1 gallon | | |
| | Phosphoric Acid | 3 Liters | Corrosive Cabinet | |
| | Hydrochloric Acid | 4 Liters | | |
| | Nitric Acid | 4 Liters | | |
| | Sodium Hydroxide | 2.5 Liters | | |
| | Sulfuric Acid | 8 Liters | | |
| | Miscellaneous reagents | 27 Liters 2 Liters | | |
| Secondary Services Pump Station (3440 South Glebe Road) | Sodium hypochlorite, 15% | 1900 gallons | AST | 2, 950 gallon AST w/ containment wall |
| South Ferric Facility (3448 South Glebe Road) | Ferric chloride, 38% | 10,000 gallons | AST | 2, 5000 gallon AST w/ containment |

4.B.b. Southeast Oil Storage

| Building | Contents | Capacity (gallons) | Containment & Type | Drainage Direction |
|---|------------------------|--|---|---|
| Blower Building (3404 South Glebe Road) Blowers and Pumps | Lubricating Oil | 625 | Yes: Inside building | Small amounts could exit south through door: Leads to Outfall 004 |
| Standby Generator Facility | Diesel fuel | 12,000 gallons | Dbl-walled AST Integral to 3 generators | N/A |
| | Diesel fuel (day tank) | 1500 gallons | | Floor drains plumbed to plant influent |
| | Urea (exhaust fluid) | 7800 gallons | Diked indoors Not yet | N/A |
| Engine coolant | 85 gallons | Floor drains plumbed to plant influent | | |

This zone contains about 152 pieces of equipment that contain oil, with a total combined capacity of approximately 3393 gallons. The Standby Generator Facility has the largest aggregate volume, with three generators each holding approximately 520 gallons of petroleum product. The blowers are located inside the building, which have floor drains that would direct released material to the plant influent. In the event of a catastrophic failure/release, some material may exit the building and onto the pavement; some would be captured in the building; and some would soak into the ground adjacent to the building. A listing of the oil containing equipment is contained in the Appendix.

4.C. Floor Plans

All buildings or structures containing hazardous/flammable materials are single story with the exception of the Operations Control Building, and the Standby Generator Facility. The Operations Control Building is a three-story brick structure, with the laboratory located on the top floor. The Standby Generator Facility is a two-story building.

Attached in the Appendix are the following floor plans:

- Operations Control Building (3402 South Glebe Road)- 3rd Floor Only
- Blower Odor Control Building (3404 South Glebe Road)
- Secondary Services Pump Station (3440 South Glebe Road)
- South Ferric Facility (3448 South Glebe Road)
- Standby Generator Facility (3408 South Glebe Road) – 1st Floor Only

4.D. Potential Types of Spills: Spill Volumes and Rates

4.D.a. Secondary Blower Building (SBB) 3404 South Glebe Road

The Blower Building houses the odor control system and the air supply for the aeration tanks. The air supply side is located on the south side of the building and houses oil containing equipment (blowers and pumps). Two drums (55 gallon) of lubricating oil are maintained inside of the building on spill pallets next to an oil-only spill kit.

The odor control system is located on the north side of the building and contains both sodium hydroxide and sodium hypochlorite. Fill ports for both chemicals are located on the east side exterior wall of the building and are locked. Sodium hypochlorite is normally transferred via the pipe gallery from the SHF. A spill kit for corrosive material as well as specialty absorbent for caustic materials is maintained in this area.

A wall separates the receiving area from the storage tanks, and each tank is contained inside a containment wall with a sump pump for removing released material. Materials removed from the containment area are pumped to the primary influent. In the event of a catastrophic rupture of a tanker delivering product to the facility, material may enter the storm drains on the north side of the building and the service drive leading to Glebe Road. However, during normal operations the maximum amount that could be released would be no more than 10 gallons due to monitoring by Operations staff. Operations staff monitors all transfers from the tanker truck to the storage tank, and the tanker-truck operator is required to be visually monitoring the transfer operation at all times.

Sodium Hypochlorite (liquid) 15% NFPA 2-0-1 C

The tank for this material has a capacity of 2700 gallons, and has a discreet containment area within the Blower Building. Any release from the tank will be prevented from entering the environment by the containment wall. The containment area also has a sump pump with float that will send the captured material to the plant influent. Sodium hypochlorite can be received at the building via the fill-pipe on the west wall, but the normal mode of filling the tank is transfer from the SHF. The transfer line passes through the pipe gallery, and is monitored during material transfer.

Sodium Hydroxide (liquid) 25% NFPA 4-0-2 C

The tank for this material has a capacity of 7800 gallons and is adjacent to the sodium hypochlorite tank in a separate containment area. Any tank release would be retained in the containment area, which also has a sump pump that will transfer material to the plant influent. The fill-pipe for this material is on the east exterior wall and is kept locked. The tank is generally filled once per month.

Lubricating Oils

The air supply side requires frequent preventive maintenance, such as oil changes. Two, 55 gallon drums of lubricating oils are maintained in this area. Drums are transported from the Lube Storage room at the Warehouse/Maintenance Building by truck as needed.

Absorbent mats are kept in this area in the event of a spill or fluid loss during equipment maintenance. Catastrophic loss of both drums could result in a release to the environment through the open doorway, but this is very unlikely event. Sufficient absorbent is present to effectively contain the oil pending removal, and the drums are stored on spill pallets.

4.D.b. Secondary Services Pump Station (SPSB)
3440 South Glebe Road

This building provides an interim point in the transfer of sodium hypochlorite between the SHF, Preliminary Treatment Building (3139 South Fern Street), and the odor control system in the Blower Building (3404 South Glebe Road), as well as providing sodium hypochlorite to the secondary process if required. The building contains two, 950 gallon AST's, inside of a containment berm. Sodium hypochlorite is transferred to the SPSB via an underground, double-walled pipe. The tanks are visually inspected daily. During transfers, WPCB staff monitors the operation. In the event of a release, the transfer is immediately stopped, and the spill is contained using the spill control kit available in the area.

4.D.c. Operations Control Building (OCB)
3402 South Glebe Road

A wastewater laboratory is located on the third floor of the OCB. While many of the materials used in the laboratory are hazardous, they are generally present in small amounts (less than 1 kg). A listing of the chemicals generally present in quantities greater than 3 kg are contained in the Southeast Storage Summary.

Storage of all chemicals follows the requirements specified by the Virginia Statewide Fire Prevention Code. Flammable storage cabinets are used for the storage of flammable or combustible materials, and the corrosive storage cabinets are used for the storage of strong acids and bases. Acids and bases are kept separate. Chemicals that are neither flammable/combustible nor corrosive are stored in steel cabinets, and are segregated by class (such as oxidizer or poison).

Some corrosive chemicals are maintained in the laboratory for routine use. All corrosives used in the laboratory are stored in corrosive cabinets located under the ventilation hood near the work stations.

The laboratory maintains small quantities of neutralizing chemicals for use in the event of a spill. These neutralizing chemicals are capable of neutralizing approximately 5 liters of concentrated acid, and 3 liters of concentrated base. The laboratory will dispose of all neutralized acids and bases into the floor drain if liquid, or solid waste if solid.

Small amounts of boiler chemicals are sometimes stored in the basement of the OCB on a spill pallet. There is a universal spill kit in the boiler room in case of a spill.

4.D.d. South Ferric Facility (SFF)

This structure provides ferric chloride to the secondary treatment process. Ferric chloride is stored in 2, 5,000 gallon AST's, enclosed inside the building. The building interior has integrated spill containment, and the exterior spill containment collects drainage from the fill-ports station and a trench drain in the truck unloading pad. The unloading pad has a berm installed to prevent the escape of product in the event of a catastrophic tanker failure. The containment area has a sump pump that can direct material in the containment area to the primary effluent when activated. The containment area is plumbed to the storm sewer through a valve tied into the chemical fill-port control panel. However, the valve is permanently closed, and the sump is periodically pumped out by Operations.

During chemical unloading, a small amount (less than 10 gallons) of chemical may be released during hose disconnection. However, Operations staff monitors all transfers from the tanker truck to the storage tank and the tanker-truck operator is required to be visually monitoring the transfer operation at all times.

The area has assigned spill countermeasures, which includes a spill kit for corrosive materials and drain closure mats.

A storm drain is immediately adjacent to the unloading pad. Because of the slope of the pad, normal spillage due to hose decoupling will not enter the drain. In the event of a major or catastrophic tanker failure, a drain closure mat will be used to limit the amount of ferric chloride entering the storm sewer.

Ferric chloride (liquid) 38%

NFPA 3-0-2 C

This system provides ferric chloride to the aeration tanks, which is critical to the treatment of wastewater. The 2, 5000 gallon ASTs are located in the building inside of a containment area. There is no possibility of a release to the environment.

4.D.e. Standby Generator Facility (SGF)

This structure came on line in 2012. It provides backup electrical power to the two electrical utility sources serving the treatment plant. When both utilities are out of service, the plant power is provided by three 2500 kW Caterpillar engine-generator sets. Diesel fuel to the generators is stored in a 12,000 gallon, double-walled steel AST located southeast of the SGF. Each generator contains an integrated 500 gallon day tank. Inside the building is a 7800 gallon tank of urea – used as diesel exhaust fluid for the purposes of complying with the plant's air permit. This AST is surrounded by a dike, which serves as its secondary containment. A 30 gallon pump/tank reservoir of engine coolant is located near the three generators. There is usually a 55-gallon drum of coolant located nearby – whereby coolant is manually pumped into the reservoir as needed. While there are floor drains located within the building, they are all plumbed to the sanitary sewer and any spillage would be delivered to the influent of the plant.

There is a spill kit located inside the building. Diesel fuel is transferred into the storage tank from Tri-Gas Oil. Tri-Gas Oil drivers have been thoroughly trained in spill prevention procedures – so any spills during the transfer should be minimal. However, there is potential to discharge into the environment – as there are storm catch basins located nearby. The fill port for the urea diesel exhaust fluid is located inside the building – so any spills would be captured within the diked secondary containment area.

4.E. Potential Chemical Incompatibilities

Ferric chloride: This material is about 10% hydrochloric acid and is corrosive to many metals. Reaction with zinc or brass could liberate hydrogen gas. Mixing with hypochlorite solution will liberate chlorine gas.

Fuel Oil/Waste Oil/Lubricating Oil: This material is a combustible liquid. Avoid high temperatures, open flames, welding, and other ignition sources. Keep away from strong oxidizers such as calcium hypochlorite.

Sodium hydroxide: This chemical is a strong base and very corrosive to metals. An exothermic reaction may occur if mixed with acids, such as nitric and phosphoric.

Sodium hypochlorite: This material is basic and corrosive to some metals. Contact with acids (such as ferric chloride) or ammonia will release chlorine gas.

Laboratory chemicals: Many of the materials used in the laboratory have chemical incompatibilities. All materials are stored in accordance with these incompatibilities.

Acid Solutions (Sulfuric, Nitric, and Phosphoric): These chemicals are acids and corrosive to many metals. These acids may react exothermically (producing heat) if mixed with water, or basic materials such as sodium hydroxide and sodium hypochlorite. Mixing with sodium hypochlorite may produce chlorine gas.

Urea (Diesel Exhaust Fluid): Incompatible with acids, oxidizers, sodium nitrite, phosphorus pentachloride, nitrosyl, and gallium perchlorate.

4.F. Spill Prevention and Control Measures

4.F.a. Labeling & Placarding

The WPCB has an active Safety Awareness program, and follows all “Right-To-Know/Understand” requirements. All appropriate placarding and labeling requirements are followed.

4.F.b. Monitoring

Chemical handling is monitored by the shift supervisor and operators. Chemical handling within the laboratory is monitored by the laboratory supervisor. Operators regularly make rounds that cover the entire plant every 12 hours, 7 days per week. All Operators have two-way radios for immediate communication with other

Operations staff. In the event of a release, an announcement will be made on the radio. The Operator will contact the Shift Supervisor, who will decide if the spill requires a call to the Emergency Communication Center (911). Following the initial call to 911, the Notification Procedures detailed in Section 11 shall be followed.

Sodium hypochlorite is periodically transferred from the SHF (3320 South Glebe Road) to the SPSB. If a release, or suspected release of hypochlorite from the transfer hose within the pipe gallery occurs, Operations will immediately terminate the transfer operation and notify appropriate personnel.

4.F.c. Handling

Staff are informed of all hazardous materials that they work with or could come into contact with as required by the "Worker Right To Know/Understand" program.

Personnel are trained/instructed to handle hazardous materials in the manner specified in the respective SDSs. All oil-handling personnel are trained in the operation and maintenance of equipment to prevent discharges. All vehicles contain a spill response kit in the event of a spill.

Hazardous materials are handled in the manner specified in their respective SDSs. All personnel have been provided with personal protective equipment (PPE), which includes gloves, safety shoes, eye protection, and protective clothing for use when working around hazardous materials at the plant. All personnel are trained in the use of equipment and PPE when hired and provided refresher training on an annual basis. For more details, please see Section 10.

4.F.d. Transfer Operations

All transfer operations are monitored by WPCB staff. Sodium hypochlorite is periodically transferred from the SHF (3320 South Glebe Road) to the SPSB (3440 S. Glebe Road), secondary clarifiers, and the SBB. The plant has the ability to transfer sodium hypochlorite to the High Water Pump Station (3466 S. Glebe Road). Sodium hypochlorite is transferred by either a high density plastic pipe or a steel reinforced rubber hose that is inside of a support pipe. The support pipe is either PVC or ductile iron, depending on the plant location. The pipeline is contained underground in a pipe gallery constructed of concrete.

If a release, or suspected release of hypochlorite from the transfer hose within the pipe gallery occurs, Operations will immediately terminate the transfer operation and notify appropriate personnel. On the south side of the plant, a well on the lowest side of the pipe gallery is fitted with a float switch. If the hose fails, product will flow down to the well and trigger a visual and radio alarm in the Hypo Transfer Control Center. This will alert Operations staff to the release.

All pipe transfers are physically monitored by staff during the transfer. Staff is in contact with each other and the Control Center by radio. In the event of a release, the transfer can be immediately terminated and the proper authorities will be notified

as specified in Section 11.

Oil products are transferred in-Plant by fork lift and/or truck, in quantities no greater than 1 drum. Each vehicle carries a spill kit, and oil handling employees are trained in the proper handling of petroleum products. Oil deliveries are carried out by contractors, and are required to follow DOT and EPA unloading procedures.

4.F.e. Inspections, Tests and Records

Facility personnel will inspect the facility during each day of the normal work schedule. Operations staff will inspect the fuel tank visually for leaks once per day. All leaks and other problems will be referred to maintenance and reported to the supervisor. Any deficiencies or problems will be noted in the appropriate logs, and any corrective action taken will be recorded. The recorded results of the inspections will be kept for a period of no less than three years.

4.F.f. Countermeasures

The plant has spill control kits placed in the areas detailed in the Southeast Zone Counter Measure summary. In addition, a variety of loose absorbents are maintained in the Warehouse.

The plant currently has sufficient absorbents to remove at least 500 gallons of liquid. Sufficient absorbents to absorb at least 400 gallons of corrosive liquid and 600 gallons of oil are located in the Warehouse (3111 South Fern Street).

All absorbents used for corrosive liquids are compatible with both acidic and basic liquids, as well as petroleum based liquids. The Warehouse stocks a variety of absorbent types, such as mats, pillows, booms, and loose. The Warehouse also has approximately 500 pounds of specialty polymer absorbent for water based materials³ (Wastelock 770). This absorbent will absorb 600X its weight in water, forming a solid that can be scooped up.

Also present at critical locations and the Warehouse are specialty absorbents. These absorbents are designed for use with strong acids and caustics and form a solids that can be scooped up. Spill-X C® is specified for use with sodium hydroxide, present in the Blower Building.

The Warehouse also stocks oil-only absorbents in mat, boom, and loose formats.

The plant has spill control kits located at potential release points throughout the plant. A map detailing these points is contained in the Appendix. Each spill kit is designed to handle 18 gallons of aggressive liquids or spilled petroleum based product. Spill supply locations and capacities are detailed in the table below.

³ Not for use with concentrated acids or caustics

| Southeast Zone Counter Measures Location and Capacity of Absorbent Materials | | |
|---|---|---|
| Location | Chemical Compatibility | Absorbent Capacity |
| Operations Control Building 3402 South Glebe Road Laboratory Boiler Room | Acid liquids Basic liquids Corrosive Liquids | 5 5 L concentrated acid 3 L concentrated base 18 gallons |
| Blower Building: Chemical Storage Blower Side | Corrosive Liquids Spill-X C Oil | 18 gallons 5 gallons 18 gallons |
| Secondary Services Pump Station | Corrosive | 18 gallons |
| South Ferric Facility | Corrosive | 18 gallons |
| Standby Generator Facility | Oil | 18 gallons |

5. Southwest Zone

5.A. Description

This area of the plant is south of South Glebe Road, adjacent to Four Mile Run, and west of a line drawn from the west end of the OCB and Four Mile Run. The operations within this area includes: settling, filtration, chlorination, dechlorination, and the release of treated wastewater. Stormwater from this area drains to Outfall Numbers 008, 007 and 006.

Although there are two gates leading to this zone (Gates 8 and 11), the primary entry to this area is through Gate 8. Gate 8 is staffed by security personnel, and Gate 11 is kept locked when not in use. Should an emergency occur, WPCB personnel will attempt to unlock and open the gates for the Fire Department; however the Fire Department has the authority to cut the locks if necessary. The keys included in the Knox Repository Boxes contain the key for all gates.

A pipe gallery is used to distribute service utilities throughout the plant. The pipe gallery is also used to transfer sodium hypochlorite from the SHF to the Preliminary Treatment Building, the Secondary Services Pump Station (3440 South Glebe Rd), and the South Blower Building. The sodium hypochlorite transfer line used through the plant is a high density plastic pipe, inserted inside of a plastic or ductile iron pipe. The pipe connects to a well on the lowest side of the pipe gallery which is fitted with a float switch. If the hose fails, product will flow down to the well and will trigger a visual and radio alarm in the Hypo Transfer Control Center located in the Sodium Hypochlorite Facility (3320 South Glebe Road). This will alert Operations staff to the release.

5.B. Southwest Storage Summary

5.B.a. Chemical Storage

| Building (Address) | Chemical Stored | Max Amount Stored (gal) | Type of Storage | Comments |
|--|-----------------------------------|--------------------------------|------------------------|--|
| Post Aeration Facility 3304 S. Glebe Road | Sodium bisulfite, 30% (liquid) | 12,000 | AST | 2, 6,000 gallon AST within building |
| | Sodium Hydroxide | 500 | IBC | 2, 250 gallon IBCs in blower room |
| | Suppressor (defoamer) | 660 | drum | 12, 55 gallon drums in blower room |
| Filtration And Disinfection Facility 3322 S. Glebe Road | Phosphoric Acid, 35% (liquid) | 1,000 | IBC | 4, 250 gallon IBC within building containment |
| Sodium Hypochlorite Facility 3320 S. Glebe Road | Sodium hypochlorite, 15% (liquid) | 72,000 | AST | 4, 17,900 gallon AST within building containment |
| Methanol Feed Facility 3328 S. Glebe Road | Methanol, 100% (liquid) | 24,400 | AST | 2, 12,200 gallon AST in containment |
| West Secondary Services Building 3340 S. Glebe Road | Ferric chloride, 38% (liquid) | 10,000 | AST | 2, 5000 gallon AST within building containment |

This zone contains about 156 pieces of equipment that contain oil, with a total combined capacity of approximately 595 gallons. The largest capacity of a single piece of equipment (55 gallons), is each of the Wet Weather Filtration Facility’s compressors. A listing of oil containing equipment is contained in the Appendix.

5.C. Floor Plans

Floor plans are provided for the following structures:

- West Secondary Services Building (3340 S. Glebe Road)
- Methanol Feed Facility (3328 S. Glebe Road)
- Filtration & Disinfection Facility (3322 S. Glebe Road)
- Sodium Hypochlorite Facility (3320 S. Glebe Road)
- Post Aeration Facility (3304 S Glebe Road)

5.D. Potential Types of Spills: Spill Volumes and Rates

**5.D.a. West Secondary Services Building (WSPSB)
3340 S. Glebe Road**

This structure provides ferric chloride to secondary clarifiers (#’s 7, 8, 9) and the ASE2 header. The building holds 2, 5000 gallon tanks containing ferric chloride at a maximum concentration of 38%. No other chemical is stored in this building. The tanks are below ground level within

the building, and capable of holding the contents of both tanks. Sump pumps are present that can pump released material into the tanks or process. The fill-pipe for these tanks is located at the dedicated fill-port station south of the building.

Ferric chloride (liquid) 38%

NFPA 3-0-2 C

This building contains 2, 5000 gallon AST's of a 38% (maximum) ferric chloride. The tanks, piping, and interior containment are visually inspected daily. Any tank release would be captured in the containment area.

On the south side of the building is the dedicated unloading site. The pad has a below ground containment area which collects drainage from the fill-ports station and a trench drain in the truck unloading pad. The containment area has a sump pump that can direct material in the containment area to the process or tank when activated. The containment area is plumbed to the storm sewer through a valve tied into the chemical fill-port control panel. However, the valve is permanently closed, and the sump is periodically pumped out by Operations. There are no storm drains in the immediate area.

5.D.b. Methanol Feed Facility (MFF)
3328 S. Glebe Road

This structure became operational in the fall of 2009. It has 2, 12,200 gallon AST containing approximately 100% methanol. The tanks are outside of the building, enclosed by 3 walls with no roof, and a below ground containment area. Methanol is pumped from the tanks to a pump room, immediately adjacent to the tank area. Within the Pump Room, methanol is diluted to 20% or less⁴ and pumped to the denitrification filters. All electrical fixtures in the pump room are intrinsically safe. The containment area and pump room have heat/flame and methanol detectors, as well as foam dispensers. Alarms are visual, audible, and radio - as well as displaying in the control room at the Operations Control Building. Foam is automatically dispensed into the methanol tanks, containment area, pump room and electrical room in the event of a methanol fire. Foam can also be manually dispensed through a hose located between the tank storage area and the pump room. The foam is AFFF-R⁵, which is rated for use with methanol. Staffs working in this area are required to use intrinsically safe radios and flashlights. All cell phones must be turned off.

⁴ Methanol solutions <20% is classified as a Class II combustible liquid

⁵ Aqueous Film Forming Foam – Alcohol Resistant

Methanol (liquid) 100%

NFPA 1-0-3

Methanol is contained in 2, 12,200 gallon ASTs capable of containing 100% methanol. The tanks are outside of the building, enclosed by 3 walls with no roof and a below ground containment area. The tanks and transfer lines have a vapor recovery system. The unloading pad is a dedicated area east of the tanks, with an integrated spill containment area. The unloading area has a Scully static grounding system which prevents the unloading pumps from operating if there is not a positive ground between the truck and the fill-ports. The pad has a below ground containment area which collects drainage from the fill-ports station and a trench drain in the truck unloading pad. The containment area has a sump pump that can direct material in the containment area to the primary effluent or tank when activated. The containment area is plumbed to the storm sewer through a valve tied into the chemical fill-port control panel. However, the valve is permanently closed, and the sump is periodically pumped out by Operations.

During chemical unloading, a small amount (less than 5 gallons) of chemical may be released during hose disconnection. Operations staff monitors all transfers from the tanker truck to the storage tank and the tanker-truck operator is required to be visually monitoring the transfer operation at all times.

5.D.c. Filter and Disinfection Facility (FADF)
3322 South Glebe Road

Phosphoric acid is maintained on site in the event that the denitrification process requires additional phosphorus. The material is stored in an isolated room on the southeast corner of the Filter & Disinfection Facility. The room contains 4, 250 gallon Intermediate Bulk Containers (IBC), of about 40% phosphoric acid, with containment area below the floor, capable of holding approximately 300 gallons. The containment area also has a sump pump that can pump spilled material to the plant influent. IBC's can be moved through an overhead door which faces the bike path. All piping carrying phosphoric acid are located inside of the Filter & Disinfection Facility, which will prevent the release of acid to the environment. In addition, the piping is doubled walled.

Phosphoric Acid (liquid) 35%

NFPA 3-0-0

The four IBC's contain approximately 250 gallons each, for a total of about 10,000 pounds. The IBC's are double stacked, with the top IBC connected to the chemical feed pumps. Any leak or release from the connection between the IBC and the piping would be captured by the containment area.

5.D.d. Sodium Hypochlorite Facility (SHF)
3320 South Glebe Road

This building, which is located immediately adjacent to the Filter and Disinfection Facility, contains 4, 17,900 gallon ASTs. Each tank is located within a containment area with sufficient capacity to hold the entire tank. The fill-ports for the tanks are located at an unloading dock on

the southwest side of the building. Only sodium hypochlorite is stored in this building. The containment area contains sump pumps that can transfer released material into a truck, tanks or to the process.

Sodium Hypochlorite (liquid) 15%

NFPA 2-0-1 C

This building contains 4, 17,900 gallon AST's of a 15% solution (maximum) of sodium hypochlorite. The tanks, piping, and interior containment are visually inspected daily. Any tank release would be captured in the containment area. The fill-pipe for these tanks is located at the dedicated fill-port station southwest of the building. The unloading pad is located between the Sodium Hypochlorite Facility and the Post Aeration Facility, and serves both buildings. Sodium bisulfite and sodium hypochlorite are to be received at the same structure using different fill-ports and valves. The pad has a below ground containment area which collects drainage from the fill-ports station and a trench drain in the truck unloading pad. The containment area has a sump pump that can direct material in the containment area to the primary effluent or tank when activated. The containment area is plumbed to the storm sewer through a valve tied into the chemical fill-port control panel. However, the valve is permanently closed, and the sump is periodically pumped out by Operations.

During tanker transfer, WPCB staff monitors the operation. In the event of a release, the transfer is immediately stopped, and the spill is contained using the spill control kit available in the area. During chemical unloading, a small amount (less than 5 gallons) of chemical may be released during hose disconnection. Operations staff monitors all transfers from the tanker truck to the storage tank and the tanker-truck operator is required to be visually monitoring the transfer operation at all times. A release during transfer from the tanker-truck is very rare. In the event of a release, a spill kit is located at the transfer station. Any used absorbent is transported and stored at the Household Materials Management (HMM) (3111 South Fern Street) until removed. The absorbed material will be manifested as a hazardous waste and removed by a hazardous waste contractor. Large quantities of spilled material will be pumped out and returned to the primary influent.

5.D.e. Post Aeration Facility (PAF)
3304 South Glebe Road

This structure houses 2, 6,000 gallons ASTs containing sodium bisulfite. The tanks have containment within the building.

55-gallon drums of foam suppressor are also stored in the blower room of the PAF on spill pallets. Additionally, there are two 250 gallon totes of sodium hydroxide currently stored in the blower room.

Sodium Bisulfite (liquid) 30%

NFPA 2-0-1

The Post Aeration Facility contains 2, 6000 gallon ASTs containing 30% sodium bisulfite. The tanks are located inside the building with integral containment capable of holding approximately 6000 gallons. The containment area has a sump pump to transfer released product to the primary influent. Chemical transfer and handling is as described in the section above for the Sodium Hypochlorite at the Sodium Hypochlorite Facility.

Sodium Hydroxide (liquid) 25%

NFPA 4-0-2 C

Two 250-gallon totes of sodium hydroxide are temporarily being stored in the PAF blower room.

Suppressor (defoamer, liquid)

The Post Aeration Facility contains 8-12 drums of foam suppressor stored on spill pallets in the blower room.

5.E. Potential Chemical Incompatibilities

Ferric chloride: This material is about 10% hydrochloric acid and is corrosive to many metals. Reaction with zinc or brass could liberate hydrogen gas. Mixing with hypochlorite solution will liberate chlorine gas.

Methanol: This material is an extremely flammable and potentially harmful liquid. Excessive absorption of methanol through the skin or lungs can cause central nervous system depression, blindness and liver/kidney damage. Vapors can form explosive mixtures at temperatures at or below the flashpoint (50°F).

Avoid excessive heat, strong oxidizing agents (sodium hypochlorite), and strong acids (hydrochloric & phosphoric). Decomposition products include carbon dioxide and carbon monoxide.

Phosphoric acid: This acid is extremely corrosive and generates hazardous fumes upon contact with moisture in the air. Phosphoric acid reacts with chlorides and metals, including stainless steel, to create hydrogen gas, and will generate heat (exothermic) when combined with alcohols, and caustics (such as hypochlorite). Toxic fumes may be generated if heated or mixed with bisulfites.

Sodium bisulfite: This chemical off-gasses small amounts of sulfur dioxide at room temperature. Oxidizers, such as hypochlorite, may have a strong exothermic reaction (heat producing) if mixed with this material. Acids, acidic compounds, and lime react with sodium bisulfite to release sulfur dioxide, a toxic and corrosive gas.

Sodium hypochlorite: This material is basic and corrosive to some metals. Contact with acids, such as ferric chloride, or ammonia will release chlorine gas.

Sodium hydroxide: This material is basic and highly corrosive. An exothermic reaction may occur if mixed with acids, such as nitric and phosphoric.

Suppressor (defoamer): This material is incompatible with strong oxidizing agents, inorganic acids, strong acids, and strong bases.

5.F. Spill Prevention and Control Measures

5.F.a. Labeling & Placarding

The WPCB has an active Safety Awareness program, and follows all "Right-To-Know/Understand" requirements. All appropriate placarding and labeling requirements are followed.

5.F.b. Monitoring

Chemical handling is monitored by the shift supervisor and operators. Operators regularly make rounds that cover the entire plant every 12 hours, 7 days per week. All Operators have two-way radios for immediate communication with other Operations staff. In the event of a release, an announcement will be made on the radio. The Operator will contact the Shift Supervisor, who will decide if the spill requires a call to the Emergency Communication Center (911). Following the initial call to 911, the Notification Procedures detailed in Section 11 shall be followed.

Sodium hypochlorite is periodically transferred from the SHF (3320 South Glebe Road) to tanks located at the Preliminary Treatment Building, the South Blower Building, and the Secondary Pump Station Building. If a release, or suspected release of hypochlorite from the transfer hose within the pipe gallery occurs, Operations will immediately terminate the transfer operation and notify appropriate personnel.

The Methanol Feed Facility (MFF) has the following special monitoring systems:

Methanol, flame and heat detectors are located in the tank area and the pump room. At the present time the methanol detectors are set to provide a visual, audible, and radio alarm at 25/50 ppm (high/high-high). All personnel working in this area are required to have portable air monitoring devices on their person.

5.F.c. Handling

Staff is informed of all hazardous materials that they work with or could come into contact with as required by the "Worker Right To Know/Understand" program. Personnel are trained and instructed to handle hazardous materials in the manner specified in their respective SDSs. All oil-handling personnel are trained in the operation and maintenance of equipment to prevent discharges. All vehicles contain a spill response kit in the event of a spill. All WPCB Operators have been provided with personal protective equipment which includes gloves, safety shoes, eye protection, and protective clothing for use when working around hazardous materials at the facility. Operations staff are trained in the use of the equipment when hired. See Section 10 for details on training.

5.F.d. Transfer Operations

All transfer operations are closely monitored by WPCB staff. If material is released during transfer, the transfer is immediately terminated and the release is reported as specified in Section 11. Prior to all deliveries, the Operations staff checks the capacity of the holding tanks. The delivery will be allowed to take place if the volume of the delivery does not exceed the

capacity of the holding tank. Operation staff are required to sign the bill of lading indicating that they checked the holding capacity of the receiving tank.

Sodium hypochlorite is periodically transferred from the SHF (3320 South Glebe Road) to tanks located at the Preliminary Treatment Building, the South Blower Building, and the Secondary Services Pump Station. If a release, or suspected release of hypochlorite from the transfer hose within the pipe gallery occurs, Operations will immediately terminate the transfer operation and notify appropriate personnel. The sodium hypochlorite transfer line used throughout the plant is a high density plastic pipe or a steel reinforced rubber hose, inside a plastic or ductile iron pipe.

5.F.e. Inspections, Tests and Records

Facility personnel will inspect the facility during each day of the normal work schedule. All leaks and other problems will be referred to maintenance and reported to the supervisor. Any deficiencies or problems will be noted in the appropriate logs, and any corrective action taken will be recorded. The recorded results of the inspections will be kept for a period of no less than three years.

5.F.f. Countermeasures

This zone has spill kits located at the areas indicated below. In the event that additional spill supplies are required, additional spill absorbents can be obtained from the Warehouse, or other zones.

Southwest Absorbents

| Location and Capacity of Absorbent Materials | | |
|---|--|---------------------------|
| Location | Chemical Compatibility | Absorbent Capacity |
| Filter & Disinfection Facility 3322 S. Glebe Rd - Unloading Pad - Phosphoric acid room | Corrosive Liquids Specialty Absorbent Spill X-A® | 18 gallons 5 gallons |
| West Secondary Services Building 3340 S. Glebe Rd - Unloading Area | Corrosive Liquids | 18 gallons |
| Sodium Hypochlorite Facility | Corrosive Liquids | 18 gallons |
| Post Aeration Facility | Corrosive Liquids | 18 gallons |

6. Past Spill Experiences

Spill & Releases 2011-2015

| Date | Description | Outfalls |
|------------|---|----------|
| 2/22/2012 | An estimated 100 gallons of crank case oil was released from a failed generator that was contained within the SGF. | None |
| 4/27/2012 | Approximately 10 gallons of hydraulic fluid was spilled by contractor from rented equipment onto ground. | None |
| 5/10/2012 | 15 gallons of diluted emulsifier escaped from the dewatering waste pad onto the adjacent asphalt and into the sanitary trench drain. | None |
| 5/18/2012 | 2 gallons of muriatic acid drained onto the asphalt just outside of the DWB – none reached the outfall. | None |
| 10/23/2012 | 480 gallons of propylene glycol leaked out of a ruptured underground HVAC piping system. | None |
| 5/23/2013 | 1 gallon of polymer splashed onto the asphalt during a chemical transfer – none reached the outfall. | None |
| 5/24/2013 | 5000 gallons of ferric chloride drained into the secondary containment area of the SFF due to a valve being left open after a maintenance event – chemical was pumped back into the tank. | None |
| 6/14/2013 | 300 gallons of ferric chloride leaked into the ground from an underground piping breach at the SFF. | None |
| 7/23/2013 | 5 gallons of scrubber blowdown water containing dilute sodium hydroxide drained to a storm drain at the SBB. | 004 |
| 9/2/2013 | 11,197 gallons of PEW and very diluted scrubber water blowdown discharged onto the ground immediately outside of the South Odor Control area – none reached the outfall. | None |
| 12/8/2014 | 2 gallons of engine coolant drained onto the asphalt drive outside of the DWB – none reached the outfall. | None |
| 12/19/2014 | 1 gallon of sodium bisulfite from a pipe leak at the sample pump calibration column at the PAF – none reached the outfall. | None |
| 4/29/2015 | 50 gallons of diesel fuel discharged onto the SGF floor when a fuel line sensor broke. All material was contained in the building – none reached the outfall. | None |

7. Security

The entire facility is surrounded by a 7 foot security fence. There are ten gates controlling access to the facility. Gates 6 and 8 are staffed by contracted security guards during weekdays until approximately 6 pm. When the guards are not on duty, they are closed. An electronic card reader system provides access through selected gates for off-hour access. Individuals without the access cards may call the shift operator at the gate to request entry.

Some buildings within the WPCB facility are also accessed with specifically-coded access cards. The large Knox Repository Boxes are located at the Main Gate (Gate 8) and next to Gate 3 at 560 31st Street. Both boxes contain keys and master access cards.

The WPCB security system includes both intrusion and fire protection, and provides 24-hour monitoring for the facility. In the event of the activation of the alarm, the monitoring company, ASG Security, will notify the shift supervisor and then the appropriate agency (fire or police). A fire suppression system (sprinkler system) is tied into the alarm system for the newer buildings. Buildings having a sprinkler system include the Operations Control Building (3402 S. Glebe Rd.), Maintenance/Warehouse (3111 S. Fern St.), Four Mile Run Pump Station (3115 S. Fern St.), the Filtration and Disinfection Facility, the Post Aeration Facility, Preliminary Treatment Building (3139 S. Fern St.), and the Paint Building. The WPCB Planning Unit is responsible for ensuring all fire suppression systems are tested and inspected on an annual basis in accordance with Federal, State and local regulations.

The WPCB is flood-lit at night. Operations regularly make rounds that cover the entire plant every 12 hours.

8. Key Personnel

The following staff are knowledgeable about the safety and hazardous materials at the Water Pollution Control Plant:

Tom Broderick, Bureau Chief
(703) 228-6877 office
(571) 982-2818 cell

Glenn Vance, Operations Manager
(703) 228-6865 office
(571) 302-6980 cell

Frank Palmeri, Maintenance Manager
(703) 228-6880 office
(571) 982-2966 cell

Peter Ceo, Safety Specialist
(703) 228-6834 office
(571) 289-5925 cell

Bernie Raiford, Laboratory Supervisor
(703) 228-6831 office
(703) 946-6428 cell

Emmanuel Nocon, Household Hazardous
Materials Coordinator
(703) 228-6832 office
(703) 946-0576 cell

Beau Dodge, SPCC Plan Coordinator
(703) 228-6881 office
(703) 201-3183 cell

In addition, there are staff at the following control centers who are knowledgeable about the hazardous materials used and stored at the WPCP:

Operations Control Room (OCB): (703) 228-6853
Dewatering Control Room: (703) 228-6842
Supervisor Cell Phone: (703) 585-6851

9. Responsibilities

With direction from Plant Managers or Supervisors, small volume spills may be handled by staff from Water Pollution Control Plant.

For larger spills, Arlington County's Hazmat crew – and/or a hazardous waste contractor – will conduct cleanup operations. Currently, the County has a contract with MXI Environmental, 26319 Old Trail Road, Abingdon, VA. The primary contact for MXI Environmental is Scott Shaw at (276) 628-6636 (x202), or (540) 818-4261. Secondary contact is Brian Potter at (276) 628-6636 (x207) or (276) 698-5941.

10. Training

All employees receive the training required by OSHA, Title 29 CFR 1910, 40 CFR 112, as well the WPCP SWPPP and SPCCP/HMMP Programs. New employees are instructed as to their rights under the regulations by the Bureau's Safety Specialist, and each supervisor is required to instruct employees on the safety requirements of the chemicals they work with. Additional safety training, which includes chemical handling and safety, is conducted periodically by the supervisors, the Safety Specialist (or contracted trainers), and/or the SPCC Plan Coordinator.

All oil-handling personnel are trained in the operation and maintenance of equipment, in the prevention of discharges, discharge procedure protocols, applicable pollution control laws and in the contents of this plan. This training is done at hiring, and refresher training is provided annually.

The following training is conducted annually, and all training records are maintained by the Training Specialist (OHSA mandated training) or the Spill Plan Coordinator (SPCCP/HMMP/SWPPP related training):

HAZCOM

Global Harmonized System (GHS): Safety Data Sheets: How to read the SDS, review of all possible chemical exposures, location of SDSs, and what the HMIS Rating means.

Work Place Emergencies and Notification

What to do in case of an emergency.

Personal Protective Equipment

Mandatory safety wear for use within the plant, proper use and wear, hazards associated with use, locations where special personal protective equipment must be used.

Environmental Response Plan

- Spill I: A review of applicable regulations and the facility's SPCCP/HMMP/SWPPP - location of materials, notification requirements, basic response, and oil handling requirements.
- Spill II: Chemical hazards, response and clean-up procedures. May include hands-on practice.

11. Notification

All spills or releases will be noted in the appropriate operators log book, Station Spill Checklist, SharePoint - and the shift supervisor notified.

11.A. Notification Criteria

Refer to the Spill Release Notification Process Diagram on the following page (Figure 3) for guidance on whom and when to notify in the case of a release (oil, chemical, PEW, or process wastewater). If the shift supervisor or an employee calls 911, one of the following Management Personnel must also be called.

Bureau Chief (703) 228-6877 (work)
Tom Broderick (571) 982-2818 (cell)

Operations Manager (703) 228-6865 (work)
Glenn Vance (571) 302-6980 (cell)

Maintenance Manager (703) 228-6880 (work)
Frank Palmeri (571) 982-2966 (cell)

11.A.a. SPCC/EPA Reportable Quantities (RQ)

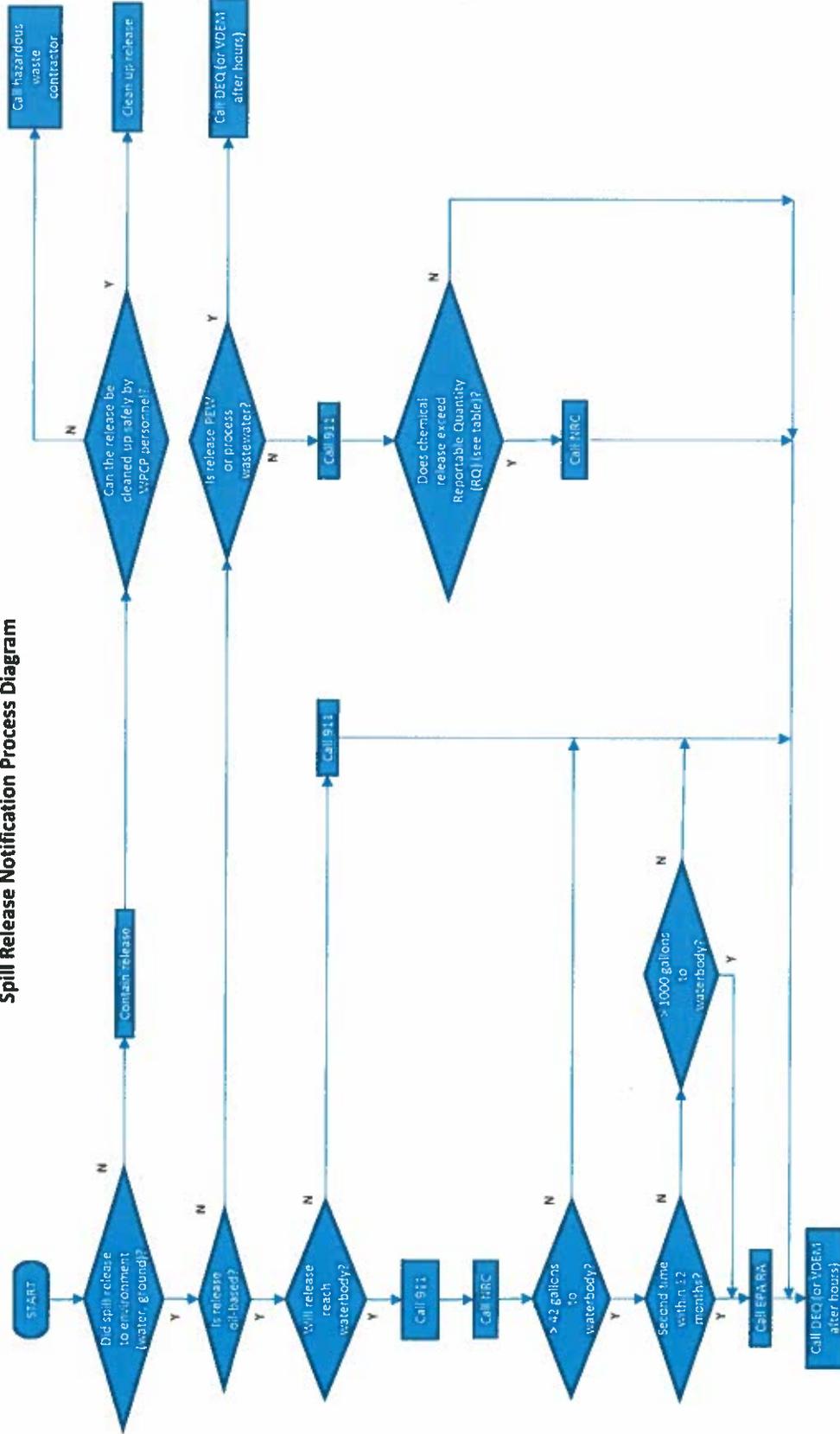
Below are the threshold quantities that must be reported to SPCC/EPA:⁶

| Chemical | CAS Number | Reportable Quantity (pounds) | Reportable Quantity (gallons) |
|---------------------|------------|------------------------------|-------------------------------|
| Ferric Chloride | 7705-08-0 | 1000 | 88 |
| Hydrochloric Acid | 7647-01-0 | 5000 | 402 |
| Methanol | 67-56-1 | 5000 | 757 |
| Sodium Bisulfite | 7631-90-5 | 5000 | 451 |
| Sodium Hydroxide | 1310-73-2 | 1000 | 96 |
| Sodium Hypochlorite | 7681-52-9 | 100 | 9 |
| Petroleum Product | - | Sheen | Sheen |
| Phosphoric Acid | 7664-38-2 | 5000 | 355 |

⁶ These Reportable Quantities are those specified in the Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-To-Know Act (EPCRA) and Section 112(r) of the Clean Air Act, EPA 550-B-01-003, Office of Solid Waste and Emergency Response, October 2001. Reportable Quantity in the EPA document has been converted from pounds of pure material, to gallons of material received by the WPCB.

FIGURE 3

Spill Release Notification Process Diagram



CONTACTS:

National Response Center (NRC): (800) 424-8802

EPA Regional Administrator (RA): (215) 814-2900 R3_RA@epa.gov

DEQ: (703) 583-3864 [off]/(804) 396-0150 [cell] mark.miller@deg.virginia.gov

Virginia Dept of Emergency Management (VDEM): (800) 468-8892

11.A.b. Contacts:

National Response Center (NRC): (800) 424-8802

EPA Region 3 Administrator (RA): Shawn Garvin (215) 814-2900

[R3 RA@epa.gov](mailto:R3_RA@epa.gov)

DEQ: Ms. Amy Dooley (703) 583-3905 Amy.Dooley@deq.virginia.gov

or Mr. Mark Miller (703) 583-3864 Mark.Miller@deq.virginia.gov

Virginia Department of Emergency Management: (800) 468-8892

11.B. Spill Report Form

The Spill Incident Report Form resides on the WPCB SharePoint under WPCB Forms icon. The Station Operator or Shift Supervisor is responsible for completing and submitting the first portion of the form. That submission triggers an e-mail to be sent to the Shift Supervisor and the Spill Plan Coordinator – to determine if the spill meets up-channel reportable criteria. All spills of any of the Plant’s bulk chemicals, petroleum products, PEW, or process wastewater shall be documented using the Spill Incident Report Form – whether or not the spill meets up-channel reportable criteria.

12. Review Process and Dates

12.A. SPCC/HMMP Plan Review

The SPCC/HMMP Plan should be reviewed annually and submitted to the Fire Marshal if there are technical (non-administrative) revisions. The WPCB Chief, or designee, will annually review the SPCC/HMMP Plan and make any necessary revisions. All technical revisions will be reviewed and certified by a Professional Engineer (PE) and submitted to the Fire Marshal’s Office.

If the Plan is reviewed prior to the submission to the Fire Marshal, the dates of the review will be noted in this section. All revisions will be noted in this section and include a brief explanation for the revision(s).

| Date | Reviewer | Revisions | Reason for Revisions |
|---------|------------------------------|----------------------------|--|
| 1/2004 | Aegis Environmental, Inc. | All sections of the plan. | Update to bring into compliance with new SPCC regulations. |
| 6/2006 | D. Wisler, EMS Administrator | All sections | Revise per new interpretation of OPA and changes in plant processes. |
| 3/2008 | Kenneth Williams, ACFD | No revision/comments noted | Review of draft SPCCP |
| 1/20/09 | D. Wisler, EMS Administrator | All sections | Addition of new systems and structures & final editing |

| | | | |
|---------|---------------------------------|-----------------------|--|
| 3/11/09 | D. Wisler, EMS Administrator | Section 13 Knox Boxes | Added reference to placement of HHM keys in large Knox Boxes |
| 03/10 | D. Wisler, EMS Administrator | All sections | Added new buildings, chemical storage, and updated maps |
| 12/15 | B. Dodge, SPCC Plan Coordinator | All sections | 5-yr cycle - required |

12.B. SDS Review

Safety Data Sheets are only updated by the manufacturers if the material changes. Therefore, the date on the SDS will not reflect the annual review process by the WPCB.

On a continuing basis, the WPCB Safety Specialist will review the SDSs for the process chemicals covered in this Plan. In the event that a new bulk material is used at the WPCP, or there is a significant change in the chemical constituents, the new SDS will be inserted into this document.

13. Knox Repository Boxes

Two Knox Repository Boxes are located at the WPCP. The boxes are located at the entrance to Gate 8 near 3410 South Glebe Road, and at the entrance to Gate 3 near 560 South 31st Street. Keys to the Knox Repository Boxes are kept in the OCB key lock box (key tag #428). The Fire Department has a key to both Knox Boxes.

Each Knox Box contains the following items:

- The combined Spill Prevention Control and Countermeasure Plan and the Hazardous Materials Management Plan.
- Four sets of the following keys:
 - o Standard County Key, to open all gate padlocks.
 - o Keys for the HHM facility located on the Westside of the Biological Processing Building.

14. Conformance with State Regulations

This plan is in conformance with the requirements of 40 CFR Part 112.

All above ground storage tanks with a capacity of 660 gallons of oil or more comply with the provisions of 9 VAC 25-91-100, et seq., including Registration, Notification and Closure Requirements. None of the oil-containing ASTs at this facility have a capacity of 25,000 gallons or more, and so no other AST regulations apply.

Appendices Index

- A Regulatory Cross-Reference Table**
- B Tunnel Schematic**
- C Spill Kit Locations**
- D Tier II Report**
- E WPCB Warehouse (3111 South Fern Street) Chemical Inventory**
- F Countermeasure Inventory**
- G Floor Plans**
 - Dewatering Building (3208 South Eads Street)
 - Bio Building (3212 South Eads Street)
 - Basement HHM Facility (538 31st Street South)
 - Preliminary Treatment Building (PTB) (3139 South Fern Street)
 - Warehouse/Maintenance (3111 South Fern Street)
 - North Ferric Facility (3165 South Fern Street)
 - Secondary Services Pump Station (3440 South Glebe Road)
 - South Blower Building/Odor Control (3404 South Glebe Road)
 - Operations Control Building (3402 South Glebe Road)
 - South Ferric Facility (3448 South Glebe Road)
 - West Secondary Services Building 3340 South Glebe Road)
 - Methanol Feed Facility (3328 South Glebe Road)
 - Sodium Hypochlorite Facility (3320 South Glebe Road)
 - Post Aeration Facility (3304 South Glebe Road)
 - Filtration & Disinfection Facility (3322 South Glebe Road)
 - Standby Generator Facility (3408 South Glebe Road)
- H Laboratory Chemical Hygiene Plan**
- I Safety Data Sheets**
 - Process Chemicals (Bulk)
 - Calcium Oxide (unhydrated lime) Ferric Chloride, 38%
 - Methanol, 100% Phosphoric Acid, 35%
 - Sodium Bisulfite, 40% Sodium Hypochlorite, 16%
 - Sodium Hydroxide, 40% Ultrapure Diesel Exhaust Fluid
 - Hydrochloric Acid, 37% Extended Life Coolant
 - Copolymer Acrylamide (aqueous) No. 2 Fuel Oil
 - Copolymer Acrylamide (solid)
 - Suppressor (defoamer)
- J Oil Containing Equipment**
- K Tri-Gas & Oil Statement of Fuel Handling Training**

APPENDIX A

Appendix A

Cross-reference: OPA to SPCCP

| OPA Rule Section | Description of Requirement in OPA | SPCCP Section |
|---------------------|---|---|
| 112.1 | General Applicability | 1.E |
| 112.3 | Requirement to prepare and implement SPCC | 1.B, 1.E |
| 112.3(d) | Licensed PE review and certification | 1.D, 12 |
| 112.4; 112.5 | Amendments to SPCC | 12.A |
| 112.7(a) | General requirements; facility conformance, spill reporting; emergency procedures | Throughout Plan |
| 112.7(b) | Fault analysis | 3.D, 4.D, 5.D |
| 112.7(c) | Secondary containment | 3.F, 3.D, 4.F, 4.D, 5.F, 5.D |
| 112.7(d) | Contingency planning | 3.F, 4.F, 5.F, 9, 10, 11 |
| 112.7(e) | Inspections, Tests and Records | 3.F.e, 4.F.e, 5.F.e |
| 112.7(f) | Employee training and discharge prevention procedures | 3.F, 4.F, 5.F, 10 |
| 112.7(g) | Security | 7 |
| 112.7(h) | Loading/unloading | NA – No loading Racks ¹ |
| 112.7(i) | Brittle fracture evaluation requirements | N/A – no field erected tanks |
| 112.7(j) | Conformance with state requirements | 14 |
| 112.8(a); 112.12(a) | Requirements for onshore facilities (excluding production) | Throughout Plan |
| 112.8(b); 112.12(b) | Facility drainage | 2.B, 3.Bb, 4.B.b |
| 112.8(c); 112.12(c) | Bulk storage containers | 3.B.b, 4.B.b Appendix J |
| 112.8(d); 112.12(d) | Facility transfer operations, pumping and facility process | 3.A, 3.D, 3.F, 4.A, 4.D, 4.F, 5.A, 5.D, 5.F |
| 112.9; 112.13 | Requirements for onshore production facilities | NA |
| 112.10; 112.4 | Requirements for onshore drilling and workover facilities | NA |
| 112.11; 112.15 | Requirements for offshore facilities | NA |
| 112.20 | Facility Response plans | NA (<1,000,000 gal oil) |
| 112.21 | Facility Response training and drills/exercises | NA (<1,000,000 gal oil) |

¹ FR 69:101:29728, Part III: Clarifications - "we interpret §112.7(h) only to apply to loading or unloading racks. Under this interpretation, if a facility does not have a loading or unloading rack, §112.7(h) does not apply."

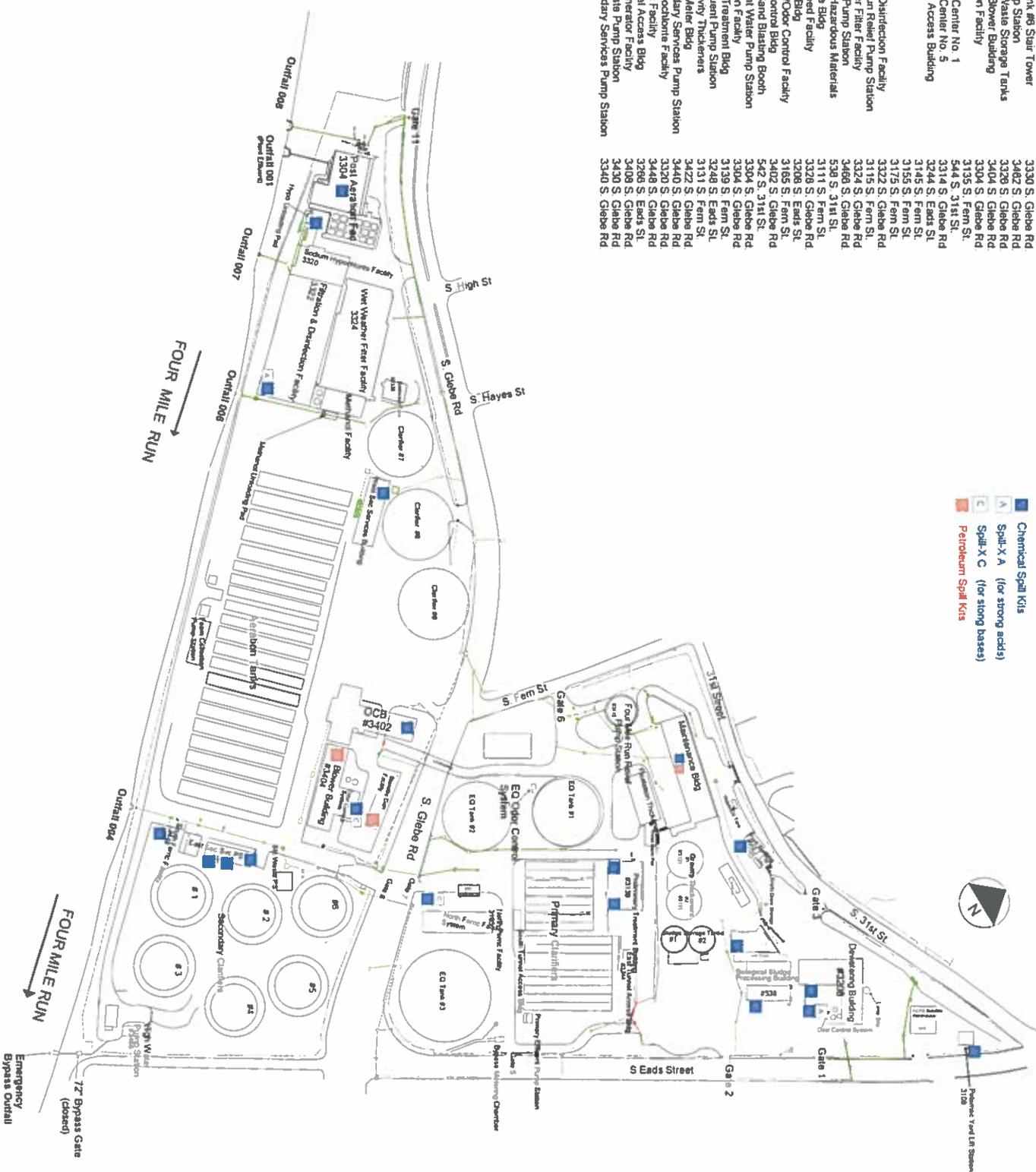
APPENDIX B

APPENDIX C

Water Pollution Control Plant Spill Kit Locations

| BUILDING NAME | ADDRESS |
|--------------------------------------|------------------|
| Aeration Tank #8 Stair Tower | 3330 S. Giebe Rd |
| ASE-1 Pump Station | 3462 S. Giebe Rd |
| Backwash Waste Storage Tanks | 3328 S. Giebe Rd |
| Secondary Blower Building | 3404 S. Giebe Rd |
| Post Aeration Facility | 3304 S. Giebe Rd |
| DAFT Bldg | 3135 S. Fern St. |
| Distribution Center No. 1 | 544 S. 31st St. |
| Distribution Center No. 5 | 3314 S. Giebe Rd |
| East Tunnel Access Building | 3244 S. Eads St |
| EQ Tank #1 | 3145 S. Fern St. |
| EQ Tank #2 | 3155 S. Fern St. |
| EQ Tank #3 | 3175 S. Fern St. |
| Filtration & Distribution Facility | 3322 S. Giebe Rd |
| Four Mile Run Relief Pump Station | 3115 S. Fern St. |
| Wet Weather Filter Facility | 3324 S. Giebe Rd |
| High Water Pump Station | 3466 S. Giebe Rd |
| Household Hazardous Materials | 538 S. 31st St. |
| Maintenance Bldg | 3111 S. Fern St. |
| Manhole Feed Facility | 3328 S. Giebe Rd |
| Dewatering Bldg | 3208 S. Eads St. |
| North Fern/Odor Control Facility | 3165 S. Fern St. |
| Operation Control Bldg | 3402 S. Giebe Rd |
| Plant Bldg/Sand Blasting Booth | 3304 S. Giebe Rd |
| Plant Effluent Water Pump Station | 542 S. 31st St. |
| Post Aeration Facility | 3304 S. Giebe Rd |
| Preliminary Treatment Bldg | 3304 S. Fern St. |
| Primary Effluent Pump Station | 3139 S. Fern St. |
| Primary Granule Thickeners | 3248 S. Eads St. |
| Secondary Meter Bldg | 3131 S. Fern St. |
| East Secondary Services Pump Station | 3422 S. Giebe Rd |
| Sodium Hypochlorite Facility | 3440 S. Giebe Rd |
| South Fern Facility | 3320 S. Giebe Rd |
| South Tunnel Access Bldg | 3448 S. Giebe Rd |
| Slurry Generator Facility | 3266 S. Eads St. |
| Surface Waste Pump Station | 3408 S. Giebe Rd |
| West Secondary Services Pump Station | 3430 S. Giebe Rd |
| | 3340 S. Giebe Rd |

- Chemical Spill Kits
- ▲ Split-X A (for strong acids)
- ▲ Split-X C (for strong bases)
- Petroleum Spill Kits



2.C.a Facility Map (Figure 1)

APPENDIX D



DEPARTMENT OF ENVIRONMENTAL SERVICES

Water Pollution Control Bureau

3402 South Glebe Rd., Arlington, VA 22202
TEL (703) 228-6820 FAX (703) 228-6875 www.arlingtonva.us

February 12, 2015

Mr. Jack Brown, LEPC Chairman
Office of Emergency Management
1400 N. Uhle Street, Suite 300
Arlington, VA 22201

RE: 2014 Tier II Report

Dear Mr. Brown:

Enclosed is the 2014 Tier II report for the Water Pollution Control Plant, located at 3402 S. Glebe Road, Arlington. Should you have any questions, please don't hesitate to call me at (703) 228-6881.

