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NORTHERN CALIFORNIA POWER AGENCY

CASE STUDIES

SPICER MEADOW POWERHOUSE SUMP

NORTH FORK STANISLAUS RIVER HYDROELECTRIC DEVELOPMENT PROJECT
(FERC PROJECT NO. 2409-CA)

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SECTION 1
INTRODUCTION

On July 19, 2001, the State Water Resources Control Board (State Water Board) adopted Water Quality Order No. 2001-0011-DWQ, NPDES No. CAG990002, *Waste Discharge Requirements, General Order for Discharges by Utility Companies to Surface Waters.*

The discharge from the sump at the Spicer Meadow Powerhouse has been covered by this general permit. However, on July 19, 2006, the State Water Resources Control Board (State Water Board) adopted Order No. 2006-0008-DWQ, NPDES No. CAG990002), *General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges from Utility Vaults and Underground Structures to Surface Waters.* That order rescinded Order No. 2001-0011-DWQ.

Utility companies with utility vaults and underground structures enrolled under previous Order No. 2001-0011-DWQ must obtain coverage under this new Order to continue their authorization to discharge. To obtain authorization for continued and future discharge to waters of the United States, Dischargers must submit a complete application as described below and obtain coverage in order to be regulated under the new General Permit as provided in Title 40 Code of Federal Regulations, Section 122.28(b)(2) [40CFR122/28(b)(2)].

To obtain coverage under the new General Permit, a Notice of Intent (NOI), a project map(s), a Pollution Prevention Plan (PLAN) and the first annual fee must be submitted to the State Water Board. A copy of the PLAN must also be submitted to the appropriate Regional Water Quality Control Board.

To be authorized to discharge by the newly adopted General Permit, Dischargers must meet the following criteria:

- Pollutant concentrations in the discharge do not cause, have a reasonable potential to cause, or contribute to an excursion above any applicable federal water quality criterion established by the U.S. Environmental Protection Agency (USEPA) pursuant to Clean Water Act (CWA) Section 303. Pollutant concentrations in the discharge do not cause, have a reasonable potential to cause, or contribute to an excursion above any water quality objective adopted by the appropriate Regional or State Water Board, including prohibitions of discharge to the receiving waters.

- The discharge does not cause acute or chronic toxicity in the receiving water.

As shown in Section 6 of this report, the discharge from the sump at the Spicer Meadow Powerhouse meets these criteria.

40CFR122.48 requires that all NPDES permits specify monitoring and reporting requirements. California Water Code Sections 13267 and 13383 also authorize the Regional Water Boards to require technical and monitoring reports. Following is a summary of the Monitoring and Reporting Program included as Attachment

E to Order No. 2006-0008-DWQ.

I. General Provisions

A. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring location identified in the representative sampling and analysis program. Another waste stream, body of water, or substance shall not dilute the monitored discharge. Monitoring points shall not be changed without notification to and the approval of the appropriate Regional Water Board.

B. Monitoring must be conducted according to USEPA test procedures approved under 40 CFR 136, *Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act* as amended, unless other test procedures are specified in this Order and/or by the appropriate Regional Water Board.

C. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR 136, or as specified in this Order or by the appropriate Regional Water Board, the results of the monitoring shall be included in the calculation and reporting of the data submitted in the Discharger's Annual Report. The increased frequency of monitoring shall also be reported.

D. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order.

E. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services or a laboratory approved by the appropriate Regional Water Board.

F. All monitoring instruments and devices used by the Discharger to fulfill the monitoring program shall be properly maintained and calibrated to ensure accuracy. All flow measurement devices shall be calibrated at least once per year to ensure accuracy of the devices.

II. Monitoring Locations

A. Dischargers enrolling for the first time under this General Permit shall develop a representative sampling and analyses program to be used as case studies to represent the typical types of discharges occurring within their service areas. This study, to be submitted as the first annual report, will include the monitoring locations and rationale for choosing those locations.

B. Re-enrollees must submit a new case study defining monitoring locations and rationale for these locations, if there are new types of discharges.