Very truly yours,

A handwritten signature in blue ink that reads "Beau Dodge".

Beau Dodge, REM
Pretreatment Program Coordinator

Cc (w/enclosure): Lt. Scott Hagen, Fire Operations
Debbie Powers, OEM Coordinator

Facility Name: Water Pollution Control Bureau

.....
.....

FACILITY IDENTIFICATION:

Water Pollution Control Bureau
Dept: Department of Environmental Services
3402 South Glebe Road
Arlington, VA 22202 USA
County: Arlington
Latitude: 38.84376
Longitude: -77.056779
Facility Phone: 7035856831

All facility information (not including chemical information) is identical to last year's submission

IDENTIFICATION NUMBERS:

Dun & Bradstreet: N/A (N/A)
NAICS: 221320 (Sewage Treatment Facilities)

Is the facility manned? Manned Unmanned
Maximum No. of Occupants: 84

REGULATORY INFORMATION:

Subject to Emergency Planning under Section 302 of EPCRA (40 CFR part 355)? Yes No
Subject to Chem. Accident Prevention under Section 112(r) of CAA (40 CFR part 68, Risk Mgmt. Pgm.)? Yes No

CONTACT INFORMATION:

Arlington County Board,
Contact Type 1: Owner / Operator
Address: 2100 Clarendon Blvd, Arlington, VA, 22201 USA
Phones: Work: 7032283130
Email: CountyBoard@arlingtonva.us

Slattery, Larry
Title: Bureau Chief Contact Type 1: Emergency Contact
Address: 3402 South Glebe Road, Arlington, VA, 22202 USA
Phones: Work: 7032286877 24-hour: 7035856831
Email: lslattery@arlingtonva.us

Contey, Jerry
Title: Safety Specialist Contact Type 1: Emergency Contact
Address: 3402 South Glebe Road, Arlington, VA, 22202 USA
Phones: Work: 7032286834 24-hour: 5712895925
Email: jcontey@arlingtonva.us

Dodge, Wilson
Title: Pretreatment Program Coordinator Contact Type 1: Tier II Information Contact
Address: 3402 South Glebe Road, Arlington, VA, 22202 USA
Phones: Work: 7032286881 Mobile - Cell: 7032013183
Email: wrdodge@arlingtonva.us

Facility Name: Water Pollution Control Bureau

CHEMICAL DESCRIPTIONS:

CHEM NAME: CALCIUM OXIDE (QUICKLIME)

CAS: 1305-78-8

Identical to previous year

TRADE SECRET

Pure Mix Solid Liquid Gas EHS

PHYSICAL & HEALTH HAZARDS:

Fire Sudden Release of Pressure Reactivity Immediate (acute) Delayed (chronic)

INVENTORY:

Below Reporting Thresholds

Max Daily Amt code: 10 (100,000 - 499,999 pounds)

Avg Daily Amt code: 10 (100,000 - 499,999 pounds)

No. of days on-site: 365

STORAGE LOCATIONS:

Confidential

Container Type: Silo Pressure: Ambient pressure Temp: Ambient temperature Location: In silo next to Dewatering

Building Amount: pounds

CHEMICALS IN INVENTORY STATE FIELDS:

No additional chemical information is required by Virginia

CHEM NAME: Copolymer Acrylamide

CAS: 69418-26-4

Identical to previous year

TRADE SECRET

Pure Mix Solid Liquid Gas EHS

PHYSICAL & HEALTH HAZARDS:

Fire Sudden Release of Pressure Reactivity Immediate (acute) Delayed (chronic)

INVENTORY:

Below Reporting Thresholds

Max Daily Amt code: 06 (10,000 - 24,999 pounds)

Avg Daily Amt code: 05 (5,000 - 9,999 pounds)

No. of days on-site: 365

STORAGE LOCATIONS:

Confidential

Container Type: Bag Pressure: Ambient pressure Temp: Ambient temperature Location: DAF Building Amount:

pounds

Container Type: Bag Pressure: Ambient pressure Temp: Ambient temperature Location: Foam Collection Pump

Station Amount: pounds

CHEMICALS IN INVENTORY STATE FIELDS:

No additional chemical information is required by Virginia

CHEM NAME: Copolymer Acrylamide

CAS: 69418-26-4

Identical to previous year

TRADE SECRET

Pure Mix Solid Liquid Gas EHS

Facility Name: Water Pollution Control Bureau

PHYSICAL & HEALTH HAZARDS:

Fire Sudden Release of Pressure Reactivity Immediate (acute) Delayed (chronic)

INVENTORY:

Below Reporting Thresholds

Max Daily Amt code: 10 (100,000 - 499,999 pounds)

Avg Daily Amt code: 09 (75,000 - 99,999 pounds)

No. of days on-site: 365

STORAGE LOCATIONS:

Confidential

| | | | |
|---|----------------------------|---------------------------|-----------------------|
| Container Type: Tank inside building | Pressure: Ambient pressure | Temp: Ambient temperature | Location: Preliminary |
| Treatment Building Amount: pounds | | | |
| Container Type: Tank inside building | Pressure: Ambient pressure | Temp: Ambient temperature | Location: Dewatering |
| Building Amount: pounds | | | |
| Container Type: Tank inside building | Pressure: Ambient pressure | Temp: Ambient temperature | Location: Solids |
| Handling Building Basement Amount: pounds | | | |
| Container Type: Tank inside building | Pressure: Ambient pressure | Temp: Ambient temperature | Location: Secondary |
| Pump Room Amount: pounds | | | |

CHEMICALS IN INVENTORY STATE FIELDS:

No additional chemical information is required by Virginia

CHEM NAME: Ferric Chloride (max 38%)

CAS: 7705-08-0

Identical to previous year

TRADE SECRET

Pure Mix Solid Liquid Gas EHS

PHYSICAL & HEALTH HAZARDS:

Fire Sudden Release of Pressure Reactivity Immediate (acute) Delayed (chronic)

INVENTORY:

Below Reporting Thresholds

Max Daily Amt code: 11 (500,000 - 999,999 pounds)

Avg Daily Amt code: 10 (100,000 - 499,999 pounds)

No. of days on-site: 365

STORAGE LOCATIONS:

Confidential

| | | | |
|--|----------------------------|---------------------------|------------------------|
| Container Type: Tank inside building | Pressure: Ambient pressure | Temp: Ambient temperature | Location: West |
| Secondary Services Building Amount: pounds | | | |
| Container Type: Tank inside building | Pressure: Ambient pressure | Temp: Ambient temperature | Location: South Ferric |
| Facility Amount: pounds | | | |
| Container Type: Tank inside building | Pressure: Ambient pressure | Temp: Ambient temperature | Location: North Ferric |
| Facility Amount: pounds | | | |

CHEMICALS IN INVENTORY STATE FIELDS:

No additional chemical information is required by Virginia

CHEM NAME: Fuel Oil #2

CAS: 68476-30-2

Identical to previous year

TRADE SECRET

Pure Mix Solid Liquid Gas EHS

PHYSICAL & HEALTH HAZARDS:

Fire Sudden Release of Pressure Reactivity Immediate (acute) Delayed (chronic)

INVENTORY:

Facility Name: Water Pollution Control Bureau

Below Reporting Thresholds
Max Daily Amt code: 10 (100,000 - 499,999 pounds)
Avg Daily Amt code: 09 (75,000 - 99,999 pounds)
No. of days on-site: 365

STORAGE LOCATIONS:

Confidential

Container Type: Above ground tank Pressure: Ambient pressure Temp: Ambient temperature Location: Standby

Generator Facility Amount: pounds

CHEMICALS IN INVENTORY STATE FIELDS:

No additional chemical information is required by Virginia

CHEM NAME: HYDROCHLORIC ACID

CAS: 7647-01-0

Identical to previous year
 TRADE SECRET
 Pure Mix Solid Liquid Gas EHS

PHYSICAL & HEALTH HAZARDS:

Fire Sudden Release of Pressure Reactivity Immediate (acute) Delayed (chronic)

INVENTORY:

Below Reporting Thresholds
Max Daily Amt code: 05 (5,000 - 9,999 pounds)
Avg Daily Amt code: 04 (1,000 - 4,999 pounds)
No. of days on-site: 365

STORAGE LOCATIONS:

Confidential

Container Type: Plastic or non-metallic drum Pressure: Ambient pressure Temp: Ambient temperature Location:

Dewatering Building - chemical storage room Amount: pounds

Container Type: Plastic or non-metallic drum Pressure: Ambient pressure Temp: Ambient temperature Location:

Dewatering Building - basement Amount: pounds

CHEMICALS IN INVENTORY STATE FIELDS:

No additional chemical information is required by Virginia

CHEM NAME: Methanol

CAS: 67-56-1

Identical to previous year
 TRADE SECRET
 Pure Mix Solid Liquid Gas EHS

PHYSICAL & HEALTH HAZARDS:

Fire Sudden Release of Pressure Reactivity Immediate (acute) Delayed (chronic)

INVENTORY:

Below Reporting Thresholds
Max Daily Amt code: 10 (100,000 - 499,999 pounds)
Avg Daily Amt code: 10 (100,000 - 499,999 pounds)
No. of days on-site: 365

STORAGE LOCATIONS:

Confidential

Container Type: Above ground tank Pressure: Ambient pressure Temp: Ambient temperature Location: Methanol

Facility Amount: pounds

CHEMICALS IN INVENTORY STATE FIELDS:

No additional chemical information is required by Virginia

Facility Name: Water Pollution Control Bureau

CHEM NAME: Phosphoric Acid 35%

CAS: 7664-38-2

Identical to previous year

TRADE SECRET

Pure Mix Solid Liquid Gas EHS

PHYSICAL & HEALTH HAZARDS:

Fire Sudden Release of Pressure Reactivity Immediate (acute) Delayed (chronic)

INVENTORY:

Below Reporting Thresholds

Max Daily Amt code: 01 (0 - 99 pounds)

Avg Daily Amt code: 01 (0 - 99 pounds)

No. of days on-site: 365

STORAGE LOCATIONS:

Confidential

Container Type: Plastic or non-metallic drum Pressure: Ambient pressure Temp: Ambient temperature Location: Filter

& Disinfection Facility Acid Room Amount: pounds

CHEMICALS IN INVENTORY STATE FIELDS:

No additional chemical information is required by Virginia

CHEM NAME: Sodium Bisulfite (40%)

CAS: 7631-90-5

Identical to previous year

TRADE SECRET

Pure Mix Solid Liquid Gas EHS

PHYSICAL & HEALTH HAZARDS:

Fire Sudden Release of Pressure Reactivity Immediate (acute) Delayed (chronic)

INVENTORY:

Below Reporting Thresholds

Max Daily Amt code: 10 (100,000 - 499,999 pounds)

Avg Daily Amt code: 09 (75,000 - 99,999 pounds)

No. of days on-site: 365

STORAGE LOCATIONS:

Confidential

Container Type: Tank inside building Pressure: Ambient pressure Temp: Ambient temperature Location: Post

Aeration Building Amount: pounds

CHEMICALS IN INVENTORY STATE FIELDS:

No additional chemical information is required by Virginia

CHEM NAME: Sodium Hydroxide, 40%

CAS: 1310-73-2

Identical to previous year

TRADE SECRET

Pure Mix Solid Liquid Gas EHS

PHYSICAL & HEALTH HAZARDS:

Fire Sudden Release of Pressure Reactivity Immediate (acute) Delayed (chronic)

INVENTORY:

Below Reporting Thresholds

Max Daily Amt code: 10 (100,000 - 499,999 pounds)

Avg Daily Amt code: 10 (100,000 - 499,999 pounds)

Facility Name: Water Pollution Control Bureau

No. of days on-site: 365

STORAGE LOCATIONS:

Confidential

Container Type: Tank inside building Pressure: Ambient pressure Temp: Ambient temperature Location: Blower
Building Amount: pounds
Container Type: Tank inside building Pressure: Ambient pressure Temp: Ambient temperature Location: North Ferric
Facility Amount: pounds
Container Type: Plastic or non-metallic drum Pressure: Ambient pressure Temp: Ambient temperature Location: Post
Aeration Facility Amount: pounds

CHEMICALS IN INVENTORY STATE FIELDS:

No additional chemical information is required by Virginia

CHEM NAME: Sodium Hypochlorite (max. 16%)

CAS: 7681-52-9

Identical to previous year

TRADE SECRET

Pure Mix Solid Liquid Gas EHS

PHYSICAL & HEALTH HAZARDS:

Fire Sudden Release of Pressure Reactivity Immediate (acute) Delayed (chronic)

INVENTORY:

Below Reporting Thresholds

Max Daily Amt code: 11 (500,000 - 999,999 pounds)

Avg Daily Amt code: 11 (500,000 - 999,999 pounds)

No. of days on-site: 365

STORAGE LOCATIONS:

Confidential

Container Type: Tank inside building Pressure: Ambient pressure Temp: Ambient temperature Location: Sodium
Hypochlorite Building Amount: pounds
Container Type: Tank inside building Pressure: Ambient pressure Temp: Ambient temperature Location: Secondary
Pump Room Amount: pounds
Container Type: Tank inside building Pressure: Ambient pressure Temp: Ambient temperature Location: Preliminary
Treatment Building Amount: pounds
Container Type: Tank inside building Pressure: Ambient pressure Temp: Ambient temperature Location: Dewatering
Building Amount: pounds
Container Type: Tank inside building Pressure: Ambient pressure Temp: Ambient temperature Location: Solids
Handling Building Basement Amount: pounds
Container Type: Tank inside building Pressure: Ambient pressure Temp: Ambient temperature Location: Blower
Building Amount: pounds
Container Type: Tank inside building Pressure: Ambient pressure Temp: Ambient temperature Location: North Ferric
Facility Amount: pounds

CHEMICALS IN INVENTORY STATE FIELDS:

No additional chemical information is required by Virginia

CHEM NAME: Urea (32.5%) (Terra Cair Ultrapure Exhaust Fluid)

CAS: 57-13-6

Identical to previous year

TRADE SECRET

Pure Mix Solid Liquid Gas EHS

PHYSICAL & HEALTH HAZARDS:

Fire Sudden Release of Pressure Reactivity Immediate (acute) Delayed (chronic)

INVENTORY:

Facility Name: Water Pollution Control Bureau

Below Reporting Thresholds

Max Daily Amt code: 07 (25,000 - 49,999 pounds)

Avg Daily Amt code: 07 (25,000 - 49,999 pounds)

No. of days on-site: 365

STORAGE LOCATIONS:

Confidential

Container Type: Tank inside building Pressure: Ambient pressure Temp: Ambient temperature Location: Standby

Generator Facility Amount: pounds

CHEMICALS IN INVENTORY STATE FIELDS:

No additional chemical information is required by Virginia

FACILITY STATE FIELDS:

No additional information is required by Virginia

STATE / LOCAL FEES: None.

I have attached a site plan

I have attached a list of site coordinate abbreviations

I have attached a description of dikes and other safeguard measures

Certification (Read and sign after completing all sections)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in pages one through 7,
and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Larry Slattery, Bureau Chief, Water Pollution

Name and official title of owner/operator
OR owner/operator's authorized representative


Signature

 2/12/2015
Date signed

APPENDIX E

Warehouse Inventory Chemicals

11/17/2015

ARLINGTON COUNTY WATER POLLUTION CONTROL PLANT

Page 1

| Item No. | Description | Specifications | Warehouse | UOM | Qty on Hand |
|-------------------|---|--|--------------|------|-------------|
| 3950-DWB-0004C-00 | OIL, GEAR CASE P/N 649885000, SERIES K 1- | (6-EA LEFT BY CONTRACTOR 2/9/98) | MAIN REPAIR | QT | 6.00 |
| 4140-DWB-0013C-00 | GREASE, SYNTHETIC MOBILITH SHC100 NLG | 12.5OZ. CARTRIDGE, LUBRICATING MINIMUM DROPPING POINT 475 DEG. F, COLOR RED, 500 SUS AT 100 DEG. F (TO BE USED ON US ELECTRIC MOTORS PER D. DOBBS 5/26/10, GW) | OIL ROOM | OZ | |
| 4320-0101-0092 | OIL, GEAR AGMA P/N 4070122020 7, 2.5 GAL | P/N 4070122020, ITEM 8010, 2.5 GALLONS PER MIL B PUMP, MAY SUBSTITUTE NEVASTANE EP 460, P/N JS000658 | MAIN GENERAL | GAL | |
| 4320-0101-0093 | OIL, HYD, ZURNPREEN P/N 4070126020 15A, | P/N 4070126020, ITEM 8020, 3 QTS PER MIL B PUMP, MAY SUBSTITUTE NEVASTANE 10 AW OR NEVASTANE AW32, P/N 40452 | MAIN GENERAL | QT | |
| 4320-0101-0153 | GREASE, MOBIL, #CM-P, P/N 4070309000 | | MAIN GENERAL | OZ | |
| 4320-0102-0037 | OIL, VEGETABLE, 1 GALLON, P/N 40104 | P/N 40104 | MAIN GENERAL | GAL | |
| 4320-0102-0064 | OIL, GEAR, ZURN EP-95, P/N 4070152010 | 4 QUARTS NEEDED FOR MILROYAL G PUMP, P/N 4070152010 | MAIN GENERAL | QT | |
| 4320-0103-0008 | OIL, 120 CM3, P/N 13133 | P/N 13133 | MAIN GENERAL | EA | |
| 4320-0124-0047 | OIL, MARCOL 152, P/N 901752 | | MAIN GENERAL | EA | |
| 4320-0131-0011 | OIL, TELLUS T-68, P/N 099-038 | IMPORTANT - REPLACEMENT OIL MUST BE SAME OR EQUAL AS NOT TO DAMAGE NORYL MATERIAL | MAIN GENERAL | EA | |
| 4320-0153-0009 | OIL, MINERAL, 1 OZ, P/N 4070317020 | | MAIN GENERAL | EA | |
| 4320-DWB-0022C-04 | GREASE, DUBOIS ACG-2 NLGI #2, 14-OZ TUB | ALUMINUM COMPLEX (40-TUBES PER CASE) | OIL ROOM | TUBE | |
| | | DROPPING POINT 500 DEG. F, COLOR RED, NORMAL USING TEMPERATURE 50°F - 350°F, MAXIMUM USING TEMPERATURE 450°F USDA H2 | | | |
| | | PROPERTIES APPLICATIONS: CHEMICAL WATER RESISTANCE | | | |
| | | ITEM IS STORED IN LUBE ROOM REQUESTED BY SAM BANKS FOR MOYNO PUMP GREASING ONLY 11/12/10, GW | | | |
| 4630-DWB-0002C-00 | GREASE, LUBRICATING NO PART NUMBER/N | | MAIN REPAIR | OZ | 0.00 |
| 4630-DWB-0005C-05 | GREASE, SKF LGMT 3/0.4, 14.1 OZ. CARTRID | USED ON CENTRIFUGES @ DWB | OIL ROOM | OZ | -3.00 |
| 4630-DWB-0005C-05 | GREASE, KUBLER ISOFLEX NBU15, HIGH SPEP/N | 004026-177 | MAIN REPAIR | OZ | 1.00 |
| | | ON WAREHOUSE WALL BY P.HILTZ NAME 6/16/14 AG | | | |
| 4630-DWB-0007C-00 | OIL, RED 1-GAL. P/N 019127 | (1-GAL. LEFT BY CONTRACTOR 7/1/97) | MAIN REPAIR | QT | 0.00 |

Warehouse Inventory Chemicals

| Item No. | Description | Specifications | Warehouse | UOM | Qty on Hand |
|-------------------|---|---|-----------------|------|-------------|
| 4630-DWB-0007C-00 | OIL, RED 1-GAL. P/N 019127 | | MAIN REPAIR | QT | 0.00 |
| 4630-DWB-0007C-01 | GREASE, SYNTHETIC 670 COPR GEAR COTE | P/N 028049 10. OZ. DELUXE 24-EA. PER CASE | MAIN REPAIR | OZ | |
| 4630-DWB-0007C-01 | GREASE, POLYTAC EP-2 PHILUBE 14.0 OZ. P/ | PHILLIPS 66 (| MAIN REPAIR | OZ | |
| 4820-1041-0007 | GREASE, IT 4 | MDT-3S CHAINWHEEL ACTUATOR, DWG. C8305/A725; WHEN ORDERING PARTS, SPECIFY PRATT SHOP ORDER #877131HP AND ITEM NUMBER 11 (14"), ACTUATOR SIZE, ASSY DESCRIPTION, ITEM NUMBER AND DESCRIPTION | MAIN GENERAL | EA | |
| 4820-1042-0033 | GREASE, IT 5 | MDT-4S HANDWHEEL ACTUATOR, DWG. E-171; WHEN ORDERING PARTS, SPECIFY PRATT SHOP ORDER #877131HP AND ITEM NUMBER 15 (24"), ACTUATOR SIZE, ASSY DESCRIPTION, ITEM NUMBER AND DESCRIPTION | MAIN GENERAL | EA | |
| 6105-0002 | GREASE, US MOTORS RECOMMENDED | | MAIN GENERAL | EA | |
| 6110-0046-0001 | GREASE, TERMINAL LUBRICANT, P/N 1LUB00 | ACTUAL NAME - MOLYKOTE(R) BG-20 FROM DOW CORNING | MAIN GENERAL | EA | |
| 6115-0002-0014 | OIL, MOTOR SAE 5W-40 MOBIL ESP DELVAC | | EADS | EA | 5.00 |
| 6630-0004-0007 | GREASE, INSTRUMENT PROBE, O-RING, 60G. | NITRATAX plus sc (2 mm/0.08 in.) | MAIN INSTRUMENT | EA | 3.00 |
| 6630-INST-013-027 | GREASE, SILICONE AEK5662 (REPL. U10242) | | MAIN INSTRUMENT | OZ | 0.00 |
| 6810-001 | DEGREASER, SOLVENT, SAFETY SAF-SOL 20 | 20-OZ. AEROSOL, NON-FLAMMABLE, NON-CONDUCTIVE or 16-OZ. SAF-SOL | MAIN GENERAL | EA | |
| 6810-004 | DEGREASER, SOLVENT AEROSOL, 19-OZ. AI | NON-FLAMMABLE OR EQUAL (FOR PARTS BRAKES MACHINERY GENERATORS ECT.) | MAIN GENERAL | EA | 0.00 |
| 6810-005 | DEGREASER, AEROSOL, 20-OZ. CLEAN FAST | TABLET OR EQUAL (TESTING PER SAM BANKS 6/2/04 TEMPORARY STORAGE GET FEED BACK TO SEE IF PRODUCT CAN REPLACE AIRFORCE) NON STOCK AS FOR NOW WATKINS | MAIN GENERAL | EA | 18.00 |
| 6810-007 | DEGREASER, ENGINE GUNK P/N EB-1 16-OZ. | | MAIN GENERAL | EA | 0.00 |
| 6810-0100 | ACETONE | | MAIN GENERAL | QT | |
| 6810-011 | DESICCANT, ACTIVATED ALUMINA 1/8" BEAD, | S CHANGED UNIT OF ISSUE AND PURCHASE FROM LB TO DRUM 6/23/99 GW. (CHARGE OUT PER DRUM ONLY) | MAIN REPAIR | DRUM | 0.00 |
| 6810-012 | DESICCANT, 2 UNIT 150/PL MIL-D-3464 TY I&II | U/I IS EA. | MAIN REPAIR | EA | 1,199.00 |
| 6810-020 | CLEANER, COIL SUPER BRITE #3116-5 (5-GALL | G. HILL | MAIN REPAIR | EA | 1.00 |
| 6810-030 | PROTECTOR, CONDENSATE DRAIN FREEWA | (HILL) | MAIN GENERAL | EA | 230.00 |
| 6810-035 | PROTECTOR, SHOE, RAIN & STRAIN SHIELD F | BOOTS. | MAIN GENERAL | EA | 0.00 |
| 6810-040 | SULFURIC ACID, 19.2N 100ML MDB, ITEM NO. | | MAIN INSTRUMENT | EA | 1.00 |
| 6810-INST-001 | DETECTOR, LEAK SNOOP 8-OZ LIQUID, MFG. | | MAIN INSTRUMENT | EA | 6.00 |
| 6810-LAB-035 | BUFFER, PH 4 1-LITER BU0402, RED | (MFG. BRADDLEY #HY2412) CHARGED TO LAB 342 | MAIN GENERAL | EA | 20.00 |
| | | WHEN ORDERING CERTIFICATE OF ANALYSIS MUST | | | |

Warehouse Inventory Chemicals

ARLINGTON COUNTY WATER POLLUTION CONTROL PLANT

| Item No. | Description | Specifications | Warehouse | UOM | Qty on Hand |
|--------------|---|---|--------------|-----|-------------|
| 6810-LAB-035 | BUFFER, PH 4 1-LITER BU0402, RED | BE REQUESTED PER LAB 2/1/11, GW | MAIN GENERAL | EA | 20.00 |
| 6810-LAB-036 | BUFFER, PH 7 1-LITER BU0702, YELLOW | (MFG. BRADDLEY #HY3502) CHARGED TO LAB 342 | MAIN GENERAL | EA | 9.00 |
| 6810-LAB-037 | BUFFER, PH 10 1-LITER BU1002, BLUE | WHEN ORDERING CERTIFICATE OF ANALYSIS MUST BE REQUESTED PER LAB 2/1/11, GW (MFG. BRADDLEY #HY4482) CHARGED TO LAB 342 | MAIN GENERAL | EA | 7.00 |
| 6810-LAB-038 | BUFFER, PH 7 500ML CLEAR QC BU07CL-16 | WHEN ORDERING CERTIFICATE OF ANALYSIS MUST BE REQUESTED PER LAB 2/1/11, GW REPLACES BU0701 (MFG. RICCA CAT. #1550-16 OR BRADDLEY HY3480) CHARGED TO LAB 342 | MAIN GENERAL | EA | 0.00 |
| 6810-LAB-039 | BUFFER, PH 7 1-LITER CLEAR P/N 09-1507-48 | (DO NOT REORDER, ORDER ITEM #6810-LAB-039 AND SET UP AS NEW STOCK PER MARIA, SET REORDER POINT AT 4 AND REORDER 12 9/13/06 WATKINS) CHARGED TO LAB 342 | MAIN GENERAL | EA | 8.00 |
| 6810-LAB-040 | BUFFER, PH 7 4-LITER, YELLOW | WHEN ORDERING CERTIFICATE OF ANALYSIS MUST BE REQUESTED PER LAB 2/1/11, GW | MAIN GENERAL | EA | 0.00 |
| 6810-LAB-041 | BUFFER, PH 10 4-LITER, BLUE | WHEN ORDERING CERTIFICATE OF ANALYSIS MUST BE REQUESTED PER LAB 2/1/11, GW | MAIN GENERAL | EA | 1.00 |
| 6810-LAB-042 | BUFFER, PH 12 500ML | CHARGED TO LAB 342 PER MARIA 6/23/04 | MAIN GENERAL | EA | 17.00 |
| 6810-LAB-043 | BUFFER, PH 12.45 500ML | WHEN ORDERING CERTIFICATE OF ANALYSIS MUST BE REQUESTED PER LAB 2/1/11, GW CHARGED TO LAB 342 PER MARIA 6/23/04 | MAIN GENERAL | EA | 27.00 |

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ARLINGTON COUNTY WATER POLLUTION CONTROL PLANT

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| Item No. | Description | Specifications | Warehouse | UOM | Qty on Hand |
|--------------|---|---|--------------|-----|-------------|
| 6810-LAB-043 | BUFFER, PH 12.45 500ML | | MAIN GENERAL | EA | 27.00 |
| 6810-LAB-044 | SODIUM HYPOCHLORITE SS290-1, 1-LITER P | WHEN ORDERING CERTIFICATE OF ANALYSIS MUST BE REQUESTED PER LAB 2/1/11, GW | MAIN GENERAL | EA | 4.00 |
| 6810-LAB-050 | SODIUM THIOSULFATE 26869-01, CARTRIDGEZED, HACH | | MAIN GENERAL | EA | 1.00 |
| 6820-001 | DYE, YELLOW/GREEN, LIQUID CONCENTRAT | 6JB-23683 | MAIN GENERAL | EA | 2.00 |
| 6840-001 | DISINFECTANT/CLEANER LYSOL, 1-GAL BOT | CENT | MAIN REPAIR | EA | 0.00 |
| 6840-002 | DISINFECTANT/CLEANER PINE-QUAT, 2.5-GA | BSITUTE NATIONAL SUPPLY SIMONIZ BLOOM) | MAIN REPAIR | EA | 0.00 |
| 6840-004 | DISINFECTANT, AEROSOL SPRAY, 16-OZ. DU | | MAIN REPAIR | EA | 22.00 |
| 6840-007 | INSECTICIDE, ZEP TOTAL CONTROL WASP & R | P/N 0079 | MAIN GENERAL | EA | 5.00 |
| 6840-008 | REPELLANT, INSECT TEC LABS 100% DEET 1 | PUMP SPRAY | MAIN GENERAL | EA | 29.00 |
| 6840-009 | REPELLANT, INSECT DEET FREE 4-OZ. PUMP | MFG. NATRAEL PLUS CITRONELLA W/GERANIOL | MAIN GENERAL | EA | 2.00 |
| 6850-0001 | ANTI-FREEZE/COOLANT 1-GAL. BOTTLES ET | BASE | MAIN GENERAL | EA | 7.00 |
| 6850-0005 | CLEANER, CONTACT 11-OZ. CRC P/N 1D262 | MAKE SURE TO PURCHASE UNIVERSAL 2/22/11/GW | MAIN GENERAL | EA | 19.00 |
| 6850-0008 | OIL, PENETRATING AERO KROIL 13-OZ., AER | ELECTRONIC, TELEVISION, & TELEPHONE EQUIPMENT) | MAIN GENERAL | EA | 15.00 |
| 6850-0009 | FLUID, PENETRATING LET'S GO, AEROSOL. | MSTEWART HALL #0905DA | MAIN GENERAL | EA | 16.00 |
| 6850-0010 | OIL, PENETRATING 19-OZ., AEROSOL | SPECIAL USE ONLY WHEN BOLTS CANNOT BE REMOVED WITH REGULAR PENETRATING OILS | MAIN GENERAL | EA | 28.00 |
| 6850-0011 | OIL, LITE E-Z-GO 17-OZ., AEROSOL (LUBRICA | ITEM IS NON STOCK BEING TESTED BY M. GODIND CM SHOP. GIVEN A LOCATION FOR TEMP. STOCK TO SEE HOW THEY MOVE. WATKINS 8/25/04 | MAIN GENERAL | EA | 0.00 |
| 6850-0015 | CLEANER, DRAIN OPENER CYCLONE #1462 B32-OZ | BOTTLES (SULFURIC ACID 100 %) | MAIN GENERAL | EA | 20.00 |
| 6850-0016 | CLEANER, DRAIN OPENER DRANO 32OZ. | | MAIN GENERAL | EA | 0.00 |
| 6850-0020 | GUM CUTTER BERKEBILE 2 + 2 13-OZ. (FOR | PVC SYSTEM, CHOKE, ECT. ALSO REMOVES CARBON) | MAIN GENERAL | EA | 0.00 |
| 6850-0022 | ADDITIVE, DIESEL FUEL 1/2 GALLON HOWES | # 40420 ANTI-GEL | MAIN GENERAL | EA | 5.00 |
| 6850-0023 | ADDITIVE, ANTI-FREEZE COOLANT SUPPLEM | R DERTOIT DIESEL NALCOOL 3000 | MAIN GENERAL | EA | 27.00 |
| 6850-0025 | FLUID, STARTING ENGINE PYROIL SFR-11, 11 | | MAIN GENERAL | EA | 0.00 |
| 6850-0026 | FLUID, BRAKE DOT 3 H/D BERKEBILE 2 + 2 ST | O | MAIN GENERAL | EA | 0.00 |
| 6850-0030 | DE-ICER, WINDSHIELD SILLO P/N 22A OR EQ | ANS | MAIN GENERAL | EA | 0.00 |
| 6850-0031 | DE-ICER, LOCK QUALCO STK. #201 PRESSURS | | MAIN GENERAL | EA | 0.00 |

Warehouse Inventory Chemicals

ARLINGTON COUNTY WATER POLLUTION CONTROL PLANT

| Item No. | Description | Specifications | Warehouse | UOM | Qty on Hand |
|---------------|---|--|--------------|----------|-------------|
| 6850-0035 | ICE MELTER, 50-LB BOX BLEND OF PROVEN | CHEMICAL AND TEA COMPLEX FOR CORROSION INHIBITION WITH PINK TINT TO AID IN EVEN SPREADING, SAFE TO USE ON CONCRETE, ASPHALT AND AROUND TREES, SHRUBS, AND GRASSES, WORKS DOWN TO -6 DEGREES F. (DIAMOND CRYSTAL WINTER MELT) | EADS | BX | 125.00 |
| 6850-0037 | ACID, HYDROCHLORIC (MURIATIC) 20 DEG (3 | (NEW CONTRACT S. FREEDMAN AMERICAN SALT SELECT BLUE, SOLD IN 50#BAGS, 49 BAGS PER SKID 12/30/11, GW) | MAIN REPAIR | DR/55GAL | |
| 6850-WSSD-050 | LUBRICANT/CLEANER HILCO LUBE #5035 FO | 55 GALLON DRUMS, \$.53 PER POUND DRUM WEIGHS 50LBS. | MAIN GENERAL | EA | 19.00 |
| 7930-001 | CLEANER, ALL PURPOSE, SPRAY NINE OR 40 | ALTERNATE LOCATION R18-S11 EADS P SPRAY OR 32OZ. TRIGGER SPRAY SUB ZEP SPIRIT II PROD. #067901, 32-OZ | EADS | EA | 525.00 |
| 7930-001 | CLEANER, ALL PURPOSE, SPRAY NINE OR 40 | ALTERNATE LOCATION R18-S11 EADS P SPRAY OR 32OZ. TRIGGER SPRAY SUB ZEP SPIRIT II PROD. #067901, 32-OZ | MAIN REPAIR | EA | 164.00 |
| 7930-002 | CLEANER, AIR DUSTER ES1015 CHEMTRONI | | MAIN GENERAL | EA | 415.00 |
| 7930-005 | CLEANER, BIG RED, (CHEMICAL) 6-GAL. PAIL, | | MAIN REPAIR | EA | 1.00 |
| 7930-006 | CLEANER, DEGREASER, H202 MULTI-PURPO | 1-GAL BOTTLES (SUPER CONCENTRATED) | MAIN REPAIR | EA | 19.00 |
| 7930-007 | DEGREASER, FLOATING ORANGE BUOY 20-G | STATE CMEMICAL P/N 2470B-020 COMES W/DR2000 ELECTRIC DRUM PUMP | MAIN REPAIR | EA | 0.00 |
| 7930-008 | DEGREASER, ORANGE OIL 5-GAL BUCKET, 8 | HINSILBLON | MAIN REPAIR | EA | 0.00 |
| 7930-009 | CLEANER, TOILET BOWL, 32-OZ. BOTTLES (A | CHANGE DESCRIPTION WHEN IT COMES IN | MAIN REPAIR | EA | 0.00 |
| 7930-010 | DEGREASER, BAC AIDE ISLAND FRESH LBA5 | DR. | MAIN REPAIR | DR/55GAL | |
| 7930-011 | DEGREASER, C.I.A HILL #2942-55 (55-GAL | DR DR. | OIL ROOM | DR/55GAL | 2.00 |
| 7930-012 | CLEANER, SPIC & SPAN, 27-OZ. POWDER, (F | | MAIN REPAIR | EA | 31.00 |
| 7930-013 | CLEANSER, W/BLEACH 21-OZ., INDUSTRIAL (| | MAIN REPAIR | EA | 6.00 |
| 7930-014 | DETERGENT, LAUNDRY TIDE W/BLEACH, 21- | CASE) CONCENTRATE | MAIN REPAIR | EA | 0.00 |
| 7930-015 | DETERGENT, LAUNDRY TIDE, 33-OZ (15 PER | CASE) CONCENTRATE | MAIN REPAIR | EA | 0.00 |
| 7930-016 | CLEANER, AMMONIA 32-OZ BOTTLES, (ALL B | | MAIN REPAIR | EA | 39.00 |
| 7930-017 | CLEANER, GLASS WINDEX, 32-OZ. TRIGGER | (LIMPIA REPLACED 32-WINDEX TRIGGER SPRAY WAS'NT ANY GOOD (SUBSTITUTE QUEST GLEEM FROM BIRCHWOOD) PER CASE) | MAIN REPAIR | EA | 10.00 |
| 7930-018 | DETERGENT, LAUNDRY TIDE HE, 100-OZ LIQ | | EADS | EA | 143.00 |
| 7930-018 | DETERGENT, LAUNDRY TIDE HE, 100-OZ LIQ | PETE HILTZ NEEDS TO BE NOTIFIED OR NEEDS TO NOTIFY US BEFORE ISSUE 10/28/11, GW PER CASE) | EADS | EA | 65.00 |

Warehouse Inventory Chemicals

ARLINGTON COUNTY WATER POLLUTION CONTROL PLANT

| Item No. | Description | Specifications | Warehouse | UOM | Qty on Hand |
|---------------|---|---|--------------|------|-------------|
| 7930-018 | DETERGENT, LAUNDRY TIDE HE, 100-OZ LIQ | PETE HILTZ NEEDS TO BE NOTIFIED OR NEEDS TO NOTIFY US BEFORE ISSUE 10/28/11, GW | EADS | EA | 65.00 |
| 7930-019 | CLEANER, TILEX MILDEW & STAIN REMOVER | 32OZ., TRIGGER SPRAY OR X-14 | MAIN REPAIR | EA | 0.00 |
| 7930-020 | DEGREASER, NON-FLOATING, P/N 3127-5, HI | 5 GALLONS CONTAINERS | OIL ROOM | GAL | 30.00 |
| 7930-021 | DEGREASER, CITRA-FLOAT LIFT STATION 55 | | EADS | DRUM | 0.00 |
| 7930-023 | CLEANER, POLISH, FURNITURE, AEROSOL S | | MAIN REPAIR | EA | 0.00 |
| 7930-026 | CLEANER, POLISH, STAINLESS STEEL, AERO | 17-19OZ. CAN | MAIN REPAIR | EA | 2.00 |
| 7930-029 | VINEGAR, WHITE 1-GAL | | MAIN GENERAL | EA | 9.00 |
| 7930-030 | REMOVER, STAIN CARPET PROD.# 1068 18 O | AMERICAN INDUSTRIAL SUPPLY | MAIN GENERAL | EA | 0.00 |
| 7930-040 | SWEEPING COMPOUND OIL BASE 100LB. BO | | MAIN REPAIR | BX | 2.00 |
| 7930-050 | CLEANER, LENS TOWLETTE UVEX S468 BO | | MAIN GENERAL | BX | 9.00 |
| 7930-056 | WIPES, RESPIRATOR P/N A505200 TRULINE 1 | ALCOHOL FREE, PRE-MOISTENED | MAIN GENERAL | BX | 9.00 |
| 7930-LAB-009 | BLEACH, CLOROX ULTRA 24-OZ BOTTLES (F | CHARGE TO LAB-342 | MAIN REPAIR | EA | 0.00 |
| 7930-LAB-010 | BLEACH, CLOROX ULTRA 121-OZ BOTTLES (F | 5/5/11 ONCE BLEACH IS RECEIVED PLACE A DATE RECEIVED/OPENED STICKER ON BOTTLE AND MARK DATE RECEIVED. LAB ALSO NEEDS A COA MARIA WILL GIVE INSTRUCTION ON HOW TO OBTAIN. DO NOT ORDER MORE THAN 12 AT A TIME., GW | MAIN REPAIR | EA | 19.00 |
| 7930-LAB-010A | BLEACH, CLOROX ULTRA 96-OZ BOTTLES GE | (REGULAR CONCENTRATED, UPC CODE 44600 30788 (MUST BE REGULAR BLEACH PER MARIA 4/22/13, GW)NEED CERTIFICATE OF ANALYSIS CAN NOT USE GERMICIDAL LAB CANNOT USE BECAUSE IT IS GERMICIDAL PER MARIA 4/22/13, GW | MAIN REPAIR | EA | 0.00 |
| 8010-001 | REMOVER, PAINT GASKET AND VARNISH, 18 | USE FOR OPERATIONS DO NOT REORDER ONCE GONE, GW | MAIN GENERAL | EA | 55.00 |
| 8010-002 | REMOVER, PAINT SMART STRIP 1-GAL DUM | VENDOR ACCIDENTLY SUPPLIED GERMICIDAL 4/22/13, GW STATE PGR #43451 REPLACES 43450, OR UNITED LIFT OFF #189 301 (PEEL AWAY 6 1-GAL CONTAINER DISCONTINUED PER MANUFACTURER (DUMOND) REPLACED BY SMART STRIP 4/13/10, GW PRODUCT FEATURES: | MAIN GENERAL | EA | 55.00 |
| | | | MAIN GENERAL | GAL | |

Warehouse Inventory Chemicals

| Item No. | Description | Specifications | Warehouse | UOM | Qty on Hand |
|---------------|--|--|--------------|------|-------------|
| 8010-002 | REMOVER, PAINT SMART STRIP 1-GAL DUM | | MAIN GENERAL | GAL. | |
| 8030-001 | ANTI-SEIZE, HI TEMP, 1-LB. SILVER GRADE, L | CAN BRUSH TOP, LOCTITE #76764, -95deg. +1800deg. | MAIN GENERAL | EA | 0.00 |
| 8030-003 | PIPE DOPE, THREAD SEAL CMPD, RECT-O-S | RECTORSEAL #25551 5 SLOW DRY, SOFT SET 8 OZ. BRUSH TOP OR HERCULES #15-806 | MAIN GENERAL | EA | 25.00 |
| 8030-004 | GASKET MAKER, PERMATEX 6B BLUE SILICO | ITEM #80627 | MAIN GENERAL | EA | 31.00 |
| 8030-005 | GASKET MAKER, PERMATEX 101 RED RTV SI | EMP. 3-OZ. TUBE ITEM 81160 | MAIN GENERAL | EA | 7.00 |
| 8030-006 | ANTI-SEIZE, HI-TEMP AEROSOL, 12 OZ. | LOK CEASE #5064, OR LOCTITE #51003 (NO COPPER BASED) | MAIN GENERAL | EA | 0.00 |
| 8030-007 | TAPE, TEFLON (THREAD SEAL) 1/2" x 520" PT | SPEC T-27730A | MAIN TOOL | ROLL | 55.00 |
| 8030-008 | PIPE DOPE, THREAD SEAL PIPEFIT FGG/BM/ | WITH PTFE, -50 TO 500 DEG. F. DO NOT USE ON OXYGEN | MAIN GENERAL | EA | 8.00 |
| 8030-010 | CAULK, LATEX ACRYLIC, PLUS SILICONE, CL | | MAIN GENERAL | EA | |
| 8030-011 | CAULK, LATEX ACRYLIC, PLUS SILICONE, WH | | MAIN GENERAL | EA | |
| 8030-012 | CAULK, SILICONE, CLEAR 10.1 OZ., RTV INDU | ADE, RED DEVIL #0826 | MAIN GENERAL | EA | 0.00 |
| 8030-013 | CAULK, SILICONE, WHITE 10.1 OZ., RTV INDU | ADE, RED DEVIL #0816 | MAIN GENERAL | EA | 8.00 |
| 8030-015 | CAULK, URETHANE 10.1 OZ., MARINE GRADE | FS, HIGH PERFORMANCE (ADHERES AND SEALS WOOD AND FIBERGLASS) | MAIN GENERAL | EA | 24.00 |
| 8030-016 | GASKET MAKER, PERMATEX 26B ORANGE HI | COLOR: BLACK | MAIN GENERAL | EA | 0.00 |
| 8030-017 | ANTISEIZE, NICKEL LOCTITE 8-OZ BRUSH TO | 3-OZ. TUBE, ITEM #81422 | MAIN GENERAL | EA | 49.00 |
| 8030-018 | ANTISEIZE, C5-A 8-OZ BRUSH TOP CANS | | MAIN GENERAL | EA | 9.00 |
| 8030-020 | PIPE DOPE, THREAD SEAL CMPD, RECT-O-S | RECTORSEAL 5 SLOW DRY, SOFT SET PRODUCT CODE #25431 | MAIN GENERAL | EA | |
| 8030-WSSD-050 | ANTI-SEIZE, HI-TEMP AEROSOL, HILL #5001 | F12 OZ | MAIN GENERAL | EA | 31.00 |
| 8040-0001 | CEMENT, CPVC H/D GRAY 1-QT. CANS SWAB | 724 CPVC (CAN ALSO BE USED FOR PVC) CHEMICAL RESISTANT | MAIN GENERAL | QT | 6.00 |
| 8040-0002 | PRIMER, PVC & CPVC, WELD-ON P-70, PURPL | TOP | MAIN GENERAL | QT | 7.00 |
| 8040-0005 | KIT, FIBERGLASS ADHESIVE, #DS-8088 SMIT | PRODUCT | MAIN GENERAL | EA | 2.00 |
| 8040-0010 | PRIMER, TNEMEC N69, HI-BUILD EPOXOLINE | KIT CONTAINS, (1-GAL RED PRIMER N-69-1211A-1G AND 1-GAL CONVERTER N-69-0069B-1G) | MAIN GENERAL | KT | 3.00 |
| 8040-0011 | FINISH, TNEMEC N140, POTA-POX PLUS, N14 | KIT CONTAINS, (1-GAL BLACK N140-35GRA-1G AND 1-GAL N140-0140B-1G) | MAIN GENERAL | KT | 3.00 |
| 8040-0020 | PIPE REPAIR SYSTEM STOP IT 4" X 12" P/N 55 | L CASE | MAIN GENERAL | EA | 0.00 |
| 9150-0001 | OIL, HYDRAULIC JACK, PERMATEX P/N 78E, I | | MAIN GENERAL | QT | 0.00 |
| 9150-001 | GREASE, MULTIPURPOSE GRS AEROSOL LU | STATE 121770-12 | MAIN GENERAL | EA | 5.00 |
| 9150-0100 | OIL, SAE 10W-30, API CATEGORY SJ | | EADS | QT | |
| 9150-100 | OIL, MOBIL THERM 603, 98609E, 55-GAL. DRU | AND ADDITIVES, VISCOSITY 20.3 CST @ 40c | OIL ROOM | GAL | |
| | | PRODUCT NO LONGER AVAILABLE IN 5-GALLON | | | |

Warehouse Inventory Chemicals

ARLINGTON COUNTY WATER POLLUTION CONTROL PLANT

| Item No. | Description | Specifications | Warehouse | UOM | Qty on Hand |
|----------|--|---|--------------|------|-------------|
| 9150-100 | OIL, MOBILTHERM 603, 98609E, 55-GAL. DRU | PAILS PER WAYNE @ TILLEY HAVE TO BUY 55-GALLON DRUM 11/12/13, GW OK'D BY D. DOBBS | OIL ROOM | GAL | |
| 9150-27 | GREASE, MOBIL 1 SYNTHETIC NLGI GRADE | TUBE) COLOR RED. UNSPSC #15121902 GRAINGER STK. #6Y777 | OIL ROOM | EA | 451.00 |
| 9150-28 | GREASE, MOBIL PREMIUM LUBRICATING P/N | INDUSTRIAL GREASE, NLGI GRADE # 2, MFR. MODEL# 98714K. | OIL ROOM | EA | |
| 9150-29 | GREASE, KLUBER SYNTH V64300 (25-KG PAIL | SOLD IN 25KG PAIL USED ON AUMA ACTUATORS PER D. DOBBS 9/2/10, GW | OIL ROOM | PAIL | |
| 9150-30 | GREASE, NLGI #1 | | MAIN GENERAL | | |
| 9150-36 | GREASE, FALK LTG 14-OZ CARTRIDGE (TUBE | ORDER AS NEEDED | OIL ROOM | EA | |
| 9150-37 | GREASE, ROYAL PURPLE UPG #2 (NGLI-2) 14 | order as needed 30- ea. per case | OIL ROOM | | |
| 9150-38 | GREASE, MOBIL PREMIUM LUBRICATING P/N | CITGO PREMIUM LITHIUM EP2 HAS BEEN REPLACED | OIL ROOM | OZ | 0.00 |
| 9150-39 | GREASE, MOLY 2 TEXACO HIGH TEMP 120LB | L (SUBSTITUTES CITCO EP2 NLGI NO. 2 HIGH TEMP 120LB CONTAINS MOLYBDENUM OR SHELL RETINAX CX) | OIL ROOM | LB | |
| 9150-40 | GREASE, OPEN GEAR MOBILTAC 325NC (MO | CONTAINER (REPLACEMENT FOR 275NC WHICH IS NO LONGER MADE) | OIL ROOM | GAL | |
| 9150-41 | GREASE, SLIPKOTE CALCIUM COMPLEX LUB | PAIL (REPLACES (NEBULA EP-0 EXXON OBSOLETE 5-GAL PER MANUFACTURER) FOR USE ON LIMITORQUE ACTUATORS) SLIPKOTE HI TEMP WHEEL BEARING GREASE CERTIFIED FOR NLGI AUTOMOTIVE SERVICE GC/LB, TEMPERATURE UP TO 550 DEG F, SLIPKOTE CALCIUM BASE GREASE WILL MIX WITH THE EXXON NEBULA EP0, THEY HAVE GONE TO THAT PRODUCT SOLELY. SOLD IN 5-GAL BUCKETS NOT AVAILABLE IN TUBES | OIL ROOM | GAL | |
| 9150-42 | GREASE, EXXON POLYREX EM, 14.1 OZ. TUB | POLYUREA BASED GREASE (40 PER CASE) | OIL ROOM | CS | |
| 9150-43 | GREASE, ENGERGREASE BP-LS-EP-0, 15-KG | (P/N CYHTEP00 5-KG DISCONTINUED ITEM #131587555 2/19/10 PER ANDREA REED @ ANDRITZ REPLACED W/BP-LS-EP-0 SOLD IN 15-KG CONTAINERS ONLY (FRANK BUTLER OK'D CHANGE 2/19/10 WILL ORDER P/N BP-LS-EP-0 IN 15-KG PAILS PER FRANK 2/19/10, GW) USED ON CENTRIFUGE AT DWB | OIL ROOM | OZ | 0.00 |
| 9150-44 | OIL, MOBILGEAR 627 | | MAIN GENERAL | OZ | |
| 9150-45 | GREASE, EXXON MULTIPURPOSE, 14.1 OZ. T | MULTIPURPOSE EP, BASED GREASE (40 PER CASE) | OIL ROOM | CS | |
| 9150-47 | OIL, MOTOR, SAE 30W, 55 GAL DRUM 76 BRA | MFG. PHILIPS CONOCO OR COASTAL/WARREN OIL MOTOR 30 SAE. GRADE OIL IN 55 GAL. DRUM COMPANY WILL SUPPLY CONOCO/PHILLIPS QLT30 | OIL ROOM | GAL | |

Warehouse Inventory Chemicals

ARLINGTON COUNTY WATER POLLUTION CONTROL PLANT

| Item No. | Description | Specifications | Warehouse | UOM | Qty on Hand |
|----------|--|---|-----------|------|-------------|
| 9150-47 | OIL, MOTOR, SAE 30W, 55 GAL DRUM 76 BRA | AS OF 1/20/10, GW CHANGED TO 76 SAE 30WT WHICH IS \$9.29 PER GALLON 5/16/13, GW | OIL ROOM | GAL | |
| 9150-48 | OIL, MOTOR/TRANS, DEXTRON 2 | IF REMOVED HAVE WAREHOUSE ORDER A NEW DRUM 5/25/12, GW TRANS OIL DEXTRON 2 | OIL ROOM | GAL | |
| 9150-49 | OIL, MOTOR, SAE 40W, 55 GAL DRUM MFG. C | As of 1/10/03, 76 Super ATF is Dexron-III, Dexron-III-E & Mercon Approved per notes left by JW. | OIL ROOM | GAL | 0.00 |
| 9150-50 | OIL, MOTOR, SAE 15W-40, 55-GAL. DRUM MF | MOTOR OIL | OIL ROOM | GAL | 55.00 |
| 9150-51 | OIL, NON EP GRADE 32 (ISO 32 CASTROL PA | TILLEY NOW CARRIES THE PHILIPS CONOCO 76 BRAND NON EP 32 OIL. P/N 40429 HYDRAULIC OIL OR EXXON HUMBLE 32AW (PREMIUM QUALITY ANTI WEAR W/RUST & OXIDATION INHIBITORS, ANTI FOAM & ANTI-WEAR ADDITIVES) | UNKNOWN | GAL | 0.00 |
| 9150-52 | OIL, NON EP GRADE 68 55-GAL MOBIL TERES | NON EP OIL 68 EQUAL TO (MOBIL TERESSTIC 68 IS A BETTER OIL PER D. DOBBS 10/10/2010 THAN THE HUMBLE AW68, HE SAYS THAT BOTH CAN BE USED IN THE SAME APPLICATION. AW68 WAS ORDERED 1/7/11 AFTER IT'S GONE LUBRICANTS FOR NON EP GRADE 68 NEEDS TO BE THE MOBIL PRODUCT) | OIL ROOM | GAL | |
| 9150-53 | OIL, NON EP GRADE 150 AGMA-4, 55-GAL | NON EP 150 OIL . CASTROL PART # IS PARADENE R&O 40829 TURBINE OIL | OIL ROOM | GAL | 1.00 |
| 9150-54 | OIL, NON EP GRADE 220 (AGMA-5), MOBIL TE | NEW ITEM AS OF 1/20/10 FROM TILLEY CONOCO/PHILLIPS 76 TURBINE OIL 150 GAL. DRUM NON EP 220 OIL. REPLACES CASTROL PART #40929 IS PARADENE R&O | UNKNOWN | GAL | 0.00 |
| 9150-55 | OIL, NON EP GRADE 320 MOBIL TERESSTIC (| (ISO 320 CASTROL PARADENE R&O P/N 41029) | OIL ROOM | GAL | |
| 9150-56A | OIL, COMPRESSOR, INGERSLL RND SSR ULT | 5.3 gal per each 20 Liter 10W-20, P/N 92692284 | EADS | PAIL | 12.00 |
| 9150-61 | OIL, EP GRADE 68, 55-GAL | EP 68 OIL | UNKNOWN | GAL | |
| 9150-62 | OIL, EP GRADE 150 (AGMA-4EP) (CASTROL G | P/N 30439) EP 150 GEAR OIL (ISO 150) (ORDER AND RECEIVE TO WO STORE IN OIL ROOM) | OIL ROOM | GAL | |

Warehouse Inventory Chemicals

ARLINGTON COUNTY WATER POLLUTION CONTROL PLANT

| Item No. | Description | Specifications | Warehouse | UOM | Qty on Hand |
|----------|---|---|----------------------|------------|-------------|
| 9150-63 | OIL, EP GRADE 220 (AGMA-5EP) (ISO 220) | MOBIL GEAR 600 XP220 REPLACES CASTROL GEAR OIL P/N 30539 WHICH IS NO LONGER ON CONTRACT 1/11/11, GW (EP 220 GEAR OIL (ISO 220) | OIL ROOM | GAL | |
| 9150-64 | OIL, EP GRADE 320 (AGMA-6EP) (CASTROL G | (ORDER AND RECEIVE TO WO STORE IN OIL ROOM) P/N 30639) EP 320 GEAR OIL (ISO 320) (ORDER AND RECEIVE TO WO STORE IN OIL ROOM) WILL RECEIVE PRODUCT 76XD GEAR OIL EP6 EQUIVALENT TO CASTROL PER WAYNE AT TILLEY 3/16/09 | OIL ROOM | GAL | |
| 9150-65 | OIL, EP GRADE 680, 55-GAL | EP 680 OIL | OIL ROOM | GAL | |
| 9150-66 | OIL, ISO 32 MOBIL DTE LIGHT TURBINE, 55-G | | OIL ROOM | GAL | |
| 9150-67 | OIL, ISO 46 MOBIL DTE MEDIUM TURBINE, 55- | | OIL ROOM | GAL | |
| 9150-68 | OIL, PULSALUBE 8G P/N 8GS-200ML, 200ML C | MULTIPURPOSE, R & O 22, 32, 46, 68, 100, 150, 220, 320, 460 #778978. (REPLACES 8G 980001 AND 7H P/N NP980002-009 1.0 LITER BOTTLE PER SAM BANKS 7/12/10, GW | OIL ROOM | EA | |
| 9150-69 | OIL, PULSALUBE 7H P/N NP980002-009 (5-GA | AINER) PULSALUBE 7H P/N NP980002-009(FOR ALL PULSARPUMPS) OLD P/N WAS NP980002-004 9/28/09, GW EQUAL TO DEXTRON 3 PER SAM BANKS 7/12/10, GW DO NOT USE ANY MORE PER SAM BANKS 3/30/12, GW FOUND THAT UNIVERSAL DOES NOT WORK 12/26/12, CONTINUE TO ORDER PER D. DOBBS 12/27/12, GW | MAIN REPAIR | QT | 0.00 |
| 9150-71 | OIL, HYDRAULIC ISO 32AW CASTROL PARAD | | OIL ROOM | GAL | |
| 9150-72 | OIL, HYDRAULIC 68AW HUMBLE (USE 9150-52OIL 68AW or ISO 68 | CROSSES TO PHILIPS 76 HYDRAULIC OIL AW32 DURALENE/UNITED-CONTROL #40419 CASTROL - PART #40419 EXXON HUMBLE AW-68 #98BJ63 (MOBIL TERESSTIC 68 IS A BETTER OIL PER D. DOBBS 10/10/2010 THAN THE HUMBLE AW68, HE SAYS THAT BOTH CAN BE USED IN THE SAME | OIL ROOM OIL ROOM | GAL GAL | 0.00 |

Warehouse Inventory Chemicals

ARLINGTON COUNTY WATER POLLUTION CONTROL PLANT

| Item No. | Description | Specifications | Warehouse | UOM | Qty on Hand |
|----------|--|---|-----------|-----|-------------|
| 9150-72 | OIL, HYDRAULIC 68AW HUMBLE (USE 9150-52) | APPLICATION. AW68 WAS ORDERED 1/7/11 AFTER ITS GONE LUBRICANTS FOR NON EP GRADE 68 NEEDS TO BE THE MOBIL PRODUCT) ORDER 9150-52 | OIL ROOM | GAL | |
| 9150-73 | OIL, HYDRAULIC SAE5 OR 22 HYD MOBIL DTE | Specifications Type: Fluid Type / Function: Lubricant; Specialty, Proprietary or Other; Multi-Purpose Industrial Oil Properties Kinematic Viscosity 32.0 cSt Viscosity Index 126 Pour Point -80 F Flash Point 480 F Composition / Chemistry Synthetic or Semi-synthetic; Specialty, Proprietary or Other; Synerlec® Grade / Approvals TSCA, EPA, RCRA, OSHA , ISO 32 Applications Automotive or Transportation; Bearings; Internal Combustion Engines; Compressors; Machine, Gears, Spindles, Ways; Steam Turbines, Air Tools Features Corrosion Inhibiting or Rust Preventative; Shock or Vibration Dampening; Oxidation Inhibiting Notes Use when oil reservoir temperatures exceed 200°F, high film strength; sp. gr. 0.845 | OIL ROOM | GAL | |
| 9150-85 | OIL, SYNTHETIC SYNFILM GT 32, ROYAL PUR | | OIL ROOM | GAL | |
| 9150-87 | OIL, SYNTHETIC SYNFILM GT 150, ROYAL PU | DRUM ISO GRADE/AGMA GRADE MULTI-PURPOSE INDUSTRIAL OIL; ISO VISCOSITY 150 CST @40 DEG C; APPROXIMATELY SAE VISCOSITY - 40 WT.; POUR POINT -45 DEG F; FLASH POINT 490 DEG F; WILL SEPARATE COMPLETELY FROM WATER; RUST & CORROSION PROTECTANT; OXIDATION STABLE; FOR GAS & STEAM TURBINES, BLOWERS, VACUUM PUMPS, BEARINGS, GEARS; sp. gr. 0.869 | OIL ROOM | GAL | |
| 9150-88 | OIL, SYNTHETIC SYNERGY 680 AGMA 8EP, R | 55-GAL DRUM ISO GRADE HIGH PERFORMANCE EP GEAR OIL; ISO VISCOSITY 680 cSt @40 DEG C; APPROXIMATELY SAE VISCOSITY - 160-200 WT.; POUR POINT -30 DEG F FLASH POINT 450 DEG F WILL SEPARATE COMPLETELY FROM WATER RUST & CORROSION PROTECTANT | OIL ROOM | GAL | 0.00 |

Warehouse Inventory Chemicals

ARLINGTON COUNTY WATER POLLUTION CONTROL PLANT

| Item No. | Description | Specifications | Warehouse | UOM | Qty on Hand |
|---------------|--|---|--------------|------|-------------|
| 9150-88 | OIL, SYNTHETIC SYNERGY 680 AGMA 8EP, R | OXIDATION STABLE FOR GEARS | OIL ROOM | GAL | 0.00 |
| 9150-91 | OIL, SYNTHETIC, MOBIL SHC 629 | NOTES SYN OIL 629, sp. gr. 0.864 | OIL ROOM | GAL | |
| 9150-92 | OIL, SYNTHETIC, MOBIL RARUS 827, 55-GAL | SYN OIL 827 | OIL ROOM | GAL | 55.00 |
| 9150-93 | OIL, SYNTHETIC, MOBIL RARUS 926, 55-GAL | SYN OIL 926 | OIL ROOM | GAL | 1.00 |
| 9150-94 | OIL, SYNTHETIC SHC EP 150, 55-GAL | OIL SHC 150 | OIL ROOM | GAL | |
| 9150-96 | OIL, SYNTHETIC SHC 634, 55-GAL (ISO 460) | SYNTHETIC OIL MOBIL SHC-634. SUITABLE FOR 20,000 OPERATING HOURS (4-YEARS) AT AN AMBIENTTEMPERATURE -40C TO +80C (-40C TO +80C) (-40F TO +176F) | OIL ROOM | GAL | 0.00 |
| 9150-97 | OIL, AEON CF-150 P/N 303RGA786 (REPLACE | P/N BC3018230000) 1-QT BOTTLES (FOR AIR OIL MACHINE MOD. 870 OR 1250) (DIFFERENT TYPE/BETTER GRADE/BETTER VISCOSITY GARDER DENVER CHANGED OIL ACROSS BOARD TO THE CF-150 PER JULIE STEWART DO NOT MIX PRODUCTS) | OIL ROOM | QT | 0.00 |
| 9150-99 | OIL, MINERAL DUOPRIME 90 1-GAL CONTAIN | FOR USE WITH SUMP PUMPS SECONDARY PUMP ROOM | OIL ROOM | GAL | |
| 9150-WSSD-005 | GREASE, ROYAL PURPLE NLGI FDA 2, WHITE | 14-OZ TUBE CASE CONTAINS 30-EA. 14.5 OZ TUBES, ALUMINIUM COMPLEX THICKENER | MAIN GENERAL | TUBE | 53.00 |

Grand Total

4,358.00

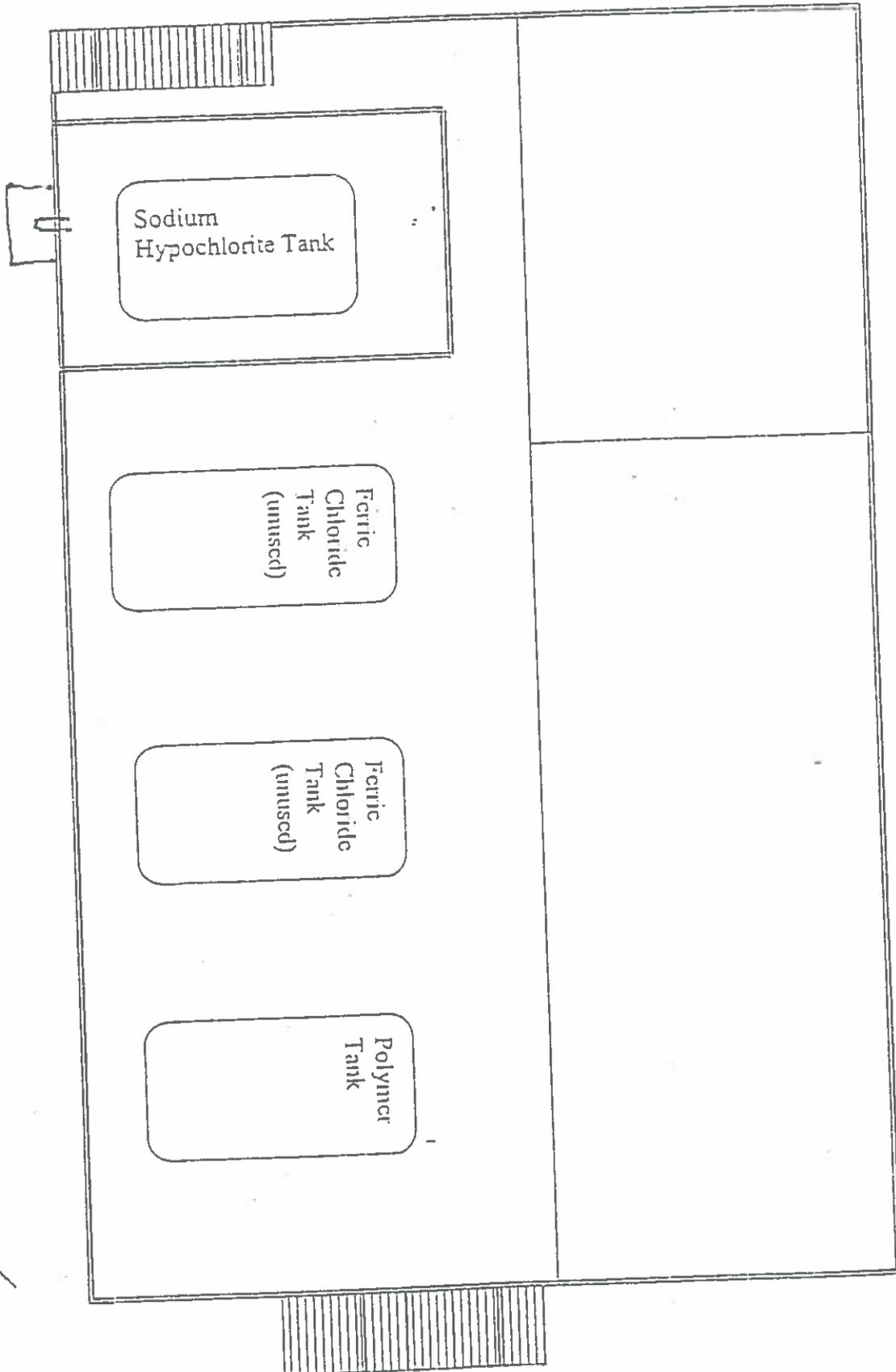
APPENDIX F

Warehouse Inventory Countermeasures

| Item No. | Description | Qty on Hand |
|---------------------------|--|-------------|
| Loose | | |
| 7920-080 | SORBENT, OIL 18LB BAG, FIBERPERL (FOR OIL REMOVEL | 3 |
| 7920-EMS-015 | ABSORBENT, NEUTRALIZING PIG #GEN322 SPILLX-A ACID | 0 |
| 7920-EMS-016 | ABSORBENT, NEUTRALIZING PIG #GEN323 SPILLX-C CAUST | 2 |
| 7920-EMS-017 | ABSORBENT, PIG PEAT 11LB BAG | 6 |
| 7920-EMS-052 | ABSORBENT, OIL 50LB BAG, ALL-PURPOSE | 9 |
| 7920-EMS-053 | ABSORBENT, 50QT. BAG, ALFOB ABSOBENT-W, FOR OIL, F | 5 |
| 7920-EMS-020 | ABSORBENT, POLYMER WASTELOCK 770-50 (25# PAIL) | 19 |
| 7920-EMS-070 | ABSORBENT, GREEN STUFF 1LB BOTTLES (4/CS) | 10 |
| 7920-EMS-071 | ABSORBENT, GREEN STUFF LOOSE FILL 5 GL BUCKET | 5 |
| Pillows/Mats/Booms | | |
| 7920-054 | SOCK, ABSORBENT OIL 3" X 48" #2048, PIG (BLUE) (40 | 30 |
| 7920-059 | BOOM, ABSORBENT 8" X 10' (ABSORBS HYDROCARBONS OFF | 0 |
| 7920-060 | BOOM, ABSORBENT OIL 8" X 10' #7015211 | 8 |
| 7920-061 | BOOM, ABSORBENT OIL 5" X 10' #7025215 | 7 |
| 7920-062 | PAD, ABSORBENT OIL 17" X 19" X 3/16" #7015042 | 0 |
| 7920-066 | MAT, UNIVERSAL PIG P/N MAT284 4 IN 1 16-1/2" | 1 |
| 7920-068 | PAD, ABSORBENT UNIV. 15" X 19" SPC UXT100, PERFOR | 200 |
| 7920-069 | PILLOW, SKIMMER OIL 12" X 12" X 1" THK. PIG #PIL40 | 0 |
| 7920-070 | PAD, SORBENT OIL 17" X 19" SPC SXT600, PERFORATED | 0 |
| 7920-071 | PILLOW, UNIV. 9" X 15" SPC UXT515 (ABSORBENT) | 32 |
| 7920-072 | PAD, SORBENT OIL 33" X 33" MAT426, PIG | 0 |
| 7920-081 | BOOM, ABSORBENT OIL 3" X 8' (MINI) SPC SXT608 (OIL | 0 |
| 7920-082 | BOOM, ABSORBENT UNIV. 3" X 8' (MINI) SPC UXT508 | 1 |
| 7920-083 | PILLOW, ABSORBENT OIL 8" X 18" 3M (6-EA PER PK) | 0 |
| 7920-EMS-010 | MAT, OIL PIG P/N MAT540 (OIL ONLY) | 2 |
| 7920-EMS-011 | MAT, UNIVERSAL PIG P/N MAT140 15"W X 75" L | 0 |
| 7920-EMS-012 | PADS, HAZ-MAT PIG# MAT310 (50 PER PK), ACID | 0 |
| 7920-EMS-013 | SOCK, ACID NEUTRALIZING PIG# 352 (8 EA PER BOX) | 4 |
| 7920-EMS-067 | MAT, OIL PIG P/N MAT415 16-1/2" X 20" 50-EA PER PK | 399 |
| 7920-EMS-068 | COVER, DRAIN MAGNETIC, 36" X 24", ITEM NO. 9MG65 | 6 |
| 7920-EMS-069 | PAD, MAT HAZMAT P/N MAT301 15" X 20" 100PADS | 3 |
| Spill Kits | | |
| 7920-EMS-001 | KIT, SPILL P/N KIT223 (MRO-BLUE) FOR OIL, COOLANTS | 9 |
| 7920-EMS-006 | KIT, SPILL UNIV. P/N KIT336 (HAZ-MAT PINK) KIT CO | 0 |
| 7920-EMS-006A | REFILL, SPILL KIT CORROSIVE P/N RFL336 | 0 |
| 7920-EMS-005 | KIT, SPILL (30 GAL) OIL ONLY, PIG KIT436 | 0 |
| 7920-EMS-005A | REFILL, SPILL KIT OIL ONLY, RFL436 CONTAINS RFL AN | 3 |
| 7920-EMS-018 | BAG, PIG SPILL RESPONSE (OIL ONLY) KIT 420 | 5 |
| 7920-EMS-007A | REFILL, SPILL KIT CORROSIVE P/N KIT307 | 4 |
| Accessories | | |
| 7920-EMS-004 | DRUM, PLASTIC 55-GAL OPEN-HEAD NESTABLE, W/LEVER | 7 |
| 7920-EMS-038 | SPILLX-C NEUTRALIZER, CAUSTIC 2.5LB SHAKER #9892 | 5 |
| 7920-EMS-039 | SPILLX-A NEUTRALIZER, ACID 2.5LB SHAKER #9891, | 5 |
| 7920-EMS-040 | SOCK, BASE PIG353, 2" X 4" LG. 4-PER BX | 4 |
| 7920-EMS-041 | SOCK, BASE MAT353, 2" X 4" LG. 25-PER BX | 25 |

APPENDIX G

Bio-Building, Basement
538 South 31st Street



Sodium Hypochlorite Tank

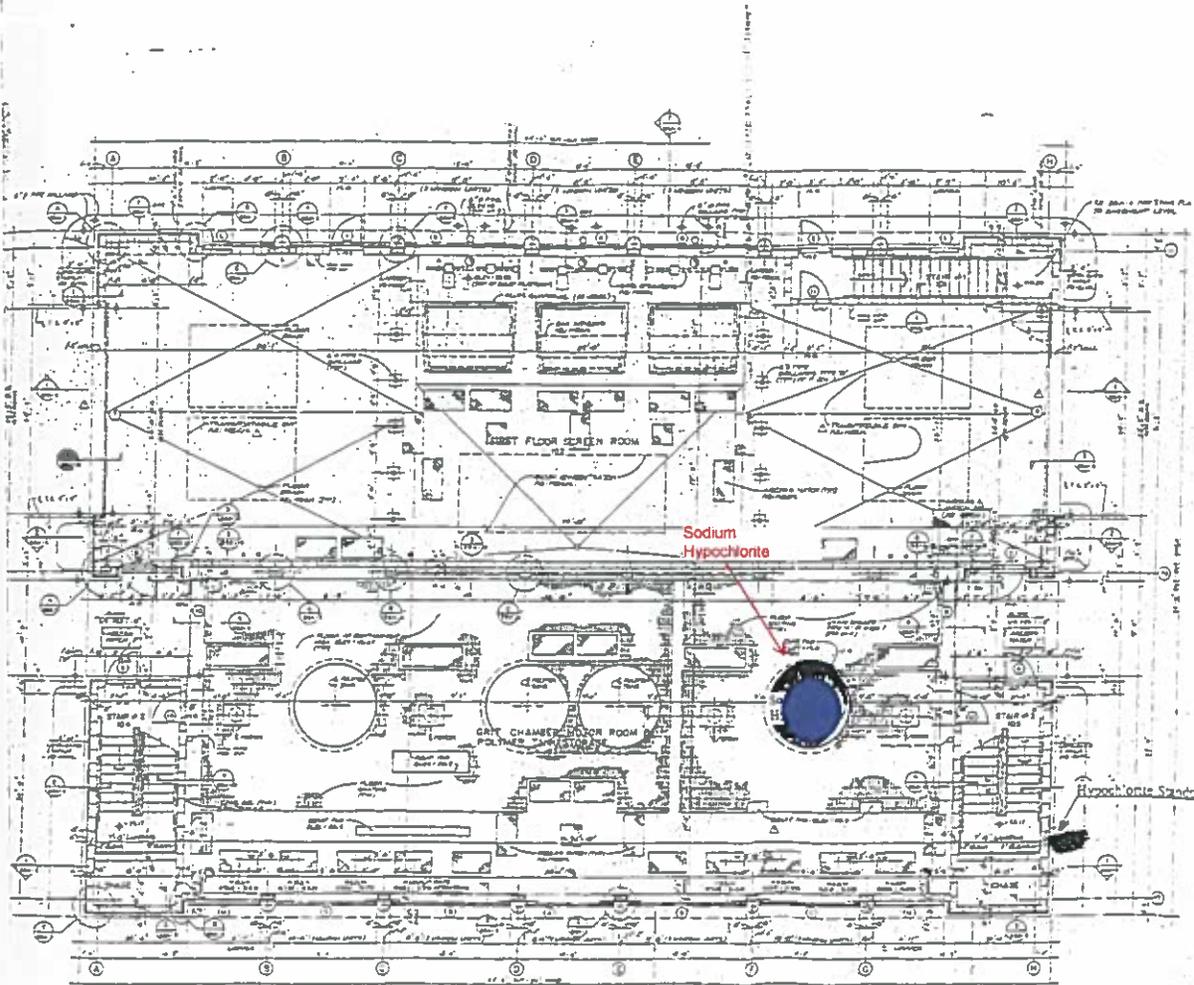
Ferric Chloride Tank (unused)

Ferric Chloride Tank (unused)

Polymer Tank

Preliminary Treatment Building (PTB)
3139 South Fern Street

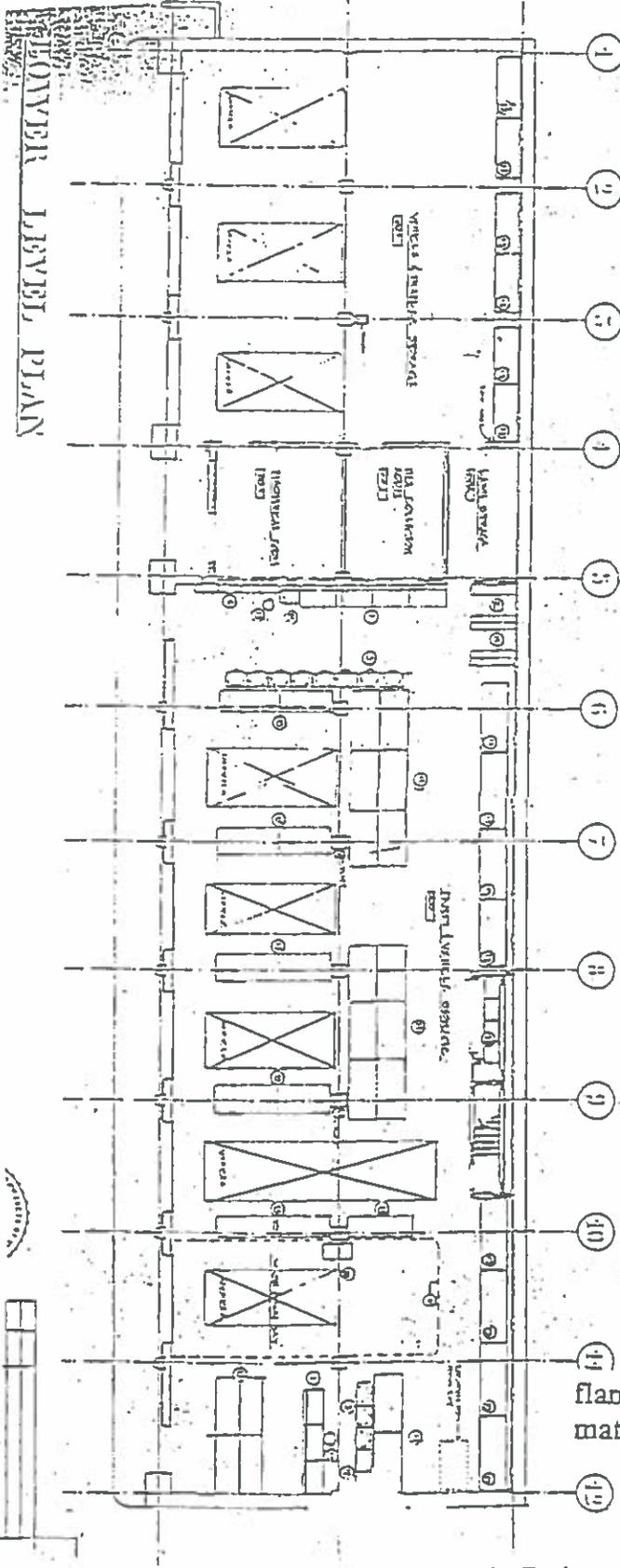
Material of Concern
Sodium Hypochlorite corrosive



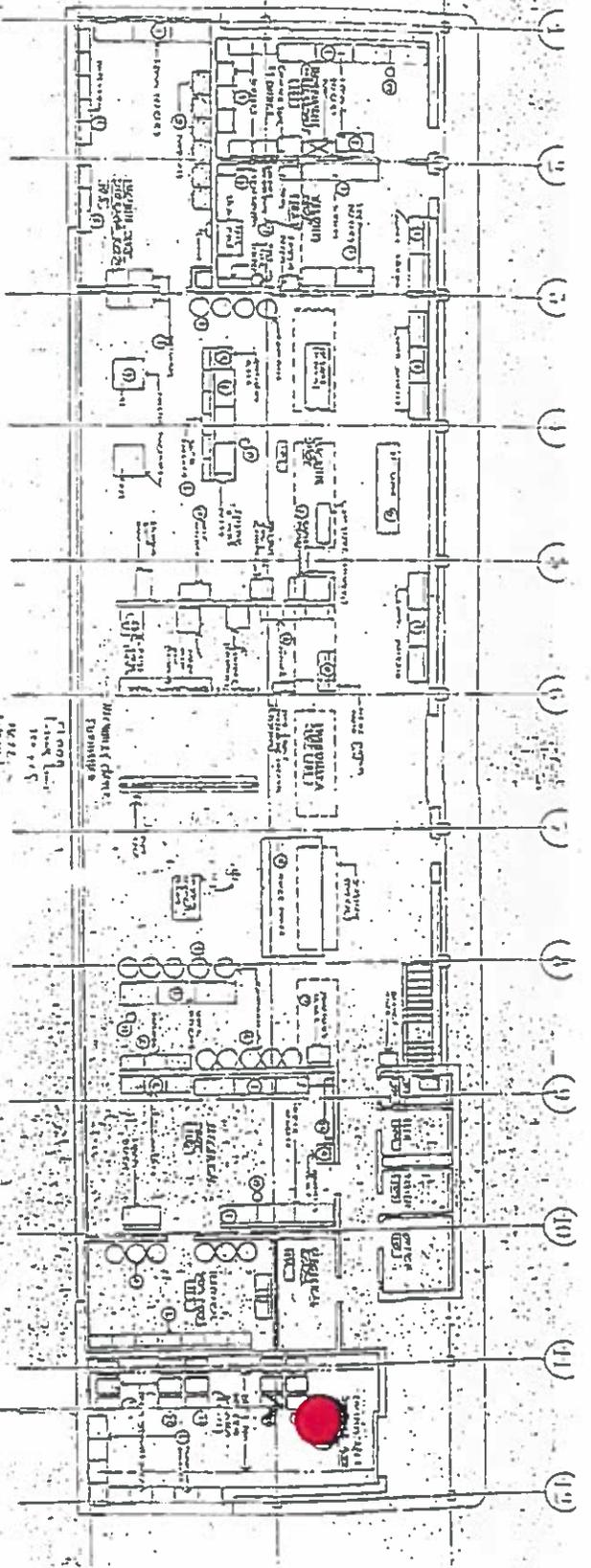
Architectural drawing details including a circular seal, project information, and a title block. The title block contains the following text:

CONTRACT NO. 80-1-100
SHEET NO. 80-1-100-1
DATE: 11/1/68
PROJECT: PRELIMINARY TREATMENT BUILDING
DRAWN BY: [Name]
CHECKED BY: [Name]
APPROVED BY: [Name]

Warehouse/Maintenance
3111 South Fern Street



UPPER LEVEL PLAN



Materials of Concern
Petroleum Products

North Ferric Facility
3165 South Fern Street



| | | | | |
|-------------|------------|------|----|----------|
| ED DOCUMENT | ISSUED FOR | DATE | BY | APPROVED |
| | | | | |

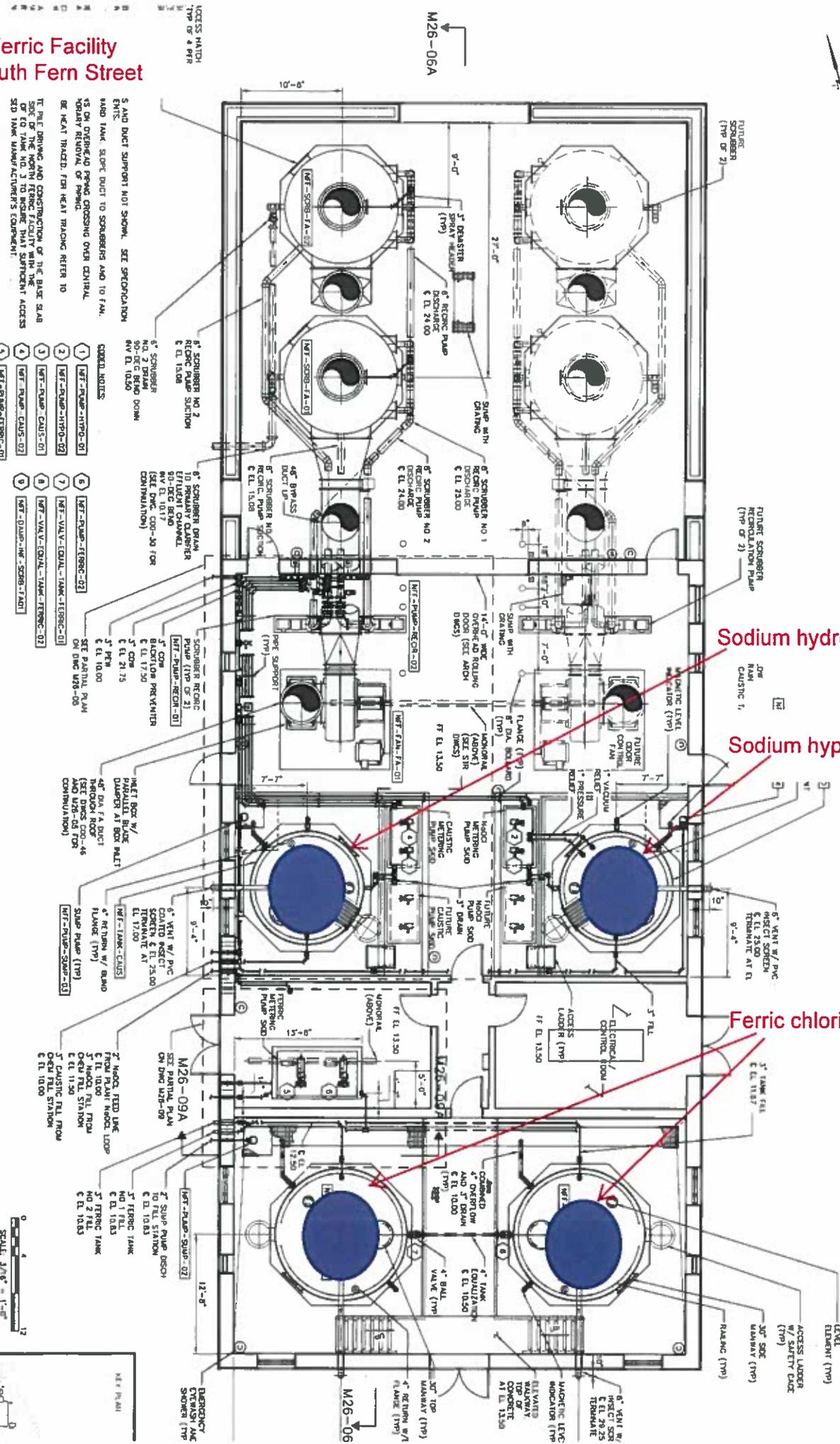
| | | |
|----------|--------|----------------------|
| DESIGNED | PJM | VERTICAL DATA IS |
| DRAWN | PJM | REFERENCED TO WINONA |
| CHECKED | NH/CMA | STATE CODE NORTH |
| PRODUCED | CMA | AMERICAN DRAIN 1983 |
| | | (AND 83) |
| | | VERTICAL DATA IS |
| | | REFERENCED TO |
| | | VERTICAL DATA OF |
| | | 1929 |



ARLINGTON COUNTY
WATER POLLUTION CONTROL PLANT

UPGRADE AND EXPANSION
PHASE 7A

NORTH FERRIC FACILITY
LOWER PLAN



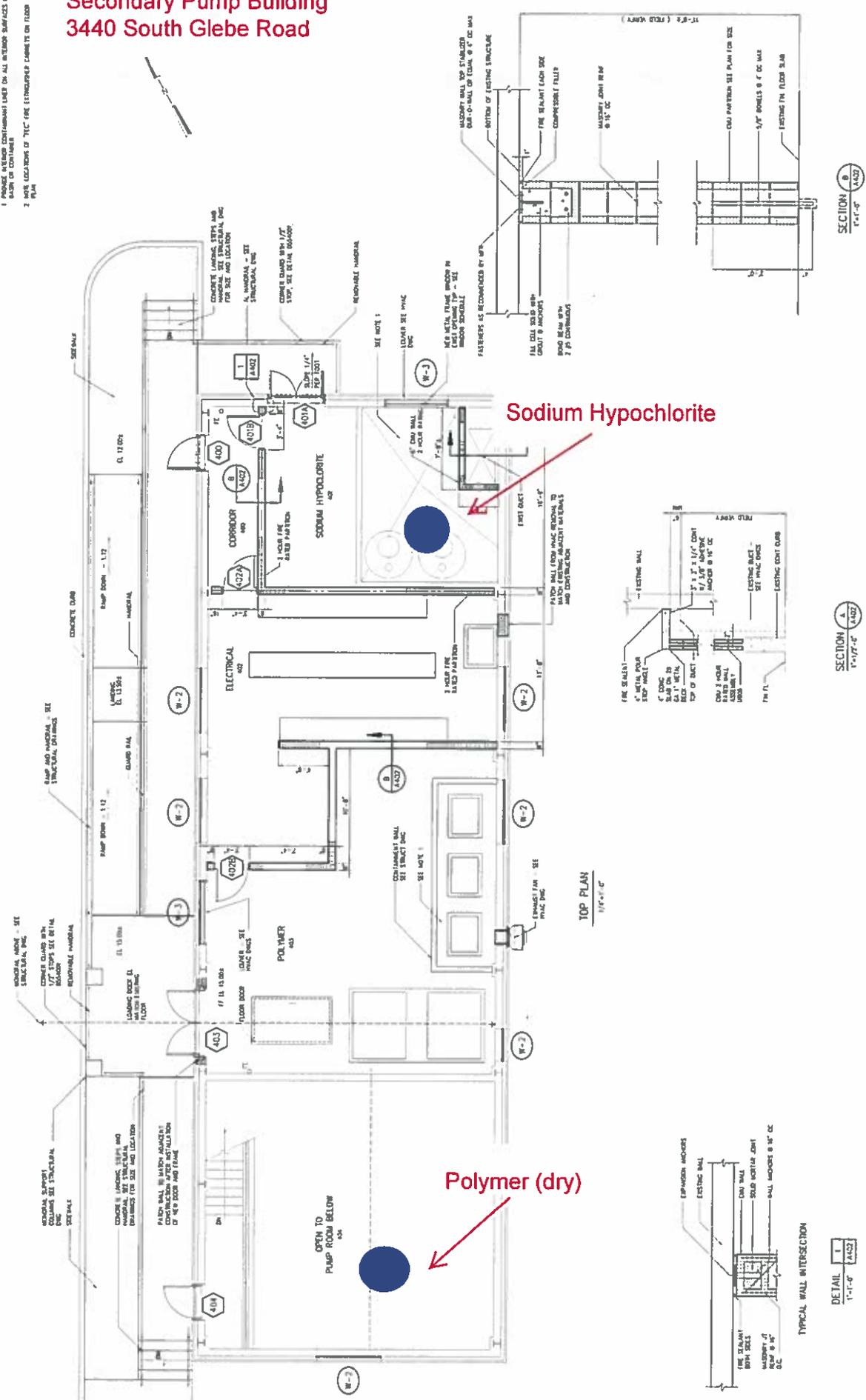
Sodium hydroxide

Sodium hypochlorite

Ferric chloride

Secondary Pump Building 3440 South Glebe Road

- NOTES:**
- 1 FINISH INTERIOR CONTIGUOUS LINES ON ALL INTERIOR SURFACES OF ROOMS TO CONTAIN
 - 2 MORE LOCATIONS OF "TIC" ARE STRUCTURE CLAMPS ON FLOOR



| | | |
|---------|---------|---------|
| DATE | DATE | DATE |
| NO. 1 | NO. 2 | NO. 3 |
| NO. 4 | NO. 5 | NO. 6 |
| NO. 7 | NO. 8 | NO. 9 |
| NO. 10 | NO. 11 | NO. 12 |
| NO. 13 | NO. 14 | NO. 15 |
| NO. 16 | NO. 17 | NO. 18 |
| NO. 19 | NO. 20 | NO. 21 |
| NO. 22 | NO. 23 | NO. 24 |
| NO. 25 | NO. 26 | NO. 27 |
| NO. 28 | NO. 29 | NO. 30 |
| NO. 31 | NO. 32 | NO. 33 |
| NO. 34 | NO. 35 | NO. 36 |
| NO. 37 | NO. 38 | NO. 39 |
| NO. 40 | NO. 41 | NO. 42 |
| NO. 43 | NO. 44 | NO. 45 |
| NO. 46 | NO. 47 | NO. 48 |
| NO. 49 | NO. 50 | NO. 51 |
| NO. 52 | NO. 53 | NO. 54 |
| NO. 55 | NO. 56 | NO. 57 |
| NO. 58 | NO. 59 | NO. 60 |
| NO. 61 | NO. 62 | NO. 63 |
| NO. 64 | NO. 65 | NO. 66 |
| NO. 67 | NO. 68 | NO. 69 |
| NO. 70 | NO. 71 | NO. 72 |
| NO. 73 | NO. 74 | NO. 75 |
| NO. 76 | NO. 77 | NO. 78 |
| NO. 79 | NO. 80 | NO. 81 |
| NO. 82 | NO. 83 | NO. 84 |
| NO. 85 | NO. 86 | NO. 87 |
| NO. 88 | NO. 89 | NO. 90 |
| NO. 91 | NO. 92 | NO. 93 |
| NO. 94 | NO. 95 | NO. 96 |
| NO. 97 | NO. 98 | NO. 99 |
| NO. 100 | NO. 101 | NO. 102 |
| NO. 103 | NO. 104 | NO. 105 |
| NO. 106 | NO. 107 | NO. 108 |
| NO. 109 | NO. 110 | NO. 111 |
| NO. 112 | NO. 113 | NO. 114 |
| NO. 115 | NO. 116 | NO. 117 |
| NO. 118 | NO. 119 | NO. 120 |
| NO. 121 | NO. 122 | NO. 123 |
| NO. 124 | NO. 125 | NO. 126 |
| NO. 127 | NO. 128 | NO. 129 |
| NO. 130 | NO. 131 | NO. 132 |
| NO. 133 | NO. 134 | NO. 135 |
| NO. 136 | NO. 137 | NO. 138 |
| NO. 139 | NO. 140 | NO. 141 |
| NO. 142 | NO. 143 | NO. 144 |
| NO. 145 | NO. 146 | NO. 147 |
| NO. 148 | NO. 149 | NO. 150 |
| NO. 151 | NO. 152 | NO. 153 |
| NO. 154 | NO. 155 | NO. 156 |
| NO. 157 | NO. 158 | NO. 159 |
| NO. 160 | NO. 161 | NO. 162 |
| NO. 163 | NO. 164 | NO. 165 |
| NO. 166 | NO. 167 | NO. 168 |
| NO. 169 | NO. 170 | NO. 171 |
| NO. 172 | NO. 173 | NO. 174 |
| NO. 175 | NO. 176 | NO. 177 |
| NO. 178 | NO. 179 | NO. 180 |
| NO. 181 | NO. 182 | NO. 183 |
| NO. 184 | NO. 185 | NO. 186 |
| NO. 187 | NO. 188 | NO. 189 |
| NO. 190 | NO. 191 | NO. 192 |
| NO. 193 | NO. 194 | NO. 195 |
| NO. 196 | NO. 197 | NO. 198 |
| NO. 199 | NO. 200 | NO. 201 |
| NO. 202 | NO. 203 | NO. 204 |
| NO. 205 | NO. 206 | NO. 207 |
| NO. 208 | NO. 209 | NO. 210 |
| NO. 211 | NO. 212 | NO. 213 |
| NO. 214 | NO. 215 | NO. 216 |
| NO. 217 | NO. 218 | NO. 219 |
| NO. 220 | NO. 221 | NO. 222 |
| NO. 223 | NO. 224 | NO. 225 |
| NO. 226 | NO. 227 | NO. 228 |
| NO. 229 | NO. 230 | NO. 231 |
| NO. 232 | NO. 233 | NO. 234 |
| NO. 235 | NO. 236 | NO. 237 |
| NO. 238 | NO. 239 | NO. 240 |
| NO. 241 | NO. 242 | NO. 243 |
| NO. 244 | NO. 245 | NO. 246 |
| NO. 247 | NO. 248 | NO. 249 |
| NO. 250 | NO. 251 | NO. 252 |
| NO. 253 | NO. 254 | NO. 255 |
| NO. 256 | NO. 257 | NO. 258 |
| NO. 259 | NO. 260 | NO. 261 |
| NO. 262 | NO. 263 | NO. 264 |
| NO. 265 | NO. 266 | NO. 267 |
| NO. 268 | NO. 269 | NO. 270 |
| NO. 271 | NO. 272 | NO. 273 |
| NO. 274 | NO. 275 | NO. 276 |
| NO. 277 | NO. 278 | NO. 279 |
| NO. 280 | NO. 281 | NO. 282 |
| NO. 283 | NO. 284 | NO. 285 |
| NO. 286 | NO. 287 | NO. 288 |
| NO. 289 | NO. 290 | NO. 291 |
| NO. 292 | NO. 293 | NO. 294 |
| NO. 295 | NO. 296 | NO. 297 |
| NO. 298 | NO. 299 | NO. 300 |
| NO. 301 | NO. 302 | NO. 303 |
| NO. 304 | NO. 305 | NO. 306 |
| NO. 307 | NO. 308 | NO. 309 |
| NO. 310 | NO. 311 | NO. 312 |
| NO. 313 | NO. 314 | NO. 315 |
| NO. 316 | NO. 317 | NO. 318 |
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| NO. 397 | NO. 398 | NO. 399 |
| NO. 400 | NO. 401 | NO. 402 |

SECTION B
1'-1'-0" A402

SECTION A
1'-1'-0" A402

ARLINGTON COUNTY
WATER POLLUTION CONTROL PLANT
UPGRADE AND EXPANSION - PHASE II-A
STAGE 1 BNR FACILITIES

HAZEN AND SAWYER
CONSULTING ENGINEERS
1000 North Glebe Road, Suite 100
Arlington, VA 22201
Tel: 703-261-1000
Fax: 703-261-1001
www.hazensawyer.com

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| DATE | NO. | BY | CHKD | APP'D |
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| NOV 15 2011 | 99 | JLH/PTB | | |
| NOV 15 2011 | 100 | JLH/PTB | | |

DETAIL 1
1'-1'-0" A402

TYPICAL WALL INTERSECTION

Blower Building & Odor Control
3404 South Glebe Road

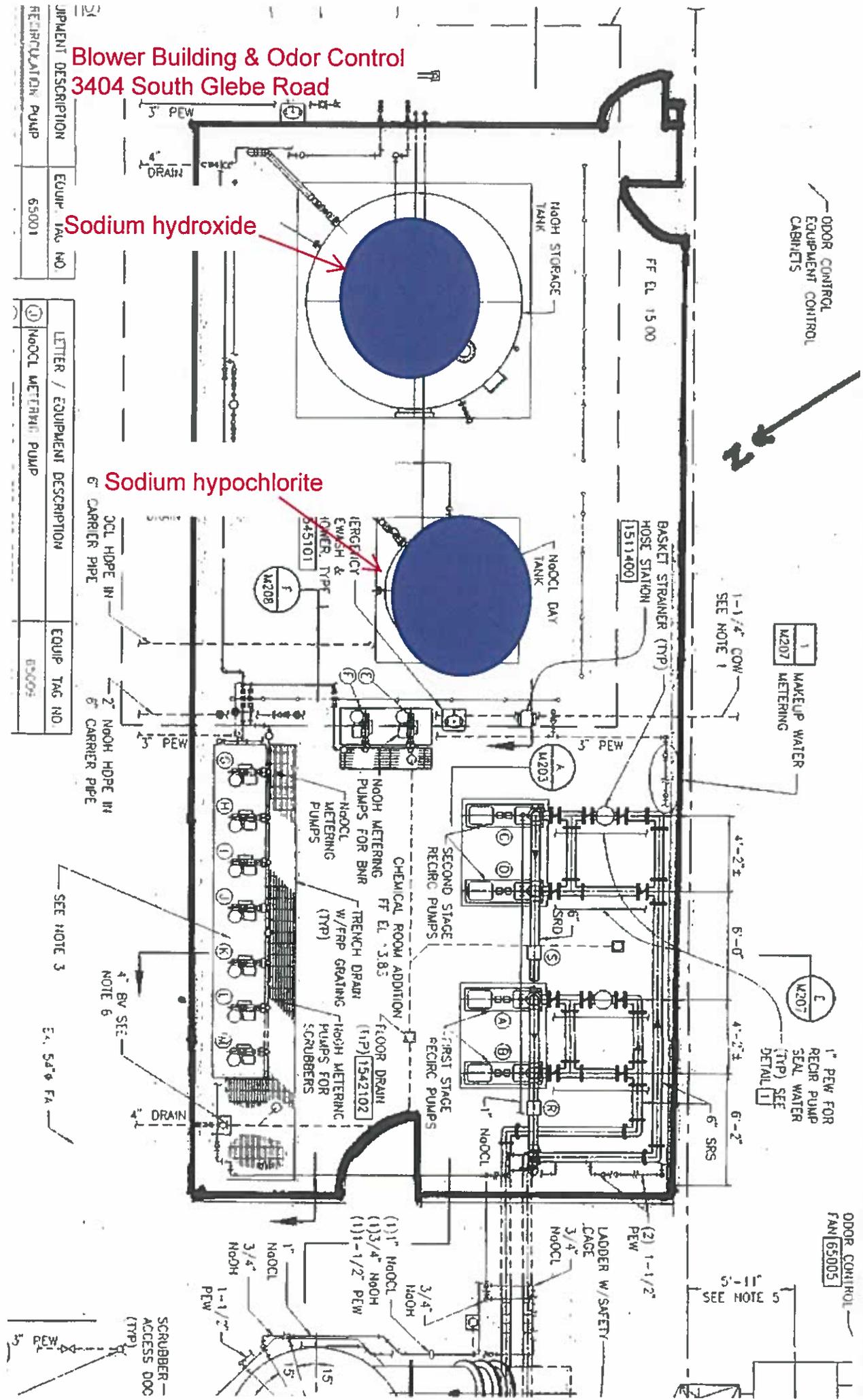
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|-----------------------|----------------|
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| RECIRCULATION PUMP | 65001 |

| | |
|--------------------------------|----------------|
| LETTER / EQUIPMENT DESCRIPTION | EQUIP. TAG NO. |
| ① NaOCL METRING PUMP | 65005 |

| | |
|-----------------------|----------------|
| EQUIPMENT DESCRIPTION | EQUIP. TAG NO. |
| RECIRCULATION PUMP | 65001 |

Sodium hydroxide

Sodium hypochlorite



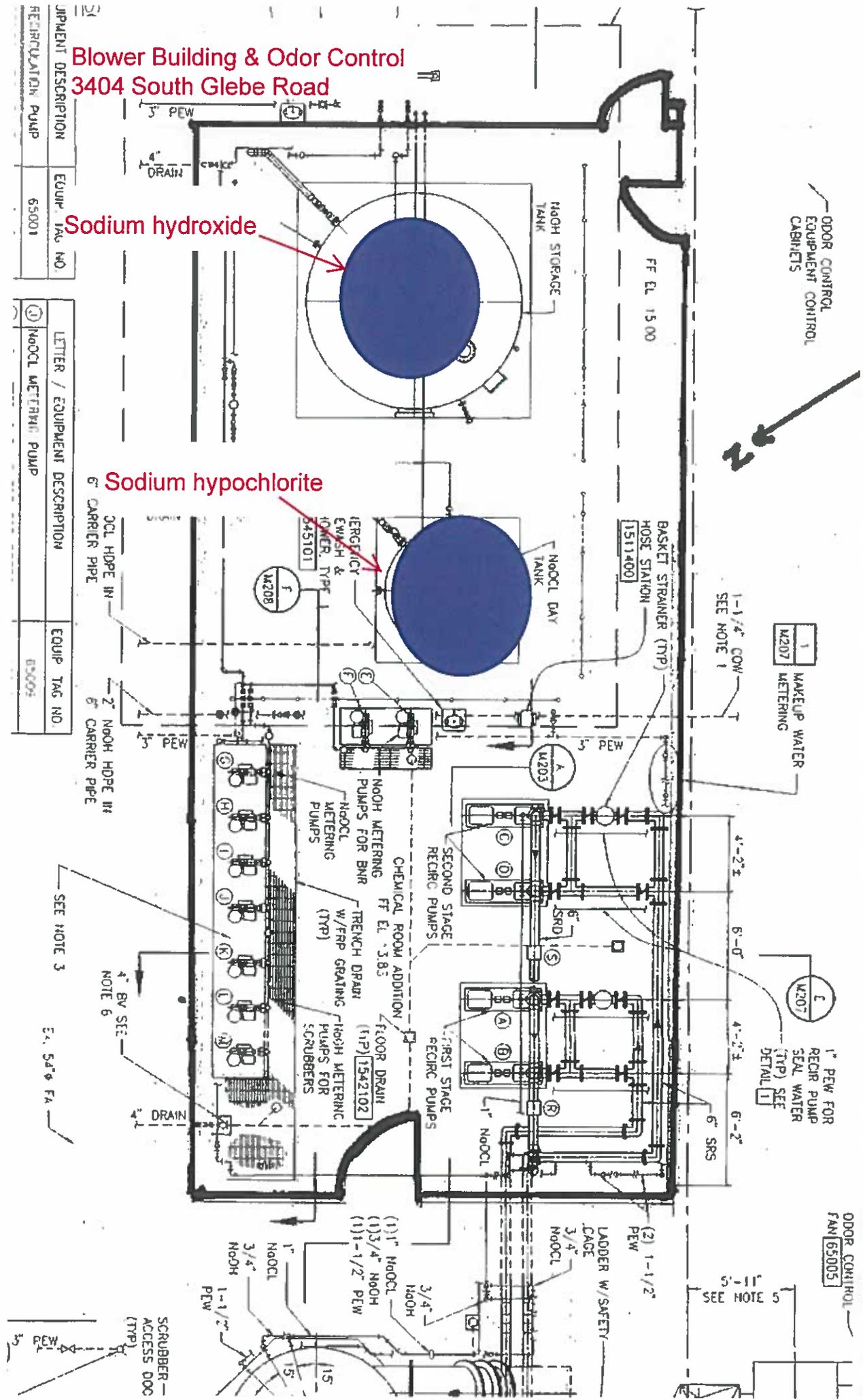
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| RECIRCULATION PUMP | 65001 |

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| LETTER / EQUIPMENT DESCRIPTION | EQUIP. TAG NO. |
| ① NaOCL METRING PUMP | 65005 |

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| EQUIPMENT DESCRIPTION | EQUIP. TAG NO. |
| RECIRCULATION PUMP | 65001 |

Sodium hydroxide

Sodium hypochlorite



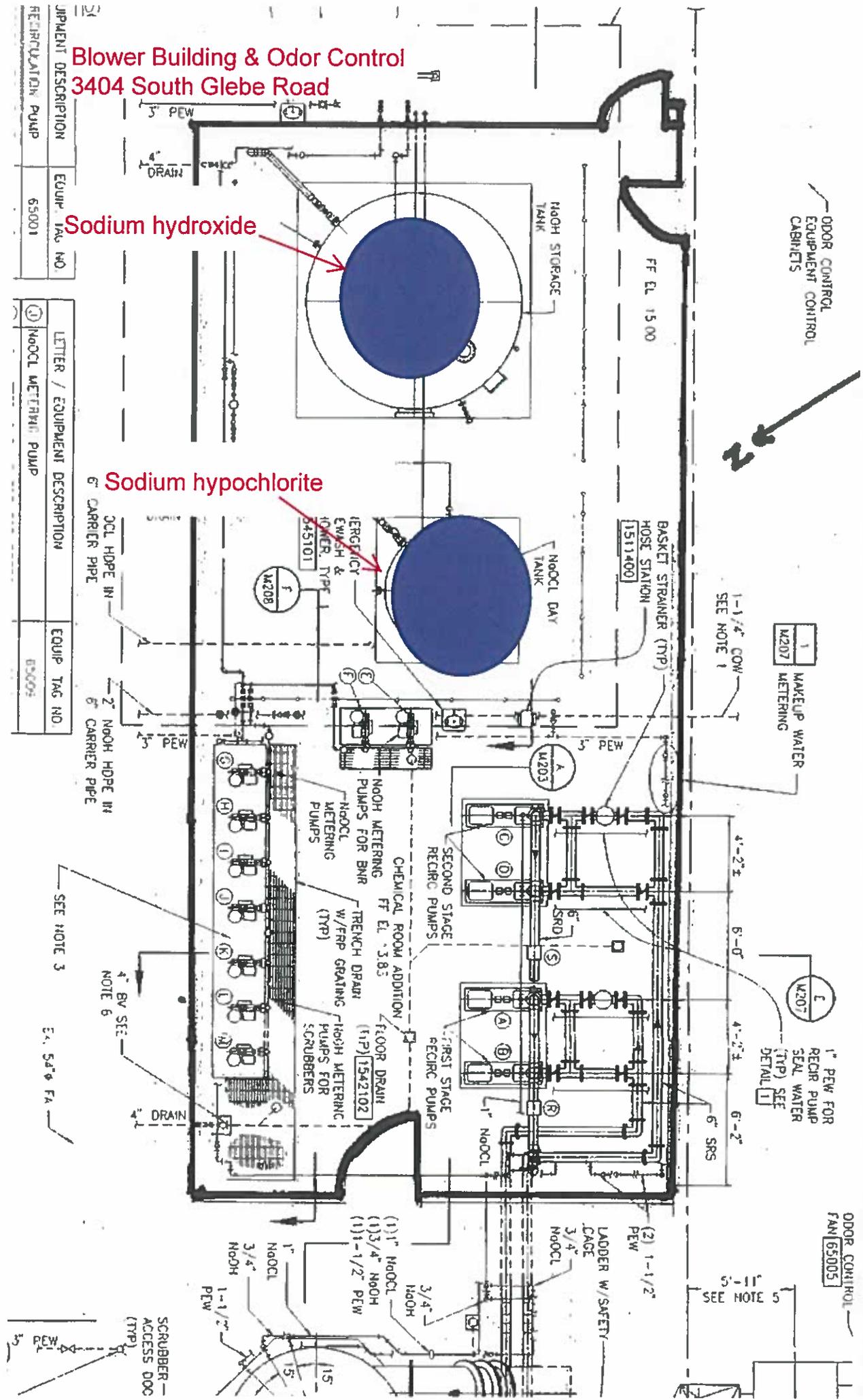
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| RECIRCULATION PUMP | 65001 |

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| LETTER / EQUIPMENT DESCRIPTION | EQUIP. TAG NO. |
| ① NaOCL METRING PUMP | 65005 |

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| EQUIPMENT DESCRIPTION | EQUIP. TAG NO. |
| RECIRCULATION PUMP | 65001 |

Sodium hydroxide

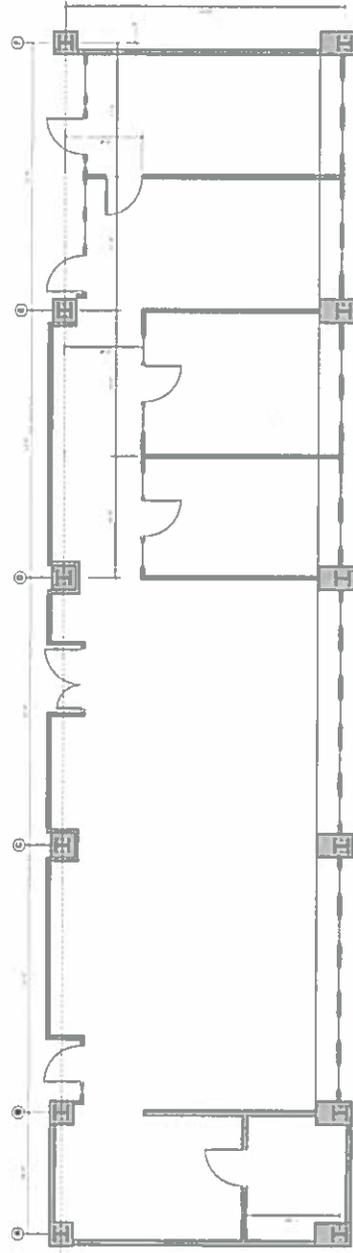
Sodium hypochlorite



Operations Control Building 3rd Floor Laboratory
3402 S. Gitehc Rd.



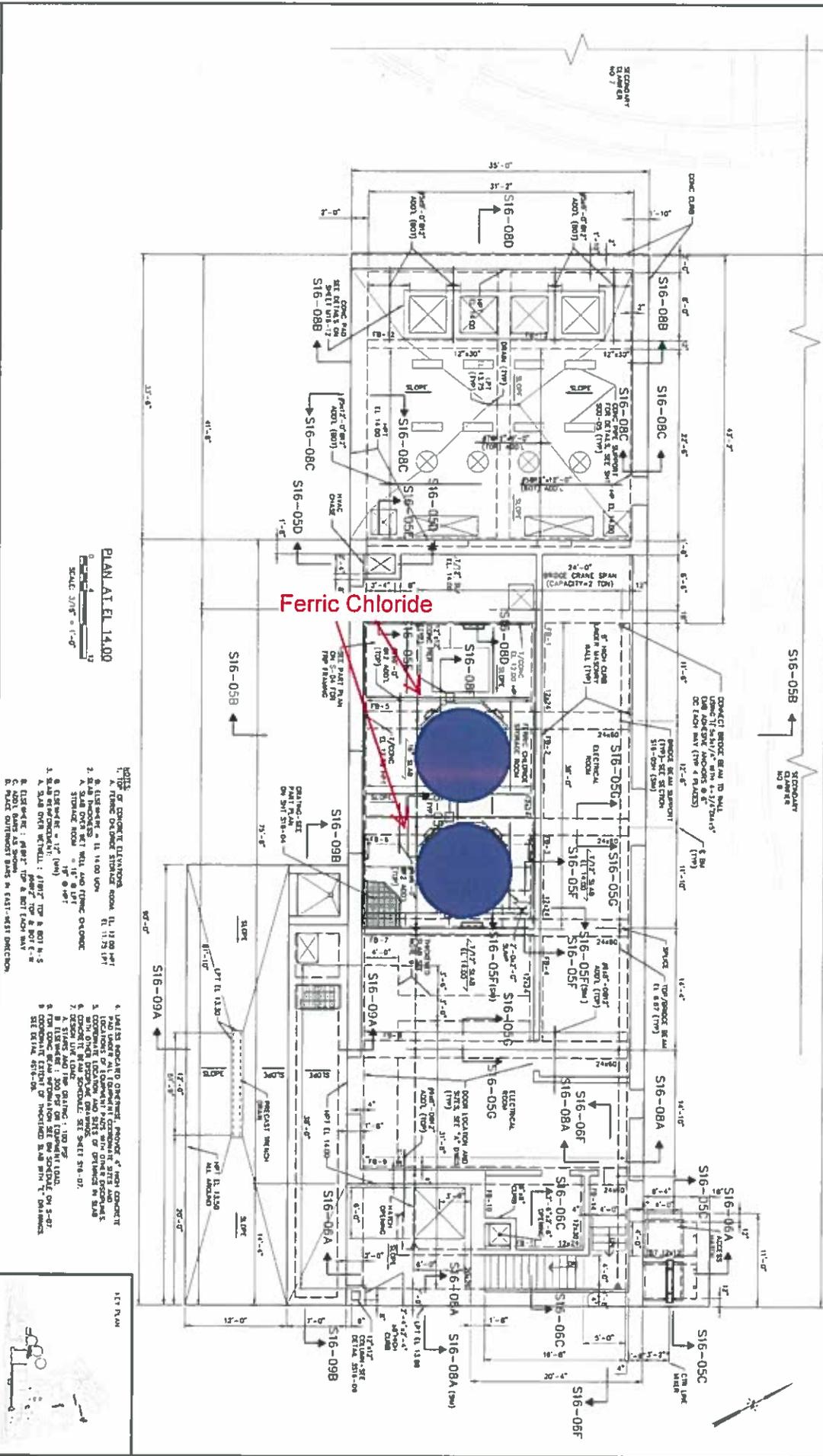
OCB Laboratory - Plan



Materials of Concern: acids, caustic, solvents, miscellaneous small quantities of chemical reagents, etc.

| | |
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| OPERATIONS CONTROL BUILDING LABORATORY PLAN - THIRD FLOOR | |
| Project No. | D111208-JD |
| Scale | |
| Author | |
| Checked | |
| Date | |

| | | | |
|---|--|--|--------------------------------------|
| <p>REVISED DOCUMENT</p> <p>DATE: 11/14/2013</p> <p>BY: [Signature]</p> | <p>REVISIONS</p> <p>NO. DESCRIPTION</p> | <p>PROJECT</p> <p>ARLINGTON COUNTY WATER POLLUTION CONTROL PLANT</p> | <p>DATE</p> <p>11/14/2013</p> |
| <p>DESIGNER</p> <p>MALCOM PIRNIE</p> | <p>CLIENT</p> <p>ARLINGTON COUNTY</p> | <p>PROJECT NO.</p> <p>25003SP58A</p> | <p>DATE</p> <p>11/14/2013</p> |
| <p>SCALE</p> <p>1" = 1'-0"</p> | <p>PROJECT NO.</p> <p>25003SP58A</p> | <p>PROJECT NAME</p> <p>ARLINGTON COUNTY WATER POLLUTION CONTROL PLANT</p> | <p>DATE</p> <p>11/14/2013</p> |
| <p>PROJECT NO.</p> <p>25003SP58A</p> | <p>PROJECT NAME</p> <p>ARLINGTON COUNTY WATER POLLUTION CONTROL PLANT</p> | <p>PROJECT LOCATION</p> <p>ARLINGTON COUNTY, VA</p> | <p>DATE</p> <p>11/14/2013</p> |
| <p>PROJECT NO.</p> <p>25003SP58A</p> | <p>PROJECT NAME</p> <p>ARLINGTON COUNTY WATER POLLUTION CONTROL PLANT</p> | <p>PROJECT LOCATION</p> <p>ARLINGTON COUNTY, VA</p> | <p>DATE</p> <p>11/14/2013</p> |



Ferric Chloride

PLAN AT EL. 14.00

SCALE: 1/8" = 1'-0"

- NOTES:**
1. TOP OF CONCRETE ELEVATIONS
 2. ALL DIMENSIONS UNLESS OTHERWISE NOTED
 3. ALL DIMENSIONS UNLESS OTHERWISE NOTED
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- LEGEND:**
1. UNLESS INDICATED OTHERWISE, PROVIDE 4" HIGH CONCRETE
 2. PROVIDE 4" HIGH CONCRETE
 3. PROVIDE 4" HIGH CONCRETE
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 5. PROVIDE 4" HIGH CONCRETE
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 10. PROVIDE 4" HIGH CONCRETE



ARLINGTON COUNTY WATER POLLUTION CONTROL PLANT

UPGRADE AND EXPANSION PHASE 7B

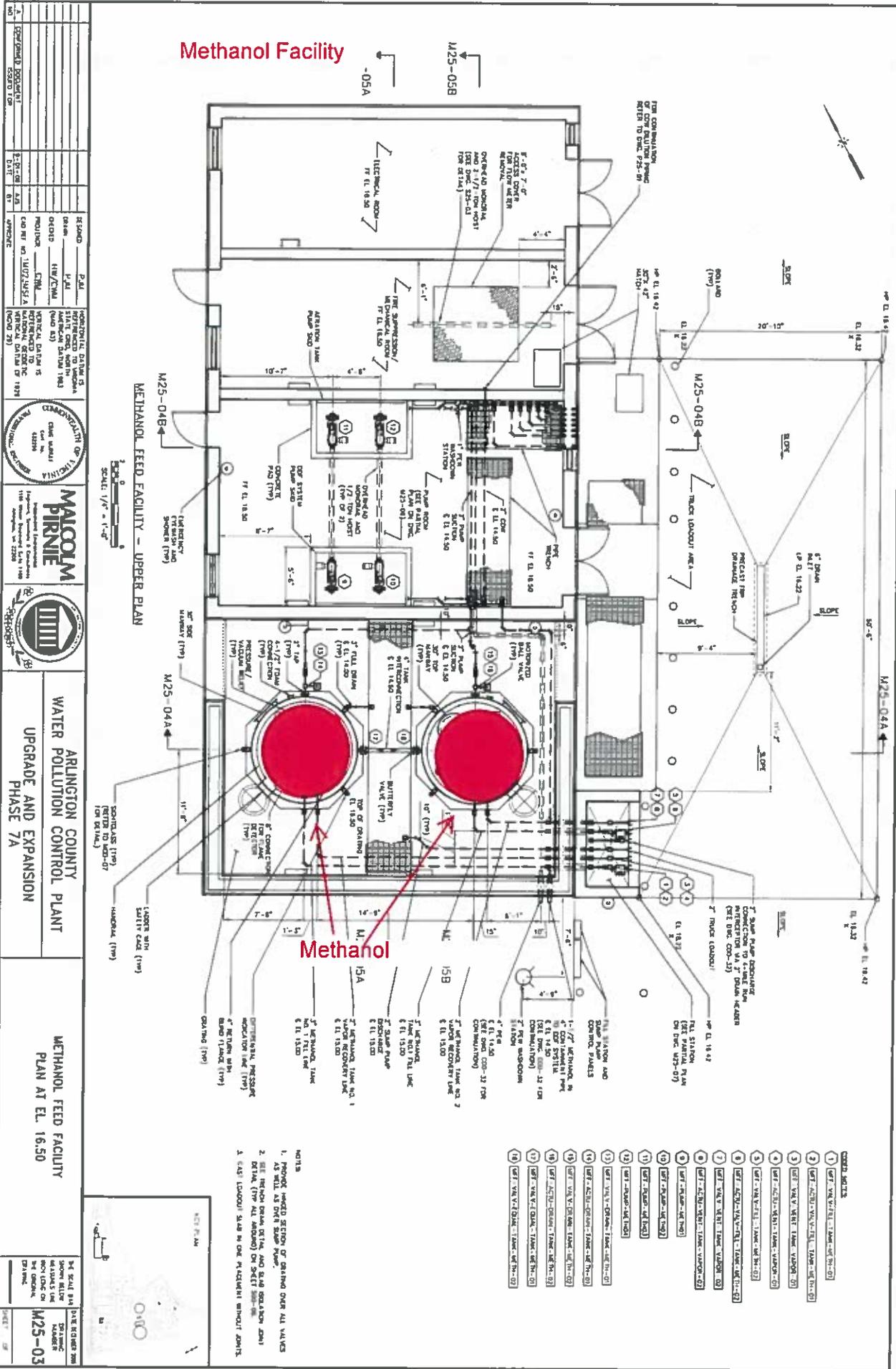
STRUCTURAL WEST SECONDARY SERVICES PUMP STATION

PLAN AT EL. 14.00

DATE: 11/14/2013

BY: [Signature]

Methanol Facility

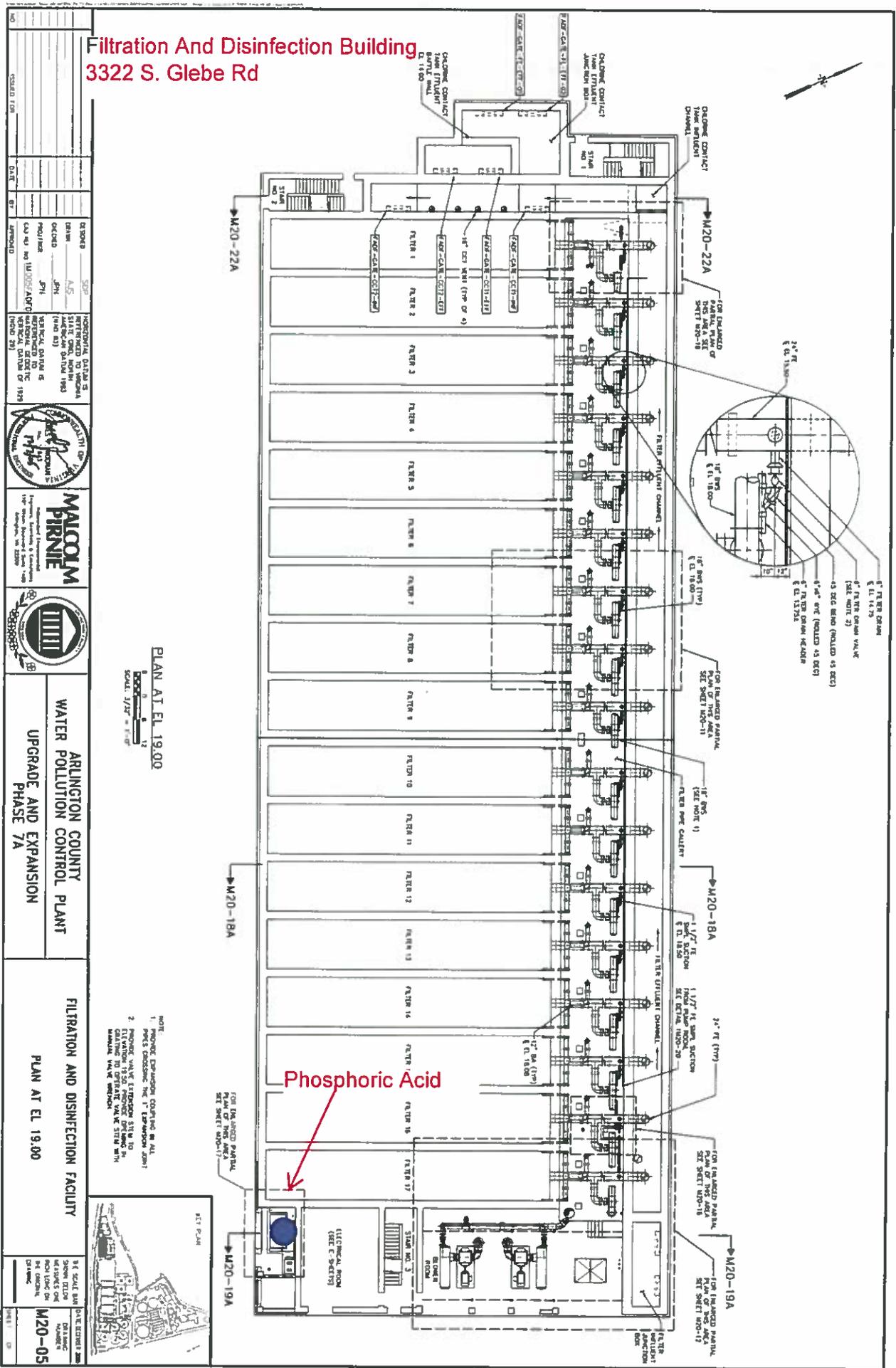


| <p>REVISIONS</p> <table border="1"> <tr><th>NO.</th><th>DATE</th><th>BY</th><th>APPROVE</th></tr> <tr><td>1</td><td>05/20/03</td><td>...</td><td>...</td></tr> </table> | NO. | DATE | BY | APPROVE | 1 | 05/20/03 | ... | ... | <p>DESIGNER</p> <p>...</p> | <p>CHECKED</p> <p>...</p> | <p>DATE</p> <p>...</p> | <p>SCALE</p> <p>1" = 1'-0"</p> | <p>PROJECT</p> <p>ARLINGTON COUNTY WATER POLLUTION CONTROL PLANT UPGRADE AND EXPANSION PHASE 7A</p> | <p>DATE</p> <p>...</p> | <p>PROJECT</p> <p>METHANOL FEED FACILITY PLAN AT EL. 16.50</p> |
|--|----------|------|---------|---------|---|----------|-----|-----|-----------------------------------|----------------------------------|-------------------------------|---------------------------------------|--|-------------------------------|---|
| NO. | DATE | BY | APPROVE | | | | | | | | | | | | |
| 1 | 05/20/03 | ... | ... | | | | | | | | | | | | |

- NOTES**
1. PROVIDE WELDED SECTION OF DRAINING OVER ALL VALVES AS WELL AS OVER SHARP PIPES.
 2. SEE MESHION BEAM, BRIM, AND SLAB ISOLATION DRAWING (TYP. ALL APPLICABLE) ON SHEET 7A-03.
 3. EXIST LOADOUT SLAB IN ONE PLACEHOLDING WITHOUT JOINTS.

- LEGEND**
- | | |
|----|-----------|
| 1 | 1" VALVE |
| 2 | 2" VALVE |
| 3 | 3" VALVE |
| 4 | 4" VALVE |
| 5 | 6" VALVE |
| 6 | 8" VALVE |
| 7 | 10" VALVE |
| 8 | 12" VALVE |
| 9 | 14" VALVE |
| 10 | 16" VALVE |
| 11 | 18" VALVE |
| 12 | 20" VALVE |
| 13 | 24" VALVE |
| 14 | 30" VALVE |
| 15 | 36" VALVE |
| 16 | 42" VALVE |
| 17 | 48" VALVE |
| 18 | 54" VALVE |
| 19 | 60" VALVE |
| 20 | 72" VALVE |

Filtration And Disinfection Building
3322 S. Glebe Rd



| | | | |
|------------|------------|------------|------------|
| DESIGNED | DATE | BY | APPROVED |
| AS | 1/15/00 | SPH | SPH |
| PROJECT | NO. | DATE | BY |
| 1000000000 | 1000000000 | 1000000000 | 1000000000 |

MALCOLM
PIRNE
 Professional Engineer
 State of Virginia
 License No. 1000000000

ARLINGTON COUNTY
WATER POLLUTION CONTROL PLANT
UPGRADE AND EXPANSION
PHASE 7A

FILTRATION AND DISINFECTION FACILITY
PLAN AT EL. 19.00
M20-05

PLAN AT EL. 19.00
 SCALE: 3/8" = 1'-0"

- NOTE:
1. PROVIDE EXPANSION COUPLING IN ALL PIPES EXCEPT THE 1" EXPANSION JOINTS.
 2. PROVIDE VALVE ELEVATION SHOWN IN CALLING TO OPERATE VALVE WITH MANUAL VALVE METHOD.



APPENDIX H

**WATER POLLUTION CONTROL BUREAU
UTILITIES ENVIRONMENTAL POLICY DIVISION
DEPARTMENT OF ENVIRONMENTAL SERVICES**

Chemical Hygiene Plan

Effective Date: October 31, 2006

I. INTRODUCTION

This workplace procedure is established to provide information, responsibilities, standards and rules of conduct for all employees who manage, supervise, or perform tasks within the Water Pollution Control Bureau (WPCB) laboratory environments. The Chemical Hygiene Plan (CHP) serves to protect employees from the occupational safety and health hazards associated with laboratory work. This includes the use, handling, and storage of chemicals in the laboratory as well as laboratory specific safety hazards.

II. SCOPE

The WPCB CHP applies to employees or any individuals who perform operations in the chemical laboratory. This document will serve as the agency's written Chemical Hygiene Plan.

III. RESPONSIBILITIES

A. Bureau Chief: The Bureau Chief has the responsibility of enforcing this plan.

B. Operations Manager: The Operations Manager has the responsibility for oversight and ensuring compliance with this plan.

C. Laboratory Supervisor/Chemical Hygiene Officer: The Laboratory Supervisor will function as the Chemical Hygiene Officer (CHO) and is responsible for development, implementation and continued effectiveness of all portions of this Plan. This includes the following:

- Monitor Chemical Hygiene Plan activities to ensure that they are being properly implemented and procedures are being followed.
- Maintain Chemical inventory for all laboratory chemicals.
- Develop Standard Operating Procedures for all laboratory processes.
- Ensure that chemical exposures and levels are below those of the OSHA Permissible Exposure Limits.
- Assess and make certain that correct Personal Protective Equipment is being used properly.
- Evaluate laboratory facility designs for new and improved processes and procedures.
- Review all new MSDS data sheets to determine adequacy.
- Maintain set of MSDS for laboratory operations and provide MSDS to Safety Specialist for the facility master set.
- Obtain new and updated MSDS from suppliers for all hazardous laboratory chemicals and provide copy to Safety Specialist for the facility master set.
- Make the MSDS available to any employee who verbally or informally requests to see them.

- Produce copies of MSDS and of the Chemical Hygiene Plan upon request by any employee or regulatory agency.
- Make the MSDS available to emergency services during an emergency involving a chemical.
- Ensure that all employees have received the appropriate training for the use of hazardous materials and laboratory procedures.
- Follow up with suppliers when MSDS are not received or are found to be inadequate.
- Ensure that all personnel follow and comprehend the requirements set forth in the Chemical Hygiene Plan.
- Audit the program at least annually to ensure continued effectiveness.

C. Safety Specialist: The Safety Specialist will assist the Laboratory Supervisor/CHO with the development and coordination of the Laboratory Safety Plan. This includes the following:

- Consult with the CHO regarding changes to the Plan.
- Review the need for personal monitoring.
- Assist with the selection of Personal Protective Equipment.
- Consult on new materials to be used in the laboratory.
- Retain required records, including chemical identities, usage locations, and dates used for at least 30 years as required by 29 CFR 1910.20(d)(1)(ii)(B).
- Coordinate annual review of the Laboratory Safety Plan.

D. Employees: Personnel working within the laboratory will be responsible for:

- Following all Standard Operating Procedures.
- Notifying supervisors of any incidents involving material releases, unsafe conditions, and other adverse safety, health, or environmental conditions.
- Attend training that has been identified by the CHO and Safety Specialist.

IV. DEFINITIONS

CHP means the Chemical Hygiene Plan.

CHO is the Chemical Hygiene Officer or for purposes of this plan the Laboratory Supervisor.

Hazardous chemical means any chemical that is a physical hazard or a health hazard.

Health hazards include chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes.

Laboratory use means the handling of chemicals under various conditions including but not limited to the following.

- Chemical manipulations are on a "laboratory scale".
- Multiple chemical procedures may be used.
- Procedures are not part of a production process nor do they simulate a production process.
- Protective laboratory practices and equipment are available and in use to reduce employee exposure to chemicals.

Laboratory scale means work with substances in which the containers used for reactions, transfers, and other handling of substances are designed to be easily and safely manipulated by one person.

Material Safety Data Sheet (MSDS) means written or printed material concerning a hazardous chemical.

OSHA is the Occupational Safety and Health Administration

Physical hazards describe chemicals for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

VOSH – Virginia Department of Labor and Industry (Virginia Occupational Safety and Health Compliance Program).

WPCB is the Water Pollution Control Bureau.

V. STANDARDS

WPCB laboratory operations are subject to consensus guidelines as well as various federal, state, and local requirements which include but are not limited to the following:

- 1910.20 Records
- 1910.132 Personal Protective Equipment
- 1910.1000 Air Contaminants
- 1910.1200 HAZCOM
- 1910.1450 Occupational Exposure to Chemical Hazards in the Laboratory

VI. PROCEDURES

The requirements and procedures associated with this Chemical Hygiene Plan are discussed below. The Bureau Chief, Operations Manager, Laboratory Supervisor/CHO, Safety Specialist, and employees will adhere to the provisions in this document when dealing with laboratory operations. Any recommended changes concerning this Plan will be submitted to the Laboratory Supervisor/CHO and the Safety Specialist for consideration. The Laboratory Supervisor/CHO and the Safety Specialist will review the provisions in this Plan on an annual

basis. Recommended changes may be submitted at any time but should be submitted especially during this review.

A. General Laboratory Safety Rules

1. Prohibitions

- Food or Drink shall **NOT** be stored or consumed in the chemical laboratory area.
- Storage or cooking of edible items in laboratory equipment is prohibited.
- Smoking in all areas of the facility is prohibited.
- Applying cosmetics near chemicals is prohibited.
- Mouth pipetting is prohibited.
- Wearing open-toed shoes is prohibited.
- Horseplay is prohibited in the laboratory at all times.
- Unauthorized persons are not permitted in laboratory areas.
- Appropriate personal protective equipment must be worn in the laboratory. This includes eye protection which must be worn at **ALL** times, except in office areas. Persons "just passing through" are required to wear eye protection. Visitor glasses are present at the entrance for this purpose. Other types of personal protective equipment may include gloves, laboratory coats, aprons, and additional eye protection such as goggles or splash shields.

2. Best Practices

It is prudent to minimize all chemical exposures to workers. This can be accomplished by dispensing the smallest amount of materials practicable for conducting the analysis and returning the container to the proper storage location immediately. Chemical exposure to the skin must be kept to an absolute minimum. Employees must wash hands before taking breaks, at the end of the day, and in any circumstance where chemicals or samples come in contact with the skin. Other important practices include but are not limited to the following.

- **Working Alone:** Whenever possible, employees should avoid working alone in the laboratory when handling chemicals. If this cannot be avoided, employees must notify the CHO or On-shift Supervisor of the need to perform this work and should ask the CHO or On-shift Supervisor to periodically check-in during the operation.
- **Handling Chemicals:** All chemical mixtures will be assumed to be as toxic as its most toxic component and must be handled accordingly. With the exception of the use of phenol several times per week, the WPCB laboratory does not routinely engage in procedures that involve the use of "particularly hazardous chemicals." These materials include known or regulated carcinogens, reproductive toxins, and substances that have a high level of acute toxicity. Information regarding toxicity is available on the chemical's MSDS. Should the WPCB laboratory be required to conduct a non-routine analysis (e.g., pilot study) with any of these types of

materials, pre-approval by the Laboratory Supervisor is required prior to analysis. Depending upon the materials, special precautions may be deemed necessary. This may include any or all of the following provisions:

- establishment of a designated area for the operation,
 - signage and controlled access to the work area,
 - scheduling work for off-hours,
 - use of containment devices such as glove boxes,
 - planning for accidents and spills, and
 - special storage and waste disposal practices.
- **Handling Containers:** All chemical containers will be labeled to prevent inadvertent mixing of materials. This includes small containers such as test tubes. Chemical containers that are damaged must be stored securely in secondary containers or placed in another suitable container and labeled. Chemicals shall not be stored on floors, in hallways or stairwells and must have properly fitting lids.
 - **Glassware:** Glassware shall be used and stored to minimize breakage. Glassware that is cracked, chipped, or badly scratched should not be used at any time. When breakage occurs, the glass should be cleaned and disposed in a broken glass container immediately. Use gloves, as needed, when handling glassware.
 - **Housekeeping:** All work areas shall be cleaned on a regular basis and work surfaces maintained free of clutter. This will prevent chemical spills; broken glassware; slips, trips, and falls; and other unsafe conditions that could lead to accidents. All waste including Bio-Hazardous waste shall be properly labeled and segregated. To prevent possible exposure to janitorial staff, all janitorial duties will be performed on an off-shift when the laboratory is not operating. Emergency equipment shall remain accessible at all times.

B. Laboratory Facilities & Equipment

All laboratory equipment shall be used only for its intended purpose. Work conducted in the laboratory must be of an appropriate scale for available facilities. Care shall be taken not to overwhelm the ventilation system or any other laboratory equipment.

1. **Safe Design:** Laboratory ventilation intakes and exhausts shall be located to avoid the intake of contaminated air into the laboratory or other parts of the building. Chemical storage areas must be well ventilated and access to these areas must be limited to laboratory employees. Two emergency eyewashes and showers are provided in the laboratory. These must be kept clear of obstructions. These units must be tested monthly and checked annually.
2. **Electrical Safety Considerations:** In conjunction with the annual full laboratory inspection, electrically powered laboratory apparatus, power cords, and receptacles

shall be inspected periodically for equipment damage and defects. If during the inspection or when in use, the equipment overheats, performs erratically, or shocks the operator, the equipment shall be immediately removed from service, tagged as "out of service" and the Supervisor notified immediately. **Defective equipment will not be used in the laboratory.**

- 3. Fire Protection:** Appropriate fire extinguishers have been mounted in the laboratory. They are visually inspected monthly by laboratory personnel. Annual maintenance and periodic hydrostatic testing are done by contractors. Laboratory employees selected to use fire extinguishers in a small fire emergency will receive hands-on training.

C. Criteria for Implementation of Control Measures

- 1. Standard Operating Procedures:** Standard Operating Procedures (SOPs) are developed for each chemical laboratory process and are located in the work area for easy access to employees. Employees shall use them for all their operations. When procedures must be modified, the CHO must be notified and the proposed modification must be reviewed and approved before use. No unauthorized procedures may be conducted in the laboratory. When testing procedures are modified or new chemical substances substituted, procedures must be updated immediately to reflect the changes.
- 2. General Criterion:** Laboratory workers must not be exposed to substances in excess of the OSHA permissible exposure limits (PEL). An employee's workplace exposure to any regulated substance must be monitored if there is reason to believe that the exposure will exceed an action level or a PEL. The laboratory supervisor in consultation with the Safety Specialist must evaluate the nature of chemical exposures from laboratory procedures and determine when monitoring and other control measures are necessary. Evidence that air monitoring is necessary includes:
 - OSHA standards that require initial monitoring,
 - Recommendations from the MSDS, and
 - Employee complaints of odors or illness associated with chemical use.
- 3. Air Sampling:** Air sampling shall be arranged through the Safety Specialist. Air sampling will be conducted according to established industrial hygiene practices. Employees will be notified of results from any air sampling conducted.
- 4. Laboratory Fume Hoods:** Fume hoods are part of the laboratory ventilation system. They are used for many operations as noted in the SOP and/or specific laboratory procedure. Hoods will be maintained in good working condition and will be inspected annually. Each hood should have a continuous monitoring device to ensure appropriate performance.

5. Chemical Storage Areas: The amount of chemicals stored in the laboratory should be minimized to the lowest amount feasible to conduct routine operations. Chemical storage areas may not be used for the storage of any other materials. Segregation of incompatible chemicals in storage must be done consistently and the storage locations clearly labeled. Stored chemicals will be inspected monthly for deterioration, container integrity, and proper disposal. The following storage rules must be followed:

- **Acids:** Segregate from bases and store on lower shelves or in an acid certified cabinet.
- **Bases:** Segregate from acids. Store solutions of inorganic hydroxides in approved safety cans or cabinets.
- **Oxidizers:** Store in a cool dry place away from flammable or combustible materials.
- **Flammables:** Store only in approved safety cans or cabinets.
- **Water Reactive Chemicals:** Store in a cool dry place. Area shall be labeled with a sign reading "do not fight fire with water."
- **Pyrophorics:** Store in air tight containers in a cool dry place.
- **Peroxide formers:** Store in air tight containers in a cool dry place. Label containers with receiving, opening and disposal dates.
- **Carcinogens/teratogens:** Store according to MSDS date or in accordance with chemical category and ensure that all containers are properly labeled.

D. Personal Protective Equipment

The Laboratory Supervisor/CHO is responsible for evaluating, in conjunction with the Safety Specialist, each procedure used in the laboratory. The CHO and Safety Specialist ensure that the proper personal protective equipment (PPE) is selected and made available for employee use. Employees are required to wear the equipment when so indicated by general laboratory policies as provided in this document or when specified in the SOP for an individual procedure.

Employees will use PPE that is clean and in good working condition. Where PPE is assigned to the individual, he or she will ensure that it is maintained in a clean and sanitary fashion and is stored in a location where it cannot be damaged. PPE includes the following types of equipment.

1. **Respiratory protection:** Respiratory protection is generally not necessary in the laboratory setting and must not be used as a substitute for adequate engineering controls. If it is believed that a specific procedure requires the use of respiratory protection, the WPCB Safety Specialist shall be notified and the procedure shall be thoroughly evaluated.
2. **Face protection:** Safety glasses with attached side shields shall be worn at all times while work is being conducted in the main work area of the laboratory. This includes

persons engaged in chemical analysis and those merely passing through the area. Certain procedures may create a greater risk of chemical splash. In these instances, chemical goggles (non-vented) or a face shield may be added to safety glasses for additional protection. This will generally be noted in the procedure's SOP.

3. **Hand protection:** Skin contact with all chemical substances must be minimized. Gloves are provided to employees for all procedures. General work around chemicals requires the use of latex gloves or their equivalent, at a minimum. Heat resistant gloves are provided for handling hot materials or working in and around ovens. The SOPs for specific procedures will designate when chemical protective gloves are required.
4. **Footwear:** At no time are bare feet, sandals, or open toed shoes permitted in the laboratory. Employees engaged in laboratory operations should be wearing flat, closed toed shoes with slip resistant soles.
5. **Protective clothing:** All laboratory employees are provided with laboratory coats. These should be worn at all times while working in the laboratory. Specific SOPs may require the use of impervious coats such as those made of tyvek or similar material.

E. Material Safety Data Sheets (MSDS)

1. **Procurement:** An MSDS shall be obtained from the chemical manufacturer or supplier for each hazardous chemical used. These sheets will contain, as well as can be determined, all information required by the OSHA/VOSH Hazard Communication Standard. All contracts for hazardous chemicals will include the requirement that WPCB shall receive an appropriate MSDS prior to the first consignment. Procurement from vendors who do not supply approved MSDS will be discontinued. If materials are purchased outside the procurement system, the purchaser must obtain an MSDS and insure that the sheet gets into the Bureau's master file.
2. **Materials created in the laboratory:** Special precautions are required when hazardous chemical mixtures are created in the laboratory exclusively for the laboratory's internal use. If the composition of the material and hazards are known, employees will be trained on these hazards as with other chemicals. If the chemical is a byproduct and the composition is unknown, the material will be assumed to be hazardous and handled, accordingly. If the chemical is produced for use in another area of the WPCB, a MSDS will be developed for transmission to the user department with the chemical substance.
3. **Trade Secrets:** The WPCB will not accept for routine use those MSDS that have required information removed due to trade secret protection by the manufacturer. If an MSDS is received which claims proprietary information, it will be returned to the supplier with a request for a more acceptable format. Protection of trade secret

information may be appropriate in some cases. However, information necessary for protection of employees in the event of a medical emergency should be obtained from the manufacturer/supplier prior to use. The CHO and Safety Specialist will address this issue.

VII. EMPLOYEE INFORMATION AND TRAINING

Employees will be provided with information and training on hazardous chemicals in their work areas at the time of their initial assignment and whenever a new hazardous chemical is introduced into their work areas. Retraining for employees, including the contents of this plan will be conducted annually. If the Laboratory Supervisor/CHO notes that safe practices are not being followed, retraining may be conducted on those elements at any time.

A. Training will include:

1. Chemical Hygiene Plan – location, contents, and availability
2. Hazard Communication
 - Physical and health hazards of materials
 - Common trade or chemical names of substances or mixtures
 - Appropriate PPE
 - MSDS location, contents, and availability
 - Tasks that could result in the release of a chemical
 - Measures employees can take to protect themselves from exposure to materials
 - Clean up of spills
3. Signs and Labels – These should be visible, posted throughout the laboratory, and should include:
 - All emergency telephone numbers of emergency personnel, supervisors and laboratory workers.
 - Location signs on all safety showers, eye washes, fire blanket and extinguishers as well as all other safety measures pertinent to the laboratory (first aid and spill kits).
 - All exits and areas where certain outstanding hazardous may exist.
 - All exits to be used for egress during an emergency.
 - All containers of chemicals and biohazardous materials must be labeled and locations identified.
 - All materials received from suppliers in portable containers will be labeled only with the manufacturer's label. These labels must not be defaced or removed. If labels are unreadable or have fallen off, they must be replaced.
 - All small containers, which hold hazardous chemicals that have been dispensed on the premises, will be labeled appropriately. The containers will be appropriate for the nature of the material.

B. Emergency Response Information

Telephone numbers of emergency responders and other critical personnel will be posted at the laboratory entrance. Fire blankets and extinguishers are located in the laboratory for use on small fires by trained employees.

For small spills of liquid chemicals, spill clean-up kits are available in the laboratory. If there are significant spills, employees should call 911 and evacuate the laboratory.

C. Recordkeeping

1. MSDS: The CHO is responsible for maintaining a current set of MSDS for the laboratory area. The Safety Specialist is responsible for maintaining the master set and will ensure that this data is retained as required by OSHA and good practices.
2. Hazard Communication training records will be maintained by the WPCB Safety Specialist for the duration of the employee's employment. A "Training Checklist" identifying laboratory specific training completed will be maintained in the Laboratory files.
3. All air monitoring records collected for work conducted in the laboratory shall be maintained for the employee's term of employment plus 30 years. These records shall be kept by the WPCB Safety Specialist.
4. All records of medical consultations and examinations including tests and written opinions regarding laboratory personnel will be maintained by the Arlington County Occupational Health department or designee for the term of employment plus 30 years.

VIII. CHAPTER ATTACHMENTS

A. Training Checklist

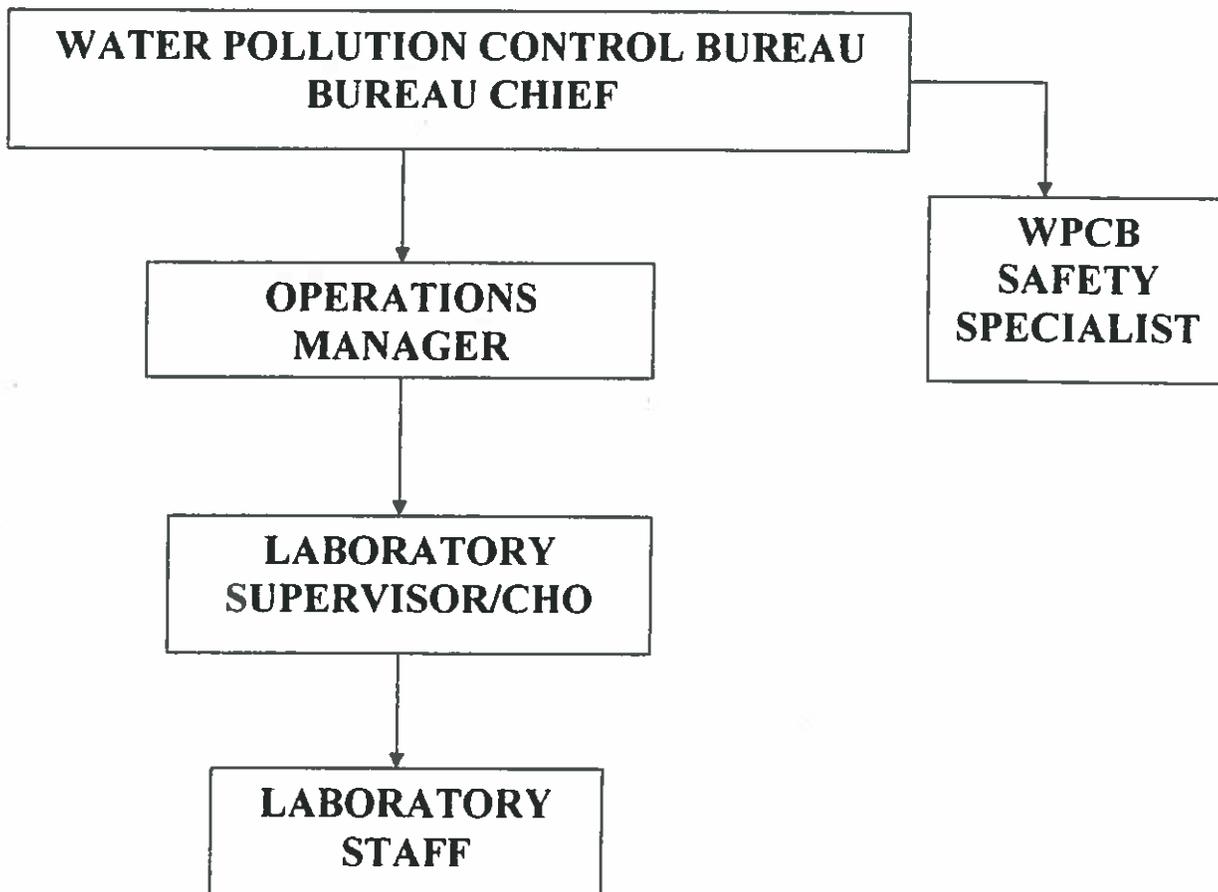
B. Organizational Chart

C. Chemical List

D. Laboratory Layout

SAFETY TRAINING CHECK LIST

**DEPARTMENT OF ENVIRONMENTAL SERVICES
WATER POLLUTION CONTROL BUREAU
LABORATORY**



Chemicals

A

Acetate Buffer
Acetic Acid, 70-80% w/w
Acetic and Solutions, 0.1%-56%
v/v
Acetone
Acetone, For Instrument Analysis
Acid Reagent
Reagent Alcohol
Reagent Alcohol
Alkaline Iodide-Azide Reagent Powder Pillows
Aluminum Sulfate
Ammonium Acetate
Ammonia Cyanurate
Ammonium Chloride
Ammonium Hydroxide
Ammonium Hydroxide
Ammonium Molybdate Tetrahydrate, Certified ACS, Crystalline
Ammonium
Peroxydisulfate
Ammonium Sulfate
Antimony Potassium Tartrate Trihydrate
Ascorbic Acid
Azide Dextrose Broth Tubes (6X)

B

BOD Nutrient Buffer Pillows
BOD Seed
BOD Standard Solution for Dilution Method
Bile Esculin Azide Agar Tubes
Buffer Dilution Water, Sterile
Buffer Solution pH 4.0 (Color-Coded Red)
Buffer Solution pH 4.0 (Color-Coded Red)
Buffered Solution Ph 6.00

Buffer Solution pH 7.0 (Color-Coded Yellow)
Buffer Solution pH 10.0 (Color-Coded Blue)
Buffer Solution pH 11,12
Buffer pH 12.45
Buffer Solution pH 12.45
Buffer Solution (Biphthalate), pH 4
Buffer Solution, pH 6.00

C

Chemical Oxygen Demand Standard Solution 1000 mg/l COD
Chemical Oxygen Demand Standard Solution 300 mg/l COD
Chloroform
Chloroform
2942 CIA No Foam Degreaser
Cupric Sulfate

D

Derakane*510c-350 Epoxy Vinyl Ester Resin
Digestion Reagent
Digestion Solution for COD 0-1500 ppm Range
Digestion Solution for COD 0-150 Range
Diisoprophyl Methlphosphate
DPD Total Chlorine Reagent

E

Ethyl Alcohol, 95% Denatured
Ethylenediamie Tetraacetic Acid, Disodium Salt, Dihydrate
Ethylene Glysol

F

Fisher Brand NBS Conductivity Standards
Flofoam D-625
Formaldehyde Solution, usp
Formazin Turbidity Standard 4000 NTU

G

Glycerin

H

Hexadecane
Hexadecane
Hexanes
Hexane
Hydrochloric Acid 0.1N
Hydrochloric Acid 37% Solution
Hydrogen Peroxide Solution, 30%
Hydrogen Peroxide, 50 wt% solution in water

I

Iodate Concentrate
Iodate-Iodide Standard Solution 0.00125N

K

K-Solv

L

Lachat Cadmium Column for
Nitrate
L-Ascorbic Acid

M

Manganous Sulfate Power Pillows
M-ColiBlue 24 Broth Plastic Ampules
Mercury (II) Oxide
Mercuric Oxide
Methanol-Virgin
Methyl Alcohol
Methyl ethyl Ketone Peroxides
Mobiltac 325 NC 61160
Monosodium Phosphate Anhydrous

N

N-(1-Naphtyl) ethylenediamine dihydrochloride Reagent ACS, 98+%
Nitrate Nitrogen Standard Solution 100 mg/l as (NO₃-N)
Nitra Ver 5 Nitrate
Reagent
Nitric Acid
Nitric Acid, Concentrated Nitric Acid, Aqua Fortis
Nitrification Inhibitor Formula 2533
Nitrite Standard Solution 250 ug/ml as NO₂-N
Nitrocellulose Membrane Filter, Individually Wrapped w/grind 47mm
Nonylphenol, 89562
Nonylphenol + 10 EO
Polyethoxylate

P

Phenol, Crystallized
Phenol, Liquefied
Phenolphthalein Indicator
Phenolphthalein Solution 1%
Phenol Solution
Phosphate Standard Solution 25.0 mg/l as P
Phosphoric Acid, 85%
Phosphoric Acid
Phosphoric Acid
PhosVer 3 Phosphate Reagent
Picric Acid, Wet
Potassium Antimony-Tartate Hemihydrate 99+%
Potassium Bromide
Potassium Hydroxide Solution 0.1N, 0.5N and 1N in Methanol

Potassium Iodate
Potassium Iodide
Potassium Iodide
Potassium Iodide Power Pillows
Potassium Nitrate
Potassium Nitrate
Potassium Permanganate
Potassium Permanganate
Potassium Persulfate
Potassium Phosphate Monobasic
Potassium Sodium Tartrate
Potassium Sulfate
PourRite M-FC/Rosolic Acid Broth Ampules
2-Propanol, 99-100%

S

Silicone Oil
Sodium Acetate,
Anhydrous
Sodium Azide
Sodium Carbonate
Sodium Hydroxide, Solid
Sodium Hydroxide, Solid, Pellets, or Beads
Sodium Hydroxide Solutions (More Than 10% NaOH
Sodium Hypochlorite
Sodium Iodate
Sodium Nitrate
Sodium Nitrate
Sodium Nitrite
Sodium Phosphate Dibasic Heptahydrate
Sodium Salicylate
Sodium Sulfate,
Anhydrous
Sodium Thiosulfate, Anhydrous
Sodium Thiosulfate 0.2000+ 0.0010N
SPADNS Reagent for Fluoride
Stabilized Sodium Thiosulfate 2.26+0.01N
Starch Indicator Solution
Starch , Soluble and Hydrolysed
Sulfamic Acid Power Pillows

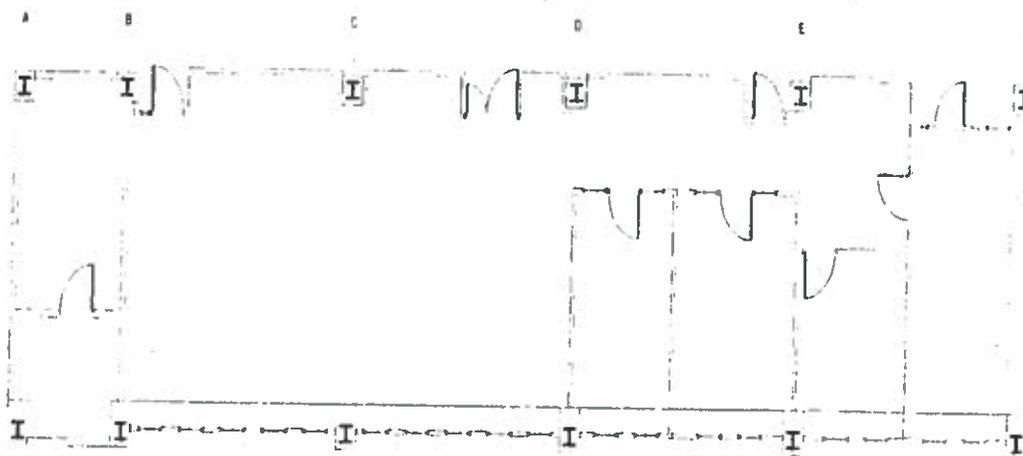
Sulfamic Acid
Sulfanilamide
Sulfide 1 Reagent
Sulfide 2 Reagent
Sulfuric Acid
Sulfuric Acid 0.02N
Sulfuric Acid, <10%
Sulfuric Acid, 10-51%
Sulfuric Acid Solutions 10N (5M) approximately 40%
Sulfuric Acid, 0.02N Solution
Sulfuric Acid Fuming
Sulphuric Acid 1.000N
Swiftest DPD Total Chlorine
Reagent

Z

Zinc Chloride



OCB Laboratory - Plan



APPENDIX I

SDS List

- 1. Calcium Oxide (unhydrated lime)**
- 2. Methanol**
- 3. Sodium Bisulfite**
- 4. Sodium Hydroxide**
- 5. Hydrochloric (muriatic) Acid**
- 6. Copolymer Acrylamide (aqueous)**
- 7. Copolymer Acrylamide (solid)**
- 8. Suppressor (defoamer)**
- 9. Ferric Chloride**
- 10. Phosphoric Acid**
- 11. Sodium Hypochlorite**
- 12. Ultrapure Diesel Exhaust Fluid**
- 13. Extended Life Coolant Premix 50/50**
- 14. No. 2 Fuel Oil (diesel)**

Section V -- Reactivity Data

| | | | |
|-----------|----------|---|---------------------|
| Stability | Unstable | | Conditions to Avoid |
| | Stable | X | |

Incompatibility (Materials to Avoid)

Hazardous Decomposition or Byproducts

| | | | |
|--------------------------|----------------|---|---------------------|
| Hazardous Polymerization | May Occur | | Conditions to Avoid |
| | Will Not Occur | X | |

Section VI -- Health Hazard Data

| | | | |
|--------------------|-------------|-------|------------|
| Route(s) of Entry: | Inhalation? | Skin? | Ingestion? |
| | Yes | Yes | Yes |

Health Hazards (Acute and Chronic)
 Chronic - No
 Acute - Yes

| | | | |
|------------------|------|------------------|-----------------|
| Carcinogenicity: | NTP? | IARC Monographs? | OSHA Regulated? |
| | No | No | No |

Signs and Symptoms of Exposure
Is irritating to eyes and skin, causing a burning sensation upon contact.
 Ingestion can also cause gastric and intestinal problems. Follow appropriate First Aid Procedures.

Medical Conditions Generally Aggravated by Exposure
Individuals with lung problems and disease should avoid breathing dust.
 Emergency and First Aid Procedures
*** See Attached ***

Section VII -- Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released or Spilled
Note: Review FIRE AND EXPLOSIVE HAZARDOUS and SAFETY PERCAUTIONS of surrounding materials before proceeding with clean up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up. Recover minimally contaminated material for reuse.

Waste Disposal Method
Treatment, storage, transportation and disposal must be in accordance with Federal, State/Provincial, and local regs. Remove nonusable solid material and/or contaminated soil, for disposal. In an approved and permitted landfill. Store in well ventilated area. Keep containers tightly closed.
When handling material always wear PERSONAL PROTECTIVE EQUIPMENT.

Other Precautions
Avoid dust generation. Use ventilation that is adequate to keep airborne concentrations below exposure limits.

Section VIII -- Control Measures

Respiratory Protection (Specify Type)
*** See Attached ***

| | | |
|-------------|--|---------|
| Ventilation | Local Exhaust | Special |
| | Mechanical (General) Mechanically ventilate | Other |

Protective Gloves
Wear protective gloves

Other Protective Clothing or Equipment
Wear impervious clothing, as appropriate

Work/Hygienic Practices
Follow guidelines as stated in the above format. Avoid breathing dust. Avoid contact with eyes, skin, or clothing. Wash thoroughly after handling. Wash clothing after use.

EMERGENCY AND FIRST AID PROCEDURES

INHALATION: If large amounts are inhaled remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen, and call a physician.

SKIN CONTACT: The compound is not likely to be hazardous to the skin, but may cause some irritation. It is advisable to wash the skin after use if contact has occurred.

EYE CONTACT: In case of contact with eyes, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION: If swallowed, do not induce vomiting. Give large quantities of water. Never give anything by mouth to an unconscious person. Call a physician.

CONTROL MEASURES

A NIOSH/MSHA approved air purifying respirator with a dust cartridge, filter, or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. For most uses, NIOSH/MSHA Dust and Mist Respirator 8710 is recommended.



METHANOL HOLDINGS (TRINIDAD) LIMITED

Atlantic Avenue, Point Lisas Industrial Estate, Point Lisas, Couva
Telephone: (868) 636-2906/9 Fax: (868) 679-2404

MATERIAL SAFETY DATA SHEET

METHANOL

SECTION 1 – PRODUCT AND COMPANY IDENTIFICATION

| | |
|-------------------------------------|---|
| Product Name | Methanol (CH ₃ OH) |
| Synonyms | Alcohol, Methyl Hydroxide, Methyl Hydrate, Wood Alcohol, Wood Spirit |
| Product Use | Solvent, Fuel, Feedstock |
| Company Identification | Methanol Holdings (Trinidad) Limited Atlantic Avenue, Point Lisas Industrial Estate Point Lisas, Trinidad, West Indies. |
| Emergency Contact (24 hours) | |
| North America | CHEMTREC – 1-800-424-9300 |
| Europe | Giftinformationszentrum Nord - 011-49-551-19240 |
| Trinidad | Industrial Plant Services Limited – 1-868-636-1251 |
| Non-Emergency Contact | |
| North America | Southern Chemical Corporation – 1-281-799-4416 |
| Europe | Helm AG - 011-19-40-23750 |
| Trinidad | Methanol Holdings (Trinidad) Limited – 1-868-636-2906 |

SECTION 2 – COMPOSITION / INFORMATION ON INGREDIENTS

| Chemical Name | CAS No. | Percent | EINECS / ELINCS |
|----------------|---------|---------|-----------------|
| Methyl Alcohol | 67-56-1 | 99+ | 200-659-6 |

| | |
|------------------------|------------------------|
| Hazard Symbols: | T, F |
| ACGIH STEL: | 250 ppm, skin notation |
| ACGIH TLV: | 200 ppm, skin |
| OSHA PEL: | 200 ppm |



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SECTION 3 – HAZARDS IDENTIFICATION

Emergency Overview

POISON! DANGER! Vapor harmful. May be fatal or cause blindness if swallowed. Harmful if inhaled or absorbed through the skin. Flammable liquid and vapor. Causes irritation to skin, eyes and respiratory tract. Affects central nervous system and liver.

Target Organs: Kidneys, heart, central nervous system, liver, eyes.

Potential Health Effects

Inhalation: An irritant to the mucous membranes. Toxic effects exerted upon nervous system, particularly the optic nerve. Once absorbed into the body, it is very slowly eliminated. Symptoms of over-exposure may include headache, drowsiness, nausea, vomiting, blurred vision, blindness, coma, and death. A person may get better but then worse up to 30 hours later.

Ingestion: Toxic. Symptoms similar to those for inhalation, but severity and speed of appearance may be greater. May be fatal or cause blindness. Usual fatal dose: 100 – 125 ml. May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure.

Skin Contact: Methyl Alcohol is a defatting agent and may cause skin to become dry and cracked. Skin absorption can occur in harmful amounts; symptoms may parallel inhalation exposure.

Eye Contact: Irritant, characterized by a burning sensation, redness, tearing, inflammation, possible corneal injury, painful sensitization to light. Continued exposure may cause lesions.

Chronic Exposure: Marked impairment of vision has been reported. Repeated or prolonged skin contact may cause dermatitis. Chronic exposure may cause reproductive disorders and teratogenic effects. Laboratory experiments have resulted in mutagenic effects.

Aggravation of Pre-Existing Conditions: Persons with pre-existing skin disorders or eye problems or impaired liver or kidney function may be more susceptible to the effects of the substance.

Other

- Highly flammable.
- May build up Electrostatic charges: risk of ignition.
- Vapor-Air mixture is flammable / explosive within the explosion limits.

National Fire Protection Association (NFPA) 704 Hazard Identification Rating

| | | |
|-------------------------|------|----------------------|
| Health: | 1 | Rating System |
| Reactivity: | 0 | 0 = No Hazard |
| Flammability: | 3 | 1 = Slight Hazard |
| Special Hazards: | None | 2 = Moderate Hazard |
| | | 3 = Serious Hazard |
| | | 4 = Severe Hazard |



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SECTION 4 – FIRST AID MEASURES

Eyes

Immediately flush eyes with an ample amount of water for at least 15 minutes, occasionally lifting upper and lower eyelids. Get medical help immediately.

Skin

Immediately wash skin with lots of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.

Inhalation

Remove from exposure to fresh air immediately. If breathing is difficult, give oxygen if available. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Ingestion

The ingestion of methanol is potentially life threatening. Onset of symptoms may be delayed for 18 to 24 hours after digestion. If the victim is conscious and medical help is not immediately available, give 2 to 4 cupfuls of milk or water. Do not induce vomiting! Transport victim to a medical facility immediately.

Note to Physician

Effects may be delayed. Ethanol may inhibit methanol metabolism.

SECTION 5 – FIRE FIGHTING MEASURES

| | |
|------------------------|------------------|
| Flash Point: | 11°C |
| Lower Explosive Limit: | 6% (NFPA 1978) |
| Upper Explosive Limit: | 36% (NFPA 1978) |
| Auto Ignition Temp.: | 385°C NFPA 1978) |

Hazardous Combustion Products: Toxic gases and vapors; Oxides of Carbon and Formaldehyde.

Extinguishing Media

- Small fires: Use dry chemical, carbon dioxide, water spray or alcohol resistant foam. Use water sprays to cool fire-exposed containers.
- Large fires: Use water spray, water fog or alcohol-resistant foam.

Special Protective Equipment for Firefighters

- Firefighters must wear full face, positive pressure self-contained breathing apparatus, MSHA / NIOSH (approved or equivalent), and full protective gear.
- Protective fire fighting structural clothing may not offer complete protection from a methanol fire if there is liquid methanol or vapor levels above the threshold limit value (TLV). Use of HAZMAT suits are recommended.



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Important Information

Methanol burns with a clean, clear flame, which is almost invisible in daylight. Containers may build up pressure if exposed to heat and/or fire. Cool tanks / drums with water spray and remove them to safety. Fire fighting water should be contained if possible, as it is toxic and can cause environmental damage. Water runoff can cause environmental damage. Vapors can travel to a source of ignition and flash back. Material is lighter than water, and so a fire can be spread by the use of water. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Responders should stay upwind.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Procedure

- Wear appropriate personal protective equipment as specified in Section 8.
- Stay upwind.
- Ventilate area of leak or spill and isolate hazard area.
- Eliminate all sources of ignition.
- Keep unnecessary and unprotected personnel from entering the hazard zone.
- Contain and recover liquid where possible or dilute with water or use alcohol-resistant foam to reduce fire hazard. Collect liquid in an appropriate container or absorb with an inert material (e.g. vermiculite, dry sand, earth) and place in a chemical waste container. Do not use combustible materials such as saw dust.
- Use non-sparking tools and equipment.
- Do not flush to sewer and prevent from entering confined spaces.
- US regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities.

Waste Disposal

- Recycling is the recommended disposal method.
- Incineration should only be performed using a legally approved incinerator fitted with emission controls.
- Methanol wastes are not suitable for underground injection.
- Biological treatment may be used for dilute aqueous waste methanol.

SECTION 7 – HANDLING AND STORAGE

Handling

- Wash hands thoroughly after handling. In the event of exposure, remove contaminated clothing and wash before reuse.
- Containers should be grounded and bonded when transferring material in order to avoid static sparks.
- Do not breathe vapor, mist or gas. Do not get in eyes, skin or clothing.
- Use non-sparking type tools and equipment, including explosion-proof ventilation.
- Empty containers retain product residue (liquid and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, sparks, flame, static electricity or other sources of ignition.
- Keep container tightly closed.



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Storage

- Keep away from heat, sparks, flames (all sources of ignition). Keep away from oxidizers, acids and bases.
- Store in a cool, dry, well-ventilated area away from incompatible substances.
- Outside or detached storage is recommended.
- Tanks must be grounded and vented and have vapor emission controls including floating roofs, inert gas blanketing to prevent the formation of explosive mixtures and pressure vacuum relief valves to control tank pressures. Tanks should be of welded construction and should also be diked.
- Do not store in aluminum or lead containers. (Anhydrous methanol is non-corrosive to most metals at ambient temperatures except lead and magnesium. Coatings of copper and its alloys, zinc, or aluminum are unsuitable for storage as they are attacked slowly. Mild Steel is the recommended construction material for tanks.)
- Plastics may be used for short-term storage, but not recommended for long-term use due to deterioration effects and the subsequent risk of contamination.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Use explosion-proof ventilation equipment. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Use only under a chemical fume hood. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Personal Protective Equipment

Respiratory Protection: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

Eye Protection: Use face shield and chemical flash goggles.

Skin Protection: Rubber (Butyl or Nitrile) or neoprene gloves and additional protection including impervious boots, aprons, or coveralls as needed in areas of unusual exposure.

PPE must not be considered a long-term solution to exposure control. PPE usage must be accompanied by employer programs to properly select, maintain, clean, fit and use. Consult a competent industrial hygiene resource to determine hazard potential and/or the PPE manufacturers to ensure adequate protection.



METHANOL HOLDINGS (TRINIDAD) LIMITED

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|--|
| Physical State: | Liquid |
| Appearance: | Clear, Colorless |
| Odor: | Slight Alcohol Odor |
| pH Value: | Not Applicable |
| Molecular Wt.: | 32.04 |
| Boiling Point (760 mm Hg): | 64.5°C |
| Flash Point: | 11°C |
| Auto Ignition Temp.: | 385°C (NFPA 1978) |
| Vapor Pressure: @ 200C | 12.8 kPa |
| Vapor Density: | 1.11 (Air = 1) |
| Viscosity: | 0.55 cP (20 °C) |
| % Volatile / Volume: | 100.0 |
| Freezing / Melting Pt.: | -98 °C (-144 °F) |
| Water Solubility: | Complete |
| Soluble in: | Water, Ethanol, Ether, Acetone, and Chloroform |
| Partition Coefficient n-octanol/water: | -0.82 / -0.66 |
| Evaporation Rate: (BuAc=1) | 5.9 |
| (Ether = 1) | 5.3 |
| Specific Gravity: | 0.791 – 0.793 |
| Saturation Concentration: | 166 g/m ³ |

SECTION 10 – STABILITY & REACTIVITY

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: High temperatures, incompatible materials, ignition sources, oxidizers.

Incompatible Materials: Avoid contact with strong oxidizers, strong mineral or organic acids and strong bases. Contact with these materials may cause a violent or explosive reaction. May be corrosive to lead, aluminum, magnesium and platinum.

Hazardous Decomposition Products

Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, formaldehyde.

Hazardous Polymerization

Will not occur.



METHANOL HOLDINGS (TRINIDAD) LIMITED

SECTION 11 – TOXICOLOGICAL INFORMATION

Acute Toxicity

| | | |
|------------------------------------|---|-------------|
| LD ₅₀ : Oral, Mouse | - | 7300 mg/Kg |
| LD ₅₀ : Oral, Rabbit | - | 14200 mg/Kg |
| LD ₅₀ : Oral, Rat | - | 5628 mg/Kg |
| LD ₅₀ : Skin, Rabbit | - | 15800 mg/Kg |
| LC ₅₀ : Inhalation, Rat | - | 64000 ppm |

Carcinogenicity: CAS # 67-56-1: Not Listed by ACGIH, IARC, NIOSH, NTP, or OSHA

Teratogenicity: No

Reproductive Effects: Reported to cause birth defects in rats exposed to 20,000 ppm

Mutagenicity: Insufficient data.

SECTION 12 – ECOLOGICAL INFORMATION

Environmental

Methanol in fresh or salt water may have serious effects on aquatic life. A study in methanol's toxic effects on sewage sludge bacteria reported little effect on digestion at 0.1% while 0.5% methanol retarded digestion. Methanol will be broken down into carbon dioxide and water.

Mobility:

- Volatile organic compound (VOC): 100 %
- Soluble in water

Persistence and Degradability:

Biodegradation BOD₅: 0.6 – 1.1 g O₂/g substance

COD: 1.42 g O₂/g substance

Water: Readily biodegradable in water (test: 99% OECD 301D. BOD 80% ThOD)

Methanol, when released into the air is expected to exist in the aerosol phase and will be degraded from the ambient atmosphere by the reaction with photochemically produced hydroxyl radicals with an estimated half life of 17.8 days. When released into the soil, methanol is expected to readily biodegrade and leach into groundwater. When released into water, it is expected to have a half life of between 1 and 10 days.

Other Adverse Effects:

- **Effects on the Ozone Layer:** Not harmful to the Ozone Layer
(Council Regulation (EC) No. 3093 /94, O.J. L333 of 22/12/94).
- **Greenhouse Effect:** No data available.
- **Wastewater Purification:** Sludge digestion is inhibited at 800 mg/l.
Nitrification of activated sludge is inhibited at 160 mg/l; 50%



METHANOL HOLDINGS (TRINIDAD) LIMITED

SECTION 13 – DISPOSAL CONSIDERATIONS

Refer to Section 6 – *Waste Disposal*. It is also recommended that users review federal, state and governmental regulations prior to disposal. Store material for disposal as indicated in Section 7, *Handling & Storage*.

SECTION 14 – TRANSPORTATION INFORMATION

Classification of substance in compliance with UN Recommendations

- UN-number: 1230
- Class: 3
- Sub-Risks: 6.1
- Packing Group: II
- Proper Shipping Name: UN 1230, Methanol

ADR (Transportation by Road)

- Class: 3
- Packing Group: II
- Danger Label Tanks: 3+6.1
- Danger Label Packages: 3+6.1
- Hazchem: 2WE

RID (Transportation by Rail)

- Class: 3
- Packing Group: II
- Danger Label Tanks: 3+6.1
- Danger Label Packages: 3+6.1

ADNR (Transportation by Inland Waterways)

- Class: 3
- Packing Group: II
- Danger Label Tanks: 3+6.1
- Danger Label Packages: 3+6.1

IMDG (Maritime Transport)

- Class: 3
- Sub-Risks: 6.1
- Packing Group: II
- MFAG: 19 (IMDG suppl. 2002 p.40)
- EMS: F – E, S – D
- Marine Pollutant: -

ICAO (Air Transport)

- Class: 3
- Sub-Risks: 6.1
- Packing: II
- Packing Instructions Passenger Aircraft: 305 / Y305
- Packing Instructions Cargo Aircraft: 307



METHANOL HOLDINGS (TRINIDAD) LIMITED

SECTION 16 – ADDITIONAL INFORMATION

DISCLAIMER

The information and recommendations herein are taken from data contained in independent, industry-recognized references and is believed to be accurate and represents the best information currently available to us. Methanol Holdings (Trinidad) Limited makes no representation or warranties, either expressed or implied, including without limitation any warranties of merchantability, fitness for a particular purpose with respect to the information set forth herein or the product to which the information refers. Users should conduct their own investigations to determine the suitability of the information to their particular purpose. Accordingly, Methanol Holdings (Trinidad) Limited will not be responsible for loss or damages resulting from use of or reliance upon this information.

Prepared by: Methanol Holdings (Trinidad) Limited.

Date of Issue: August 2007

Material Safety Data Sheet

Sodium Bisulfite Solution

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Sodium Bisulfite Solution

OTHER/GENERIC NAMES: Sodium bisulfite, aqueous solution

PRODUCT USE: Industrial

MANUFACTURER: General Chemical Corporation
90 East Halsey Road
Parsippany, NJ 07054

FOR MORE INFORMATION CALL: 973-515-1840
(Monday-Friday, 9:00am-4:30pm)

IN CASE OF EMERGENCY CALL: 800-631-8050 or
(24 Hours/Day, 7 Days/Week) 973-515-0900
(Outside of USA)

2. COMPOSITION/INFORMATION ON INGREDIENTS

| <u>INGREDIENT NAME</u> | <u>CAS NUMBER</u> | <u>WEIGHT %</u> |
|------------------------|-------------------|-----------------|
| Sodium bisulfite | 7631-90-5 | 38-40 |
| Water | 7732-18-5 | Balance |

Trace impurities and additional material names not listed above may appear in Section 15 of this MSDS. These materials may be listed for local "Right-To-Know" compliance and for other reasons.

OSHA Hazard Communication Standard: *This product is considered hazardous under the OSHA Hazard Communication Standard.*

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: A yellow liquid with a pungent sulfur dioxide gas odor. May irritate the skin. May cause irritation and/or burns to the eyes. Harmful if swallowed or inhaled. May cause severe and possibly fatal allergic reactions if inhaled or swallowed by some asthmatics and other 'sulfite-sensitive' individuals. Reacts with acids to form toxic and irritating sulfur dioxide gas.

POTENTIAL HEALTH HAZARDS

SKIN: Repeated or prolonged contact with solution may cause irritation.

EYES: Solution contact will irritate the eyes. Long untreated exposures may cause burns.

INHALATION: Inhalation of mist may irritate the respiratory tract. Contact with acids will generate sulfur dioxide gas which may be harmful or fatal if inhaled.

INGESTION: May irritate the gastrointestinal tract. May cause severe or deadly allergic reactions in some asthmatics and sulfite sensitive individuals. Very large doses may cause violent colic, diarrhea, depression, and even death.



MATERIAL SAFETY DATA SHEET
Sodium Bisulfite Solution

DELAYED EFFECTS: None known.

Ingredients found on one of the three OSHA designated carcinogen lists are listed below.

| <u>INGREDIENT NAME</u> | <u>NTP STATUS</u> | <u>IARC STATUS</u> | <u>OSHA LIST</u> |
|--|-------------------|--------------------|------------------|
| No ingredients listed in this section. | | | |

4. FIRST AID MEASURES

SKIN: Immediately wash skin with plenty of soap and water. Remove contaminated clothing and wash before reuse. Get medical attention if irritation persists.

EYES: Flush eyes immediately with water for at least 15 minutes. Get medical attention.

INHALATION: Promptly remove to fresh air. Get immediate medical attention if signs of suffocation, irritation or other symptoms develop.

INGESTION: If conscious, immediately give a large quantity of water or milk and induce vomiting by touching finger to back of throat. Get immediate medical attention. Never give anything by mouth to an unconscious person.

ADVICE TO PHYSICIAN: Treat symptomatically. Note potential for anaphylactic shock with allergic individuals.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

| | |
|---|----------------|
| FLASH POINT: | Not flammable |
| FLASH POINT METHOD: | Not applicable |
| AUTOIGNITION TEMPERATURE: | Not applicable |
| UPPER FLAME LIMIT (volume % in air): | Not applicable |
| LOWER FLAME LIMIT (volume % in air): | Not applicable |
| FLAME PROPAGATION RATE (solids): | Not applicable |
| OSHA FLAMMABILITY CLASS: | Not applicable |

EXTINGUISHING MEDIA:

Material is not flammable. Use extinguishing media appropriate for material in surrounding fire.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Releases toxic and irritating sulfur dioxide at fire temperatures.

SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS:

Wear NIOSH-approved self-contained breathing apparatus.



MATERIAL SAFETY DATA SHEET
Sodium Bisulfite Solution

6. ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR OTHER RELEASE: (See section 8 for recommended personal protective equipment.)
Dilute small spills cautiously with water. Neutralize residue with alkali such as soda ash, lime or limestone. Sulfur dioxide and carbon dioxide may be released during neutralization. Provide ventilation to clear sulfur dioxide fumes which may be generated.

Spills and releases may have to be reported to Federal and/or local authorities. See Section 15 regarding reporting requirements.

7. HANDLING AND STORAGE

NORMAL HANDLING: (See section 8 for recommended personal protective equipment.)
Avoid contact with skin, eyes and clothing. Do not breathe mist and/or SO₂ vapors. Do not eat or drink in the work area. Use normal personal hygiene and housekeeping. Keep away from acids, heat and oxidizing agents.

STORAGE RECOMMENDATIONS:
Store in a cool, well-ventilated area away from acids and oxidizing agents. Releases sulfur dioxide gas slowly at ambient temperatures.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:
Provide ventilation sufficient to eliminate mists and reduce SO₂ levels below TLV. Packaging, unloading and processing areas should be equipped with mechanical exhaust system.

PERSONAL PROTECTIVE EQUIPMENT

- | | |
|------------------------------------|--|
| SKIN PROTECTION: | Wear impervious gloves and full work clothing, including acid resistant apron, long-sleeved shirt and trousers. |
| EYE PROTECTION: | Wear a hard hat (or other head covering) and chemical safety goggles. Do not wear contact lenses. |
| RESPIRATORY PROTECTION: | Where required, use a NIOSH-approved respirator for dust, mist and/or sulfur dioxide gas, as conditions indicate. Some exposures may require a NIOSH-approved self-contained breathing apparatus or supplied-air respirator. |
| ADDITIONAL RECOMMENDATIONS: | Eyewash and safety shower is recommended. |

[REDACTED]

MATERIAL SAFETY DATA SHEET
Sodium Bisulfite Solution

11. TOXICOLOGICAL INFORMATION

IMMEDIATE (ACUTE) EFFECTS:

Sodium bisulfite – LD₅₀ (oral, mouse) = 820 mg/kg

DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS:

Sodium bisulfite is a sensitizer, it can cause dermatitis and can precipitate asthma attacks, angioedema, anaphylaxis, and other allergic reactions in sensitized persons.

OTHER DATA:

None

12. ECOLOGICAL INFORMATION

240 ppm / 24, 48, & 96 hr / mosquito fish / TL_m / fresh water

13. DISPOSAL CONSIDERATIONS

RCRA

Is the unused product a RCRA hazardous waste if discarded? No

If yes, the RCRA ID number is: Not applicable.

OTHER DISPOSAL CONSIDERATIONS:

Dispose of in accordance with applicable Federal, State and Local regulations.

The information offered in section 13 is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

14. TRANSPORT INFORMATION

US DOT HAZARD CLASS: 8, PG III

US DOT ID NUMBER: UN2693

PROPER SHIPPING NAME: Bisulfites, aqueous solutions, n.o.s. (contains sodium bisulfite)

For additional information on shipping regulations affecting this material, contact the information number found in Section 1.

15. REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA)

TSCA INVENTORY STATUS: All components are listed on TSCA Inventory of Chemical Substances.

OTHER TSCA ISSUES: None.

[REDACTED]

MATERIAL SAFETY DATA SHEET
Sodium Bisulfite Solution

SARA TITLE III/CERCLA

"Reportable Quantities" (RQs) and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

| <u>INGREDIENT NAME</u> | <u>SARA/CERCLA RQ (lb)</u> | <u>SARA EHS TPQ (lb)</u> |
|------------------------|----------------------------|--------------------------|
| Sodium bisulfite | 5000 | --- |

Spills or releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the National Response Center [(800) 424-8802] and to your Local Emergency Planning Committee.

SECTION 311 HAZARD CLASS: Immediate.

SARA 313 TOXIC CHEMICALS:

The following ingredients are SARA 313 "Toxic Chemicals" and may be subject to annual reporting requirements. CAS numbers and weight percents are found in Section 2.

| <u>INGREDIENT NAME</u> | <u>COMMENT</u> |
|--|----------------|
| No ingredients listed in this section. | |

STATE RIGHT-TO-KNOW

In addition to the ingredients found in Section 2, the following are listed for state right-to-know purposes.

| <u>INGREDIENT NAME</u> | <u>WEIGHT %</u> | <u>COMMENT</u> |
|--|-----------------|----------------|
| No ingredients listed in this section. | | |

ADDITIONAL REGULATORY INFORMATION:

None

WHMIS CLASSIFICATION (CANADA):

D2B, E

FOREIGN CHEMICAL CONTROL INVENTORY STATUS:

Listed on Canadian DSL and EU EINECS.

16. OTHER INFORMATION

CURRENT ISSUE DATE: January, 2002

PREVIOUS ISSUE DATE: May, 1996

CHANGES TO MSDS FROM PREVIOUS ISSUE DATE ARE DUE TO THE FOLLOWING:

New MSDS format (ANSI 16 section format).

OTHER INFORMATION: FDA regulations (21 CFR) apply to use food and NF grade.



Kuehne COMPANY

86 North Hackensack Avenue, South Kearny, New Jersey 07032-4675

Phone: (973) 589-0700

Fax: (973) 589-4866

Sodium Hydroxide

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS NUMBER: KCC-NAOH-001

MSDS DATE: March 06, 2007

PRODUCT NAME: CAUSTIC SODA LIQUID (ALL GRADES)

24-HOUR EMERGENCY TELEPHONE: 1-973-589-0700

PRODUCT USE: Metal Finishing & Industrial Cleaners, Chemical & Petroleum Processing

CHEMICAL NAME: Sodium Hydroxide

CHEMICAL FORMULA: NaOH

SYNONYMS/Common

NAMES: Sodium Hydroxide Solution, Lye, Caustic

2. COMPOSITION/INFORMATION ON INGREDIENTS

| <u>CAS NUMBER</u> | <u>NAME</u> |
|-------------------|-------------|
| 7732-18-5 | Water |

| EXPOSURE LIMITS | PERCENTAGE | |
|----------------------|------------|----------|
| | VOL | ND |
| PEL: Not Established | | |
| TLV: Not Established | WT | 48.50-91 |

COMMON NAMES:
Listed On (List Legend Below):
00 19 23

Kuehne COMPANY
Sodium Hydroxide
Revision A - 06 March 2007



Sodium Hydroxide

2. COMPOSITION/INFORMATION ON INGREDIENTS (Continued)

1310-73-2 Sodium Hydroxide (NaOH)

| | |
|---------------------|-----------------------------------|
| EXPOSURE LIMITS | PERCENTAGE |
| PEL: 2 ppm, Ceiling | VOL ND |
| TLV: 2 ppm, Ceiling | WT 9 - 51.50 |

COMMON NAMES:

CAUSTIC SODA, LYE

7647-14-5 Sodium Chloride (NaCl)

| | |
|-----------------------|----------------------------------|
| EXPOSURE LIMITS | PERCENTAGE |
| PEL: None established | VOL ND |
| TLV: None established | WT 0 - 1.30 |

COMMON NAMES:

SALT

Listed On (List Legend Below):

00 23

7775-09-9 Chloric Acid, Sodium Salt

| | |
|----------------------|----------------------------------|
| EXPOSURE LIMITS | PERCENTAGE |
| PEL: Not Established | VOL ND |
| TLV: Not Established | WT 0 - 0.30 |

COMMON NAMES:

SODIUM CHLORATE

Listed On (List Legend Below):

00 12 21

LIST LEGEND

| | |
|-----------------------------------|-----------------------------|
| 00 TSCA Inventory | 12 PA Hazardous Substance |
| 13 PA Environmental Haz Substance | 18 NY Hazardous Substance |
| 19 PA Requirement- 3% Or Greater | 21 NJ Special Haz Substance |
| 23 NJ Requirement- 1% Or Greater | |





Kuehne COMPANY

86 North Hackensack Avenue, South Kearny, New Jersey 07032-4675

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Sodium Hydroxide

3. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

ROUTES OF ENTRY: Inhalation, Ingestion.
TARGET ORGANS: Eyes, Skin, Respiratory Tract, and Gastrointestinal Tract.
IRRITANCY: Liquid, vapors or mist may be irritating to eyes, skin and respiratory tract.
SENSITIZING CAPABILITIES: None known.
REPRODUCTIVE EFFECTS: None known.
CANCER INFORMATION: None known.

SHORT-TERM EXPOSURE (ACUTE)

Inhalation:

Exposure to vapor, mist or liquid can produce burns of the respiratory tract. Severe exposures could result in chemical pneumonia.

Eyes:

Contact can cause severe damage including burns and blindness. The severity of the effects depend on concentration and how soon after exposure the eyes are washed.

Skin:

Corrosive. Contact may cause burns and tissue destruction.

Note that irritation may follow an initial latency (delay between the time that the exposure occurs and when the sense of irritation starts) The latent period can vary as much as hours for a dilute solution (0.04%) to minutes with more concentrated solutions (25-50%). Prolonged or repeated contact, even to dilute concentrations, can cause a high degree of tissue destruction.

Ingestion:

Corrosive. Severe burns and complete tissue perforation of mucous membranes of mouth, throat and stomach.

REPEATED EXPOSURE (CHRONIC)

No known chronic effects.

SYNERGISTIC MATERIALS:

None known.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

None known.



Sodium Hydroxide

4. FIRST AID MEASURES

EYES:

IMMEDIATELY FLUSH EYES WITH A DIRECTED STREAM OF WATER for at least 15 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissue. Washing eyes within several seconds is essential to achieve maximum effectiveness. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN:

Flush thoroughly with cool water under shower while removing contaminated clothing and shoes. Discard non-rubber shoes. Wash clothing before reuse. GET MEDICAL ATTENTION AS SOON AS POSSIBLE.

INHALATION:

Remove to fresh air. If breathing is difficult, have trained person administer oxygen. If respiration stops, give mouth-to-mouth resuscitation. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:

NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. (If available, give several glasses of milk.) If vomiting occurs spontaneously, keep airway clear and give more water. GET MEDICAL ATTENTION IMMEDIATELY.

NOTES TO PHYSICIAN:

No specialized procedures. Treat for clinical symptoms.

5. FIRE FIGHTING MEASURES

| | |
|----------------------------|----------------------|
| Flash Point: | Non-flammable |
| Auto ignition Temperature: | Non-flammable |
| Flammable Limits in Air: | Upper: Non-flammable |
| | Lower: Non-flammable |

EXTINGUISHING MEDIA: Non-flammable / Non-combustible.
Use water spray to keep fire-exposed containers cool.

FIRE FIGHTING PROCEDURES: Use water to cool containers but avoid getting water into containers. Wear NIOSH/MSHA approved positive-pressure self-contained breathing apparatus and full protective clothing.

FIRE AND EXPLOSION HAZARD: Direct contact with water can cause a violent exothermic reaction.

SENSITIVITY TO MECHANICAL IMPACT: Not sensitive



Kuehne COMPANY

86 North Hackensack Avenue, South Kearny, New Jersey 07032-4675

Phone: (973) 589-0700

Fax: (973) 589-4866

Sodium Hydroxide

5. FIRE FIGHTING MEASURES

(Continued)

SENSITIVITY TO
STATIC DISCHARGE: Not sensitive

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:

Evacuate unnecessary personnel. Follow protective measures provided under Personal Protection in Section 8.

ENVIRONMENTAL PRECAUTIONS:

As per 40 CFR 302 Table 302.4 (CERCLA), environmental releases that exceed the RQ must be reported to the National Response Center by calling 800-424-8802 (202-426-2675) and the State Emergency Response Commission and the Local Emergency Planning Committee (40 CFR 355.40) as appropriate.

Contain liquids and prevent discharges to streams or sewers, control or stop the loss of volatile materials to the atmosphere. Large leaks may require environmental consideration and possible evacuation. Do not apply water to the leak. Spills or releases should be reported, if required, to the appropriate local, state and federal agencies.

Contain spill with dike to prevent entry into sewers or waterways.

CAUTION: This product may react strongly with acids and water.

METHODS FOR CLEANING UP:

Dry material can be shoveled up, liquid material can be removed with a vacuum truck. Neutralize remaining traces with any dilute inorganic acid (hydrochloric, sulfuric or acetic acid) Flush spill area with water followed by a liberal covering of sodium carbonate. All clean-up material should be removed for proper treatment or disposal. Spills on other than pavement (e.g. dirt or sand) may be handled by removing the affected soil and placing in approved containers.

7. HANDLING & STORAGE

HANDLING:

Avoid breathing mist.

Avoid breathing vapors.

Hazardous carbon monoxide gas can form upon contact with food and beverage products in enclosed spaces and can cause death. Follow appropriate tank entry procedures (ANSI 2117.1)



Sodium Hydroxide

7. HANDLING & STORAGE

(Continued)

Containers, even those that have been emptied, will retain product residue and vapor and should be handled as if they were full.

Do not get in eyes, on skin or clothing.

Do not take internally. Keep away from acids, to avoid possible violent reaction.

Wash contaminated clothing before reuse. Wash thoroughly after handling; exposure can cause burns that are not immediately painful or visible.

Wear personal protective equipment as described in Exposure Controls & Personal Protection (Section 8) of the MSDS.

If product is added too rapidly, or without stirring, and becomes concentrated at bottom of mixing vessel, excessive heat may be generated, resulting in dangerous boiling and spattering, and a possible immediate and violent eruption of highly caustic solution.

SPECIAL MIXING AND HANDLING INSTRUCTIONS:

Considerable heat is generated when product is mixed with water.

Therefore, when making solutions always carefully follow these steps:

ALWAYS wear the protective clothing described above. NEVER add water to product. ALWAYS add product, with constant stirring, slowly to surface of lukewarm (80-100°F) water, to assure product is being completely dissolved as it is added.

Product can react EXPLOSIVELY with acids, aldehydes, and many other organic chemicals, add product VERY gradually, while stirring constantly. If product is added too rapidly, or without stirring, and becomes concentrated at bottom of mixing vessel, excessive heat may be generated, resulting in dangerous boiling and spattering, and a possible immediate and violent eruption of highly caustic solution.

ALWAYS empty and clean containers of all residues before adding product, to avoid possible EXPLOSIVE reaction between product and unknown residue.

Returnable containers should be shipped in accordance with supplier's recommendations. Return shipments should comply with all federal, state, and DOT regulations. All residue should be removed from containers prior to disposal.

Sodium Hydroxide

7. HANDLING & STORAGE

(Continued)

Avoid contact with aluminum, tin, zinc, and alloys containing these metals. Avoid contact with leather, wool, acids, organic halogen compounds and organic nitro compounds.

STORAGE:

Keep container tightly closed and properly labeled.
Dike storage containers to contain 110% of tank volume.
Under normal conditions, this product can be stored satisfactorily in mild steel without an interior lining. Aluminum is not recommended for storage and handling.

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

ENGINEERING CONTROLS:

No special ventilation required under normal use.

NOTE: Where carbon monoxide may be generated, special ventilation may be required.

Where engineering controls are not feasible use adequate local exhaust ventilation wherever mist, spray or vapor may be generated.

PERSONAL PROTECTION

Respiratory:

Respiratory protection is not required under normal use. Wear a NIOSH/MSHA approved respirator following manufacturer's recommendations, where airborne contaminants may occur.

Eye/Face:

Wear chemical safety goggles plus full face shield to protect against splashing when appropriate (ANSI 287.1)

Wear chemical resistant gloves such as rubber, neoprene or vinyl.

Wash contaminated clothing and dry before reuse.

Whenever there is a possibility of splash or contact wear a chemical resistant full body suit and boots.

OTHER:

Standard work clothing closed at the neck and wrists.

Discard shoes that cannot be decontaminated.

Emergency shower and eyewash facility should be in close proximity (ANSI 2358.1)



Sodium Hydroxide

9. PHYSICAL & CHEMICAL PROPERTIES

| Concentration | <u>weight %</u> | | | | |
|-----------------------------|-------------------------------------|-------|-------|-------|------|
| Physical State: Liquid | 10 | 20 | 30 | 40 | 50 |
| Boiling Pt @ 760 mm Hg, °C | 110 | 113 | 119 | 129 | 144 |
| Freezing Pt °C | - 10 | - 3 | 20 | 15 | 12 |
| Vapor Press., mm Hg @ 60 °C | 135 | 110 | 76 | 46 | 13 |
| Spec. Grav. @ 15.6 °C | 1.11 | 1.22 | 1.33 | 1.43 | 1.53 |
| Density, lb/gal @ 15.6 °C | 9.27 | 10.20 | 11.11 | 11.97 | |
| 12.76 | | | | | |
| Sol. in H2O, % by Wt. | Completely Soluble. | | | | |
| Vapor Density | Not Applicable. | | | | |
| Appearance and Odor | Clear liquid with no distinct odor. | | | | |
| Odor Threshold (ppm) | Not available | | | | |
| Evaporation Rate | Not known | | | | |
| pH | 7.5% solution has pH 14.0 | | | | |

10. STABILITY & REACTIVITY

CHEMICAL STABILITY: Stable
 REACTS WITH: Air, Water, Acids, Metals

HAZARDOUS POLYMERIZATION: Will not occur

COMMENTS: Avoid direct contact with water.

Product is corrosive to tin, aluminum, zinc and alloys containing these metals and will react with these metals in powder form. Avoid contact with leather, wool, acids, organic halogen compounds, or organic nitro compounds. Hazardous carbon monoxide gas can form upon contact with reducing sugars, food and beverage products in enclosed spaces and can cause death. Follow appropriate tank entry procedures.

HAZARDOUS DECOMPOSITION PRODUCTS: None.





Sodium Hydroxide

11. TOXICOLOGICAL INFORMATION

1310-73-2 Sodium Hydroxide (NaOH)

| | | |
|---------------------------------|----------|------------|
| ACUTE DERMAL LD ₅₀ : | (rabbit) | 1350 mg/kg |
| PRIMARY SKIN IRRITATION: | (rabbit) | severe |
| PRIMARY EYE IRRITATION: | (rabbit) | severe |

7647-14-5 Sodium chloride (NaCl)

| | | |
|-------------------------------|----------|------------|
| ACUTE ORAL LD ₅₀ : | (rat) | 3000 mg/kg |
| PRIMARY SKIN IRRITATION: | (rabbit) | mild |
| PRIMARY EYE IRRITATION: | (rabbit) | moderate |

7775-09-9 Chloric acid, sodium salt

| | | |
|-------------------------------|----------|------------|
| ACUTE ORAL LD ₅₀ : | (rat) | 1200 mg/kg |
| PRIMARY SKIN IRRITATION: | (rabbit) | mild |
| PRIMARY EYE IRRITATION: | (rabbit) | mild |

12. ECOLOGICAL INFORMATION

AQUATIC ECOTOX DATA

| | | |
|-------|--|----------|
| Fish: | LC ₅₀ (24 hr.) (Goldfish) | 160 mg/L |
| | LC ₅₀ (48 hr.) (Bluegill sunfish) | 99 mg/L |
| | LC ₅₀ (96 hr.) (Mosquito fish) | 125 mg/L |
| | LC ₁₀₀ (24 hr.) (Carp) | 180 mg/L |
| | NOEC (168 hr.) (Goldfish, Bass) | 50 mg/L |

Invertebrates:

| | |
|------------------------------|----------|
| Lethal (48 hr.) (Water flea) | 100 mg/L |
| Lethal (48 hr.) (Midge) | 700 mg/L |

Amphibians: No data available

Plants: No data available

TERRESTRIAL ECOTOX DATA

Wildlife:

| | |
|---|-----------|
| LD ₅₀ (interperitoneal) (Mouse as surrogate) | 40 mg/Kg |
| LDLo (Oral) (Rabbit as surrogate) | 500 mg/Kg |

Plants: No data available





Sodium Hydroxide

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE DATA

BOD: NaOH has no biological oxygen demand
Abiotic: No data available

There is limited information available on the environmental fate and effects of sodium hydroxide (NaOH). Laboratory toxicity data indicate that NaOH is moderately toxic to aquatic and terrestrial organisms. The primary mode of action is due the corrosive nature of this chemical and its tendency to increase pH in poorly buffered environments: Aquatic organisms become increasingly stressed as pH exceeds 9, with many aquatic species being intolerant of pH levels in excess of 10. Increased pH due to the introduction of NaOH into aquatic environments may lead to the precipitation of essential micronutrients. Exposed terrestrial species would be subject to skin irritation and burns due to the corrosive nature of this material. Due caution should be exercised to prevent the accidental release of this material to aquatic or terrestrial environments.

13. DISPOSAL CONSIDERATIONS

Recovery and reuse, rather than disposal, should be the ultimate goal of handling efforts.

Dispose of all waste and contaminated equipment in accordance with all applicable federal, state and local health and environmental regulations.

Ensure that all responsible federal, state, and local agencies receive proper notification of spill and disposal methods.

Shipments of waste materials may be subject to manifesting requirements per applicable regulations. Appropriate disposal will depend on the nature of each waste material and should be done by a competent and properly permitted contractor.

The materials resulting from clean-up operations may be hazardous wastes and, therefore, subject to specific regulations. Package, store, transport and dispose of all (clean-up) materials and any contaminated equipment in accordance with all applicable federal, state, and local regulations.





Kuehne COMPANY

86 North Hackensack Avenue, South Kearny, New Jersey 07032-4675

Phone: (973) 589-0700

Fax: (973) 589-4866

Sodium Hydroxide

14. TRANSPORT INFORMATION

DOT PROPER SHIPPING NAME: Sodium Hydroxide, Solution
 DOT HAZARD CLASS: 8
 DOT IDENTIFICATION NO: UN1824
 DOT PACKING GROUP: II
 DOT HAZARDOUS SUBSTANCE: RQ 1,000 Lb. (Sodium Hydroxide)
 DOT MARINE POLLUTANT(S): Not Applicable
 ADDITIONAL DESCRIPTION
 REQUIREMENT: Not Applicable

15. REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS:

OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, material safety data sheets, training and access to written records.

To aid our customers in complying with regulatory requirements, SARA Title III Hazard Categories for this product are indicated below. If the word "YES" appears next to any category, this product may be reportable by you under the requirements of 40.CFR.370. Please consult those regulations for details.

TSCA:

All components of this product that are required to be on the TSCA inventory are listed on the inventory.

SARA/TITLE III HAZARD CATEGORIES:

| | |
|-------------------------------|----------------------|
| Immediate (Acute) Health: YES | Reactive Hazard: YES |
| Delayed (Chronic) Health: NO | Sudden Release |
| Fire Hazard: NO | of Pressure: NO |

HMIS HAZARD RATINGS:

HEALTH HAZARD- 3 FIRE HAZARD-0 REACTIVITY- 2

NFPA HAZARD RATINGS

HEALTH HAZARD-3 FIRE HAZARD-0 REACTIVITY-1





Kuehne COMPANY

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Phone: (973) 589-0700

Fax: (973) 589-4866

Sodium Hydroxide

16. OTHER INFORMATION

For additional non-emergency health, safety or environmental information, telephone: (973) 589 - 0700 or write to:

KUEHNE CHEMICAL COMPANY, INC.
86 Hackensack Avenue
South Kearny, New Jersey 07032

MSDS LEGEND:

| | |
|---------|---|
| ACGIH | American Conference of Governmental Industrial Hygienists |
| CAS | Chemical Abstracts Service Registry Number |
| CEILING | Ceiling Limit (15 Minutes) |
| OSHA | Occupational Safety and Health Administration |
| PEL | Permissible Exposure Limit (OSHA) |
| STEL | Short Term Exposure Limit (15 Minutes) |
| TLV | Threshold Limit Value (ACGIH) |
| TWA | Time Weighted Average (8 Hours) |

IMPORTANT: The information presented herein, while not guaranteed, was prepared by competent technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE, OR OF ANY OTHER KIND, EXPRESS OR IMPLIED, IS MADE REGARDING PERFORMANCE, STABILITY OR OTHERWISE. This information is not intended to be all-inclusive as to the manner and conditions of handling and storage. Other factors may involve other or use additional safety or performance considerations. While our technical personnel will be happy to respond to questions regarding safe handling and use procedures, safe handling and use remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as a recommendation to infringe any existing patents or violate any federal, state or local laws, rules, regulations or ordinances.

This Material Safety Data Sheet (MSDS) covers the following materials:

Caustic Soda - Liquid: All grades

NSF CERTIFICATION: This product has been classified as an approved drinking water treatment chemical under ANSI/NSF Standard 60 by Underwriter's Laboratories (reference number: MH17612)





Kuehne COMPANY

86 North Hackensack Avenue, South Kearny, New Jersey 07032-4675

Phone: (973) 589-0700

Fax: (973) 589-4866

Sodium Hydroxide

17. WARNING LABEL INFORMATION

SIGNAL WORD:
DANGER

HAZARD WARNINGS:

MAY CAUSE BURNS TO THE EYES, SKIN, AND MUCOUS MEMBRANES.

MAY CAUSE PERMANENT EYE DAMAGE.

INHALATION OF DUST, MIST, OR SPRAY CAN CAUSE SEVERE LUNG DAMAGE.

CAN REACT VIOLENTLY WITH WATER, ACIDS AND OTHER SUBSTANCES.

PRECAUTIONS:

Avoid contact with eyes, skin and clothing.

Avoid breathing dust, vapors or mist.

Do not swallow.

Use with adequate ventilation and wear respiratory protection when exposure to dust, mist, or spray is possible.

Wear safety glasses with side shields or chemical splash goggles, protective clothing and chemical resistant gloves.

Wash thoroughly after handling; exposure can cause burns that are not immediately painful or visible.

Keep container tightly closed and properly labeled.

Product can react violently with water, acids and other substances. See Handling and Storage (Section 7) of the MSDS for instructions before using.

Avoid contact with aluminum, tin, zinc, and alloys containing these metals. Avoid contact with leather, wool, acids, organic halogen compounds and organic nitro compounds.

Hazardous carbon monoxide gas can form upon contact with food and beverage products in enclosed spaces and can cause death. Follow appropriate tank entry procedures (ANSI 2117.1)

FIRST AID

Eyes:

IMMEDIATELY FLUSH EYES WITH A DIRECTED STREAM OF WATER for at least 15minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissue. Washing eyes within several seconds is essential to achieve maximum effectiveness. GET MEDICAL ATTENTION IMMEDIATELY.

Skin:

Flush thoroughly with cool water under shower while removing contaminated clothing and shoes. Discard non-rubber shoes. Wash clothing before reuse. GET MEDICAL ATTENTION AS SOON AS POSSIBLE.

Kuehne COMPANY
Sodium Hydroxide
Revision A - 06 March 2007



Sodium Hydroxide

17. WARNING LABEL INFORMATION

(Continued)

Inhalation:

Remove to fresh air. If breathing is difficult, have trained person administer oxygen. If respiration stops, give mouth-to-mouth resuscitation. GET MEDICAL ATTENTION IMMEDIATELY.

Ingestion:

NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. (If available, give several glasses of milk.) If vomiting occurs spontaneously, keep airway clear and give more water. GET MEDICAL ATTENTION IMMEDIATELY.

IN CASE OF SPILL OR LEAK:

Leaks should be stopped.

CAUTION: This product may react strongly with acids and water.

Scoop or sweep up all spilled product and other contaminated material and place in marked disposal containers. Neutralize residue with dilute acid and flush spill area with water followed by a liberal covering of sodium carbonate.

Dispose of wash water and spill by-products according to federal, state and local regulations.

Spills of 1000 pounds or more must be reported to the National Response Center, 1-800-424-8802.

State and local regulations may have additional reporting requirements, check with the proper state and local authorities.

Wear neoprene or rubber gloves.

FIRE:

Material does not burn.

Use extinguishing medium as appropriate for surrounding fire.

HANDLING AND STORAGE:

Considerable heat is generated when product is mixed with water. Therefore, when making solutions always carefully follow these steps:

Always wear protective clothing. Never add water to product. Always add product, with constant stirring, slowly to surface of lukewarm (80-100 °F) water, to assure product is being completely dissolved as it is added.

Product can react explosively with acids, aldehydes, and many other organic chemicals, add product very gradually, while stirring constantly. If product is added too rapidly, or without stirring, and becomes concentrated at bottom of mixing vessel, excessive heat may be generated, resulting in dangerous boiling and spattering, and a possible immediate and violent eruption of highly caustic solution.



Kuehne COMPANY

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Phone: (973) 589-0700

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Sodium Hydroxide

17. WARNING LABEL INFORMATION

(Continued)

Always empty and clean containers of all residues before adding product, to avoid possible explosive reaction between product and unknown residue.

Returnable containers should be shipped in accordance with supplier's recommendations. Return shipments should comply with all federal, state, and DOT regulations. All residue should be removed from containers prior to disposal.

Containers that have been emptied, will retain product residue and vapor and should be handled as if they were full.

DISPOSAL:

A spill or release of this material may trigger the emergency release reporting requirements under SARA, Title III (40 CFR, Part 355) and/or CERCLA (40 CFR, Part 300). State or local reporting requirements may differ from federal requirements. Consult counsel for further guidance on your responsibilities under these laws.

Material that cannot be reused or chemically reprocessed should be disposed of in a manner meeting government regulations.

Always package, store, transport and dispose of all waste and contaminated equipment in accordance with all applicable federal, state and local health and environmental regulations.



Safety Data Sheet

GHS-Compliant

May be used to comply with
OSHA's Hazard Communication Standard
29 CFR 1910.1200. Standard must be
consulted for specific requirements.



REAGENT CHEMICAL & RESEARCH, INC.
115 US Hwy 202 Ringoes, NJ 08551

PRODUCT IDENTITY

Hydrochloric Acid, 20° or 22° Baume

Safety Data Sheet Revision Date - January 7, 2014

Section 1 - Identification

| | |
|-----------------------------------|----------------------------------|
| Product Name | CAS # |
| Hydrochloric Acid | 7647-01-0 |
| Synonym | Chemical Formula |
| Muriatic Acid | HCl |
| Chemical Name | Chemical Family |
| Hydrochloric Acid Solution | Inorganic Acid |
| Product Use | |
| Acidification, pH Adjustment | |
| Manufacturer/Supplier Name | Address |
| Reagent Chemical & Research, Inc. | 115 US Hwy 202 Ringoes, NJ 08551 |
| General Information | Country |
| 1-908-284-2800 | United States |
| Emergency Telephone | Transportation Emergency Number |
| 1-409-899-3400 | CHEMTREC 1-800-424-9300 |

Section 2 - Hazards Identification

GHS Classification:

| HEALTH | PHYSICAL |
|--|---|
| Acute Toxicity, Oral - Hazard Category 1 | Corrosive to Metals - Hazard Category 1 |
| Serious Eye Damage - Hazard Category 1 | |
| Skin Corrosion - Hazard Category 1 | |
| Sensitisation, Respiratory - Hazard Category 1 | |
| Acute Toxicity, Inhalation - Hazard Category 1 | |

GHS Label Elements:

SYMBOLS: corrosion, health hazard, aspiration toxicity



Signal Word: DANGER

Section 2 - Hazards Identification (continued)

GHS Label:

| Hazard Statements | Precautionary Statements |
|---|--|
| Causes severe skin burns & eye damage | Do not breathe mist/vapors |
| Fatal if swallowed (oral) | Avoid skin contact |
| Fatal if inhaled (mist, vapor) | Keep container tightly closed |
| May cause allergic or asthmatic symptoms or breathing difficulties if inhaled | Wear respiratory protection, protective gloves and eye/face protection |
| May be fatal if swallowed & enters airway | Use only in a well-ventilated area |
| Causes serious eye damage | Store container tightly closed in cool/well ventilated area |
| May be corrosive to metals | Wash thoroughly after handling |

Section 3 - Composition / Information on Ingredients

| Component Description | Percent | CAS # |
|------------------------------|----------------|--------------|
| Hydrogen Chloride | 26.00 - 37.00 | 7647-01-0 |
| Water | 63.00 - 74.00 | 7732-18-5 |

EXPOSURE LIMITS/REGULATORY INFORMATION

| Substance | PEL | TLV | STEL | TWA | CEILING |
|-------------------|-----------------------|------------|-------------|------------|----------------|
| Hydrogen Chloride | C-7 mg/m ³ | C-2 ppm | 50 ppm | N/D | 5 ppm |
| Water | N/D | N/D | N/D | N/D | N/D |

N/D - Not Determined C = Ceiling Level

Section 4 - First Aid Measures

General

If a known exposure occurs or is suspected, immediately initiate the recommended procedures below. Simultaneously contact a physician, or the nearest Poison Control Center. Inform the person contacted of the type and extent of exposure, describe the victim's symptoms and follow the advice given. For additional information, call day or night, Reagent Chemical (409) 899-3400 or Chemtrec (800) 424-9300.

Inhalation

Remove from contaminated atmosphere. If breathing has ceased, clear the victim's airway and start mouth-to-mouth artificial respiration, which may be supplemented by the use of a bag-mask respirator, or a manually-triggered, oxygen supply capable of delivering 1 liter/second or more. If the victim is breathing, oxygen may be administered from a demand-type or continuous-flow inhalator, preferably with a physician's advice. Contact a physician immediately.

Section 4 - First Aid Measures (continued)

Eye Contact

Immediately flush the eyes with large quantities of running water for 15 minutes.

Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eyes and lids with water. DO NOT attempt to neutralize with chemical agents.

Obtain medical attention as soon as possible. Oils or ointments should not be used.

Continue the flushing for an additional 15 minutes if the physician is not available.

Skin Contact

Immediately remove contaminated clothing under a safety shower. Flush all

affected areas with large amounts of water for 15 minutes. DO NOT attempt to

neutralize with chemical agents. Obtain medical advice.

Ingestion

DO NOT induce vomiting. Immediately give large quantities of water or milk, if

available. If vomiting does occur, give fluids again. Never give anything by mouth

to an unconscious person. Call a physician or the nearest Poison Control Center.

Medical Conditions Generally Aggravated by Exposure

Hydrogen Chloride will aggravate breathing disorders

Note to Physician

Attending Physician should treat exposed patients symptomatically

Section 5 - Fire Fighting Measures

Extinguishing Method

Not Applicable, use water to dilute spills and to flush them away from ignition sources.

Unusual Fire and Explosion Hazards

Non-flammable, but Hydrochloric Acid reacts with metals.

Special Firefighting Procedures

Non-flammable, but Hydrochloric Acid reacts with all metals, except gold and

platinum, with rapid evolution of Hydrogen which is flammable and explosive in air.

Firefighters exposed to Hydrochloric Acid vapors should wear Scott Air-Pak, or

equivalent. Hydrogen Chloride vapors are extremely irritating to the respiratory

tract and may cause breathing difficulty.

Section 6 - Accidental Release Measures

Steps to be Taken in Case Material is Released or Spilled

Spills or discharges into the environment involving large quantities of Hydrochloric

Acid should be controlled and cleaned-up according to a pre-determined, affirmative

written Spill Prevention and Control Program. For assistance in developing a SPCP

contact your nearest Reagent Sales Office. Refer to Section 15 for spill/release

reporting information.

Spills should be handled immediately by neutralization and dilution of the spilled

product by the use of Soda Ash (Sodium Carbonate), Lime (Calcium Hydroxide), or

Limestone (Calcium Carbonate) with large amounts of water. For an interior (inside

a closed space) spill be aware that the use of Soda Ash, Lime and Limestone will

evolve heat and carbon dioxide and that ample ventilation must be provided.

Section 6 - Accidental Release Measures (continued)

Waste Disposal

Under Federal RCRA, it is the responsibility of the user of products to determine, at the time of disposal, whether the product falls under RCRA as a hazardous waste. This is because product uses, transformations, mixtures, etc. may render the resulting end-product hazardous.

Container Disposal

Containers should be cleaned of residual product before disposal. Empty containers should be disposed of in accordance with all applicable laws and regulations.

Section 7 - Handling and Storage

Handling

Chemical goggles and full face shield must be worn at all times by personnel exposed to or handling Hydrochloric Acid. The use of a NIOSH approved cartridge respirator or a Scott Air-Pak should be used by all personnel exposed.

Storage

Store containers in a cool, dry location away from direct sunlight, sources of intense heat, or where freezing may occur. Store material in acid-proof container. Keep container tightly closed when not in use. Keep container away from incompatible materials. All loading, unloading, and storage equipment must be inspected prior to any transfer operations are initiated.

General Comments

Impervious clothing, gloves, footwear and head gear must be worn at all times by personnel exposed to or handling Hydrochloric Acid.

Precautions to be Taken in Handling and Storage

Make sure all personnel involved in housekeeping and spill clean-up follow good Industrial Hygiene practices and wear proper protective equipment.

Section 8 - Exposure Controls / Personal Protection

EXPOSURE LIMITS

| Substance | PEL | TLV | STEL | TWA | CEILING |
|-------------------|-----------|---------|--------|-----|---------|
| Hydrogen Chloride | C-7 mg/m3 | C-5 ppm | 50 ppm | N/D | 5 ppm |
| Water | N/D | N/D | N/D | N/D | N/D |

N/D - No Data Available C = Ceiling Level

Respiratory Protection

Maintain airborne contaminate levels below listed guidelines. Use with adequate ventilation. Use a mechanical fan or vent area to scrubber. Use NIOSH approved respiratory protection if exposure limits are exceeded.

| | | |
|-------------|---|---|
| Ventilation | Local Exhaust If PEL exceeded | Special Vent fumes to appropriate scrubber |
| | Mechanical (General) If PEL exceeded | Other Not Applicable |

Skin Protection

Wear neoprene rubber gloves to minimize skin contact. Additional protection may be necessary to prevent skin contact including use of apron, face shield, boots or full body protection. A safety shower should be located in the work area.

Eye Protection

Splash goggles or safety glasses. Face shields are recommended. Eye-wash stations should be available where eye contact can occur.

Section 8 - Exposure Controls / Personal Protection (continued)

Other Protection

Use body protection appropriate for task. An apron or other impermeable body protection is suggested. Full body chemical protection is recommended for emergency response procedures.

Section 9 - Physical and Chemical Properties

| | | | |
|-------------------------|------------|----------------------------|-----------------|
| Boiling Point | 230 F | Specific Gravity (H2O = 1) | 1.13 - 1.19 |
| Vapor Pressure (mm Hg) | 50 - 60 mm | Freezing Point | .-12 F to -63 F |
| Vapor Density (AIR = 1) | N.A. | Density | 9.48 - 9.61 |

Solubility in Water
miscible

Appearance and Odor

Clear/Slightly yellow with a sharp pungent odor

Section 10 - Stability and Reactivity

| | | | |
|-----------|----------|---|---|
| Stability | Unstable | X | Conditions to Avoid Hydrochloric Acid is extremely reactive. Avoid contact with metal surfaces and oxidizing agents. |
| | Stable | | |

Incompatibility (Materials to Avoid)

Hydrochloric Acid is chemically stable when properly contained and handled. It is a strong mineral acid and reacts with many metals and metal oxides and hydroxides to form the equivalent metal chloride. It reacts with zeolites and other silicious compounds to form Hydrosilicic Acid; it reacts with carbonates to form Carbon Dioxide and Water. It is oxidized by Oxygen or electrolysis to form Chlorine, a lethal, poisonous gas. It reacts with alkaline compounds to form a neutral salt. It is a hydrolyzing agent for carbohydrates, esters and other compounds. It's reaction with most metals will produce Hydrogen, an explosive gas. Violent reactions will result when Hydrochloric Acid Reacts with acetic anhydride, 2-aminoethanol, ammonium hydroxide, calcium phosphide, chlorosulfonic acid, ethylene diamine, ethylene imine, oleum (fuming sulfuric acid), perchloric acid, beta propiolactone, propylene oxide, sodium hydroxide, sulfuric acid, uranium phosphide and vinyl acetate. This listing is not all-inclusive.

Hazardous Decomposition or By-products

Extreme heat may cause the product to decompose, producing toxic fumes which may include chlorine compounds.

| | | | |
|--------------------------|----------------|---|---|
| Hazardous Polymerization | May Occur | X | Conditions to Avoid Extreme heat and contact with incompatible materials |
| | Will Not Occur | | |

Section 11 - Toxicological Information

| Route(s) of Entry: | Inhalation? | Skin? | Ingestion? |
|--|--|---------------------------------------|--------------------------------------|
| | Yes | Yes | Yes |
| Health Hazards (Acute and Chronic) Hydrogen Chloride, both as a gas and in a solution as Hydrochloric Acid, is a corrosive substance and can cause severe and painful burns on contact with any part of the body or if taken internally. The mucous membranes of the eyes and the upper respiratory tract are especially susceptible to the irritating effects of high atmospheric concentrations of Hydrogen Chloride. The gas or vapor is so penetrating and pungent that when high concentrations do occur, those exposed should immediately leave the contaminated area. | | | |
| Carcinogenicity: | NTP? No Data Available | IARC Monographs? No Data Available | OSHA Regulated? No Data Available |
| Signs and Symptoms of Exposure Exposure to Hydrochloric acid may cause severe burns at the contact points | | | |
| Medical Conditions Generally Aggravated by Exposure Exposure to fumes may aggravate dermatitis and breathing disorders. | | | |
| Toxicology | Inhalation Data | | |
| Hydrogen Chloride | Human LCLo - 1300 ppm/30 min | | |
| | Rat LC ₅₀ - 4701 ppm/30 min | | |
| | Oral (rabbit) LD ₅₀ - 900 mg/kg | | |
| | Mutagenic Effects | | |
| | Inhalation: 100 ppm/24 hrs (Chromosome damage) | | |
| | Oral: 100 ppm (Chromosome damage) | | |
| | Parental: 20 mg (Cytogenic effects) | | |

Section 12 - Ecological Information

| |
|---|
| Ecological Toxicity |
| Animals exposed to hydrochloric acid solution will experience tissue damage, burns and may be killed. Plants contaminated with hydrochloric acid solutions of low pH may be adversely effected or destroyed. High concentrations have been shown to be detrimental to aquatic life. A release into a body of water will kill fish and other aquatic life. |
| Other Ecological Information |
| Hydrochloric acid is stable and found naturally in the environment. All work practices should be aimed at eliminating environmental contamination. |
| Chemical Fate Information |
| Hydrochloric acid is naturally occurring in the environment. |
| Other Regulatory Information |
| No other regulatory information is available on this product. |

Section 13 - Disposal Considerations

| |
|--|
| As sold, this product, when discarded or disposed of, is a hazardous waste according to Federal regulations (40 CFR 261). It is listed as Hazardous Waste Number D002, listed due to its corrosivity. The transportation, treatment and disposal of this waste material must be conducted in compliance with 40 CFR 262, 263, 264, 268 and 270. Disposal can occur only in properly permitted facilities. Refer to state and local statutes for any additional requirements, as they may differ from Federal laws. |
|--|

Section 13 - Disposal Considerations (continued)**Waste Disposal**

Under Federal RCRA, it is the responsibility of the user of products to determine, at the time of disposal, whether the product falls under RCRA as a hazardous waste.

This is because product uses, transformations, mixtures, etc. may render the resulting end-product hazardous.

Container Disposal

Containers should be cleaned of residual product before disposal. Empty containers should be disposed of in accordance with all applicable laws and regulations.

Section 14 - Transport Information**Regulated Material**

Hydrochloric Acid is defined as hazardous by the US DOT and Transport Canada

North American Emergency Response Guide Book

ID # 1789 Guide #157 2008 & 2012 Revision

DOMESTIC SHIPPING INFORMATION

| | | | |
|----------------------|-------------------|-----------------------|-----------|
| Proper Shipping Name | Hydrochloric Acid | Hazard Classification | Corrosive |
| UN/NA Identification | UN 1789 | Hazard Class | Class 8 |
| DOT Labels Required | Corrosive | Packaging Group | II |

INTERNATIONAL SHIPPING INFORMATION

| | | | |
|----------------------|-------------------|-----------------------|-----------|
| Proper Shipping Name | Hydrochloric Acid | Hazard Classification | Corrosive |
| UN/NA Identification | UN 1789 | Hazard Class | Class 8 |
| Labels Required | Corrosive | Packaging Group | II |

Section 15 - Regulatory Information**U.S. Federal Regulations****Comprehensive Environmental Response and Liability Act of 1980 (CERCLA):**

Chemical Name: Hydrochloric Acid CAS # 7647-01-0 RQ - 5000 lbs

Toxic Substances Control Act (TSCA):

All components of this product are included on the TSCA inventory

OSHA Hazard Communication Standard Classification:

Corrosive as defined by the OSHA Hazard Communication Standard.

Clean Water Act (CWA):

Chemical Name: Hydrochloric Acid CAS # 7647-01-0 Listed as Hazardous

No chemical components listed as Priority pollutants or Toxic pollutants

Clean Air Act (CAA):

Hydrochloric acid, CAS 7647-01-0, is listed as a hazardous air pollutant (HAP)

US Environmental Protection Agency Risk Management Plan (RMP) Regulated:

No, Hydrochloric acid solution under 37% is not regulated

Superfund Amendments and Reauthorization Act (SARA) Title III Information:

SARA Section 302: Hydrochloric Acid CAS # 7647-01-0 TPQ 5000 lb EPCRA RQ

SARA Section 313: Hydrochloric Acid CAS # 7647-01-0

Section 15 - Regulatory Information (continued)

National Sanitation Foundation Limits (ANSI/NSF Standard 60):

Maximum Drinking Water Use Concentration - 40 mg/l

Scale and Corrosion Control at Maximum 40 mg/l

State Regulations**California Safe Drinking Water Act (Prop 65) Listing:**

No ingredients listed in this section

California Right to Know Act:

Chemical Name: Hydrochloric Acid CAS # 7647-01-0

New Jersey Right to Know Act:

Chemical Name: Hydrochloric Acid CAS # 7647-01-0

Chemical Name: Water CAS # 7732-18-5

Massachusetts Right to Know Act Substance List (MSL)::

Chemical Name: Hydrochloric Acid CAS # 7647-01-0

Pennsylvania Right to Know Act Hazardous Substance List:

Chemical Name: Water CAS # 7732-18-5

Chemical Name: Hydrochloric Acid CAS # 7647-01-0

International Regulations**Canadian Domestic Substance List (DSL) Inventory Listing:**

Chemical Name: Hydrochloric Acid CAS # 7647-01-0

Canadian Ingredient Disclosure List

Chemical Name: Hydrochloric Acid CAS # 7647-01-0

Canadian Workplace Hazardous Materials Information System (WHMIS):

Class E: Corrosive material

This product has been classified according to the hazard criteria of the CPR
and the MSDS contains all of the information required by the CPR

European Inventory of Existing Chemicals (EINECS):

Chemical Name: Hydrochloric Acid EINECS # 2315957

EU Labeling in Accordance with EC Directives:

Hazard Symbols: C

EU Risk (R) and Safety (S) Phrases:

R23/24/25: Toxic by inhalation, in contact with skin and if swallowed

R37/38: Irritating to respiratory system and skin

R41: Risk of serious damage to eyes

S36/37: Wear suitable protective clothing and gloves

S45: In case of accident or if you feel unwell, seek medical advice immediately

S53: Avoid exposure - obtain special instructions before use

S61: Avoid release to the environment. Refer to safety data sheet

Section 15 - Regulatory Information (continued)

Japanese Minister of International Trade and Industry (MITI) Inventory Listing:

Chemical Name: Hydrochloric Acid SECTION STRUCTURE # 1-324

Australian Inventory of Chemical Substances (AICS) Listing:

Chemical Name: Hydrochloric Acid CAS # 7647-01-0

US Census Bureau - Foreign Trade Identification

Chemical Name: Hydrochloric Acid HTS & Schedule B # 2806.10.0000

Section 16 - Other Information

| | |
|---|----------------------------|
| Created By | MSDS Revision Date |
| Product Safety - 6/1/98 | January 7, 2014 |
| MSDS Revision Number | Revision Indicator |
| Revision # 009 | Hazard Statement Alignment |
| MSDS Contact | |
| Robert Dritschel 908-284-2800 | |
| Does Product Contain, or is Manufactured with, CFC's? | |
| No | |
| National Fire Protection Association (NFPA) Ratings: | |
| Health - 3 Flammability - 0 Instability - 0 Other Hazard Information - ACID | |
| Hazardous Material Identification System (HMIS): | |
| Health - 3 Flammability - 0 Physical Hazard - 0 Protective Equipment - X | |
| North American Emergency Response Guide Book | |
| ID # 1789 Guide #157 2008 & 2012 Revision | |

Disclaimer of Liability

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MATERIAL SAFETY DATA SHEET

| | |
|----------------|------------|
| PAGE: | 1 of 5 |
| REVISION DATE: | 01/30/2008 |
| PRINT DATE: | 06/05/2008 |

1. IDENTIFICATION OF THE PRODUCT AND THE COMPANY

CLARIFLOC SE-1045 POLYMER

Supplier :

POLYDYNE INC.

PO Box 279

Riceboro, Georgia 31323

Tel : 800-848-7659 Fax : 912-884-8770

2. COMPOSITION/INFORMATION ON INGREDIENTS

Identification of the preparation :

Cationic water-soluble polymer in emulsion.

3. HAZARDS IDENTIFICATION

Aqueous solutions or powders that become wet render surfaces extremely slippery

4. FIRST AID MEASURES

Inhalation :

Move to fresh air.

Skin contact :

Wash off immediately with soap and plenty of water. In case of persistent skin irritation, consult a physician.

Eye contact :

Rinse thoroughly with plenty of water, also under the eyelids. In case of persistent eye irritation, consult a physician.

Ingestion :

The product is not considered toxic based on studies on laboratory animals.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media :

Water, water spray, foam, carbon dioxide (CO₂), dry powder

Special fire-fighting precautions :

Spills produce extremely slippery surfaces.

Protective equipment for firefighters :

No special protective equipment required.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions :

No special precautions required.

Environmental precautions :

Do not contaminate water.

CLARIFLOC SE-1045 POLYMER

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Methods for cleaning up : Do not flush with water. Dam up. Soak up with inert absorbent material. If liquid has been spilled in large quantities clean up promptly by scoop or vacuum. Keep in suitable and closed containers for disposal. After cleaning flush away traces with water.

7. HANDLING AND STORAGE

Handling : Avoid contact with skin and eyes. When preparing the working solution ensure there is adequate ventilation. When using do not smoke.

Storage : Keep in a dry, cool place (0 - 30°C). Keep away from heat and sources of ignition. Freezing will affect the physical condition and may damage the material.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls : Use local exhaust if misting occurs. Natural ventilation is adequate in absence of mists.

Personal protection equipment

- **Respiratory protection :** In case of insufficient ventilation wear suitable respiratory equipment.
- **Hand protection :** Rubber gloves.
- **Eye protection :** Safety glasses with side-shields. Do not wear contact lenses.
- **Skin protection :** Chemical resistant apron or protective suit if splashing or contact with solution is likely.

Hygiene measures : Wash hands before breaks and at the end of workday. Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form : viscous liquid

Color : milky

Odor : aliphatic

pH : 4 - 9 @ 5 g/l for product series. See Technical Bulletin for specific value.

Flash point (°C) : Does not flash

Autoignition temperature (°C) : Does not ignite

Vapour pressure (mm Hg) : 0.13 @ 20°C

Bulk density : See Technical Bulletin

Water solubility : See Technical Bulletin

CLARIFLOC SE-1045 POLYMER

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Viscosity (mPa s) : See Technical Bulletin

10. STABILITY AND REACTIVITY

Stability : Product is stable. No hazardous polymerization will occur..
Oxidizing agents may cause exothermic reactions.

Hazardous decomposition products : Thermal decomposition may produce : hydrogen chloride gas, nitrogen oxides (NO_x), carbon oxides (CO_x).

11. TOXICOLOGICAL INFORMATION

Acute toxicity

- **Oral :** LD50/oral/rat > 5000 mg/kg
- **Dermal :** The results of testing on rabbits showed this material to be non-toxic even at high dose levels.
- **Inhalation :** The product is not expected to be toxic by inhalation.

Irritation

- **Skin :** May cause skin irritation with suseptible persons.
- **Eyes :** May cause eye irritation with susceptible persons

Sensitization : The results of testing on guinea pigs showed this material to be non-sensitizing.

Chronic toxicity : A two-year feeding study on rats did not reveal adverse health effects. A one-year feeding study on dogs did not reveal adverse health effects. Prolonged skin contact may defat the skin and produce dermatitis.

12. ECOLOGICAL INFORMATION

Ecotoxicity:

The product is rapidly eliminated from the aquatic medium through irreversible adsorption onto suspended matter and dissolved organics.

- **Fish** LC50/Danio rerio/96 hr > 10 - 100 mg/L (OECD 203)(Based on the toxicity of the components using the Conventional Method.)
- **Algae :** Algal inhibition tests are not appropriate. The flocculating characteristics of the product interfere directly in the test medium preventing homogenous distribution which invalidates the test.

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- *Daphnia* : EC50/Daphnia magna/48 hr > 50 mg/L (OECD 202)(Based on the toxicity of the components using the Conventional Method.)

Environmental fate:

The aquatic toxicity is highly mitigated by the presence of dissolved organic carbon in the water. Results obtained using the US EPA "Dirty Water" test show that irreversible adsorption onto suspended matter and dissolved organics (such as humic and other organic acids) present in natural waters, reduces the toxicity to aquatic organisms by a factor of over 10

Bioaccumulation : Does not bioaccumulate.

Persistence / degradability : Not readily biodegradable

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products : In accordance with federal, state and local regulations.

Contaminated packaging : Rinse empty containers with water and use the rinse water to prepare the working solution. Can be landfilled or incinerated, when in compliance with local regulations.

14. TRANSPORT INFORMATION

Not regulated by DOT, IATA, IMDG.

15. REGULATORY INFORMATION

All components of this product are on the TSCA and DSL inventories.

RCRA status : Not a hazardous waste.

Hazardous waste number : Not applicable

Reportable quantity (40 CFR 302) : Not applicable

Threshold planning quantity (40 CFR 355) Not applicable

California Proposition 65 information : *The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986: This product contains a chemical(s) known to the State of California to cause cancer : residual Acrylamide*

CLARIFLOC SE-1045 POLYMER

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| HMIS & NFPA Ratings | HMIS | NFPA |
|-------------------------------|------|------|
| Health : | 1 | 1 |
| Flammability : | 1 | 1 |
| Reactivity : | 0 | 0 |
| Personal Protection/Special : | B | |

16. OTHER INFORMATION

Person to contact : Regulatory Affairs Manager

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release, and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process unless specified in the text.

MATERIAL SAFETY DATA SHEET

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| PAGE: | 1 of 5 |
| REVISION DATE: | 07/30/2002 |
| PRINT DATE: | 11/18/2005 |

1. IDENTIFICATION OF THE PRODUCT AND THE COMPANY

CLARIFLOC SE-852 POLYMER

Supplier :

POLYDYNE INC.

PO Box 279

Riceboro, Georgia 31323

Tel : 800-848-7659 Fax : 912-884-8770

2. COMPOSITION/INFORMATION ON INGREDIENTS

Identification of the preparation :

Cationic water-soluble polymer.

The product is not considered hazardous in accordance with OSHA Federal Regulation 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION

Aqueous solutions or powders that become wet render surfaces extremely slippery.

4. FIRST AID MEASURES

Inhalation : Move to fresh air.

Skin contact : Wash with water and soap as a precaution. In case of persistent skin irritation, consult a physician.

Eye contact : Rinse thoroughly with plenty of water, also under the eyelids. In case of persistent eye irritation, consult a physician.

Ingestion : The product is not considered toxic based on studies on laboratory animals.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Water, water spray, foam, carbon dioxide (CO₂), dry powder

Special fire-fighting precautions : Aqueous solutions or powders that become wet render surfaces extremely slippery.

Protective equipment for firefighters : No special protective equipment required.

CLARIFLOC SE-852 POLYMER

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| REVISION DATE: | 07/30/2002 |
| PRINT DATE: | 11/18/2005 |

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions :** No special precautions required.
- Environmental precautions :** Do not contaminate water.
- Methods for cleaning up :** Do not flush with water. Clean up promptly by scoop or vacuum. Keep in suitable and closed containers for disposal. After cleaning, flush away traces with water.

7. HANDLING AND STORAGE

- Handling :** Avoid contact with skin and eyes. Avoid dust formation. Do not breathe dust. Wash hands before breaks and at the end of workday.
- Storage :** Keep in a dry, cool place (0 - 35°C).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls : Use local exhaust if dusting occurs. Natural ventilation is adequate in absence of dusts.

Personal protection equipment

- **Respiratory protection :** Dust safety masks are recommended where concentration of total dust is more than 10 mg/m³.
 - **Hand protection :** Rubber gloves.
 - **Eye protection :** Safety glasses with side-shields. Do not wear contact lenses.
 - **Skin protection :** Chemical resistant apron or protective suit if splashing or contact with solution is likely.
- Hygiene measures :** Wash hands before breaks and at the end of workday. Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Form :** granular solid
- Color :** white
- Odor :** none
- pH :** 2.5 - 4.5 @ 5g/l for product series. See Technical Bulletin for specific value.
- Melting point (°C) :** Not applicable.
- Flash point (°C) :** Not applicable.

CLARIFLOC SE-852 POLYMER

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| | |
|--|------------------------|
| Autoignition temperature (°C) : | Not applicable. |
| Vapour pressure (mm Hg) : | Not applicable. |
| Bulk density : | See Technical Bulletin |
| Water solubility : | See Technical Bulletin |
| Viscosity (mPa s) : | See Technical Bulletin |

10. STABILITY AND REACTIVITY

| | |
|---|--|
| Stability : | Product is stable, No hazardous polymerization will occur.. Oxidizing agents may cause exothermic reactions. |
| Hazardous decomposition products : | Thermal decomposition may produce : hydrogen chloride gas, nitrogen oxides (NO _x), carbon oxides (CO _x). |

11. TOXICOLOGICAL INFORMATION

Acute toxicity

- **Oral :** LD50/oral/rat > 5000 mg/kg
- **Dermal :** The results of testing on rabbits showed this material to be non-toxic even at high dose levels.
- **Inhalation :** The product is not expected to be toxic by inhalation.

Irritation

- **Skin :** The results of testing on rabbits showed this material to be non-irritating to the skin.
- **Eyes :** Testing conducted according to the Draize technique showed the material produces no corneal or iridial effects and only slight transitory conjunctival effects similar to those which all granular materials have on conjunctivae.

Sensitization : The results of testing on guinea pigs showed this material to be non-sensitizing.

Chronic toxicity : A two-year feeding study on rats did not reveal adverse health effects. A one-year feeding study on dogs did not reveal adverse health effects

12. ECOLOGICAL INFORMATION

Ecotoxicity:

The effects of this product on aquatic organisms are rapidly mitigated through hydrolysis and by the presence of dissolved organic carbon in the aquatic environment.

CLARIFLOC SE-852 POLYMER

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- **Fish** LC50/Danio rerio/96 hr = 5-10 mg/L (OECD 203)
- **Algae :** Algal inhibition tests are not appropriate. The flocculating characteristics of the product interfere directly in the test medium preventing homogenous distribution which invalidates the test.
- **Daphnia :** EC50/Daphnia magna/48 hr = 20-50 mg/L (OECD 202)
- Bioaccumulation :** Does not bioaccumulate.
- Persistence / degradability :** Not readily biodegradable.

13. DISPOSAL CONSIDERATIONS

- Waste from residues / unused products :** In accordance with federal, state and local regulations.
- Contaminated packaging :** Rinse empty containers with water and use the rinse water to prepare the working solution. Can be landfilled or incinerated, when in compliance with local regulations.

14. TRANSPORT INFORMATION

Not regulated by DOT.

15. REGULATORY INFORMATION

All components of this product are on the TSCA and DSL inventories.

- RCRA status :** Not a hazardous waste.
- Hazardous waste number :** Not applicable
- Reportable quantity (40 CFR 302) :** Not applicable
- Threshold planning quantity (40 CFR 355)** Not applicable
- California Proposition 65 information :** *The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986: This product contains a chemical(s) known to the State of California to cause cancer : residual Acrylamide*

CLARIFLOC SE-852 POLYMER

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| HMIS & NFPA Ratings | HMIS | NFPA |
|---------------------|------|------|
| Health : | 1 | 1 |
| Flammability : | 1 | 1 |
| Reactivity : | 0 | 0 |

16. OTHER INFORMATION

Person to contact : Regulatory Affairs Manager

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release, and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process unless specified in the text.

MATERIAL SAFETY DATA SHEET

Page 1 of 7
Revised 6/23/04
Replaces (None)
As of 6/23/04

SUPPRESSOR 1155

MSDS ID: FC1155

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : SUPPRESSOR 1155
MSDS ID : FC1155
CHEMICAL NAME SYNONYMS : N.A.
CAS NUMBER : MIXTURE
CHEMICAL FAMILY : Defoamer
FORMULA : Proprietary Information

DISTRIBUTED BY:
Hydrite Chemical Co.
300 N. Patrick Blvd.
Brookfield, WI 53008-0948
(262) 792-1450

EMERGENCY RESPONSE NUMBERS:
24 Hour Emergency # - (414) 277-1311
CHEMTREC Emergency # - (800) 424-9300

MANUFACTURED BY: HYDRITE CHEMICAL CO.

2. COMPOSITION/INFORMATION ON INGREDIENTS

| COMPONENT | CAS NUMBER | OSHA HAZARD | % BY WT. |
|-----------------|------------|-------------|----------|
| Suppressor 1155 | MIXTURE | NO | 100 % |

3. HAZARDS IDENTIFICATION

PHYSICAL STATE: Liquid.

EMERGENCY OVERVIEW: CAUTION!; May cause eye, skin and respiratory irritation.

POTENTIAL HEALTH EFFECTS

ROUTES OF EXPOSURE:
Eyes. Skin. Inhalation. Ingestion.

TARGET ORGANS:
No data.

EYE CONTACT:
May cause mild irritation.

SKIN CONTACT:
May cause mild irritation.
Prolonged and repeated contact with skin can cause defatting and drying of the skin which may result in skin irritation and dermatitis.

SKIN ABSORPTION:
No data available.

INHALATION:
May irritate: nose. throat. May cause: dizziness. headache.

INGESTION:

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Replaces (None)
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SUPPRESSOR 1155

MSDS ID: FC1155

3. HAZARDS IDENTIFICATION (Cont.)

May cause: gastrointestinal irritation. nausea. vomiting. diarrhea.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE TO PRODUCT:

None known.

OTHER:

None known.

CANCER INFORMATION:

This product does not contain greater than 0.1% of the known or potential carcinogens listed in NTP, IARC, or OSHA.

POTENTIAL ENVIRONMENTAL EFFECTS:

See Section 12.

4. FIRST AID MEASURES

EYE CONTACT:

Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Tilt head to avoid contaminating unaffected eye. Get immediate medical attention.

SKIN CONTACT:

Flush skin with plenty of water while removing contaminated clothing and shoes. Do not reuse clothing or shoes until cleaned. If irritation develops or persists, get medical attention.
Wash with soap and water.

INHALATION:

Remove to fresh air. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration, preferably mouth-to-mouth. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:

If swallowed, call a physician immediately. DO NOT induce vomiting unless directed to do so by a physician. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.

5. FIRE FIGHTING MEASURES

FLASH POINT: > 200 Deg. F.

FLASH POINT METHOD: Estimated.

FLAMMABILITY LIMITS: LEL: N.D.

UEL: N.D.

AUTOIGNITION TEMPERATURE: No Data

EXTINGUISHING MEDIA:

Water spray. Alcohol resistant foam. Carbon dioxide. Dry chemical. Water may be ineffective but should be used to cool fire-exposed structures and vessels.

MATERIAL SAFETY DATA SHEET

SUPPRESSOR 1155

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5. FIRE FIGHTING MEASURES (Cont.)

FIRE FIGHTING METHODS:

Evacuate area of unprotected personnel. Wear protective clothing including NIOSH-approved self-contained breathing apparatus. Remain upwind of fire to avoid hazardous vapors and decomposition products. Use water spray to cool fire-exposed containers.

FIRE AND EXPLOSION HAZARDS:

None known.

HAZARDOUS COMBUSTION PRODUCTS:

Carbon dioxide. Carbon monoxide. Unidentifiable organic materials.

6. ACCIDENTAL RELEASE MEASURES

SPILL CLEAN-UP PROCEDURES:

Evacuate unprotected personnel from area. Maintain adequate ventilation. Follow personal protective equipment recommendations found in Section 8. Never exceed any occupational exposure limit. Eliminate all sources of ignition. Contain spill, place into drums for proper disposal. Soak up residue with inert absorbent material. Place in non-leaking containers for immediate disposal. Flush remaining area with water to remove trace residue and dispose of properly. Avoid direct discharge to sewers and surface waters. Notify authorities if entry occurs.

7. HANDLING AND STORAGE

STORAGE:

Store in a cool, well ventilated area, out of direct sunlight. Store in a dry location away from heat. Keep away from incompatible materials. Keep containers tightly closed. Do not store in unlabeled or mislabeled containers.
Do not freeze.

HANDLING:

Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Do not swallow. Avoid breathing vapors, mists, or dust. Do not eat, drink, or smoke in work area. Wash thoroughly after handling.
Ground all equipment and containers before opening to prevent accumulation of static charge.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

General room ventilation and local exhaust are required.
Maintain adequate ventilation. Avoid formation of aerosols.

RESPIRATORY PROTECTION:

Not normally needed in well ventilated areas. If excessive amounts of vapor or mists are present, wear: NIOSH-Approved air-purifying respirator with:

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SUPPRESSOR 1155

MSDS ID: FC1155

8. EXPOSURE CONTROLS/PERSONAL PROTECTION (Cont.)

Organic vapor cartridge. NIOSH-Approved self-contained breathing apparatus. NIOSH-Approved Supplied Air Respirator (SAR). DO NOT exceed limits established by the respirator manufacturer. All respiratory protection programs must comply with OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements and must be followed whenever workplace conditions require a respirator's use.

EYE/FACE PROTECTION:

Wear chemical safety goggles while handling this product. Wear additional eye protection such as a face shield when the possibility exists for eye contact with splashing or spraying liquid, or airborne material.

SKIN PROTECTION:

Prevent contact with this product. Wear gloves and protective clothing depending on condition of use.
Protective gloves: Chemical-resistant.

OTHER PROTECTIVE EQUIPMENT:

Eye-wash station. Safety shower. Protective clothing.

GENERAL HYGIENE CONSIDERATIONS:

Wash with soap and water before meal times and at the end of each work shift. Good manufacturing practices require gross amounts of any chemical be removed from skin as soon as practical, especially before eating or smoking.

EXPOSURE GUIDELINES:

| | -----OSHA----- | | -----ACGIH----- | |
|-----------------|----------------|------------|-----------------|------------|
| COMPONENT | PEL | STEL/C | TWA | STEL/C |
| Suppressor 1155 | Not Estab. | Not Estab. | Not Estab. | Not Estab. |

9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT (DEG. F) : N.D. SPECIFIC GRAVITY: 0.978
FREEZING POINT (DEG. F) : N.D. % VOLATILE (WT%): N.D.
MELTING POINT (DEG. F) : N.D. EVAPORATION RATE: N.D.
VAPOR PRESSURE (MM HG) : N.D. (nBuAc=1)
VAPOR DENSITY (AIR=1) : N.D. VOC (WT%) : N.D.
SOLUBILITY IN WATER : Appreciable VOC (LBS/GAL) : N.D.
pH : 8.0-8.10

10. STABILITY AND REACTIVITY

STABILITY:

Stable under normal conditions.

CONDITIONS TO AVOID:

Avoid freezing. Avoid contact with heat, sparks, electric arcs, other hot surfaces, and open flames.

INCOMPATIBILITY:

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SUPPRESSOR 1155

MSDS ID: FC1155

10. STABILITY AND REACTIVITY (Cont.)

Strong oxidizing agents. Inorganic acids. Halogens. Strong acids. Strong bases.

HAZARDOUS DECOMPOSITION PRODUCTS:

Carbon dioxide. Carbon monoxide. Unidentifiable organic materials.

HAZARDOUS POLYMERIZATION:

Will not occur under normal conditions.

11. TOXICOLOGICAL INFORMATION

LD50 ORAL : No Data
LD50 SKIN : No Data
LC50 INHALATION: No Data

For detailed toxicological information on individual chemical components contained in this product, contact the address in Section 1 of this MSDS.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:

Extensive data on individual chemicals, call for information.

CHEMICAL FATE INFORMATION:

Extensive data on individual chemicals, call for information.

13. DISPOSAL CONSIDERATIONS

HAZARDOUS WASTE NUMBER: N.A.

DISPOSAL METHOD:

Dispose of in accordance with all local, state and federal regulations. DO NOT pressurize, cut, weld, solder, drill, grind or expose empty containers to heat, flame, sparks or other sources of ignition. Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. TRANSPORT INFORMATION (Not meant to be all inclusive)

DOT (Department of Transportation):

Proper Shipping Name : Not regulated by the DOT.
Identification Number : N.A.
Packing Group : N.A.

15. REGULATORY INFORMATION

FEDERAL REGULATIONS:

TSCA INVENTORY STATUS:

No information available.

MATERIAL SAFETY DATA SHEET

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SUPPRESSOR 1155

MSDS ID: FC1155

15. REGULATORY INFORMATION (Cont.)

SARA TITLE III SECTION 311/312 CATEGORY:

IMMEDIATE (ACUTE) HEALTH HAZARD : NO
DELAYED (CHRONIC) HEALTH HAZARD : NO
FIRE HAZARD : NO
SUDDEN RELEASE OF PRESSURE HAZARD: NO
REACTIVE HAZARD : NO

SARA SECTION 302/304/313/HAP:

Table with 6 columns: COMPONENT, RQ (LBS) (*1), RQ (LBS) (*2), TPQ (LBS) (*3), SEC 313 (*4), HAP (*5). Row 1: Suppressor 1155, N.A., N.A., N.A., NO, NO

FOOTNOTES

- *1 = CERCLA Reportable Quantity
*2 = SARA Reportable Quantity
*3 = SARA EHS Threshold Planning Quantity
*4 = SARA 313 Toxic Chemical/Category
*5 = U.S. EPA Hazardous Air Pollutant

STATE REGULATIONS:

CALIFORNIA--The following components are listed under Prop 65:
This product may contain a detectable level of (a) chemical(s)
subject to Proposition 65.

WISCONSIN--The following components are listed as a Wisconsin HAP:
None.

16. OTHER INFORMATION

HMS RATING SYSTEM

Health : 1
Flammability: 1
Reactivity : 0
* = Chronic Health Hazard

NFPA RATING SYSTEM

Health : 1
Flammability : 1
Reactivity : 0
Special Hazard: None

MSDS ABBREVIATIONS:

- N.A. = Not Applicable
N.D. = Not Determined
HAP = Hazardous Air Pollutant
VOC = Volatile Organic Compound
C = Ceiling Limit
N.E./Not Estab. = Not Established

MSDS PREPARED BY: KJL

REASON FOR REVISION: New product.

** ** *
The data in this Material Safety Data Sheet relates only to the specific material designated and does not relate to its use in combination with any other material or process. The data contained is believed to be correct.



MATERIAL SAFETY DATA SHEET

Ferric Chloride

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

| | <u>USA</u> | <u>CANADA</u> |
|-------------------|--|--|
| Supplier: | Kemiron Companies, Inc. 316 Bartow Municipal Airport Bartow, Florida 33830 | Eaglebrook, Inc. of Canada / L'Environnement Eaglebrook Québec 3405 Blvd. Marie Victorin Varenes, Québec J3X 1T6 |
| Telephone: | (800) 879-6353 - Sales (785) 842-7424 | (800) 465-6171 (450) 652-0665 |

Emergency Contacts (24 hr.)

FOR EMERGENCIES INVOLVING CHEMICAL SPILL OR RELEASE, CALL
CHEMTREC (800) 424-9300 USA (TOLL FREE)
CANUTEC (613) 996-6666 CANADA (CALL COLLECT)

| | |
|---------------------------------|---|
| Product Name: | Ferric Chloride |
| Chemical Family: | Inorganic Salts |
| Formula: | FeCl ₃ |
| Synonym: | Iron (III) Chloride |
| Acceptable Product Uses: | Water and wastewater treatment, odor removal, adhesive for dye, textile impression pigment, ink and photoengraving. |

2. COMPOSITION / INFORMATION ON INGREDIENTS

| <u>Component</u> | <u>CAS Number #</u> | <u>Concentration</u> | <u>ACGIH TWA</u> |
|-------------------|---------------------|----------------------|-----------------------------|
| Ferric Chloride | 7705-08-0 | 28 - 43 % | 1 mg/m ³ (as Fe) |
| Hydrochloric Acid | 7647-01-0 | <5 % | 5 ppm |

3. HAZARDS IDENTIFICATION

Emergency Overview: Eye contact may cause irritation. Harmful if inhaled. Harmful or fatal if swallowed.

Potential Effects on Health: Acute and chronic.

Carcinogenicity: Does not contain any known carcinogens or potential carcinogens.

FOR MORE INFORMATION ON THE USE OR THE PERFORMANCE OF OUR PRODUCTS, OR FOR SAMPLE REQUEST PLEASE CONTACT KEMIRON/EAGLEBROOK REPRESENTATIVES AT 1-(800) 879-6353



MATERIAL SAFETY DATA SHEET

Ferric Chloride

4. FIRST AID MEASURES

- General:** If you feel unwell, seek medical attention (show the label or this MSDS if possible). Effects of exposure (inhalation, ingestion, or skin contact) to substance may be delayed. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.
- Skin Contact:** Remove all contaminated clothing, jewellery, and shoes. Wash affected area with soap or mild detergent and running water for at least 15 minutes. If irritation is still present, seek medical attention.
- Eye Contact:** Flush immediately with water for at least 15 minutes, occasionally lifting upper and lower lids, until no evidence of chemical remains. Obtain medical attention immediately.
- Inhalation:** Move to fresh air. Give artificial respiration ONLY if breathing has stopped. Do not use mouth-to-mouth method if victim has ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Obtain medical attention immediately.
- Ingestion:** *If conscious*, give two (2) glasses of water. **DO NOT INDUCE VOMITING.** Do not give anything by mouth to an unconscious person. Obtain immediate medical attention.

5. FIRE FIGHTING MEASURES

| | |
|---|--|
| Flash point | Not applicable. Will not burn |
| Flammable Limits (Lower) | Not applicable |
| Flammable Limits (Upper) | Not applicable |
| Auto Ignition Temperature | Not applicable |
| Combustion and Thermal Decomposition Products | hydrogen chloride gas, phosgene gas if dried and then heated |
| Rate of Burning | Does not burn |
| Explosive Power | Not applicable |
| Sensitivity to Static Discharge | Not available |

Fire and Explosion Hazards: During a fire, irritating/toxic hydrogen chloride, and/or phosgene gases may be generated if material is dried and then heated to decomposition.

Extinguishing Media: The substance is not combustible. Use extinguishing media appropriate to the surrounding fire.

NOTE: Also see "Section 10 – Stability and Reactivity"



MATERIAL SAFETY DATA SHEET

Ferric Chloride

6. ACCIDENTAL RELEASE MEASURES

Spills, Leaks, or Release:

- **Restrict access** until clean-up operations are complete. Wear appropriate Personal Protective Equipment per Section 8. Ensure trained personnel conduct clean up and wear Personal Protective Equipment per Section 8.
- **Stop leak if possible.** Avoid personal risk.
- **Notify Authorities** if release exceeds reportable quantity per Section 15
- **Small Spills** – Absorb spill with clay or dry material or neutralize with lime, limestone or soda ash and collect in appropriate container for disposal. Neutralization with soda ash can generate carbon dioxide so additional ventilation may be necessary.
- **Large Spills** – Prevent entry into sewers and confined areas. Dike, if possible. Keep unnecessary people away, isolate area and deny entry. Pump liquid material into appropriate vessels as possible or absorb spill with clay absorbents or non-reactive dry materials and collect in appropriate container for disposal.
Neutralize spill residuals carefully with lime, limestone, or soda ash and collect in suitable container for disposal. Flush area with water. This could generate carbon dioxide so additional ventilation may be necessary. Notify the appropriate environmental authorities.

7. HANDLING AND STORAGE

Handling: Handle all chemicals with respect. Review the label, this MSDS and any other applicable information before use. Keep separated from incompatible substances. Use appropriate Personal Protective Equipment per Section 8. Handle only with equipment, materials and supplies specified by their manufacturer as being compatible and appropriate for use with this product.

Storage Requirements:

Bulk storage containers and ancillary fill and feed systems should be constructed out of appropriate materials such as polyethylene, polypropylene, rubber-lined steel and FRP designated as appropriate for use with this product. Storage tanks should be vented to scrubber or exterior atmosphere. Storage facilities should have secondary containment as required by law or regulation. **Storage tanks, piping and offloading points should be labeled with appropriate signage to avoid accidents.**

Some concentrations of this product will freeze or crystallize at low temperatures. Insulate and heat-trace storage tanks, pumps, pipes and ancillary equipment as necessary.

Product should be used within one (1) year.

Material may be stored in tightly closed shipping containers, preferably the supplier containers. Containers of this material may be hazardous when empty, since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.



MATERIAL SAFETY DATA SHEET

Ferric Chloride

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Preventive Measures:

Engineering Controls: A ventilation system of local/general exhaust is recommended to keep employee exposure below the Airborne Exposure Limits. Ensure that eyewash station and safety showers are proximal to the workstation location.

Personal Protection Equipment:

Eye Protection: Wear splash resistant chemical goggles and, where splashing is possible, a full face shield. Maintain eye wash fountain and quick-drench facilities in work area.

Skin Protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to avoid skin contact.

Recommended Protective Material: Neoprene

Respiratory Protection: Under conditions of misting or contact with head gases, respiratory protection may be needed. Consider respirator warning properties before use.

- With limited contact use an appropriate chemical cartridge respirator with acid gas cartridge(s)
- When cleaning, decontaminating or performing maintenance on tanks, containers, piping systems and accessories, and in any other situations where airborne contaminants and/or dust could be generated, use protective equipment to protect against ingestion or inhalation. HEPA or air supplied respirator, full protective coveralls with head cover, gloves and boots or chemical suits, and boots are suggested.

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|----------------------------------|---|
| Appearance: | Reddish Brown |
| Odor: | Slight pungent odor |
| Form: | Liquid |
| pH as is: | <2 |
| Vapor Pressure (mm Hg): | Negligible |
| Boiling Point: | 105 °C - 110 °C (220 - 230 °F) |
| Specific Gravity (20°C): | 1.26 - 1.48 |
| Solubility (water): | max .78 kg FeCl ₃ (anhydrous) / kg water |
| Vapor Density (Air=1): | N/A |
| Percent Volatile by Vol.: | N/A |
| Freezing Point: | Concentration dependent (Consult your Kemiron representative) |



MATERIAL SAFETY DATA SHEET

Ferric Chloride

10. STABILITY AND REACTIVITY

Hazardous Decomposition Products: Thermal decomposition: after completely dry and heated to decomposition will produce hydrogen chloride gas.

Chemical Stability: Stable at normal temperatures and pressure.

Conditions to Avoid: Dangerous gases may accumulate in confined spaces.

Incompatibility with other Substances: Reacts with most metals (except Titanium and Tantalum) and bases (alkaline materials). Material has moderate oxidizing capability, avoid contact with strong reducing agents.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Based on Ferric Chloride Solid (anhydrous)

TOXICOLOGICAL DATA: LD₅₀ (oral, rat) = 450 mg/kg

Mutagenicity: Other mutation test systems: Escherichia coli – 500 nmol/tube;
Phage inhibition capacity: Escherichia coli 41 ng/well

Reproductive Effects: TDLo Rat 1 day(s) intratesticular 12976 µg/kg;
TDLo Rat 1 day(s) intravaginal 29 mg/kg pre pregnancy continuous

Teratogenicity and Fetotoxicity: Not available

Synergistic Materials: Not available

12. ECOLOGICAL INFORMATION

Based on Ferric Chloride Solution

Ecotoxicological Information: TLm Daphnia 15 ppm/96 hr fresh water / Conditions of bioassay not specified

Persistence and Degradation: No data available

13. DISPOSAL CONSIDERATIONS

Review Federal, State, Provincial, and Local government regulations prior to disposal. This material exhibits the characteristic of corrosivity to metals and other building materials and any disposal must comply with hazardous waste disposal requirements. Any residues and/or rinse waters from cleaning of tanks, containers, piping systems and accessories may be a hazardous characteristic waste and must be properly disposed of in accordance with federal, state, provincial and local laws.

RCRA: Test waste material for corrosivity, D002, prior to disposal



MATERIAL SAFETY DATA SHEET
Ferric Chloride

14. TRANSPORT INFORMATION

| | Canada (TDG) | U.S. (DOT) |
|-----------------------|--|--------------------------|
| Shipping Name | Ferric Chloride Solution | Ferric Chloride Solution |
| Hazard Class/Division | 8: Corrosive liquid 9.2: Environmentally hazardous material | 8: Corrosive liquid |
| Identification No. | UN2582 | UN2582 |
| Packing Group: | II | II |

Transportation Emergency Telephone Numbers:

1-800-424-9300 CHEMTREC (USA)

613-996-6666 CANUTEC (CANADA) (CALL COLLECT)

IATA/ICAO Class: 8

15. REGULATORY INFORMATION

USA CLASSIFICATION:

OSHA Classification: Hazardous by definition of Hazard Communication Standard (29 CFR 1920.1200)

CERCLA: Hazardous substance/reportable quantity (RQ): final RQ = 1000 lb. (454 kg)
Based on Anhydrous Ferric Chloride (divide by solution concentration to obtain solution weight)

SARA Regulations sections 313 and 40 CFR 372: No

SARA Hazard Categories, SARA SECTIONS 311/312 (40CFR370.21):

| | |
|-------------------------------------|-----|
| Acute | Yes |
| Chronic | No |
| Fire | No |
| Reactive | No |
| Sudden Release | No |
| OSHA Process Safety (29CFR1910.119) | Yes |

Clean Water Act Requirements: Designated as a hazardous substance under section 311(b)(2)(A) of the Federal Water Pollution Control Act and further regulated by the Clean Water Act Amendments of 1977 and 1978. These regulations apply to discharges of this substance.

TSCA: This substance or all ingredients of this product are listed on the Chemical Substances Inventory of the TSCA. Does not require reporting.



MATERIAL SAFETY DATA SHEET

Ferric Chloride

Other Regulations/Legislation which apply to this product:
California Proposition 65: No

Right-To-Know Lists: Massachusetts, New Jersey, Pennsylvania, California
This product does not contain, nor is it manufactured with, ozone-depleting substances.

CANADIAN CLASSIFICATION

This product has been classified in accordance with the hazard criteria of the CPR (Controlled Products Regulations) and this MSDS (Material Safety Data Sheet) contains all information required by the CPR.

Controlled Products Regulation (WHMIS) Classification: E: Corrosive

CEPA / Canadian Domestic Substances List (DSL): The substance in this product is not on the Canadian Domestic Substances List (CEPA DSL).

EEC CLASSIFICATION

EINECS: 231-729-4

16. OTHER INFORMATION

National Fire Protection Association (NFPA) and Hazardous Materials Identification System (HMIS) Ratings:

| | NFPA | HMIS |
|------------|------|------|
| HEALTH | 2 | 2 |
| FIRE | 0 | 0 |
| REACTIVITY | 1 | 1 |

4 = Extreme/Severe
3 = High/Serious
2 = Moderate
1 = Slight
0 = Minimum

Risk Phrases: R22 – Harmful if swallowed

Safety Phrases: S26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36/37/39 – Wear suitable protective clothing, gloves and eye protection.

Legend:

ACGIH: American Conference of Government Industrial Hygienists
AWWA: American Water Works Association
CAS: Chemical Abstracts Service
CEPA: Canadian Environmental Protection Act
CERCLA: Comprehensive Environmental Response, Compensation and Liability Act
CFR: Code of Federal Regulations
CIRC: Cancer International Research Center
DOT: Department of Transport
DSL: Domestic Substance List
FRP: Fiberglass Reinforced Plastic

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MATERIAL SAFETY DATA SHEET

Ferric Chloride

| | |
|--------------------|---|
| HEPA: | High Efficiency Particulate Arresting |
| HMIS: | Hazardous Material Information System |
| LEL: | Lower Explosive Limit |
| LC ₅₀ : | The concentration of material in air expected to kill 50% of a group of test animals. |
| LD ₅₀ : | Lethal dose expected to kill 50% of a group of test animals. |
| LOEC: | Lowest observed effect concentration |
| IARC: | International Agency for Research on Cancer |
| MSHA: | Mine Safety and Health Administration |
| N/A: | Not Applicable |
| NFPA: | National Fire Protection Agency |
| NIOSH: | National Institute for Occupational Safety and Health |
| NPRI: | National Pollutant Release Inventory |
| NSF: | National Sanitation Foundation |
| NTP: | National Toxicology Program |
| OSHA: | Occupation Health and Safety Administration |
| RCRA: | Resource Conservation and Recovery Act |
| RTECS: | Registry of Toxic Effects of Substances |
| SARA: | Superfund Amendments and Reauthorization Act of the US EPA |
| TDG: | Transport of Dangerous Goods |
| TLm: | Median Tolerance Limit |
| TLV: | Threshold Limit Value |
| TSCA: | Toxic Substances Control Act |
| TWA: | Time Weight Average |
| UEL: | Upper Explosive Limit |
| WHMIS: | Workplace Hazardous Material Information System |

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MSDS Revised on May 24, 2005 by Kemiron HSE group

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8/8

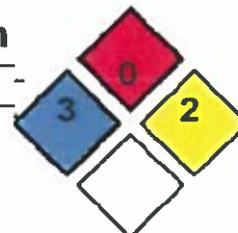
Colonial Chemical Solutions, Inc.



Material Safety Data Sheet- Phosphoric Acid Solution

SECTION I PRODUCT IDENTIFICATION

CHEMTREC – 24HR Emergency Telephone 1-800-424-9300
Manufacturers Address: 916 West Lathrop Avenue
Savannah, Georgia 31415
Information Phone: (912) 443-6702
Date Prepared: 19Sept08
Preparer: F.Spaeth



Synonym: Ortho-phosphoric Acid
Chemical Family: Inorganic Acid

NFPA Rating
0- Minimal 1- Slight 2- Moderate
3- Serious 4- Extreme

SECTION II HAZARDOUS INGREDIENTS

| CHEMICAL NAME | CAS Number | %WT | TLV | PEL |
|-----------------|------------|-------|---------------------|---------------------|
| Phosphoric Acid | 7664-38-2 | 55-95 | 1 mg/m ³ | 3 mg/m ³ |

SECTION III HAZARDOUS IDENTIFICATION

Potential Acute Health Effects: Corrosive. Causes severe irritation and burns to every area of contact.
Potential Chronic Health Effects: No chronic information found.

SECTION IV PHYSICAL and CHEMICAL PROPERTIES

Boiling Point Range: 316°F
pH: 1.5(0.1 N Soln.)
Solubility In Water: Complete
Appearance/Odor: Clear colorless syrupy liquid with no odor.
Melting Point/Freezing Point: 70°F
Vapor Density (Air=1): 3.4
Vapor Pressure (mmHg): 0.3
VOC %: 0
Specific Gravity (H₂O=1): 1.69

SECTION V FIRE FIGHTING MEASURES

Flash Point: None.
Auto Ignition: No Data found.
Extinguishing Media: Use any means suitable for extinguishing surrounding fire.
Flammable Limits: Lower: N/E Upper: N/E
Fire Fighting Procedures: Cool fire-exposed containers with water spray to prevent container weakening and possible rupture. Do not enter Fire Zone without self-contained breathing apparatus (SCBA) with full face shield operated in positive pressure demand mode and structural firefighter's protective clothing.
Fire and Explosion Hazards: Not considered a fire or an explosion hazard.

SECTION VI STABILITY AND REACTIVITY

Stability: Stable under normal use and storage conditions.
Conditions to Avoid: This material should be stored away from oxidizing materials and strong bases.
Incompatibility: Avoid contact with oxidizing/reducing agents.
Hazardous Combustion Products: Oxides of Carbon and Phosphorus, and unburned hydrocarbons.
Hazardous Polymerization: Will not occur.

Colonial Chemical Solutions, Inc.



SECTION VII STORAGE AND HANDLING

Precautions To Be Taken In Handling and Storage: Always store in tightly sealed, properly labeled, original container! Protect from physical damage. Prevent water from entering the container! Store in a cool, dry well ventilated area.

Other Precautions: Isolate from incompatibles.

SECTION VIII HEALTH AND FIRST AID

Skin: Corrosive. Causes irritation, pain and skin burns.

Eyes: Corrosive. Causes severe irritation, pain and burns with eye damage.

Inhalation: Causes respiratory tract irritation when misted or heated to high temperatures.

Ingestion: Corrosive. Causes irritation or burns of the digestive tract.

FIRST AID PROCEDURES:

Eyes: Flush with large amounts of cool running water for at least 15 minutes lifting upper and lower eyelids occasionally. Get immediate medical attention.

Skin: Flush excess from skin with plenty of water. Remove contaminated clothing. Get immediate medical attention.

Inhalation: For excessive inhalation remove to fresh air. Get immediate medical attention.

Ingestion: DO NOT induce vomiting. Drink large amounts of water. Get immediate medical attention.

SECTION IX EXPOSURE CONTROLS/ PERSONAL PROTECTION

Eye Protection: Eye Protection when pouring. Goggles, safety glasses with side shields or full-face shield are recommended.

Respiratory Protection: Where adequate ventilation is not available a NIOSH approved organic vapor respirator must be worn. In confined areas, use a self-contained breathing apparatus.

Skin Protection: Wear gloves, clothing and footwear that cannot be penetrated by chemicals or oil.

Ventilation: General Mechanical ventilation to prevent TLV from exceeding control limits.

Protective Clothing: Selection of protective clothing depends on potential exposure conditions and may include gloves, boots, suits and other protective items.

Other Equipment: Eye wash station and drench shower in close proximity to use are advised

SECTION X ACCIDENTAL RELEASE MEASURES

Small Spill: Stop source of spill. Absorb on inert media and collect into suitable container.

Large Spill: Shut off or plug source of spill. Dike area to contain spill. Salvage as much liquid as possible into a suitable container. Absorb residual on inert media and collect into suitable container.

Personal Protection in Case of Large Spill: Splash goggles. Full Suit. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product.

SECTION XI DISPOSAL CONSIDERATIONS

Waste Disposal Method: Whatever cannot be salvaged or recycled should be handled a hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility.

Avoid contaminating ground and surface water with whatever cannot be saved or recycled.

Follow local, state and federal regulations for disposal.

Colonial Chemical Solutions, Inc.



SECTION XII - TRANSPORTATION

Proper Shipping Name: Phosphoric Acid, Liquid
Hazard Class: 8
UN Number: 1805
Packaging Group: III

SECTION XIII - TOXICOLOGY

Carcinogenicity: No component of this product at levels greater than 0.1% is classified by established regulatory criteria.
Mutagenicity: No component of this product at levels greater than 0.1% is classified by established regulatory criteria.
Reproductive: No component of this product at levels greater than 0.1% is classified by established regulatory criteria.
Sensitization: Persons with pre-existing skin disorders or eye problems, or impaired respiratory function may be more susceptible to the effects of this substance.

SECTION XIV - REGULATORY

RMP/PSM: Not Listed
CERCLA-RQ: 5000 lbs.
EPCRA311/312: Yes.
EPCRA313: This product does not contain any hazardous ingredients at or above regulated thresholds.
FFRA: No documented information found.
RCRA-CODE: No Hazardous Waste Identification.
TSCA: Listed on inventory

SECTION XV - OTHER INFORMATION

The information contained on this Material Safety Data Sheet is considered accurate as of the date of publication. It is not necessarily all inclusive nor fully adequate in every circumstance. The suggestions should not be confused with, nor followed in violation of applicable laws, regulations, rules or insurance requirements. No warranty, express or implied, of merchantability, fitness, accuracy of data, or the results to be obtained from the use thereof is made. The vendor assumes no responsibility for injury or damages resulting from the inappropriate use of this product.



Kuehne COMPANY

86 North Hackensack Avenue, South Kearny, New Jersey 07032-4673

Phone: (973) 589-0700

Fax: (973) 589-4866

MATERIAL SAFETY DATA SHEET

SODIUM HYPOCHLORITE

MSDS NUMBER: KCC – HYPO - 100

MSDS DATE: February 03, 2011

24 HOUR EMERGENCY PHONE NUMBER: (973) 589-0700
Alt. (551) 200-2751

SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Hypochlorite Solution

Chemical Name: Sodium Hypochlorite

CAS Number: 7681-52-9

Common Names: Chlorine Bleach, Soda Bleach

Chemical Formula: NaOCl

Manufacturer: Kuehne Chemical Company, Inc.
86 North Hackensack Avenue
South Kearny, New Jersey 07032-4673
(973) 589-0700 Fax: (973) 589-4866

SECTION 2 – COMPOSITION, INFORMATION OR INGREDIENTS

CAS Number
7732-18-5

Name
Water

Common Names
Water

Percentage
VOL: 70 - 87
WT: 75 - 90

Exposure Limits
PEL: Not Established
TLV: Not Established



SECTION 2 – COMPOSITION, INFORMATION OR INGREDIENTS

(Continued)

| <u>CAS Number</u> | <u>Name</u> | <u>Common Names</u> |
|-------------------|--------------------------------|---------------------|
| 7681-52-9 | Hypochlorous Acid, Sodium Salt | Sodium Hypochlorite |

| <u>Percentage</u> | <u>Exposure Limits</u> |
|-------------------|--|
| VOL: 30 - 13 | PEL: 1 ppm ceiling (as Cl ₂) |
| WT: 25 - 10 | TLV: 1 ppm TWA (as Cl ₂) |

| <u>CAS Number</u> | <u>Name</u> | <u>Common Names</u> |
|-------------------|-------------------------|---------------------|
| 1310-73-2 | Sodium Hydroxide (NaOH) | Caustic Soda, Lye |

| <u>Percentage</u> | <u>Exposure Limits</u> |
|-------------------|------------------------|
| VOL: 1 | PEL: 2 ppm ceiling |
| WT: 1 | TLV: 2 ppm ceiling |

This product has not been listed as carcinogenic by the following agencies: IARC, NTP, and OSHA

SECTION 3 – HAZARD IDENTIFICATION

Effects of Overexposure

Acute: Corrosive and strongly irritating to the eyes, skin, and respiratory tract. Inhalation of fumes may cause pulmonary edema. Ingestion may cause burns to the mouth and digestive tract, and abdominal distress.

Chronic: No Data.

Appearance: Colorless to light yellow-green liquid.

Routes of Entry

Inhalation: Inhalation of hypochlorous acid fumes may cause severe respiratory tract irritation and pulmonary edema.

Skin: Skin contact may cause severe irritation and burns.

Eye Contact: Eye contact may cause severe irritation, burns, and/or corrosion.

Ingestion: Ingestion may cause pain and inflammation of the mouth and digestive system, burns and perforation of the esophagus or stomach, vomiting, circulatory collapse, confusion, delirium and coma.



SECTION 4 – FIRST AID MEASURES

- Eyes:** OBJECT IS TO FLUSH MATERIAL OUT IMMEDIATELY AND THEN SEEK MEDICAL ATTENTION. IMMEDIATELY flush eyes with a directed stream of water for at least 15 minutes while forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissue. Washing eyes within one (1) minute is essential to achieve maximum effectiveness. **SEEK MEDICAL ATTENTION IMMEDIATELY.**
- Skin:** Flush thoroughly with cool water under shower while removing contaminated clothing and shoes. Discard non-rubber shoes. Wash clothing before reuse. Continue to flush until medical attention arrives. **SEEK MEDICAL ATTENTION IMMEDIATELY.**
- Inhalation:** Remove to fresh air. If breathing is difficult, have qualified person administer oxygen. If respiration stops, give mouth-to-mouth resuscitation. **SEEK MEDICAL ATTENTION IMMEDIATELY.**
- Ingestion:** NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. If swallowed. DO NOT INDUCE VOMITING. Give large quantities of milk. If these are not available, give large quantities of water. If vomiting occurs spontaneously, keep airway clear and give more milk or water. **SEEK MEDICAL ATTENTION IMMEDIATELY.** Avoid vomiting, lavage or acidic antidotes.

Note to Physician

Sodium Hypochlorite is an alkaline corrosive. For exposure by ingestion do not use emesis, lavage or acidic antidotes. Dilute immediately by giving milk, melted Ice cream, beaten egg white, starch paste or antacids such as milk of magnesia, aluminum hydroxide gel or magnesium trisilicate gel. Avoid sodium bicarbonate because of carbon dioxide release. Sodium thiosulfate solution may prove beneficial by reducing unreacted material.

SECTION 5 – FIRE-FIGHTING MEASURES

Flash Point: N/A
Auto-ignition Temperature: N/A
Flammable Limits in Air - % by Volume - Upper: N/A

Extinguishing Media

Use water spray, fog, foam, dry chemical, or carbon dioxide or agents suitable for materials in surrounding fire.



SECTION 5 – FIRE-FIGHTING MEASURES

(Continued)

Special Fire Fighting Procedures

Use self-contained breathing apparatus and full protective equipment. Acid contamination will produce very irritating fumes similar to chlorine.

Unusual Fire and Explosion Hazard

Sodium Hypochlorite or its solutions decompose when heated. Decomposition products may cause containers to rupture or explode. Vigorous reaction is possible with organic materials or oxidizing agents and may result in fire.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Steps to be Taken if Material is Released or Spilled

Do not allow spilled material to enter sewers or streams. Flush with water to dilute as much as possible and pump into polyethylene containers for disposal. Avoid heat and contamination with acid materials. Do not use combustible materials such as sawdust to absorb Sodium Hypochlorite Solution.

Ventilation Requirements

Provide good general room ventilation plus local exhaust at points of emission.

SECTION 7 – HANDLING AND STORAGE

Handling and Storage Precautions

Do not store adjacent to chemicals that may react if spillage occurs. Comply with DOT regulations when shipped. If closed containers become heated, vent to release decomposition products (mainly oxygen under normal decomposition). Do not mix or contaminate with ammonia, hydrocarbons, acids, alcohols or ethers.

Do Not Reuse Containers

Product residues may remain in containers. All labeled precautions must be observed. Dispose of container in a manner meeting government regulations.

SECTION 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

Specific Personal Protective Equipment

Respiratory: NIOSH/MSHA approved respirator, following manufacturer's recommendations should be used as a precautionary measure where airborne contaminants may occur.



SECTION 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

(Continued)

- Eye:** Wear chemical safety goggles plus full face shield to protect against splashing when appropriate.
- Gloves:** Wear impervious gloves such as rubber, neoprene or vinyl.
- Other:** Wear impervious protective clothing including rubber safety shoes. Eye wash facility and emergency shower should be in close proximity.
-

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

| | | | |
|--------------------------------|----------------------------------|----------------------------------|-------------|
| Appearance: | Colorless to light yellow-green. | | |
| Odor: | Pungent chlorine like odor. | | |
| Physical State: | Liquid. | | |
| pH: | 12 @ 100 g/L | | |
| Vapor Pressure: | <u>Temperature °F</u> | <u>mm Hg</u> | <u>PSIA</u> |
| | 48.2 | 3.7 | 0.071 |
| | 60.8 | 8.0 | 0.15 |
| | 68.0 | 12.1 | 0.23 |
| | 89.6 | 31.1 | 0.60 |
| | 118.4 | 100.0 | 1.93 |
| Boiling Point: | (@760 mm Hg) | Decomposes above 110 °C (230 °F) | |
| Freezing/Melting Point: | <u>Weight %</u> | <u>Freezing Point °F</u> | |
| | 10 to 25 | - 14 °F to 30 °F | |
| Solubility in Water: | 100% (by weight) | | |
| Specific Gravity: | 1.155 - 1.410 | (H ₂ O = 1) | |

SECTION 10 – STABILITY AND REACTIVITY

Conditions Contributing to Instability

Strong Oxidizer, stability decreases with concentration, heat, light, decrease in pH and contamination by metals.



SECTION 10 – STABILITY AND REACTIVITY

(Continued)

Incompatibility

Avoid contamination with heavy metals, reducing agents, organics, ether, ammonia, and acids.

Hazardous Decomposition Products

Acid fumes.

Conditions Contributing to Hazardous Polymerization

Material is not known to polymerize.

SECTION 11 – TOXICOLOGICAL INFORMATION

The toxicity and corrosivity of Sodium Hypochlorite is a function of concentration. Industrial grades of higher concentrations than household bleach are more toxic and corrosive.

SECTION 12 – ECOLOGICAL INFORMATION

Biodegradation: This material is inorganic and not subject to biodegradation.

Persistence: This material is believed not to persist in the environment.

Bioconcentration: This material is not expected to bioconcentrate in organisms.

This material is harmful to fish, invertebrates, amphibians, and plants.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste Disposal Method

Reduce with agents such as bisulfites or ferrous salt solutions. Some heat will be produced. Keep on alkaline side and dilute with copious amounts of water. Main end product is salt water. Comply with all applicable governmental regulations.

Product Disposal

Product should be completely removed from containers. Material that cannot be used or chemically reprocessed should be disposed of in a manner meeting government regulations.



SECTION 14 – TRANSPORT INFORMATION

DOT Proper Shipping Name: Hypochlorite Solutions
DOT Hazard Class: 8
DOT ID Number: UN1791
DOT Packing Group: II
DOT Hazardous Substance: RQ 100# (Sodium Hypochlorite)
DOT Marine Pollutant: N/A
Additional Description: N/A

SECTION 15 – REGULATORY INFORMATION

Section 311 of The Clean Water Act lists this product as a hazardous substance, which if discharged to water, may require immediate response to mitigate danger to public health and welfare. Spills of 100 pounds or more must be reported to the National Response Center at the following number:
1-800-424-8802

Material is contained on a composite list as required under 101 (14) of CERCLA.

Sodium Hypochlorite Solution is regulated by the USEPA under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) as a pesticide product.

Sodium Hypochlorite Solution produced by Kuehne Chemical Company, Inc. is registered with the USEPA under Registration Number 35317-20001.

NSF Certification: This product has been classified as an approved drinking water treatment chemical under ANSI/NSF Standard 60 by Underwriter's Laboratories (reference number: MH17612)

USDA Approvals: B-1, D-2, L-1, Q-4 & Fruit and Vegetable washing compounds.



SECTION 16 – OTHER INFORMATION

HMIS HAZARD RATINGS

| |
|--------------------------------------|
| HEALTH HAZARD - 3 (Serious) |
| FIRE HAZARD - 0 (Minimal) |
| REACTIVITY – 2 (Slight) |
| WARNING - Corrosive, Oxidizing Agent |

Based on Nat'l Paint & Coatings Association HMIS system.

NFPA HAZARD RATINGS

| |
|--------------------------|
| HEALTH HAZARD (Blue) - 2 |
| FLAMMABILITY (Red) - 0 |
| INSTABILITY (Yellow) - 1 |

Chemical not listed. Ratings based on NFPA guidelines

Revision B – 03 February 2011

Prepared By: Kuehne Company's Environmental, Safety & Security Department

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Kuehne Chemical Company, Inc. will not be liable for any damages, losses, injuries or consequential damages that may result from the use of or reliance on any information contained herein.

REFERENCES:

American National Standard, Z400.1-1993

Chlorine Institute Pamphlet 96 (Sodium Hypochlorite Manual), Edition 3, April, 2006.

National Institute for Occupational Safety and Health, US Dept. of Health & Human Services, Cincinnati, June, 1994.

Supplier's Material Safety Data Sheets.

Windholz, Martha, Ed, The Merck Index, 11th ed., Merck and Co, Inc., Rahway, New Jersey, 1989.



WARNING LABEL INFORMATION

| | | |
|--|----------------|-------------|
| Active Ingredient: Sodium Hypochlorite (NaOCl)..... | 10 - 25 % | (by weight) |
| Inert Ingredients..... | 90 - 75 % | |
| Total | <u>100.0 %</u> | |

KEEP OUT OF REACH OF CHILDREN

DANGER

FIRST AID

IF CONTACT WITH EYES OCCURS: Hold eye open and rinse slowly and gently with water for 15 – 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue to rinse eye. Call a poison control center or doctor for treatment advice.

IF CONTACT WITH SKIN OCCURS: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 – 20 minutes. Call a poison control center or doctor for treatment advice.

IF SWALLOWED: Call a poison control center or doctor for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

IF INHALED: Move to fresh air. If person is not breathing, call 911 or an ambulance then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.

PRECAUTIONARY STATEMENTS HAZARDOUS TO HUMANS AND DOMESTIC ANIMALS

DANGER: Corrosive may cause severe skin and eye irritation or chemical burns to broken skin. Causes eye damage. Wear safety glasses or goggles and rubber gloves when handling this product. Wash after handling. Avoid breathing vapors. Vacate poorly ventilated areas as soon as possible. Do not return until strong odors have dissipated.



ENVIRONMENTAL HAZARDS: This pesticide is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or public waters unless this product is specifically identified and addressed in an NPDES permit. Do not discharge effluent containing this product to sewer systems without previously notifying the sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

PHYSICAL OR CHEMICAL HAZARDS

STRONG OXIDIZING AGENT: Mix only with water according to label directions. Mixing this product with chemicals (e.g. ammonia, acids, detergents, etc.) or organic matter (e.g. urine, feces, etc.) will release chlorine gas, which is irritating to eyes, lungs and mucous membranes.

DIRECTION FOR USE

IT IS A VIOLATION OF FEDERAL LAW TO USE THIS PRODUCT IN A MANNER INCONSISTENT WITH ITS LABELING.

Re-formulators and Re-packagers of this product must obtain their own registrations from the United States Environmental Protection Agency (USEPA).

For manufacturing use in the formation of end-use Products

NOTE: This product degrades with age. Use a Chlorine test kit and increase dosage as necessary, to obtain the required level of available Chlorine.

For specific use directions, see KUEHNE Circular for each particular application.

CIRCULAR NUMBER K586A: sanitizers of surfaces (wooden butcher blocks, stainless steel tops, concrete floors, tile walls)

CIRCULAR NUMBERS K584A, K585A, K587A, AK588A: SANITIZATION OF HARD NONPOROUS SURFACES

CIRCULAR NUMBERS K584B, K585B, K586B, K587B, K588B: COMMERCIAL LAUNDRY SANITIZERS

CIRCULAR NUMBERS K584C, K585C, K586C, K587C, K588C: AGRICULTURAL USES

CIRCULAR NUMBERS K584D, K585D, K586D, K587D, K588D: DISINFECTION OF DRINKING WATER (EMERGENCY/PUBLIC/INDIVIDUAL SYSTEMS)

CIRCULAR NUMBERS K584E, K585E, K586E, K587E, K588E: DISINFECTION OF NONPOROUS NON-FOOD CONTACT SURFACES



CIRCULAR NUMBERS K584F, K585F, K586F, K587F, K588F: SEWAGE & WASTEWATER EFFLUENT TREATMENT

CIRCULAR NUMBERS K584G, K585G, K586G, K587G, K588G: COOLING TOWER & EVAPORATIVE CONDENSER WATER

CIRCULAR NUMBERS K584H, K585H, K587H, K588H: SANITIZATION OF POROUS FOOD CONTACT SURFACES

CIRCULAR NUMBERS K584I, K585I, 587I, K588I: SANITIZATION OF POROUS NON-FOOD CONTACT SURFACES

CIRCULAR NUMBERS K584J, K585J, K587J, K588J: DISINFECTION OF SWIMMING POOLS, SPAS/HOT TUBS, AND HYDROTHERAPY POOLS

STORAGE AND DISPOSAL

Store this product in a cool dry area away from direct sunlight and heat to prevent deterioration. In case of a spill, flood areas with large quantities of water. Product or rinsates that cannot be used should be diluted with water before disposal in a sanitary sewer. Do not contaminate food or feed by storage, disposal or cleaning of equipment.

Large storage containers should be rinsed thoroughly with water and returned to manufacturer for reconditioning. Large storage containers should be thoroughly rinsed with water before reuse.

IN CASE OF

FIRE: Use self-contained breathing apparatus and full protective equipment. Use water spray, foam, dry chemical or CO₂. Fire may liberate toxic gases.

SPILL: Get protective equipment. Contain spill and pump into marked container for reclamation for disposal. Avoid discharges to sewers and streams. Spills of 100 pounds or more must be reported to the National Response Center at the following number:

1-800-424-8802

**IN CASE OF CHEMICAL EMERGENCIES CALL:
24 HOUR EMERGENCY PHONE (973) 589-0700
Alt. (551) 200-2751**



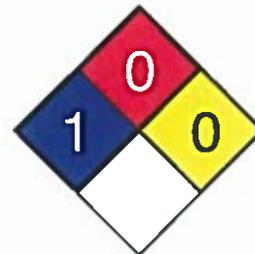


1. Product and Company Identification

| | |
|---------------------|--|
| Product Name | TerraCair [®] Ultrapure Diesel Exhaust Fluid |
| CAS # | Mixture |
| Product use | Diesel Exhaust NOx Reducing Agent |
| Manufacturer | Terra Industries Inc. 600 Fourth Street Sioux City, Iowa 51101 US Phone: 800-265-6643 |
| CHEMTREC | 800-424-9300 |
| CANUTEC | 613-996-6666 |

| LEGEND HMIS/NFPA | |
|---------------------|---|
| Severe | 4 |
| Serious | 3 |
| Moderate | 2 |
| Slight | 1 |
| Minimal | 0 |

| | |
|---------------------|-----|
| Health | / 1 |
| Flammability | 0 |
| Physical Hazard | 0 |
| Personal Protection | B |



2. Hazards Identification

Emergency Overview CAUTION
EYE AND SKIN IRRITANT.

Potential short term health effects

| | |
|---------------------------|---|
| Routes of exposure | Eye, Skin contact, Inhalation, Ingestion. |
| Eyes | May cause irritation. |
| Skin | May cause irritation. |
| Inhalation | May be harmful by inhalation. May cause respiratory tract irritation. |
| Ingestion | May cause stomach distress, nausea or vomiting. |
| Target organs | Eyes. Skin. Respiratory system. |
| Signs and symptoms | Symptoms may include redness, edema, drying, defatting and cracking of the skin. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. |

3. Composition / Information on Ingredients

| Ingredient(s) | CAS # | Percent |
|---------------|-----------|---------|
| Water | 7732-18-5 | 67.5 |
| Urea | 57-13-6 | 32.5 |

4. First Aid Measures

First aid procedures

| | |
|---------------------|--|
| Eye contact | Flush with cool water. Remove contact lenses, if applicable, and continue flushing. Obtain medical attention if irritation persists. |
| Skin contact | Flush with cool water. Wash with soap and water. Obtain medical attention if irritation persists. |
| Inhalation | If symptoms develop, move victim to fresh air. If symptoms persist, obtain medical attention. If breathing has stopped, trained personnel should administer CPR immediately. |

Ingestion

Do not induce vomiting. Rinse mouth with water, then drink one or two glasses of water. Obtain medical attention. Never give anything by mouth if victim is unconscious, or is convulsing.

Notes to physician

Symptoms may be delayed.

General advice

If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Avoid contact with eyes and skin. Wear impervious gloves and safety glasses. Keep out of reach of children.

5. Fire Fighting Measures

Flammable properties

Not flammable by WHMIS/OSHA criteria.

Extinguishing media

Suitable extinguishing media Treat for surrounding material.

Unsuitable extinguishing media Not available

Protection of firefighters

Not available

Specific hazards arising from the chemical Not available

Protective equipment for firefighters

Firefighters should wear full protective clothing including self contained breathing apparatus.

Hazardous combustion products

May include and are not limited to: Oxides of carbon. Oxides of nitrogen. Ammonia.

Explosion data

Sensitivity to mechanical impact Not available

Sensitivity to static discharge

Not available

6. Accidental Release Measures

Personal precautions

Keep unnecessary personnel away. Wear appropriate protective clothing.

Methods for containment

Stop leak if you can do so without risk. Prevent entry into waterways, sewers, basements or confined areas.

Methods for cleaning up

Before attempting clean up, refer to hazard data given above. Small spills may be absorbed with non-reactive absorbent and placed in suitable, covered, labeled containers.

Prevent large spills from entering sewers or waterways. Contact emergency services and supplier for advice. Never return spills in original containers for re-use.

7. Handling and Storage

Handling

Use good industrial hygiene practices in handling this material.

Storage

Keep out of reach of children. Store in a closed container away from incompatible materials.

8. Exposure Controls / Personal Protection

Exposure limits Ingredient(s)

Exposure Limits

Urea

ACGIH-TLV

Not established

OSHA-PEL

Not established

Engineering controls

Ensure adequate ventilation, especially in confined areas. Use only under good ventilation conditions or with respiratory protection.

Personal protective equipment

Eye / face protection

Wear safety glasses with side shields.

Hand protection

Impervious gloves. Nitrile, Viton, Butyl.

Skin and body protection

As required by employer code.

Respiratory protection

Where exposure guideline levels may be exceeded, use an approved NIOSH respirator.

General hygiene considerations

Avoid breathing vapors. Handle in accordance with good industrial hygiene and safety practice. When using do not eat or drink. Wash hands before breaks and immediately after handling the product.

9. Physical & Chemical Properties

Appearance

Clear.

Color

Colorless

Form

Liquid

Odor

Slight ammonia

Physical state

Liquid

pH

9.8 - 10.0

Freezing point

-12°C

Boiling point

104°C

Density

9.1 lbs. / USG - 4.13 kg / 3.785L

Specific gravity

1.087-1.093 @ 20°C

Solubility (H2O)

100%

10. Chemical Stability & Reactivity Information

Chemical stability

Stable under recommended storage conditions.

Conditions to avoid

Do not mix with any other chemical or product.

Incompatible materials

Acids. Oxidizers. Alkalis.

Hazardous decomposition products

May include and are not limited to: Oxides of carbon. Oxides of nitrogen. Ammonia.

Possibility of hazardous reactions

Hazardous polymerization does not occur.

11. Toxicological Information

Component analysis - LC50

| Ingredient(s) | LC50 |
|---------------|---------------|
| Urea | Not available |

Component analysis - Oral LD50

| Ingredient(s) | LD50 |
|---------------|---|
| Urea | 11,500 - 13,000 mg/kg mouse; 14,300 - 15,000 mg/kg rat; 510 mg/kg cattle. |

Effects of acute exposure

| | |
|----------------------|---|
| Eye | May cause irritation. |
| Skin | May cause irritation. |
| Inhalation | Not available |
| Ingestion | May cause stomach distress, nausea or vomiting. |
| Sensitization | Non-hazardous by WHMIS/OSHA criteria. |
| Chronic effects | Non-hazardous by WHMIS/OSHA criteria. |
| Carcinogenicity | Non-hazardous by WHMIS/OSHA criteria. |
| Mutagenicity | Non-hazardous by WHMIS/OSHA criteria. |
| Reproductive effects | Non-hazardous by WHMIS/OSHA criteria. |
| Teratogenicity | Non-hazardous by WHMIS/OSHA criteria. |

12. Ecological Information

Ecotoxicity Components of this product have been identified as having potential environmental concerns.

Ecotoxicity - Freshwater Fish Species Data

Urea 57-13-6 96 Hr LC50 Barillius barna: >9100 mg/L

Ecotoxicity - Microtox Data

Urea 57-13-6 24HrEC50 Daphnia magna straus:>10000mg/L

| | |
|---------------------------------|---------------|
| Environmental effects | Not available |
| Aquatic toxicity | Not available |
| Persistence / degradability | Not available |
| Bioaccumulation / accumulation | Not available |
| Partition coefficient | Not available |
| Mobility in environmental media | Not available |
| Chemical fate information | Not available |
| Other adverse effects | Not available |

13. Disposal Considerations

| | |
|--|--|
| Waste codes | Not available |
| Disposal instructions | Review federal, provincial, and local government requirements prior to disposal. |
| Waste from residues / unused products | Not available |
| Contaminated packaging | Not available |

14. Transport Information

U.S. Department of Transportation (DOT)

Not regulated as dangerous goods.

Transportation of Dangerous Goods (TDG - Canada)

Not regulated as dangerous goods.

15. Regulatory Information

Canadian federal regulations This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

US Federal regulations The product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.

Occupational Safety and Health Administration (OSHA)

29 CFR 1910.1200 hazardous chemical Yes

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance No

Section 311 hazardous chemical Yes

Clean Air Act (CAA) Not available

Clean Water Act (CWA) Not available

Safe Drinking Water Act (SDWA) Not available

Drug Enforcement Agency (DEA) Not available

Food and Drug Administration (FDA) Not available

WHMIS status Controlled

WHMIS classification Class D - Division 2B

WHMIS labeling



State regulations

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

Inventory name

| Country(s) or region | Inventory name | On inventory (yes/no)* |
|-----------------------------|---|-------------------------------|
| Canada | Domestic Substances List (DSL) | Yes |
| Canada | Non-Domestic Substances List (NDSL) | No |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | Yes |

A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other Information

Disclaimer

Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

| | |
|-----------------------|------------------------------------|
| Issue date | 25 Feb-2009 |
| Effective date | 25 Feb-2009 |
| Expiry date | 25 Feb-2012 |
| Prepared by | Terra Industries Inc. 800-265-6643 |

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Cat® ELC™ (Extended Life Coolant) Premix 50/50

Product Use: Antifreeze/Coolant
Product Number(s): 16334, CPS236334
Company Identification
ChevronTexaco Global Lubricants
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887

Health Emergency
ChevronTexaco Emergency Information Center: Located in the USA. International collect calls accepted.
(800) 231-0623 or (510) 231-0623

Product Information
email : lubemsds@chevrontexaco.com
Product Information: 800-LUBE-TEK
MSDS Requests: 800-414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

| COMPONENTS | CAS NUMBER | AMOUNT |
|-------------------------|------------|-----------------|
| Ethylene Glycol | 107-21-1 | 40 - 50 %weight |
| Diethylene glycol | 111-46-6 | 1 - 5 %weight |
| Sodium 2-ethylhexanoate | 19766-89-3 | 1 - 5 %weight |

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

- HARMFUL OR FATAL IF SWALLOWED
- CONTAINS MATERIAL THAT MAY CAUSE ADVERSE REPRODUCTIVE EFFECTS BASED ON ANIMAL DATA
- POSSIBLE BIRTH DEFECT HAZARD - CONTAINS MATERIAL THAT MAY CAUSE BIRTH DEFECTS BASED ON ANIMAL DATA
- CAUSES DAMAGE TO:
 - KIDNEY

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin.

Ingestion: Toxic; may be harmful or fatal if swallowed.

Inhalation: The vapor or fumes from this material may cause respiratory irritation. Symptoms of respiratory irritation may include coughing and difficulty breathing. Breathing this material at concentrations above the recommended exposure limits may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.

DELAYED OR OTHER HEALTH EFFECTS:

Reproduction and Birth Defects: Contains material that may cause adverse reproductive effects if swallowed based on animal data. Contains material that may cause birth defects based on animal data.

Target Organs: Contains material that causes damage to the following organ(s) if swallowed: Kidney
See Section 11 for additional information. Risk depends on duration and level of exposure.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.

Inhalation: Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue.

SECTION 5 FIRE FIGHTING MEASURES

FIRE CLASSIFICATION:

OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 2 Flammability: 0 Reactivity: 0

FLAMMABLE PROPERTIES:

Flashpoint: Not Applicable

Autoignition: No Data Available

Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

EXTINGUISHING MEDIA: Dry Chemical, CO₂, AFFF Foam or alcohol resistant foam.

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: This material will not burn.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible.

observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe vapor or fumes. Wash thoroughly after handling.

General Handling Information: Do not taste or swallow antifreeze or solution. Keep out of the reach of children and animals.

General Storage Information: Do not store in open or unlabeled containers.

Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:

Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Natural rubber, Neoprene, Nitrile Rubber, Polyvinyl Chloride (PVC or Vinyl).

Respiratory Protection: Determine if airborne concentrations are below the recommended occupational exposure limits for jurisdiction of use. If airborne concentrations are above the acceptable limits, wear an approved respirator that provides adequate protection from this material, such as: Air-Purifying Respirator for Organic Vapors, Dusts and Mists.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

| Component | Agency | TWA | STEL | Ceiling | Notation |
|-----------------|--------|-----|------|--------------------------|----------|
| Ethylene Glycol | ACGIH | — | — | 100 mg/m ³ | -- |

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Red
Physical State: Liquid
Odor: Faint or Mild
pH: 8.1 - 8.5
Vapor Pressure: No data available
Vapor Density (Air = 1): 2.1
Boiling Point: 108.9°C (228°F)
Solubility: Miscible
Freezing Point: -36.7°C (-34°F)
Melting Point: No Data Available
Specific Gravity: 1 - 1.5 @ 15.6°C (60.1°F) / 15.6°C (60.1°F)
Viscosity: No data available

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Hazardous Decomposition Products: Aldehydes (Elevated temperatures), Ketones (Elevated temperatures)

Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS

Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.

Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.

Skin Sensitization: No product toxicology data available.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains diethylene glycol (DEG). The estimated oral lethal dose is about 50 cc (1.6 oz) for an adult human. DEG has caused the following effects in laboratory animals: liver abnormalities, kidney damage and blood abnormalities. It has been suggested as a cause of the following effects in humans: liver abnormalities, kidney damage, lung damage and central nervous system damage.

This product contains ethylene glycol (EG). The toxicity of EG via inhalation or skin contact is expected to be slight at room temperature. The estimated oral lethal dose is about 100 cc (3.3 oz.) for an adult human. Ethylene glycol is oxidized to oxalic acid which results in the deposition of calcium oxalate crystals mainly in the brain and kidneys. Early signs and symptoms of EG poisoning may resemble those of alcohol intoxication. Later, the victim may experience nausea, vomiting, weakness, abdominal and

muscle pain, difficulty in breathing and decreased urine output. When EG was heated above the boiling point of water, vapors formed which reportedly caused unconsciousness, increased lymphocyte count, and a rapid, jerky movement of the eyes in persons chronically exposed. When EG was administered orally to pregnant rats and mice, there was an increase in fetal deaths and birth defects. Some of these effects occurred at doses that had no toxic effects on the mothers. We are not aware of any reports that EG causes reproductive toxicity in human beings.

2-Ethylhexanoic acid (2-EXA) caused an increase in liver size and enzyme levels when repeatedly administered to rats via the diet. When administered to pregnant rats by gavage or in drinking water, 2-EXA caused teratogenicity (birth defects) and delayed postnatal development of the pups. Additionally, 2-EXA impaired female fertility in rats. Birth defects were seen in the offspring of mice who were administered sodium 2-ethylhexanoate via intraperitoneal injection during pregnancy.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY

The toxicity of this material to aquatic organisms has not been evaluated. Consequently, this material should be kept out of sewage and drainage systems and all bodies of water.

ENVIRONMENTAL FATE

This material is expected to be readily biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: Anti-freeze Preparations, Proprietary

Additional Information: Bulk shipments with a reportable quantity (5000 pounds) of ethylene glycol are a hazardous material. The Proper Shipping Name is: Environmentally Hazardous Substance, Liquid, N.O.S. (ethylene glycol), 9, UN3082, III, RQ (ethylene glycol).

IMO/IMDG Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORTATION UNDER THE IMDG CODE

ICAO/IATA Shipping Description: Anti-freeze Preparations, Proprietary; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES: 1. Immediate (Acute) Health Effects: YES

- | | |
|---------------------------------------|-----|
| 2. Delayed (Chronic) Health Effects: | YES |
| 3. Fire Hazard: | NO |
| 4. Sudden Release of Pressure Hazard: | NO |
| 5. Reactivity Hazard: | NO |

REGULATORY LISTS SEARCHED:

| | |
|---------------------|----------------------|
| 01-1=IARC Group 1 | 03=EPCRA 313 |
| 01-2A=IARC Group 2A | 04=CA Proposition 65 |
| 01-2B=IARC Group 2B | 05=MA RTK |
| 02=NTP Carcinogen | 06=NJ RTK |
| | 07=PA RTK |

The following components of this material are found on the regulatory lists indicated.

| | |
|-------------------|----------------|
| Diethylene glycol | 07 |
| Ethylene Glycol | 03, 05, 06, 07 |

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

NEW JERSEY RTK CLASSIFICATION:

Refer to components listed in Section 2.

WHMIS CLASSIFICATION:

Class D, Division 1, Subdivision B: Toxic Material -
Acute Lethality
Class D, Division 2, Subdivision A: Very Toxic Material -
Teratogenicity and Embryotoxicity
Reproductive Toxicity

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 2 Flammability: 0 Reactivity: 0

HMIS RATINGS: Health: 2* Flammability: 0 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:

Label Category : ANTIFREEZE/COOLANT 3

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet:
2,5,7,10,15

Revision Date: 11/22/2005

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

| | |
|---|--|
| TLV - Threshold Limit Value | TWA - Time Weighted Average |
| STEL - Short-term Exposure Limit | PEL - Permissible Exposure Limit |
| | CAS - Chemical Abstract Service Number |
| ACGIH - American Conference of Government Industrial Hygienists | IMO/IMDG - International Maritime Dangerous Goods Code |
| API - American Petroleum Institute | MSDS - Material Safety Data Sheet |
| CVX - ChevronTexaco | NFPA - National Fire Protection Association (USA) |
| DOT - Department of Transportation (USA) | NTP - National Toxicology Program (USA) |
| IARC - International Agency for Research on Cancer | OSHA - Occupational Safety and Health Administration |

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the ChevronTexaco Energy Research & Technology Company, 100 Chevron Way, Richmond, California 94802.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.



NFPA 704 (Section 16)

AMERADA HESS CORPORATION**MATERIAL SAFETY DATA SHEET****No. 2 Fuel Oil****MSDS No. 0088****1. CHEMICAL PRODUCT and COMPANY INFORMATION (rev. Jan-98)**

Amerada Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs): CHEMTREC (800) 424-9300**COMPANY CONTACT (business hours): Corporate Safety (732) 750-6000****SYNONYMS: #2 Heating Oil; 2 Oil; Off-road Diesel Fuel**

See Section 16 for abbreviations and acronyms.

2. COMPOSITION and INFORMATION ON INGREDIENTS (rev. Sep-98)

| <u>INGREDIENT NAME</u> | <u>EXPOSURE LIMITS</u> | <u>CONCENTRATION PERCENT BY WEIGHT</u> |
|---------------------------------------|--|--|
| #2 Fuel Oil CAS NUMBER: 68476-30-2 | OSHA PEL-TWA: 5 mg/m ³ as mineral oil mist ACGIH TLV-TWA: 1997 NOIC - 100 mg/m ³ , skin, A3 | 100 |
| Naphthalene CAS NUMBER: 91-20-3 | OSHA PEL-TWA: 10 ppm ACGIH TLV-TWA/STEL: 10 / 15 ppm, A4 | Typically 0.1 |

A complex combination of hydrocarbons with carbon numbers in the range C9 and higher produced from the distillation of petroleum crude oil.

3. HAZARDS IDENTIFICATION (rev. Jan-98; Tox-98)**EMERGENCY OVERVIEW****CAUTION!****OSHA/NFPA COMBUSTIBLE LIQUID - SLIGHT TO MODERATE IRRITANT - EFFECTS CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF SWALLOWED**

Moderate fire hazard. Avoid breathing vapors or mists. May cause dizziness and drowsiness. May cause moderate eye irritation and skin irritation. Long-term, repeated exposure may cause skin cancer.

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs).

EYES

Contact with eyes may cause mild irritation.

SKIN

Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

INGESTION

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

INHALATION

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

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WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS and CARCINOGENICITY

Similar products have produced skin cancer and systemic toxicity in laboratory animals following repeated applications. The significance of these results to human exposures has not been determined - see Section 11 Toxicological Information.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash).

4. FIRST AID MEASURES (rev. Jan-98; Tox-98)

EYES

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or with waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION

Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES (rev. Sep-94)

FLAMMABLE PROPERTIES:

| | |
|----------------------------|-----------------------------|
| FLASH POINT: | 100 °F (38 °C) minimum PMCC |
| AUTOIGNITION POINT: | 494 °F (257 °C) |
| LOWER EXPLOSIVE LIMIT (%): | 0.6 |
| UPPER EXPLOSIVE LIMIT (%): | 7.5 |

FIRE AND EXPLOSION HAZARDS

OSHA and NFPA Class 2 **COMBUSTIBLE LIQUID** (see Section 14 for transportation classification). Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO₂, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

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Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

6. ACCIDENTAL RELEASE MEASURES (rev. Jan-98)

ACTIVATE FACILITY'S SPILL CONTINGENCY OR EMERGENCY RESPONSE PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE (rev. Jan-98)

HANDLING PRECAUTIONS

Handle as a combustible liquid. Keep away from heat, sparks, excessive temperatures and open flame! No smoking or open flame in storage, use or handling areas. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when this product is loaded into tanks previously containing low flash point products (such as gasoline) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents."

STORAGE PRECAUTIONS

Keep containers closed and clearly labeled. Use approved vented storage containers. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks."

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and laundry before reuse.

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Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION (rev. Jan-98)

ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Gloves constructed of nitrile, neoprene, or PVC are recommended. Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, ANSI Z88.2-1992, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES (rev. Jul-98)

APPEARANCE

Red or reddish/orange colored (dyed) liquid

ODOR

Mild, petroleum distillate odor

BASIC PHYSICAL PROPERTIES

BOILING RANGE: 340 to 700 °F (171 to 371 °C)
VAPOR PRESSURE: 0.009 psia @ 70 °F (21 °C)
VAPOR DENSITY (air = 1): > 1.0
SPECIFIC GRAVITY (H₂O = 1): AP 0.87
PERCENT VOLATILES: 100 %
EVAPORATION RATE: Slow; varies with conditions
SOLUBILITY (H₂O): Negligible

10. STABILITY and REACTIVITY (rev. Sep-94)

STABILITY: Stable. Hazardous polymerization will not occur

CONDITIONS TO AVOID and INCOMPATIBLE MATERIALS

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources. Keep away from strong oxidizers; Viton ®; Fluorel ®

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

AMERADA HESS CORPORATION

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11. TOXICOLOGICAL PROPERTIES (rev. Jan-98; Tox-98)

ACUTE TOXICITY

Acute Oral LD50 (rat): 14.5 ml/kg

Acute Dermal LD50 (rabbit): > 5 ml/kg

Guinea Pig Sensitization: negative

Primary dermal irritation: moderately irritating (Draize mean irritation score - 3.98 rabbits)

Draize eye irritation: mildly irritating (Draize score, 48 hours, unwashed - 2.0 rabbits)

CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenic: IARC: NO NTP: NO OSHA: NO ACGIH: 1997 NOIC: A3

Dermal carcinogenicity: positive - mice

Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

This product is similar to Diesel Fuel. IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A) and NIOSH regards it as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans.

MUTAGENICITY (genetic effects)

Material of similar composition has been positive in a mutagenicity study.

12. ECOLOGICAL INFORMATION (rev. Jan-98)

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations.

13. DISPOSAL CONSIDERATIONS (rev. Jan-98)

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION (rev. Jan-98)

PROPER SHIPPING NAME: FUEL OIL, NO. 2

HAZARD CLASS & PACKING GROUP: 3, PG III

DOT IDENTIFICATION NUMBER: NA 1993

DOT SHIPPING LABEL: FLAMMABLE LIQUID

May be reclassified for transportation as a COMBUSTIBLE LIQUID under conditions of DOT 49 CFR 173.120(b)(2).

15. REGULATORY INFORMATION (rev. Feb-01)

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other regulations at the state and/or local level. Consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) or, if not practical, the U.S. Coast Guard with follow-up to the National Response Center, as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

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CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

| <u>ACUTE HEALTH</u> | <u>CHRONIC HEALTH</u> | <u>FIRE</u> | <u>SUDDEN RELEASE OF PRESSURE</u> | <u>REACTIVE</u> |
|---------------------|-----------------------|-------------|-----------------------------------|-----------------|
| X | X | X | -- | -- |

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product may contain listed chemicals below the *de minimis* levels which therefore are not subject to the supplier notification requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372. If you may be required to report releases of chemicals listed in 40 CFR 372.28, you may contact Amerada Hess Corporate Safety if you require additional information regarding this product.

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 3(Combustible Liquid); Class D, Division 2, Subdivision B (Toxic by other means)

16. OTHER INFORMATION (rev. Feb-01)

| | | | |
|-----------------------------------|-------------|---|------------|
| <u>NFPA® HAZARD RATING</u> | HEALTH: | 0 | Negligible |
| | FIRE: | 2 | Moderate |
| | REACTIVITY: | 0 | Negligible |

| | | | |
|-----------------------------------|-------------|-----|------------|
| <u>HMIS® HAZARD RATING</u> | HEALTH: | 1 * | Slight |
| | FIRE: | 2 | Moderate |
| | REACTIVITY: | 0 | Negligible |
| | | | * Chronic |

SUPERSEDES MSDS DATED: 09/03/98

ABBREVIATIONS:

AP = Approximately < = Less than > = Greater than
 N/A = Not Applicable N/D = Not Determined ppm = parts per million

ACRONYMS:

| | | | |
|--------|---|-------|--|
| ACGIH | American Conference of Governmental Industrial Hygienists | NFPA | National Fire Protection Association (617) 770-3000 |
| AIHA | American Industrial Hygiene Association | NIOSH | National Institute of Occupational Safety and Health |
| ANSI | American National Standards Institute (212) 642-4900 | NOIC | Notice of Intended Change (proposed change to ACGIH TLV) |
| API | American Petroleum Institute (202) 682-8000 | NTP | National Toxicology Program |
| CERCLA | Comprehensive Emergency Response, Compensation, and Liability Act | OPA | Oil Pollution Act of 1990 |
| DOT | U.S. Department of Transportation [General info: (800) 467-4922] | OSHA | U.S. Occupational Safety & Health Administration |
| EPA | U.S. Environmental Protection Agency | PEL | Permissible Exposure Limit (OSHA) |
| HMIS | Hazardous Materials Information System | RCRA | Resource Conservation and Recovery Act |
| IARC | International Agency For Research On Cancer | REL | Recommended Exposure Limit (NIOSH) |
| MSHA | Mine Safety and Health Administration | SARA | Superfund Amendments and Reauthorization Act of 1986 Title III |
| | | SCBA | Self-Contained Breathing Apparatus |

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| | | | |
|------|--|-------|---|
| SPCC | Spill Prevention, Control, and Countermeasures | TWA | Time Weighted Average (8 hr.) |
| STEL | Short-Term Exposure Limit (generally 15 minutes) | WEEL | Workplace Environmental Exposure Level (AIHA) |
| TLV | Threshold Limit Value (ACGIH) | WHMIS | Canadian Workplace Hazardous Materials Information System |
| TSCA | Toxic Substances Control Act | | |

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

APPENDIX J

| Location | Subcomponent | Eq. Light | Eq. Heavy | Eq. Type | Eq. Synthes | Eq. Mfg | Eq. Model | Sl. No. | Lube/Spec | Lube Type | Qty/ing | LUOM |
|----------|--------------|-----------------------|--|----------|-------------------------------|---------------|-------------------------------|----------|--|-----------|----------|------|
| PR1 | NHB | MHB PUMP-MOBL-CHM-02 | MOBILE, ACME 6" SELF PRIMING TRASH PUMP #2 DIRT | PUMP | WELDING UNIT | ACME/DYNAMICS | DPE150MM/0220 TRAELEN MOUNTED | 9150-50 | DL MOTOR, SAE 15W-40, 55-GAL, DRUM MFG. COASTAL | DL | 1.3 GAL | |
| PR1 | NHB | MHB WELD-VEH-CHM-3610 | WELDING UNIT (WELDING TRUCK) | WELD | GEARBOX | LINCOLN | SA-250-D3 152 | 9150-50 | DL MOTOR, SAE 15W-40, 55-GAL, DRUM MFG. COASTAL | DL | 1.5 GAL | |
| PR1 | PCL1 | PCL1-DRIVE-CROSS | PRIMARY CLARIFIER 1 CROSS COLL MECH DRIVE | DRIVE | GEARBOX | SEW-EURODRIV | K4778R57D17D14-K5 | 9150-63 | DL EP GRADE 220 (AGMA-SEF) (ISO 220) | DL | 1.5 GAL | |
| PR1 | PCL1 | PCL1-MTR-10100 | PRIMARY CLARIFIER 1 LONGITUDINAL COLL MECH DRIVE | MTR | MOTOR | SEW-EURODRIV | K48778R57D180M4-K5 | 9150-63 | DL EP GRADE 220 (AGMA-SEF) (ISO 220) | DL | 1.5 GAL | |
| PR1 | PCL2 | PCL2-DRIVE-CROSS | PRIMARY CLARIFIER 2 CROSS COLL MECH DRIVE | DRIVE | GEARBOX | SEW-EURODRIV | K4778R57D17D14-K5 | 9150-63 | DL EP GRADE 220 (AGMA-SEF) (ISO 220) | DL | 1.5 GAL | |
| PR1 | PCL2 | PCL2-DRIVE-LONG | PRIMARY CLARIFIER 2 LONGITUDINAL COLL MECH DRIVE | DRIVE | GEARBOX | SEW-EURODRIV | K48778R57D180M4-K5 | 9150-63 | DL EP GRADE 220 (AGMA-SEF) (ISO 220) | DL | 1.5 GAL | |
| PR1 | PCL3 | PCL3-DRIVE-CROSS | PRIMARY CLARIFIER 3 CROSS COLL MECH DRIVE | DRIVE | GEARBOX | SEW-EURODRIV | K4778R57D17D14-K5 | 9150-63 | DL EP GRADE 220 (AGMA-SEF) (ISO 220) | DL | 1.5 GAL | |
| PR1 | PCL3 | PCL3-DRIVE-LONG | PRIMARY CLARIFIER 3 LONGITUDINAL COLL MECH DRIVE | DRIVE | GEARBOX | SEW-EURODRIV | K48778R57D180M4-K5 | 9150-63 | DL EP GRADE 220 (AGMA-SEF) (ISO 220) | DL | 1.5 GAL | |
| PR1 | PCL4 | PCL4-DRIVE-CROSS | PRIMARY CLARIFIER 4 CROSS COLL MECH DRIVE | DRIVE | GEARBOX | SEW-EURODRIV | K4778R57D17D14-K5 | 9150-63 | DL EP GRADE 220 (AGMA-SEF) (ISO 220) | DL | 1.5 GAL | |
| PR1 | PCL4 | PCL4-DRIVE-LONG | PRIMARY CLARIFIER 4 LONGITUDINAL COLL MECH DRIVE | DRIVE | GEARBOX | SEW-EURODRIV | K48778R57D180M4-K5 | 9150-63 | DL EP GRADE 220 (AGMA-SEF) (ISO 220) | DL | 1.5 GAL | |
| PR1 | PCL5 | PCL5-DRIVE-CROSS | PRIMARY CLARIFIER 5 CROSS COLL MECH DRIVE | DRIVE | GEARBOX | SEW-EURODRIV | K4778R57D17D14-K5 | 9150-63 | DL EP GRADE 220 (AGMA-SEF) (ISO 220) | DL | 1.5 GAL | |
| PR1 | PCL5 | PCL5-DRIVE-LONG | PRIMARY CLARIFIER 5 LONGITUDINAL COLL MECH DRIVE | DRIVE | GEARBOX | SEW-EURODRIV | K48778R57D180M4-K5 | 9150-63 | DL EP GRADE 220 (AGMA-SEF) (ISO 220) | DL | 1.5 GAL | |
| PR1 | PCL6 | PCL6-MTR-10503 | PRIMARY CLARIFIER 6 LONGITUDINAL COLL MECH DRIVE | MTR | MOTOR | SEW-EURODRIV | K4778R57D17D14-K5 | 9150-63 | DL EP GRADE 220 (AGMA-SEF) (ISO 220) | DL | 1.5 GAL | |
| PR1 | PCL6 | PCL6-DRIVE-CROSS | PRIMARY CLARIFIER 6 CROSS COLL MECH DRIVE | DRIVE | GEARBOX | SEW-EURODRIV | K48778R57D180M4-K5 | 9150-63 | DL EP GRADE 220 (AGMA-SEF) (ISO 220) | DL | 1.5 GAL | |
| PR1 | PCL6 | PCL6-DRIVE-LONG | PRIMARY CLARIFIER 6 LONGITUDINAL COLL MECH DRIVE | DRIVE | GEARBOX | SEW-EURODRIV | K4778R57D17D14-K5 | 9150-63 | DL EP GRADE 220 (AGMA-SEF) (ISO 220) | DL | 1.5 GAL | |
| PR1 | PCL7 | PCL7-DRIVE-LONG | PRIMARY CLARIFIER 7 LONGITUDINAL COLL MECH DRIVE | DRIVE | GEARBOX | SEW-EURODRIV | K48778R57D180M4-K5 | 9150-63 | DL EP GRADE 220 (AGMA-SEF) (ISO 220) | DL | 1.5 GAL | |
| PR1 | PCL7 | PCL7-MTR-10700 | PRIMARY CLARIFIER 7 LONGITUDINAL COLL MECH DRIVE | MTR | MOTOR | SEW-EURODRIV | K4778R57D17D14-K5 | 9150-63 | DL EP GRADE 220 (AGMA-SEF) (ISO 220) | DL | 1.5 GAL | |
| PR1 | PCL8 | PCL8-DRIVE-CROSS | PRIMARY CLARIFIER 8 CROSS COLL MECH DRIVE | DRIVE | GEARBOX | SEW-EURODRIV | K48778R57D180M4-K5 | 9150-63 | DL EP GRADE 220 (AGMA-SEF) (ISO 220) | DL | 1.5 GAL | |
| PR1 | PCL8 | PCL8-DRIVE-LONG | PRIMARY CLARIFIER 8 LONGITUDINAL COLL MECH DRIVE | DRIVE | GEARBOX | SEW-EURODRIV | K4778R57D17D14-K5 | 9150-63 | DL EP GRADE 220 (AGMA-SEF) (ISO 220) | DL | 1.5 GAL | |
| PR1 | PCL | PCL-PUMP-SUMP-P1 | PUMP SUMP | PUMP | GEARBOX | SEW-EURODRIV | K48778R57D180M4-K5 | 9150-63 | DL EP GRADE 220 (AGMA-SEF) (ISO 220) | DL | 1.5 GAL | |
| PR1 | PCL | PCL-CMPR-01 | COMPRESSOR, PGTB AUTOMATIC OIL SYSTEM | CMPR | COMPRESSOR | ITF FLVGT | FS 3068 117 | 9150-85 | DL SYNTHETIC SYNTHFILM GT 32, ROYAL PUMPEL 55-GAL | DL | 0.63 GAL | |
| PR1 | PCL | PCL-DRIVE-01 | DRIVE, GEAR MOTOR GRAVITY THICKENER C/FACE #1 | DRIVE | GEARBOX | SPEEDRANCE | 4824270 | 9150-47 | DL MOTOR, SAE 30W, 55-GAL DRUM MFG. PHILIPS CONHO | DL | 2 GAL | |
| PR1 | PCL | PCL-DRIVE-02 | DRIVE, GEAR MOTOR GRAVITY THICKENER C/FACE #1 | DRIVE | GEARBOX | RELIANCE | MASTER XL PARALLEL RED DM21 | 9150-50 | DL MOTOR, SAE 15W-40, 55-GAL, DRUM MFG. COASTAL | DL | 0.25 GAL | |
| PR1 | PCL | PCL-DRIVE-03 | DRIVE, GEAR MOTOR GRAVITY THICKENER C/FACE #2 | DRIVE | GEARBOX | RELIANCE | MASTER XL PARALLEL RED DM21 | 9150-50 | DL MOTOR, SAE 15W-40, 55-GAL, DRUM MFG. COASTAL | DL | 0.25 GAL | |
| PR1 | PCL | PCL-DRIVE-04 | DRIVE, GEAR MOTOR GRAVITY THICKENER C/FACE #2 | DRIVE | GEARBOX | RELIANCE | MASTER XL PARALLEL RED DM21 | 9150-50 | DL MOTOR, SAE 15W-40, 55-GAL, DRUM MFG. COASTAL | DL | 0.25 GAL | |
| PR1 | PCL | PCL-DRIVE-05 | DRIVE, MAIN GRAVITY THICKENER BULL GEAR | DRIVE | GEARBOX | EMCO | 22-RM104779/08B-93 | 9150-50 | DL MOTOR, SAE 15W-40, 55-GAL, DRUM MFG. COASTAL | DL | 17 GAL | |
| PR1 | PCL | PCL-DRIVE-06 | DRIVE, MAIN GRAVITY THICKENER BULL GEAR | DRIVE | GEARBOX | EMCO | 22-RM104779/08B-93 | 9150-50 | DL MOTOR, SAE 15W-40, 55-GAL, DRUM MFG. COASTAL | DL | 17 GAL | |
| PR1 | PCL | PCL-DRIVE-07 | DRIVE, GRAVITY THICKENER TURNABLE | DRIVE | GEARBOX | EMCO | 22-RM104779/08B-93 | 9150-63 | DL EP GRADE 220 (AGMA-SEF) (CASTROL GEAR OIL) | DL | 4 GAL | |
| PR1 | PCL | PCL-DRIVE-08 | DRIVE, GRAVITY THICKENER TURNABLE | DRIVE | GEARBOX | EMCO | 22-RM104779/08B-93 | 9150-63 | DL EP GRADE 220 (AGMA-SEF) (CASTROL GEAR OIL) | DL | 4 GAL | |
| PR1 | PCL | PCL-DRIVE-09 | DRIVE, GRAVITY THICKENER TURNABLE | DRIVE | GEARBOX | EMCO | 22-RM104779/08B-93 | 9150-63 | DL EP GRADE 220 (AGMA-SEF) (CASTROL GEAR OIL) | DL | 4 GAL | |
| PR1 | PCL | PCL-DRIVE-10 | DRIVE, GRAVITY THICKENER TURNABLE | DRIVE | GEARBOX | EMCO | 22-RM104779/08B-93 | 9150-63 | DL EP GRADE 220 (AGMA-SEF) (CASTROL GEAR OIL) | DL | 4 GAL | |
| PR1 | PCL | PCL-DRIVE-11 | PUMP GRAVITY THICKENER SLUDGE, #1 TANK, SOUTH | PUMP | PUMP | CARTER/PUMP | BOI-H TRUPEX | 9150-49 | DL MOTOR, SAE 30W, 55-GAL DRUM MFG. PHILIPS CONHO | DL | 0.25 GAL | |
| PR1 | PCL | PCL-DRIVE-12 | PUMP GRAVITY THICKENER SLUDGE, #1 TANK, SOUTH | PUMP | PUMP | CARTER/PUMP | BOI-H TRUPEX | 9150-49 | DL EP GRADE 220 (AGMA-SEF) GEAR REDUCER | DL | 0.1 GAL | |
| PR1 | PCL | PCL-DRIVE-13 | PUMP GRAVITY THICKENER SLUDGE, #1 TANK, NORTH | PUMP | PUMP | CARTER/PUMP | BOI-H TRUPEX | 9150-49 | DL MOTOR, SAE 30W, 55-GAL DRUM MFG. PHILIPS CONHO | DL | 0.25 GAL | |
| PR1 | PCL | PCL-DRIVE-14 | PUMP GRAVITY THICKENER SLUDGE, #1 TANK, NORTH | PUMP | PUMP | CARTER/PUMP | BOI-H TRUPEX | 9150-49 | DL EP GRADE 220 (AGMA-SEF) GEAR REDUCER | DL | 0.1 GAL | |
| PR1 | PCL | PCL-DRIVE-15 | PUMP GRAVITY THICKENER SLUDGE, #2 TANK, SOUTH | PUMP | PUMP | CARTER/PUMP | BOI-H TRUPEX | 9150-49 | DL MOTOR, SAE 30W, 55-GAL DRUM MFG. PHILIPS CONHO | DL | 0.25 GAL | |
| PR1 | PCL | PCL-DRIVE-16 | PUMP GRAVITY THICKENER SLUDGE, #2 TANK, SOUTH | PUMP | PUMP | CARTER/PUMP | BOI-H TRUPEX | 9150-49 | DL EP GRADE 220 (AGMA-SEF) GEAR REDUCER | DL | 0.1 GAL | |
| PR1 | PCL | PCL-DRIVE-17 | PUMP GRAVITY THICKENER SLUDGE, #2 TANK, NORTH | PUMP | PUMP | CARTER/PUMP | BOI-H TRUPEX | 9150-49 | DL MOTOR, SAE 30W, 55-GAL DRUM MFG. PHILIPS CONHO | DL | 0.25 GAL | |
| PR1 | PCL | PCL-DRIVE-18 | PUMP GRAVITY THICKENER SLUDGE, #2 TANK, NORTH | PUMP | PUMP | CARTER/PUMP | BOI-H TRUPEX | 9150-49 | DL EP GRADE 220 (AGMA-SEF) GEAR REDUCER | DL | 0.1 GAL | |
| PR1 | PCL | PCL-DRIVE-19 | SYSTEM, SLUDGE PUMP OILER | SYST | SYSTEM, SEVERAL EQ COMPONENTS | JONES-ATWOOD | TYPE JGT-900 | 9150-63 | DL EP 60 GRADE 220 (0.98 GAL.) 1 EURODRIVE | DL | 0.98 GAL | |
| PR1 | PCL | PCL-DRIVE-20 | CHAMBER, PTB GRT VORTEX SEPARATOR | CHAMB | CHAMBER, GRT | JONES-ATWOOD | TYPE JGT-900 | 9150-63 | DL EP 150 GRADE 220 (0.98 GAL.) 1 EURODRIVE | DL | 0.98 GAL | |
| PR1 | PCL | PCL-DRIVE-21 | CHAMBER, PTB GRT VORTEX SEPARATOR | CHAMB | CHAMBER, GRT | JONES-ATWOOD | TYPE JGT-900 | 9150-63 | DL EP 150 GRADE 220 (0.98 GAL.) 1 EURODRIVE | DL | 0.98 GAL | |
| PR1 | PCL | PCL-DRIVE-22 | CHAMBER, PTB GRT VORTEX SEPARATOR | CHAMB | CHAMBER, GRT | JONES-ATWOOD | TYPE JGT-900 | 9150-63 | DL EP 150 GRADE 220 (0.98 GAL.) 1 EURODRIVE | DL | 0.98 GAL | |
| PR1 | PCL | PCL-DRIVE-23 | CLASSIFIER, PTB EAST GRT | CLAS | CLASSIFIER | JONES-ATWOOD | TYPE JGT-900 | 9150-53 | DL NON EP GRADE 150 AGMA-4, 55-GAL | DL | 0.25 GAL | |
| PR1 | PCL | PCL-DRIVE-24 | CLASSIFIER, PTB WEST GRT | CLAS | CLASSIFIER | JONES-ATWOOD | TYPE JGT-900 | 9150-53 | DL NON EP GRADE 150 AGMA-4, 55-GAL | DL | 0.25 GAL | |
| PR1 | PCL | PCL-DRIVE-25 | COMPRESSOR, PTB | CMPR | COMPRESSOR | WESKEMAN | U155 | 9150-52 | DL NON EP GRADE 68 ISO 220 | DL | 3 GAL | |
| PR1 | PCL | PCL-DRIVE-26 | COMPACTOR, PTB BAG | COMP | COMPACTOR | WESKEMAN | U155 | 9150-52 | DL NON EP GRADE 68 ISO 220 | DL | 3 GAL | |
| PR1 | PCL | PCL-DRIVE-27 | CONVEYOR, PTB RAG SCREW | CONV | CONVEYOR, SCREW | WESKEMAN | U155 | 9150-52 | DL NON EP GRADE 68 ISO 220 | DL | 3 GAL | |
| PR1 | PCL | PCL-DRIVE-28 | CONVEYOR, PTB RAG SCREW | CONV | CONVEYOR, SCREW | WESKEMAN | U155 | 9150-52 | DL NON EP GRADE 68 ISO 220 | DL | 3 GAL | |
| PR1 | PCL | PCL-DRIVE-29 | HYDRANT, FIRE, #07, PRELIMINARY TREATMENT BLDG | HYDR | HYDRANT | REINHEID VALV | 17.5, 181-D | 9150-91 | DL SYNTHETIC, MOBIL SHC 629 SAME AS 9150-95 SEE | DL | 4.8 GAL | |
| PR1 | PCL | PCL-DRIVE-30 | PUMP, PTB GRT #1 | PUMP | PUMP | HAYWARD GORD | XR4-12 | 9150-52 | DL MOTOR, SAE 30W, 4 OZ | DL | 0.1 GAL | |
| PR1 | PCL | PCL-DRIVE-31 | PUMP, PTB GRT #2 | PUMP | PUMP | HAYWARD GORD | XR4-12 | 9150-52 | DL NON EP GRADE 68 55-GAL | DL | 0.3 GAL | |
| PR1 | PCL | PCL-DRIVE-32 | PUMP, PTB GRT #3 | PUMP | PUMP | HAYWARD GORD | XR4-12 | 9150-52 | DL NON EP GRADE 68 55-GAL | DL | 0.3 GAL | |
| PR1 | PCL | PCL-DRIVE-33 | PUMP, PTB GRT #4 | PUMP | PUMP | HAYWARD GORD | XR4-12 | 9150-52 | DL NON EP GRADE 68 55-GAL | DL | 0.3 GAL | |
| PR1 | PCL | PCL-DRIVE-34 | SCREEN, PTB BARSREEN | SCRN | BARSREEN | INFILCO DEGR | TYPE 3A | 9150-91 | DL SYNTHETIC, MOBIL SHC 629 | DL | 0.8 GAL | |
| PR1 | PCL | PCL-DRIVE-35 | SCREEN, PTB BARSREEN | SCRN | BARSREEN | INFILCO DEGR | TYPE 3A | 9150-91 | DL SYNTHETIC, MOBIL SHC 629 | DL | 0.8 GAL | |
| PR1 | PCL | PCL-DRIVE-36 | SCREEN, PTB BARSREEN | SCRN | BARSREEN | INFILCO DEGR | TYPE 3A | 9150-91 | DL SYNTHETIC, MOBIL SHC 629 | DL | 0.8 GAL | |
| PR1 | PCL | PCL-DRIVE-37 | SCREEN, PTB BARSREEN | SCRN | BARSREEN | INFILCO DEGR | TYPE 3A | 9150-91 | DL SYNTHETIC, MOBIL SHC 629 | DL | 0.8 GAL | |
| PR1 | PCL | PCL-DRIVE-38 | SCREEN, PTB BARSREEN | SCRN | BARSREEN | INFILCO DEGR | TYPE 3A | 9150-91 | DL SYNTHETIC, MOBIL SHC 629 | DL | 0.8 GAL | |
| PR1 | PCL | PCL-DRIVE-39 | SCREEN, PTB BARSREEN | SCRN | BARSREEN | INFILCO DEGR | TYPE 3A | 9150-91 | DL SYNTHETIC, MOBIL SHC 629 | DL | 0.8 GAL | |
| PR1 | PCL | PCL-DRIVE-40 | SCREEN, PTB BARSREEN | SCRN | BARSREEN | INFILCO DEGR | TYPE 3A | 9150-91 | DL SYNTHETIC, MOBIL SHC 629 | DL | 0.8 GAL | |
| PR1 | PCL | PCL-DRIVE-41 | MOTOR, PUMP, #1 SLUDGE, POTOMAC YARDS | MTR | MOTOR | YEDOMANS GHC | 2235-CP4103 | 9150-100 | DL SYNTHETIC, MOBIL SHC 629 | DL | 0.8 GAL | |
| PR1 | PCL | PCL-DRIVE-42 | MOTOR, PUMP, #2 SLUDGE, POTOMAC YARDS | MTR | MOTOR | YEDOMANS GHC | 2235-CP4103 | 9150-100 | DL SYNTHETIC, MOBIL SHC 629 | DL | 0.8 GAL | |
| PR1 | PCL | PCL-DRIVE-43 | MOTOR, PUMP, #3 SLUDGE, POTOMAC YARDS | MTR | MOTOR | YEDOMANS GHC | 2235-CP4103 | 9150-100 | DL SYNTHETIC, MOBIL SHC 629 | DL | 0.8 GAL | |
| PR1 | PCL | PCL-DRIVE-44 | PUMP #1 SLUDGE, POTOMAC YARDS | PUMP | PUMP | YEDOMANS GHC | 2235-CP4103 | 9150-100 | DL SYNTHETIC, MOBIL SHC 629 | DL | 0.8 GAL | |
| PR1 | PCL | PCL-DRIVE-45 | PUMP #2 SLUDGE, POTOMAC YARDS | PUMP | PUMP | YEDOMANS GHC | 2235-CP4103 | 9150-100 | DL SYNTHETIC, MOBIL SHC 629 | DL | 0.8 GAL | |
| PR1 | PCL | PCL-DRIVE-46 | PUMP #3 SLUDGE, POTOMAC YARDS | PUMP | PUMP | YEDOMANS GHC | 2235-CP4103 | 9150-100 | DL SYNTHETIC, MOBIL SHC 629 | DL | 0.8 GAL | |
| PR1 | PCL | PCL-DRIVE-47 | PUMP SUBMERSIBLE RECYCLE FLOWS, #1 | PUMP | PUMP | YEDOMANS GHC | 2235-CP4103 | 9150-100 | DL SYNTHETIC, MOBIL SHC 629 | DL | 0.8 GAL | |
| PR1 | PCL | PCL-DRIVE-48 | PUMP SUBMERSIBLE RECYCLE FLOWS, #2 | PUMP | PUMP | YEDOMANS GHC | 2235-CP4103 | 9150-100 | DL SYNTHETIC, MOBIL SHC 629 | DL | 0.8 GAL | |
| PR1 | PCL | PCL-DRIVE-49 | MIXER, SLUDGE STORAGE TANK SUBMERSIBLE, #1 | MIXR | MIXER | ITF FLVGT | CP1152 181 | 9150-85 | DL SYNTHETIC SYNTHFILM GT 32, ROYAL PUMPEL, 55-GAL | DL | 1.5 GAL | |
| PR1 | PCL | PCL-DRIVE-50 | MIXER, SLUDGE STORAGE TANK SUBMERSIBLE, #2 | MIXR | MIXER | ITF FLVGT | CP1152 181 | 9150-85 | DL SYNTHETIC SYNTHFILM GT 32, ROYAL PUMPEL, 55-GAL | DL | 1.5 GAL | |
| PR1 | PCL | PCL-DRIVE-51 | MIXER, SLUDGE STORAGE TANK SUBMERSIBLE, #3 | MIXR | MIXER | ITF FLVGT | 4660-410-1794 | 9150-50 | DL MOTOR, SAE 15W-40, 55-GAL, DRUM MFG. COASTAL | DL | 0.26 GAL | |
| PR1 | PCL | PCL-DRIVE-52 | MIXER, SLUDGE STORAGE TANK SUBMERSIBLE, #3 | MIXR | MIXER | ITF FLVGT | 4660-410-1711 | 9150-50 | DL MOTOR, SAE 15W-40, 55-GAL, DRUM MFG. COASTAL | DL | 0.26 GAL | |

| Location | Substation | Equip | Equip Desc | Equip | Equip Model | Shkto | Lube Desc | Lube Type | Cyberline | UQd |
|----------|------------|---------------------|---|-------|------------------------------|---------|---|-----------|-----------|----------|
| SEC | FOPS | FOPS-EUH-01 | HEATER, ELECTRIC UNIT NO. 1, 5 KW | EUM | MAAREL P3P5105CA1H (5 KW) | 9150-51 | OIL, NON EP GRADE 32 (ISO 32 CASTROL PARADENE R & | Oil | 0.1 GAL | 0.1 GAL |
| SEC | FOPS | FOPS-EUH-02 | HEATER, ELECTRIC UNIT NO. 2, 5 KW | EUM | MAAREL P3P5105CA1H (5 KW) | 9150-51 | OIL, NON EP GRADE 32 (ISO 32 CASTROL PARADENE R & | Oil | 0.1 GAL | 0.1 GAL |
| SEC | FOPS | FOPS-EUH-03 | HEATER, ELECTRIC UNIT NO. 3, 5 KW | EUM | MAAREL P3P5105CA1H (5 KW) | 9150-51 | OIL, NON EP GRADE 32 (ISO 32 CASTROL PARADENE R & | Oil | 0.1 GAL | 0.1 GAL |
| SEC | FOPS | FOPS-EUH-WALL-01 | HEATER, ELECTRIC WALL NO. 1 | EUM | F3052372 | 9150-51 | OIL, NON EP GRADE 32 (ISO 32 CASTROL PARADENE R & | Oil | 0.01 GAL | 0.01 GAL |
| SEC | FOPS | FOPS-HYDR-FIRE-09 | HYDRANT, FIRE, 90, FOAM COIL PUMP STATION | HYDR | 4429, 5-1/4 1985 ALBERTVILLE | 9150-49 | OIL, MOTOR, SAE 40W, 4 OZ. | Oil | 0.1 GAL | 0.1 GAL |
| SEC | FOPS | FOPS-PUMP-ATM-01 | PUMP, AERATION TANK DRAIN | PUMP | 7343-B STD | 9150-47 | OIL, MOTOR, SAE 40W, 4 OZ. | Oil | 0.1 GAL | 0.1 GAL |
| SEC | FOPS | FOPS-PUMP-SUMP-01 | SUMP PUMP NO 1 | PUMP | 3068-180-1173, CP 3068 HT | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 0.63 GAL | 0.63 GAL |
| SEC | FOPS | FOPS-PUMP-SUMP-02 | SUMP PUMP NO 2 | PUMP | 3068-180-1173, CP 3068 HT | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 0.63 GAL | 0.63 GAL |
| SEC | HWB | HWB-HYDR-FIRE-04 | HYDRANT, FIRE, 100, HIGH WATER BLDG (ASE1) | HYDR | ITT FLYGT | 9150-47 | OIL, MOTOR, SAE 40W, 4 OZ. | Oil | 0.1 GAL | 0.1 GAL |
| SEC | OCB | OCB-CHPR-HVAC | COMPRESSOR, OCB HVAC | CMPR | 3N253C | 9150-92 | OIL, SYNTHETIC MOBIL RARIUS 827 55-GAL | Oil | 0.5 GAL | 0.5 GAL |
| SEC | OCB | OCB-CHPR-LAB | COMPRESSOR, OCB LAB | CMPR | M31181 | 9150-92 | OIL, SYNTHETIC MOBIL RARIUS 827 55-GAL | Oil | 0.5 GAL | 0.5 GAL |
| SEC | OCB | OCB-HVAC-MECHRM | HVAC, OCB CENTRAL PRO | HYDR | AWVA, 5-1/4 1989 ALBERTVILLE | 9150-49 | OIL, MOTOR, SAE 40W, 4 OZ. | Oil | 0.1 GAL | 0.1 GAL |
| SEC | OCB | OCB-HYDR-FIRE-11 | HYDRANT, FIRE, #11, OPERATIONS CTRL BLDG | HYDR | ITT FLYGT | 9150-47 | OIL, MOTOR, SAE 40W, 4 OZ. | Oil | 0.1 GAL | 0.1 GAL |
| SEC | OCB | OCB-PUMP-VACUUM | PUMP, OCB VACUUM PUMP LAB | PUMP | 7507-5 | 9150-91 | OIL, SYNTHETIC MOBIL RARIUS 827 55-GAL | Oil | 0.25 GAL | 0.25 GAL |
| SEC | SAT1 | SAT1-MTR-A-SOUTH | SEC AERATION TANK MTR-01 A-PASS 5, METER S3012 | MTR | 7507-5 | 9150-91 | OIL, SYNTHETIC MOBIL RARIUS 827 55-GAL | Oil | 8 GAL | 8 GAL |
| SEC | SAT1 | SAT1-MTR-B-SOUTH | SEC AERATION TANK MTR-01 B-PASS 5, METER S3014 | MTR | 7507-5 | 9150-91 | OIL, SYNTHETIC MOBIL RARIUS 827 55-GAL | Oil | 8 GAL | 8 GAL |
| SEC | SAT1 | SAT1-MTR-C-SOUTH | SEC AERATION TANK MTR-01 C-PASS 5, METER S3016 | MTR | 7507-5 | 9150-91 | OIL, SYNTHETIC MOBIL RARIUS 827 55-GAL | Oil | 8 GAL | 8 GAL |
| SEC | SAT1 | SAT1-MTR-D-SOUTH | SEC AERATION TANK MTR-01 D-PASS 5, METER S3018 | MTR | 7507-5 | 9150-91 | OIL, SYNTHETIC MOBIL RARIUS 827 55-GAL | Oil | 8 GAL | 8 GAL |
| SEC | SAT1 | SAT1-MTR-E-SOUTH | SEC AERATION TANK MTR-01 E-PASS 5, METER S3020 | MTR | 7507-5 | 9150-91 | OIL, SYNTHETIC MOBIL RARIUS 827 55-GAL | Oil | 8 GAL | 8 GAL |
| SEC | SAT2 | SAT2-MTR-A-NORTH | SEC AERATION TANK MTR-02 A-PASS 5, METER S3022 | MTR | 7507-5 | 9150-91 | OIL, SYNTHETIC MOBIL RARIUS 827 55-GAL | Oil | 8 GAL | 8 GAL |
| SEC | SAT2 | SAT2-MTR-B-NORTH | SEC AERATION TANK MTR-02 B-PASS 5, METER S3024 | MTR | 7507-5 | 9150-91 | OIL, SYNTHETIC MOBIL RARIUS 827 55-GAL | Oil | 8 GAL | 8 GAL |
| SEC | SAT2 | SAT2-MTR-C-NORTH | SEC AERATION TANK MTR-02 C-PASS 5, METER S3026 | MTR | 7507-5 | 9150-91 | OIL, SYNTHETIC MOBIL RARIUS 827 55-GAL | Oil | 8 GAL | 8 GAL |
| SEC | SAT2 | SAT2-MTR-D-NORTH | SEC AERATION TANK MTR-02 D-PASS 5, METER S3028 | MTR | 7507-5 | 9150-91 | OIL, SYNTHETIC MOBIL RARIUS 827 55-GAL | Oil | 8 GAL | 8 GAL |
| SEC | SAT2 | SAT2-MTR-E-NORTH | SEC AERATION TANK MTR-02 E-PASS 5, METER S3030 | MTR | 7507-5 | 9150-91 | OIL, SYNTHETIC MOBIL RARIUS 827 55-GAL | Oil | 8 GAL | 8 GAL |
| SEC | SAT3 | SAT3-MTR-A-SOUTH | SEC AERATION TANK MTR-03 A-PASS 5, METER S3032 | MTR | 7507-5 | 9150-91 | OIL, SYNTHETIC MOBIL RARIUS 827 55-GAL | Oil | 8 GAL | 8 GAL |
| SEC | SAT3 | SAT3-MTR-B-SOUTH | SEC AERATION TANK MTR-03 B-PASS 5, METER S3034 | MTR | 7507-5 | 9150-91 | OIL, SYNTHETIC MOBIL RARIUS 827 55-GAL | Oil | 8 GAL | 8 GAL |
| SEC | SAT3 | SAT3-MTR-C-NORTH | SEC AERATION TANK MTR-03 C-PASS 5, METER S3036 | MTR | 7507-5 | 9150-91 | OIL, SYNTHETIC MOBIL RARIUS 827 55-GAL | Oil | 8 GAL | 8 GAL |
| SEC | SAT3 | SAT3-MTR-D-NORTH | SEC AERATION TANK MTR-03 D-PASS 5, METER S3038 | MTR | 7507-5 | 9150-91 | OIL, SYNTHETIC MOBIL RARIUS 827 55-GAL | Oil | 8 GAL | 8 GAL |
| SEC | SAT | SAT-EUH-01 | HEATER, ELECTRIC UNIT NO. 1, 5 KW | EUM | MAAREL P3P5105CA1H (5 KW) | 9150-51 | OIL, NON EP GRADE 32 (ISO 32 CASTROL PARADENE R & | Oil | 0.1 GAL | 0.1 GAL |
| SEC | SAT | SAT-EUH-02 | HEATER, ELECTRIC UNIT NO. 2, 5 KW | EUM | MAAREL P3P5105CA1H (5 KW) | 9150-51 | OIL, NON EP GRADE 32 (ISO 32 CASTROL PARADENE R & | Oil | 0.1 GAL | 0.1 GAL |
| SEC | SAT | SAT-EUH-03 | HEATER, ELECTRIC UNIT NO. 3, 5 KW | EUM | MAAREL P3P5105CA1H (5 KW) | 9150-51 | OIL, NON EP GRADE 32 (ISO 32 CASTROL PARADENE R & | Oil | 0.1 GAL | 0.1 GAL |
| SEC | SATPG | SATPG-PUMP-OR-01 | PUMP, AERATION TANK DRAIN, #1, 2, 3 TANKS | PUMP | TE44-87 | 9150-47 | OIL, MOTOR, SAE 30W, PHILIPS CORCO, QUARTS | Oil | 1.25 GAL | 1.25 GAL |
| SEC | SAT | SAT-PUMP-SUMP-01 | PUMP, SUMP #1 | PUMP | CF 3068-180-1424 | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 0.63 GAL | 0.63 GAL |
| SEC | SAT | SAT-PUMP-SUMP-02 | PUMP, SUMP #2 | PUMP | CF 3068-180-1424 | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 0.63 GAL | 0.63 GAL |
| SEC | SAT | SAT-PUMP-SUMP-03 | PUMP, SUMP #3 | PUMP | CF 3068-180-1424 | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 0.63 GAL | 0.63 GAL |
| SEC | SBB | SBB-BLWR-01 | BLOWER, SECONDARY AERATION, LOW PRESSURE #1 | BLWR | ROOTS DRESSE | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 1.25 GAL | 1.25 GAL |
| SEC | SBB | SBB-BLWR-02 | BLOWER, SECONDARY AERATION, LOW PRESSURE #2 | BLWR | ROOTS DRESSE | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 1.25 GAL | 1.25 GAL |
| SEC | SBB | SBB-BLWR-03 | BLOWER, SECONDARY AERATION, SWING #3 | BLWR | ROOTS DRESSE | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 1.25 GAL | 1.25 GAL |
| SEC | SBB | SBB-BLWR-04 | BLOWER, SECONDARY AERATION, HIGH PRESSURE #4 | BLWR | ROOTS DRESSE | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 1.25 GAL | 1.25 GAL |
| SEC | SBB | SBB-BLWR-05 | BLOWER, SECONDARY AERATION, HIGH PRESSURE #5 | BLWR | ROOTS DRESSE | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 1.25 GAL | 1.25 GAL |
| SEC | SBB | SBB-CMPR-03 | COMPRESSOR, SECONDARY BLOWER WEST | CMPR | 5012MS RSE | 9150-92 | OIL, SYNTHETIC MOBIL RARIUS 827 55-GAL | Oil | 0.25 GAL | 0.25 GAL |
| SEC | SBB | SBB-FILT-OR-BLWR-01 | FILTER, LUBE OIL, BLWR#1 | FRT | 51518-0150-1801 | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 3.8 GAL | 3.8 GAL |
| SEC | SBB | SBB-FILT-OR-BLWR-02 | FILTER, LUBE OIL, BLWR#2 | FRT | 51518-0150-1801 | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 3.8 GAL | 3.8 GAL |
| SEC | SBB | SBB-FILT-OR-BLWR-03 | FILTER, LUBE OIL, BLWR#3 | FRT | 51518-0150-1801 | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 3.8 GAL | 3.8 GAL |
| SEC | SBB | SBB-FILT-OR-BLWR-04 | FILTER, LUBE OIL, BLWR#4 | FRT | 51518-0150-1801 | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 3.8 GAL | 3.8 GAL |
| SEC | SBB | SBB-FRT-OR-BLWR-05 | FRT, LUBE OIL, BLWR#5 | FRT | 51518-0150-1801 | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 3.8 GAL | 3.8 GAL |
| SEC | SBB | SBB-HYDR-FIRE-06 | HYDRANT, FIRE, #06, SECONDARY BLOWER BLDG | HYDR | 25HL | 9150-69 | OIL, PULSALUBE 7H P7H/PH80002 009 (5-GALLON COIT | Oil | 0.25 GAL | 0.25 GAL |
| SEC | SBB | SBB-MTR-BLWR-01 | MOTOR, BLWR #1, LOW PRESSURE | MTR | PULSAFEEDER | 9150-69 | OIL, PULSALUBE 7H P7H/PH80002 009 (5-GALLON COIT | Oil | 0.25 GAL | 0.25 GAL |
| SEC | SBB | SBB-MTR-BLWR-02 | MOTOR, BLWR #2, LOW PRESSURE | MTR | PULSAFEEDER | 9150-69 | OIL, PULSALUBE 7H P7H/PH80002 009 (5-GALLON COIT | Oil | 0.25 GAL | 0.25 GAL |
| SEC | SBB | SBB-MTR-BLWR-03 | MOTOR, BLWR #3, SWING | MTR | MM-3196 X 6 X13 | 9150-52 | OIL, NON EP GRADE 68 55-GAL MOBIL TERESSTIC 68 | Oil | 0.35 GAL | 0.35 GAL |
| SEC | SBB | SBB-MTR-BLWR-04 | MOTOR, BLWR #4, HIGH PRESSURE | MTR | MM-3196 X 6 X13 | 9150-52 | OIL, NON EP GRADE 68 55-GAL MOBIL TERESSTIC 68 | Oil | 0.35 GAL | 0.35 GAL |
| SEC | SBB | SBB-MTR-BLWR-05 | MOTOR, BLWR #5, HIGH PRESSURE | MTR | MM-3196 X 6 X13 | 9150-52 | OIL, NON EP GRADE 68 55-GAL MOBIL TERESSTIC 68 | Oil | 0.35 GAL | 0.35 GAL |
| SEC | SBB | SBB-PUMP-HYPO-01 | PUMP, HYPO, HIGH CAPACITY FILL DOOR CONTROL, #1 | PUMP | ITT FLYGT | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 0.63 GAL | 0.63 GAL |
| SEC | SBB | SBB-PUMP-HYPO-02 | PUMP, HYPO, HIGH CAPACITY FILL DOOR CONTROL, #2 | PUMP | ITT FLYGT | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 0.63 GAL | 0.63 GAL |
| SEC | SBB | SBB-PUMP-HYPO-03 | PUMP, HYPO, METERING DOOR CONTROL, #3 | PUMP | ITT FLYGT | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 0.63 GAL | 0.63 GAL |
| SEC | SBB | SBB-PUMP-HYPO-04 | PUMP, HYPO, METERING DOOR CONTROL, #4 | PUMP | ITT FLYGT | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 0.63 GAL | 0.63 GAL |
| SEC | SBB | SBB-PUMP-REC-01 | PUMP, WATER RECIRCULATION OOR CONTROL STAGE #1 | PUMP | 3068-180-1173, CP 3068 HT | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 0.63 GAL | 0.63 GAL |
| SEC | SBB | SBB-PUMP-REC-02 | PUMP, WATER RECIRCULATION OOR CONTROL STAGE #2 | PUMP | 3068-180-1173, CP 3068 HT | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 0.63 GAL | 0.63 GAL |
| SEC | SBB | SBB-PUMP-REC-03 | PUMP, WATER RECIRCULATION OOR CONTROL STAGE #3 | PUMP | 3068-180-1173, CP 3068 HT | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 0.63 GAL | 0.63 GAL |
| SEC | SBB | SBB-PUMP-SUMP-01 | PUMP, SUMP #1, SBB | PUMP | 3068-180-1173, CP 3068 HT | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 0.63 GAL | 0.63 GAL |
| SEC | SBB | SBB-PUMP-SUMP-02 | PUMP, SUMP #2, SBB | PUMP | 3068-180-1173, CP 3068 HT | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 0.63 GAL | 0.63 GAL |
| SEC | SBB | SBB-PUMP-SUMP-03 | PUMP, SUMP #3, SBB | PUMP | 3068-180-1173, CP 3068 HT | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 0.63 GAL | 0.63 GAL |
| SEC | SBB | SBB-SYST-OR-BLWR-01 | OR SYSTEM, BLWR#1 | SYST | ITT FLYGT | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 0.63 GAL | 0.63 GAL |
| SEC | SBB | SBB-SYST-OR-BLWR-02 | OR SYSTEM, BLWR#2 | SYST | ITT FLYGT | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 0.63 GAL | 0.63 GAL |
| SEC | SBB | SBB-SYST-OR-BLWR-03 | OR SYSTEM, BLWR#3 | SYST | ITT FLYGT | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 0.63 GAL | 0.63 GAL |
| SEC | SBB | SBB-SYST-OR-BLWR-04 | OR SYSTEM, BLWR#4 | SYST | ITT FLYGT | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 0.63 GAL | 0.63 GAL |
| SEC | SBB | SBB-SYST-OR-BLWR-05 | OR SYSTEM, BLWR#5 | SYST | ITT FLYGT | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 0.63 GAL | 0.63 GAL |
| SEC | SBB | SBB-XCHG-OR-BLWR-01 | HEAT EXCHANGER, LUBE OIL, BLWR#1 | XCHG | 08060 CPK | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 36 GAL | 36 GAL |
| SEC | SBB | SBB-XCHG-OR-BLWR-02 | HEAT EXCHANGER, LUBE OIL, BLWR#2 | XCHG | 08060 CPK | 9150-85 | OIL, SYNTHETIC SYNTHLM GT 32, ROYAL PURPLE 55-GAL | Oil | 36 GAL | 36 GAL |

| Location | SubLocation | EqType | EqTypeDesc | EqMfg | EqModel | SHNo | LubriDesc | LubriType | QtyRes (L/D/G) |
|----------|-------------|--------------|------------|-------|---------|------|-----------|-----------|----------------|
| SEC | SGF | FUEL PUMP #3 | | | | | | OIL | 1.6 GAL |
| SEC | SGF | FUEL PUMP #4 | | | | | | OIL | 1.6 GAL |
| TOTAL | | | | | | | | | 3.93 GAL |
| MAX | | | | | | | | | 600 GAL |

| Location | SubLocation1 | EqTagNo | EqDesc | EqType | EqTypeDesc | EqMfg | EqModel | SiteNo | LubeDescr | LubeType | Qty/Res | DOM |
|----------|--------------|-----------------------|---|--------|---------------------|-------------|--------------------------------|---------|---|----------|-----------|-----|
| AWT | ABWB | ABWB-HYDR-FIRE-14 | HYDRANT, FIRE #14, BACKWASH BLDG | HYDR | HYDRANT | MULLER COMP | A429, 5-1/4 1985 ALBERTVILLE | 9150-49 | OIL, MOTOR, SAE 40W, 4 OZ. | OIL | 0.1 GAL | |
| AWT | ABWB | ABWB-PUMP-SUMP-BWW-01 | PUMP, SUMP, BACKWASH TANK #1 | PUMP | PUMP | ITT FLYGT | CP 3068 HT 256 | 9150-85 | OIL, SYNTHETIC SYNFLUM GT 32, ROYAL PURPLE 55-GAL | OIL | 0.63 GAL | |
| AWT | ABWB | ABWB-PUMP-SUMP-BWW-02 | PUMP, SUMP, BACKWASH VALVE VAULT | PUMP | PUMP | ITT FLYGT | CP 3068-256 [SXVM-3 OBSOLETE] | 9150-85 | OIL, SYNTHETIC SYNFLUM GT 32, ROYAL PURPLE, 55-GAL | OIL | 0.63 GAL | |
| SEC | ASE2 | ASE2-MTR-PUMP-01 | MOTOR, ASE2 PUMP NO. 1 | MTR | MOTOR | USMOTORS | | 9150-52 | OIL, NON EP GRADE 68, 41 QTS | OIL | 10.25 GAL | |
| SEC | ASE2 | ASE2-MTR-PUMP-02 | MOTOR, ASE2 PUMP NO. 2 | MTR | MOTOR | USMOTORS | | 9150-52 | OIL, NON EP GRADE 68, 41 QTS | OIL | 10.25 GAL | |
| SEC | ASE2 | ASE2-MTR-PUMP-03 | MOTOR, ASE2 PUMP NO. 3 | MTR | MOTOR | USMOTORS | | 9150-52 | OIL, NON EP GRADE 68, 41 QTS | OIL | 10.25 GAL | |
| SEC | ASE2 | ASE2-MTR-PUMP-04 | MOTOR, ASE2 PUMP NO. 4 | MTR | MOTOR | USMOTORS | | 9150-52 | OIL, NON EP GRADE 68, 41 QTS | OIL | 10.25 GAL | |
| SEC | ASE2 | ASE2-PUMP-SUMP-01 | PUMP, ASE2 SUMP #1 | PUMP | PUMP | ITT FLYGT | CS 3045-181-6072 | 9150-85 | OIL, MARCOL 152, P/N 901752 | OIL | 0.25 GAL | |
| SEC | ASE2 | ASE2-PUMP-SUMP-02 | PUMP, ASE2 SUMP #2 | PUMP | PUMP | ITT FLYGT | CS 3045-181-6072 | 9150-85 | OIL, MARCOL 152, P/N 901752 | OIL | 0.25 GAL | |
| SEC | ASE2 | ASE2-PUMP-SUMP-03 | PUMP, ASE2 SUMP #3 | PUMP | PUMP | ITT FLYGT | CS 3045-181-6072 | 9150-85 | OIL, SYNTHETIC SYNFLUM GT 32, ROYAL PURPLE, 55-GAL | OIL | 0.47 GAL | |
| SEC | ASE2 | ASE2-PUMP-SUMP-04 | PUMP, ASE2 SUMP #4 | PUMP | PUMP | ITT FLYGT | CS 3045-181-6072 | 9150-85 | OIL, SYNTHETIC SYNFLUM GT 32, ROYAL PURPLE, 55-GAL | OIL | 0.47 GAL | |
| AWT | FADF | FADF-BLWR-01 | BLOWER, EFFLUENT FILTER BACKWASH AIR #1 | BLWR | CENTRIFUGAL DRESSER | | 1222 RAS-1V-N-CL-68-BLOG | 9150-64 | OIL, EP GRADE 320 (AGMA-6EP) (CASTROL GEAR OIL | OIL | 1.6 GAL | |
| AWT | FADF | FADF-BLWR-02-INBOARD | BLOWER, EFFLUENT FILTER BACKWASH AIR #2 | BLWR | CENTRIFUGAL DRESSER | | 1222 RAS-1V-N-CL-68-BLOG | 9150-64 | OIL, EP GRADE 320 (AGMA-6EP) (CASTROL GEAR OIL | OIL | 1.6 GAL | |
| AWT | FADF | FADF-HYDR-FIRE-10 | FACILITY | HYDR | HYDRANT | AMERFLOW | 86285, 5-1/4 | 9150-49 | OIL, MOTOR, SAE 40W, 4 OZ. | OIL | 0.1 GAL | |
| AWT | FADF | FADF-HYDR-FIRE-17 | FACILITY | HYDR | HYDRANT | AMERFLOW | 86285, 5-1/4 | 9150-49 | OIL, MOTOR, SAE 40W, 4 OZ. | OIL | 0.1 GAL | |
| AWT | FADF | FADF-PUMP-DR | PUMP, DRAIN, CHLORINE CONTACT TANK | PUMP | PUMP | GORMAN RUPP | T6A35-B/F ISSUE 1-11.875" DIA | 9150-47 | OIL, MOTOR, SAE 30W, PHILIPS CONOCO, QUARTS | OIL | 1.25 GAL | |
| AWT | FADF | FADF-PUMP-PHA-01 | PUMP, PHOSPHORIC ACID NO. 1 | PUMP | PUMP | MILTON ROY | MDH122X004 - MILROYAL D | 9150-91 | OIL, SYNTHETIC MOBIL SHC 629, 1 QT. | OIL | 0.25 GAL | |
| AWT | FADF | FADF-PUMP-PHA-02 | PUMP, PHOSPHORIC ACID NO. 2 | PUMP | PUMP | MILTON ROY | MDH122X004 - MILROYAL D | 9150-91 | OIL, SYNTHETIC MOBIL SHC 629, 1 QT. | OIL | 0.25 GAL | |
| AWT | FADF | FADF-PUMP-SEED | PUMP, SEED, FADF FILTER | PUMP | PUMP | GORMAN RUPP | T3A35-B/F ISSUE 1 - 8.125" DIA | 9150-47 | OIL, MOTOR, SAE 30W, 55 GAL DRUM MFG. PHILIPS CONOC | OIL | 0.31 GAL | |
| AWT | FADF | FADF-PUMP-SUMP-PHA | SUMP PUMP, CONTAINMENT AREA | PUMP | PUMP | STANCORINC | U6K-E | 0103- | OIL, 120 CMA3, P/N 13133 | OIL | 1 GAL | |
| AWT | MFF | MFF-PUMP-METH-01 | PUMP, METHANOL NO. 1 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, GEAR AGMA P/N 407012020 7, 2.5 GAL CAN | OIL | 1 GAL | |
| AWT | MFF | MFF-PUMP-METH-02 | PUMP, METHANOL NO. 2 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-03 | PUMP, METHANOL NO. 3 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYDRAULIC ISO 32AW, (FOR HYDR) 3 QT. | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-04 | PUMP, METHANOL NO. 4 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, GEAR AGMA P/N 407012020 7, 2.5 GAL CAN | OIL | 2.5 GAL | |
| AWT | MFF | MFF-PUMP-METH-05 | PUMP, METHANOL NO. 5 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, GEAR AGMA P/N 407012020 7, 2.5 GAL CAN | OIL | 2.5 GAL | |
| AWT | MFF | MFF-PUMP-METH-06 | PUMP, METHANOL NO. 6 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-07 | PUMP, METHANOL NO. 7 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYDRAULIC ISO 32AW, (FOR HYDR) 3 QT. | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-08 | PUMP, METHANOL NO. 8 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-09 | PUMP, METHANOL NO. 9 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, GEAR AGMA P/N 407012020 7, 2.5 GAL CAN | OIL | 2.5 GAL | |
| AWT | MFF | MFF-PUMP-METH-10 | PUMP, METHANOL NO. 10 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, GEAR AGMA P/N 407012020 7, 2.5 GAL CAN | OIL | 2.5 GAL | |
| AWT | MFF | MFF-PUMP-METH-11 | PUMP, METHANOL NO. 11 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-12 | PUMP, METHANOL NO. 12 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYDRAULIC ISO 32AW, (FOR HYDR) 3 QT. | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-13 | PUMP, METHANOL NO. 13 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-14 | PUMP, METHANOL NO. 14 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, GEAR AGMA P/N 407012020 7, 2.5 GAL CAN | OIL | 2.5 GAL | |
| AWT | MFF | MFF-PUMP-METH-15 | PUMP, METHANOL NO. 15 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, GEAR AGMA P/N 407012020 7, 2.5 GAL CAN | OIL | 2.5 GAL | |
| AWT | MFF | MFF-PUMP-METH-16 | PUMP, METHANOL NO. 16 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-17 | PUMP, METHANOL NO. 17 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYDRAULIC ISO 32AW, (FOR HYDR) 3 QT. | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-18 | PUMP, METHANOL NO. 18 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-19 | PUMP, METHANOL NO. 19 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, GEAR AGMA P/N 407012020 7, 2.5 GAL CAN | OIL | 2.5 GAL | |
| AWT | MFF | MFF-PUMP-METH-20 | PUMP, METHANOL NO. 20 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, GEAR AGMA P/N 407012020 7, 2.5 GAL CAN | OIL | 2.5 GAL | |
| AWT | MFF | MFF-PUMP-METH-21 | PUMP, METHANOL NO. 21 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-22 | PUMP, METHANOL NO. 22 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYDRAULIC ISO 32AW, (FOR HYDR) 3 QT. | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-23 | PUMP, METHANOL NO. 23 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-24 | PUMP, METHANOL NO. 24 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, GEAR AGMA P/N 407012020 7, 2.5 GAL CAN | OIL | 2.5 GAL | |
| AWT | MFF | MFF-PUMP-METH-25 | PUMP, METHANOL NO. 25 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, GEAR AGMA P/N 407012020 7, 2.5 GAL CAN | OIL | 2.5 GAL | |
| AWT | MFF | MFF-PUMP-METH-26 | PUMP, METHANOL NO. 26 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-27 | PUMP, METHANOL NO. 27 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYDRAULIC ISO 32AW, (FOR HYDR) 3 QT. | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-28 | PUMP, METHANOL NO. 28 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-29 | PUMP, METHANOL NO. 29 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, GEAR AGMA P/N 407012020 7, 2.5 GAL CAN | OIL | 2.5 GAL | |
| AWT | MFF | MFF-PUMP-METH-30 | PUMP, METHANOL NO. 30 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, GEAR AGMA P/N 407012020 7, 2.5 GAL CAN | OIL | 2.5 GAL | |
| AWT | MFF | MFF-PUMP-METH-31 | PUMP, METHANOL NO. 31 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-32 | PUMP, METHANOL NO. 32 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYDRAULIC ISO 32AW, (FOR HYDR) 3 QT. | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-33 | PUMP, METHANOL NO. 33 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-34 | PUMP, METHANOL NO. 34 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, GEAR AGMA P/N 407012020 7, 2.5 GAL CAN | OIL | 2.5 GAL | |
| AWT | MFF | MFF-PUMP-METH-35 | PUMP, METHANOL NO. 35 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, GEAR AGMA P/N 407012020 7, 2.5 GAL CAN | OIL | 2.5 GAL | |
| AWT | MFF | MFF-PUMP-METH-36 | PUMP, METHANOL NO. 36 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-37 | PUMP, METHANOL NO. 37 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYDRAULIC ISO 32AW, (FOR HYDR) 3 QT. | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-38 | PUMP, METHANOL NO. 38 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-39 | PUMP, METHANOL NO. 39 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, GEAR AGMA P/N 407012020 7, 2.5 GAL CAN | OIL | 2.5 GAL | |
| AWT | MFF | MFF-PUMP-METH-40 | PUMP, METHANOL NO. 40 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, GEAR AGMA P/N 407012020 7, 2.5 GAL CAN | OIL | 2.5 GAL | |
| AWT | MFF | MFF-PUMP-METH-41 | PUMP, METHANOL NO. 41 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-42 | PUMP, METHANOL NO. 42 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYDRAULIC ISO 32AW, (FOR HYDR) 3 QT. | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-43 | PUMP, METHANOL NO. 43 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-44 | PUMP, METHANOL NO. 44 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, GEAR AGMA P/N 407012020 7, 2.5 GAL CAN | OIL | 2.5 GAL | |
| AWT | MFF | MFF-PUMP-METH-45 | PUMP, METHANOL NO. 45 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, GEAR AGMA P/N 407012020 7, 2.5 GAL CAN | OIL | 2.5 GAL | |
| AWT | MFF | MFF-PUMP-METH-46 | PUMP, METHANOL NO. 46 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-47 | PUMP, METHANOL NO. 47 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYDRAULIC ISO 32AW, (FOR HYDR) 3 QT. | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-48 | PUMP, METHANOL NO. 48 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-49 | PUMP, METHANOL NO. 49 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, GEAR AGMA P/N 407012020 7, 2.5 GAL CAN | OIL | 2.5 GAL | |
| AWT | MFF | MFF-PUMP-METH-50 | PUMP, METHANOL NO. 50 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, GEAR AGMA P/N 407012020 7, 2.5 GAL CAN | OIL | 2.5 GAL | |
| AWT | MFF | MFF-PUMP-METH-51 | PUMP, METHANOL NO. 51 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-52 | PUMP, METHANOL NO. 52 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYDRAULIC ISO 32AW, (FOR HYDR) 3 QT. | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-53 | PUMP, METHANOL NO. 53 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T115E11 | 0101- | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| AWT | MFF | MFF-PUMP-METH-54 | PUMP, METHANOL NO. 54 | PUMP | PUMP | MILTON ROY | MBH3218FPBF8M4515T1 | | | | | |

| Location | SubLocation1 | EqTagNo | EqDesc | EqType | EqTypeDesc | EnMfg | EqModel | StkNo | LubeDescr | LubeType | QtyReg | UOM |
|----------|--------------|-------------------------|--------------------------------------|--------|---------------------------|--------------|---------------------------|---------|---|----------|--------|-----|
| AWT | PAF | PAF-PUMP-SUMP-02 | SUMP PUMP NO 2, PUMP AREA | PUMP | PUMP | STANCORINC | U6K-E | 0103- | OIL, 120 CMS, P/N 13133 | OIL | 1 | GAL |
| AWT | PAF | PAF-VALV-PRV-PEW-01 | HEADER, WEST | VALV | GLOBE, PLUG, GA INDUSTRIE | 625-DS | 625-DS | 9150-71 | OIL, HYDRAULIC ISO 32AW CASTROL PARADENE P/N 40219 | OIL | 0.2 | GAL |
| AWT | PAF | PAF-VALV-PRV-PEW-02 | HEADER, EAST | VALV | GLOBE, PLUG, GA INDUSTRIE | 625-DS | 625-DS | 9150-71 | OIL, HYDRAULIC ISO 32AW CASTROL PARADENE P/N 40219 | OIL | 0.2 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-01 | PUMP, SODIUM HYPOCHLORITE FEED NO. 1 | PUMP | PUMP | MILTON ROY | MBH5628FB7E151ST11DPG2 | 0101- | OIL, GEAR AGMA P/N 4070122020 7, 2.5 GAL CAN | OIL | 1 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-01 | PUMP, SODIUM HYPOCHLORITE FEED NO. 1 | PUMP | PUMP | MILTON ROY | MBH5628FB7E151ST11DPG2 | 0101- | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-01 | PUMP, SODIUM HYPOCHLORITE FEED NO. 1 | PUMP | PUMP | MILTON ROY | MBH5628FB7E151ST11DPG2 | 9150-71 | OIL, HYDRAULIC ISO 32AW, 3 QTS. | OIL | 0.75 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-02 | PUMP, SODIUM HYPOCHLORITE FEED NO. 2 | PUMP | PUMP | MILTON ROY | MBH5628FB7E151ST11DPG2 | 9150-96 | OIL, SYNTHETIC SHC 634 (FOR GEARBOX) 2.5 GAL | OIL | 1 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-02 | PUMP, SODIUM HYPOCHLORITE FEED NO. 2 | PUMP | PUMP | MILTON ROY | MBH5628FB7E151ST11DPG2 | 0101- | OIL, GEAR AGMA P/N 4070122020 7, 2.5 GAL CAN | OIL | 1 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-02 | PUMP, SODIUM HYPOCHLORITE FEED NO. 2 | PUMP | PUMP | MILTON ROY | MBH5628FB7E151ST11DPG2 | 9150-71 | OIL, HYDRAULIC ISO 32AW, 3 QTS. | OIL | 0.75 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-02 | PUMP, SODIUM HYPOCHLORITE FEED NO. 2 | PUMP | PUMP | MILTON ROY | MBH5628FB7E151ST11DPG2 | 0101- | OIL, GEAR AGMA P/N 4070122020 7, 2.5 GAL CAN | OIL | 1 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-03 | PUMP, SODIUM HYPOCHLORITE FEED NO. 3 | PUMP | PUMP | MILTON ROY | MBH4028FB7E151ST11DPG2 | 9150-96 | OIL, SYNTHETIC SHC 634 (FOR GEARBOX) 2.5 GAL | OIL | 0.75 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-03 | PUMP, SODIUM HYPOCHLORITE FEED NO. 3 | PUMP | PUMP | MILTON ROY | MBH4028FB7E151ST11DPG2 | 0101- | OIL, GEAR AGMA P/N 4070122020 7, 2.5 GAL CAN | OIL | 1 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-03 | PUMP, SODIUM HYPOCHLORITE FEED NO. 3 | PUMP | PUMP | MILTON ROY | MBH4028FB7E151ST11DPG2 | 9150-71 | OIL, HYDRAULIC ISO 32AW, 3 QTS. | OIL | 0.75 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-04 | PUMP, SODIUM HYPOCHLORITE FEED NO. 4 | PUMP | PUMP | MILTON ROY | MBH4028FB7E151ST11DPG2 | 0101- | OIL, GEAR AGMA P/N 4070122020 7, 2.5 GAL CAN | OIL | 1 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-04 | PUMP, SODIUM HYPOCHLORITE FEED NO. 4 | PUMP | PUMP | MILTON ROY | MBH4028FB7E151ST11DPG2 | 9150-96 | OIL, SYNTHETIC SHC 634 (FOR GEARBOX) 2.5 GAL | OIL | 0.75 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-05 | PUMP, SODIUM HYPOCHLORITE FEED NO. 5 | PUMP | PUMP | MILTON ROY | MBH4028FB7E151ST11DPG2 | 0101- | OIL, GEAR AGMA P/N 4070122020 7, 2.5 GAL CAN | OIL | 1 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-05 | PUMP, SODIUM HYPOCHLORITE FEED NO. 5 | PUMP | PUMP | MILTON ROY | MBH4028FB7E151ST11DPG2 | 9150-71 | OIL, HYDRAULIC ISO 32AW, 3 QTS. | OIL | 0.75 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-06 | PUMP, SODIUM HYPOCHLORITE FEED NO. 6 | PUMP | PUMP | MILTON ROY | MBH5628FB7E151ST11DPG2 | 0101- | OIL, HYD, ZURNPREEN P/N 4070122020 7, 2.5 GAL CAN | OIL | 0.75 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-06 | PUMP, SODIUM HYPOCHLORITE FEED NO. 6 | PUMP | PUMP | MILTON ROY | MBH5628FB7E151ST11DPG2 | 9150-96 | OIL, SYNTHETIC SHC 634 (FOR GEARBOX) 2.5 GAL | OIL | 0.75 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-06 | PUMP, SODIUM HYPOCHLORITE FEED NO. 6 | PUMP | PUMP | MILTON ROY | MBH5628FB7E151ST11DPG2 | 0101- | OIL, GEAR AGMA P/N 4070122020 7, 2.5 GAL CAN | OIL | 1 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-07 | PUMP, SODIUM HYPOCHLORITE FEED NO. 7 | PUMP | PUMP | MILTON ROY | MBH5628FB7E151ST11DPG2 | 9150-96 | OIL, SYNTHETIC SHC 634 (FOR GEARBOX) 2.5 GAL | OIL | 0.75 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-08 | PUMP, SODIUM HYPOCHLORITE FEED NO. 8 | PUMP | PUMP | MILTON ROY | MDH122X0005 | 9150-91 | OIL, SYNTHETIC, MOBIL SHC 629 - 1 QT. | OIL | 0.25 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-TRFR-01 | NO. 1 | PUMP | PUMP | MILTON ROY | MBH6428FB7E151ST11DPG2 | 0101- | OIL, GEAR AGMA P/N 4070122020 7, 2.5 GAL CAN | OIL | 1 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-TRFR-01 | NO. 1 | PUMP | PUMP | MILTON ROY | MBH6428FB7E151ST11DPG2 | 9150-71 | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-TRFR-01 | NO. 1 | PUMP | PUMP | MILTON ROY | MBH6428FB7E151ST11DPG2 | 0101- | OIL, HYD, ZURNPREEN P/N 4070122020 7, 2.5 GAL CAN | OIL | 1 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-TRFR-02 | NO. 2 | PUMP | PUMP | MILTON ROY | MBH6428FB7E151ST11DPG2 | 9150-96 | OIL, SYNTHETIC SHC 634 (FOR GEARBOX) 2.5 GAL | OIL | 0.75 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-TRFR-02 | NO. 2 | PUMP | PUMP | MILTON ROY | MBH6428FB7E151ST11DPG2 | 0101- | OIL, GEAR AGMA P/N 4070122020 7, 2.5 GAL CAN | OIL | 1 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-TRFR-02 | NO. 2 | PUMP | PUMP | MILTON ROY | MBH6428FB7E151ST11DPG2 | 9150-71 | OIL, HYD, ZURNPREEN P/N 4070126020 15A, QUART | OIL | 0.75 | GAL |
| AWT | SHF | SHF-PUMP-HYPO-TRFR-02 | NO. 2 | PUMP | PUMP | MILTON ROY | MBH6428FB7E151ST11DPG2 | 0101- | OIL, GEAR AGMA P/N 4070122020 7, 2.5 GAL CAN | OIL | 1 | GAL |
| AWT | SHF | SHF-PUMP-RECIRC-01 | PUMP, HYPOCHLORITE RECIRCULATION #1 | PUMP | PUMP | MILTON ROY | MBH6428FB7E151ST11DPG2 | 9150-96 | OIL, SYNTHETIC SHC 634 (FOR GEARBOX) 2.5 GAL | OIL | 2.5 | GAL |
| AWT | SHF | SHF-PUMP-RECIRC-02 | PUMP, HYPOCHLORITE RECIRCULATION #2 | PUMP | PUMP | MILTON ROY | MBH6428FB7E151ST11DPG2 | 0103- | OIL, NON EP GRADE 68 55-GAL MOBIL TERESTSTIC 68 | OIL | 0.3 | GAL |
| AWT | SHF | SHF-PUMP-SUMP-01 | SUMP PUMP NO 1, STORAGE AREA | PUMP | PUMP | STANCORINC | U6K-E5 | 9150-52 | OIL, NON EP GRADE 68 55-GAL MOBIL TERESTSTIC 68 | OIL | 1 | GAL |
| AWT | SHF | SHF-PUMP-SUMP-02 | SUMP PUMP NO 2, STORAGE AREA | PUMP | PUMP | STANCORINC | U6K-E5 | 0103- | OIL, 120 CMS, P/N 13133 | OIL | 1 | GAL |
| AWT | SHF | SHF-PUMP-SUMP-03 | SUMP PUMP NO 3, FILL STATION | PUMP | PUMP | STANCORINC | U6K-E5 | 0103- | OIL, 120 CMS, P/N 13133 | OIL | 1 | GAL |
| SEC | WSP5B | WSP5B-EUH-01 | ELECTRIC UNIT HEATER #1 | EUH | UNIT HEATER | MARTEL | P3P5105CA1N (5 kw) | 9150-51 | OIL, NON EP GRADE 32 (ISO 32 CASTROL PARADENE R & | OIL | 0.1 | GAL |
| SEC | WSP5B | WSP5B-EUH-02 | ELECTRIC UNIT HEATER #2 | EUH | UNIT HEATER | MARTEL | P3P5105CA1N (5 kw) | 9150-51 | OIL, NON EP GRADE 32 (ISO 32 CASTROL PARADENE R & | OIL | 0.1 | GAL |
| SEC | WSP5B | WSP5B-EUH-03 | ELECTRIC UNIT HEATER #3 | EUH | UNIT HEATER | MARTEL | P3P5105CA1N (5 kw) | 9150-51 | OIL, NON EP GRADE 32 (ISO 32 CASTROL PARADENE R & | OIL | 0.1 | GAL |
| SEC | WSP5B | WSP5B-EUH-04 | ELECTRIC UNIT HEATER #4 | EUH | UNIT HEATER | MARTEL | P3P5105CA1N (5 kw) | 9150-51 | OIL, NON EP GRADE 32 (ISO 32 CASTROL PARADENE R & | OIL | 0.1 | GAL |
| AWT | WSP5B | WSP5B-HYDR-FIRE-13 | SERVICES BLDG | HYDR | HYDRANT | | F3052272 | 9150-49 | OIL, MOTOR, SAE 40W, 4 OZ. | OIL | 0.01 | GAL |
| SEC | WSP5B | WSP5B-MIXR-SCUM | MIXER, VERTICAL SCUM FOR SCL7-SCL9 | MIXR | MIXER | PHILADELPHIA | 4040-52-PTD | 9150-87 | OIL, SYNTHETIC SYNIFILM GT 150, ROYAL PURPLE 55-GAL | OIL | 5.6 | GAL |
| SEC | WSP5B | WSP5B-MTR-PUMP-RAS-07 | MOTOR, RAS PUMP #7 | MTR | MOTOR | USMOTORS | | 9150-52 | OIL, NON EP GRADE 68, 41 QTS | OIL | 10.25 | GAL |
| SEC | WSP5B | WSP5B-MTR-PUMP-RAS-08 | MOTOR, RAS PUMP #8 | MTR | MOTOR | USMOTORS | | 9150-52 | OIL, NON EP GRADE 68, 41 QTS | OIL | 10.25 | GAL |
| SEC | WSP5B | WSP5B-MTR-PUMP-RAS-09 | MOTOR, RAS PUMP #9 | MTR | MOTOR | USMOTORS | | 9150-52 | OIL, NON EP GRADE 68, 41 QTS | OIL | 10.25 | GAL |
| SEC | WSP5B | WSP5B-MTR-PUMP-RAS-52 | MOTOR, RAS PUMP #52 | MTR | MOTOR | USMOTORS | | 9150-52 | OIL, NON EP GRADE 68, 41 QTS | OIL | 10.25 | GAL |
| SEC | WSP5B | WSP5B-PUMP-SCL-DRAIN-01 | PUMP, DRAIN | PUMP | PUMP | GORMAN RUPP | T10A35-B | 9150-47 | OIL, MOTOR, SAE 30W, PHILIPS CDHOCO, QUARTS | OIL | 3.5 | GAL |
| SEC | WSP5B | WSP5B-PUMP-SUMP-01 | PUMP, SUBMERSIBLE SCUM | PUMP | PUMP | ITT FLYGT | NP3127.181 | 9150-85 | OIL, SYNTHETIC SYNIFILM GT 32, ROYAL PURPLE, 55-GAL | OIL | 2.1 | GAL |
| SEC | WSP5B | WSP5B-PUMP-SUMP-02 | PUMP, SUMP #1 | PUMP | PUMP | ITT FLYGT | 3068-180-1173, CP 3068 HT | 9150-85 | OIL, SYNTHETIC SYNIFILM GT 32, ROYAL PURPLE 55-GAL | OIL | 0.63 | GAL |
| AWT | WWFF | WWFF-CMPR-01 | COMPRESSOR, WET WEATHER FILTERS, #1 | CMPR | R | INGERSOL COM | R90-A-125 | 9150-56 | OIL, COMPRESSOR, INGERSOLL RAND SSR ULTRA | OIL | 55 | GAL |
| AWT | WWFF | WWFF-CMPR-02 | COMPRESSOR, WET WEATHER FILTERS, #2 | CMPR | R | INGERSOL COM | R90-A-125 | 9150-56 | OIL, COMPRESSOR, INGERSOLL RAND SSR ULTRA | OIL | 55 | GAL |
| AWT | WWFF | WWFF-MTR-PUMP-N3 | FILTRATION FACILITY | MTR | MOTOR | USMOTORS | 1689P ODP | 9150-85 | OIL, SYNTHETIC SYNIFILM GT 32, ROYAL PURPLE, QTS. | OIL | 18 | GAL |

| Location | SubLocation1 | EqTagNo | EqDesc | EqType | EqTypeDesc | EqMfg | EqModel | SlkNo | LubeDescr | LubeType | QtyReq | UDM |
|----------|--------------|--------------------------|--------------------------------------|--------|-------------|-------------|---------------------------|---------|--|----------|----------|-----|
| AWT | WWFF | WWFF-MTR-PUMP-N6 | FILTRATION FACILITY | MTR | MOTOR | USMOTORS | 1680P ODP | 9150-85 | OIL, SYNTHETIC SYNFLM GT 32, ROYAL PURPLE, QTS. | OIL | 18 GAL | |
| SEC | SAT4 | SAT4-MIXR-A-NORTH | S.METER 53042 | MIXR | MIXER | LIGHTNIN | 75Q7.5 | 9150-91 | OIL, SYNTHETIC, MOBIL SHC 629 | OIL | 8 GAL | |
| SEC | SAT4 | SAT4-MIXR-A-SOUTH | N.METER 53041 | MIXR | MIXER | LIGHTNIN | 75Q7.5 | 9150-91 | OIL, SYNTHETIC, MOBIL SHC 629 | OIL | 8 GAL | |
| SEC | SAT4 | SAT4-MIXR-B-NORTH | N.METER 53044 | MIXR | MIXER | LIGHTNIN | 75Q7.5 | 9150-91 | OIL, SYNTHETIC, MOBIL SHC 629 | OIL | 8 GAL | |
| SEC | SAT4 | SAT4-MIXR-B-SOUTH | N.METER 53043 | MIXR | MIXER | LIGHTNIN | 75Q7.5 | 9150-91 | OIL, SYNTHETIC, MOBIL SHC 629 | OIL | 8 GAL | |
| SEC | SAT4 | SAT4-MIXR-C-NORTH | N.METER 53046 | MIXR | MIXER | LIGHTNIN | 75Q7.5 | 9150-91 | OIL, SYNTHETIC, MOBIL SHC 629 | OIL | 8 GAL | |
| SEC | SAT4 | SAT4-MIXR-C-SOUTH | S.METER 53045 | MIXR | MIXER | LIGHTNIN | 75Q7.5 | 9150-91 | OIL, SYNTHETIC, MOBIL SHC 629 | OIL | 8 GAL | |
| SEC | SAT | SAT-EUH-04 | HEATER, ELECTRIC UNIT NO. 4, 5 KW | EUH | UNIT HEATER | MARKEL | MARKEL P3P5105CAIN (5 KW) | 9150-51 | OIL, NON EP GRADE 32 (ISO 32 CASTROL PARADENE R & | OIL | 0.1 GAL | |
| SEC | SAT | SAT-EUH-05 | HEATER, ELECTRIC UNIT NO. 5, 5 KW | EUH | UNIT HEATER | MARKEL | MARKEL P3P5105CAIN (5 KW) | 9150-51 | OIL, NON EP GRADE 32 (ISO 32 CASTROL PARADENE R & | OIL | 0.1 GAL | |
| SEC | SAT | SAT-EUH-06 | HEATER, ELECTRIC UNIT NO. 6, 5 KW | EUH | UNIT HEATER | MARKEL | MARKEL P3P5105CAIN (5 KW) | 9150-51 | OIL, NON EP GRADE 32 (ISO 32 CASTROL PARADENE R & | OIL | 0.1 GAL | |
| SEC | SATPG | SATPG-PUMP-DRAIN-02 | TANKS | PUMP | PUMP | GORMAN RUPP | CF 3068-180-1424 | 9150-47 | OIL, MOTOR, SAE 30W, PHILIPS CONOCO, QUARTS | OIL | 1.25 GAL | |
| SEC | SAT | SAT-PUMP-SUMP-04 | PUMP, SUMP #4 | PUMP | PUMP | ITT FLYGT | SVVM-3 | 9150-85 | OIL, SYNTHETIC SYNFLM GT 32, ROYAL PURPLE 55-GAL | OIL | 0.63 GAL | |
| SEC | SAT | SAT-PUMP-SUMP-BWW-VV4 | PUMP, SUMP IN VALVE VAULT #4 | PUMP | PUMP | ITT FLYGT | SVVM-3 | 9150-85 | OIL, SYNTHETIC SYNFLM GT 32, ROYAL PURPLE, 55-GAL | OIL | 0.63 GAL | |
| SEC | SAT | SAT-PUMP-SUMP-BWW-VV4-02 | PUMP, SUMP | PUMP | PUMP | ITT FLYGT | SVVM-3 | 9150-85 | OIL, SYNTHETIC SYNFLM GT 32, ROYAL PURPLE, 55-GAL | OIL | 0.29 GAL | |
| SEC | SCL7 | SCL7-DRIVE-GEARMTR | DRIVE | DRIVE | GEARBOX | EIMCO | LHYJ5-3B125Y-Y3 | 9150-87 | OIL, SYNTHETIC SYNFLM GT 150, ROYAL PURPLE 55-GAL | OIL | 46 GAL | |
| SEC | SCL7 | SCL7-DRIVE-WORM | GEAR | DRIVE | GEARBOX | EIMCO | | 9150-88 | OIL, SYNTHETIC SYNFLM GT 150, ROYAL PURPLE 55-GAL | OIL | 6 GAL | |
| SEC | SCL7 | SCL7-HYDR-FIRE-12 | ASSEMBLY TABLE | DRIVE | GEARBOX | EIMCO | | 9150-88 | OIL, SYNTHETIC SYNFLM GT 150, ROYAL PURPLE 55-GAL | OIL | 46 GAL | |
| SEC | SCL7 | SCL7-PUMP-SUMP-03 | HYDRANT, FIRE, #12, SEC CLARIFIER #7 | HYDR | HYDRANT | | | 9150-49 | OIL, MOTOR, SAE 40W, 4 OZ. | OIL | 0.1 GAL | |
| SEC | SCL8 | SCL8-DRIVE-GEARMTR | VAULT | PUMP | PUMP | BIM PUMPS | TIGF-32-9NL | 9150-52 | OIL, NON EP GRADE 68 55-GAL | OIL | 0.12 GAL | |
| SEC | SCL8 | SCL8-DRIVE-MAIN | DRIVE | DRIVE | GEARBOX | SUMITOMO | LHYJ5-3B125Y-Y3 | 9150-87 | OIL, SYNTHETIC SYNFLM GT 150, ROYAL PURPLE 55-GAL | OIL | 0.29 GAL | |
| SEC | SCL8 | SCL8-DRIVE-WORM | GEAR | DRIVE | GEARBOX | EIMCO | | 9150-88 | OIL, SYNTHETIC SYNFLM GT 150, ROYAL PURPLE 55-GAL | OIL | 46 GAL | |
| SEC | SCL8 | SCL8-PUMP-SUMP-BWW-VV3 | ASSEMBLY TABLE | DRIVE | GEARBOX | EIMCO | | 9150-88 | OIL, SYNTHETIC SYNFLM GT 150, ROYAL PURPLE 55-GAL | OIL | 6 GAL | |
| SEC | SCL9 | SCL9-DRIVE-GEARMTR | PUMP, SUMP IN BWW VALVE VAULT #3 | PUMP | PUMP | ITT FLYGT | G60P-5 | 9150-87 | OIL, SYNTHETIC SYNFLM GT 150, ROYAL PURPLE 55-GAL | OIL | 0.29 GAL | |
| SEC | SCL9 | SCL9-DRIVE-MAIN | DRIVE | DRIVE | GEARBOX | EIMCO | SVVM-3 | 9150-87 | OIL, SYNTHETIC SYNFLM GT 150, ROYAL PURPLE 55-GAL | OIL | 46 GAL | |
| SEC | SCL9 | SCL9-DRIVE-WORM | GEAR | DRIVE | GEARBOX | EIMCO | | 9150-88 | OIL, SYNTHETIC SYNFLM GT 150, ROYAL PURPLE 55-GAL | OIL | 46 GAL | |
| SEC | WFF | WFF-PUMP-FERRIC-01 | ASSEMBLY TABLE | DRIVE | GEARBOX | EIMCO | | 9150-88 | OIL, SYNTHETIC SYNFLM GT 150, ROYAL PURPLE 55-GAL | OIL | 6 GAL | |
| SEC | WFF | WFF-PUMP-FERRIC-01 | PUMP, FERRIC CHLORIDE NO. 1 | PUMP | PUMP | MILTON ROY | MBH24X0001 | 0101- | OIL, GEAR AGMA P/N 4070122020 7, 2.5 GAL CAN | OIL | 1 GAL | |
| SEC | WFF | WFF-PUMP-FERRIC-01 | PUMP, FERRIC CHLORIDE NO. 1 | PUMP | PUMP | MILTON ROY | MBH24X0001 | 0101- | OIL, HYD, ZURMPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| SEC | WFF | WFF-PUMP-FERRIC-01 | PUMP, FERRIC CHLORIDE NO. 1 | PUMP | PUMP | MILTON ROY | MBH24X0001 | 9150-71 | OIL, HYDRAULIC ISO 32AW CASTROL PARADENE P/N 40219 | OIL | 0.75 GAL | |
| SEC | WFF | WFF-PUMP-FERRIC-02 | PUMP, FERRIC CHLORIDE NO. 2 | PUMP | PUMP | MILTON ROY | MBH24X0001 | 0101- | OIL, SYNTHETIC SHC 634, 55-GAL | OIL | 2.5 GAL | |
| SEC | WFF | WFF-PUMP-FERRIC-02 | PUMP, FERRIC CHLORIDE NO. 2 | PUMP | PUMP | MILTON ROY | MBH24X0001 | 0101- | OIL, GEAR AGMA P/N 4070122020 7, 2.5 GAL CAN | OIL | 1 GAL | |
| SEC | WFF | WFF-PUMP-FERRIC-02 | PUMP, FERRIC CHLORIDE NO. 2 | PUMP | PUMP | MILTON ROY | MBH24X0001 | 9150-71 | OIL, HYD, ZURMPREEN P/N 4070126020 15A, QUART | OIL | 0.75 GAL | |
| SEC | WFF | WFF-PUMP-FERRIC-02 | PUMP, FERRIC CHLORIDE NO. 2 | PUMP | PUMP | MILTON ROY | MBH24X0001 | 9150-71 | OIL, HYDRAULIC ISO 32AW CASTROL PARADENE P/N 40219 | OIL | 0.75 GAL | |
| SEC | WFF | WFF-PUMP-SUMP-01 | PUMP, SUMP #1 | PUMP | PUMP | BIM PUMPS | TIGF-32-9NL | 9150-52 | OIL, SYNTHETIC SHC 634, 55-GAL | OIL | 2.5 GAL | |
| SEC | WFF | WFF-PUMP-SUMP-02 | PUMP, SUMP #2 | PUMP | PUMP | BIM PUMPS | TIGF-32-9NL | 9150-52 | OIL, NON EP GRADE 68 55-GAL | OIL | 0.12 GAL | |
| TOTAL | | | | | | | | | | | 595 GAL | |
| MAX | | | | | | | | | | | 55 GAL | |

APPENDIX K

TRI GAS & OIL Co., Inc.

3941 Federalsburg Hwy. • P.O. Box 465 • Federalsburg, MD 21632
410-754-8184 • 1-800-638-7802 • Fax 410-754-9158
www.trigas-oil.com

November 3, 2015

Mr. Wilson Dodge
Pretreatment Coordinator
Department of Environmental Services
3402 S. Glebe Road
Arlington, VA 22202-2398

Ref: Spill Prevention Training

Mr. Dodge,

This letter describes our training in relation to petroleum spill prevention. Our petroleum drivers are currently trained each year on spill prevention in conjunction with our yearly Coast Guard transfer product training. The required training was last conducted in Pocomoke, MD on April 17, 2015. The drivers are trained on communications and actions to take in case of a spill. This training takes place on a site location during an actual product transfer. Also a live drill is conducted every three years using a scenario of a spill taking place and actions to contain.

Our trucks are equipped with absorbent pads in case of a spill and emergency numbers to call in case of an event.

Contact me if you need additional information at 410-754-8184 ext. 1015.

Sincerely,
Tri-Gas & Oil Co., Inc.



Earl F. Slacum
Director of Safety & Training