III. Influent Monitoring Requirements (Not Applicable)

IV. Effluent Monitoring Requirements

A. Dischargers who are enrolling for the first time under the General Permit shall develop a representative sampling and analysis program to be used as case studies to represent the typical types of discharges from utility vaults and underground structures. Separate case studies are required for each region. Re-enrollees are required to submit case studies only for newly identified types of discharges not previously covered in the initial case studies. The case studies will be used to provide reasonable assurance that the discharges will comply with the requirements of the General Permit. The case studies shall be completed within six months of enrollment under the General Permit, or within twelve months when no discharge occurs within the first six months. In the case studies, the Discharger shall define the types of discharges that occur and take up to five[1] representative samples of each type of discharge and analyze the samples using test procedures specified in 40 CFR 136 for the following constituents:

- Total Petroleum Hydrocarbons (TPH)
  - TPH as Gasoline (TPH-g) - Report Benzene, Toluene Ethylene, and Xylene
  - TPH as Diesel (TPH-d)
- Oil and Grease
- pH
- Total Suspended Solids (TSS)

B. Samples taken shall be representative of the monitored activities and shall be performed after the implementation of the Pollution Prevention Practices (PPP's) outlined in the Pollution Prevention Plan (PLAN).

C. The Discharger shall provide in the case studies at least the following:

1. A list of the typical types of discharges that occur in the project area.
2. A rationale for the selection of sampling locations.
3. A description of the sampling methods, locations, and frequency of monitoring for each type of discharge.

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[1] If there are less than five discharges, the number of samples should be equal to the number of discharges for that year. For example, if a small utility only dewaters three vaults in a year, only three samples can and should be submitted in the annual report. The discharger must include an explanation of this in the annual report cover letter.

4. The results of any analysis done for each type of discharge.

D. First time enrollees shall submit case studies with the first annual report, as described in Section II, which constitutes the first year's annual monitoring. Case studies for newly identified types of discharges not previously covered or submitted with the first annual report shall be submitted with the annual report for that same year.

E. The Discharger shall provide a map showing the location of the samples taken for the case studies with respect to the distribution system. The map must also show the surface waters within the boundaries of the service area to which water may be discharged.

F. Annually, the Discharger, using test procedures specified in 40 CFR 136, shall analyze a representative sample for each type of discharge listed in the case studies required by Provision IV.A.1 above for the following constituents:

Pollutant	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
TPHg	mg/l or µg/l	Grab	Case Study & Annual	DHS Method 8015M
Oxygenates (Benzene, Toluene, Ethylbenzene, Xylene)	mg/l or µg/l	Grab	Case Study & Annual	DHS Method 8260M
TPHd	mg/l or µg/l	Grab	Case Study & Annual	DHS Method 8015M
Oil and Grease	mg/l	Grab	Case Study & Annual	EPA Method 1664A
pH	Standard Units	Grab	Case Study & Annual	EPA Method 150.1
Total Suspended Solids (TSS)	mg/l	Grab	Case Study & Annual	EPA Method 160.2

Laboratories analyzing monitoring samples shall be certified by the Department of Health Services, in accordance with the provision of Water Code Section 13176, and must include quality assurance/quality control data with their reports.

The results of such analyses shall be reported in the annual report. Grab samples shall be collected at the applicable point of discharge (either at the storm drain or the receiving water). If a Discharger monitors the above constituents more frequently than required by the General Permit, then the results of such monitoring shall be included in the calculation and reporting of the data submitted in the annual report. Separate annual reports are required for each region.

G. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least five years from the date of the sample, measurement, report, or application. This period may be extended at the request of the Regional Water Board. These records shall include:

1. The date, place, and time of site inspections, sampling, visual observation, and/or measurement;
2. The individual(s) who performed the site inspections, sampling, visual observations, and/or measurements;
3. The dimension, size and/or volume of the vault.
4. Flow measurements (if required) and duration of discharge;
5. The estimated volume of the discharge;
6. The date and time of analyses;
7. The laboratory, staff, or wholesaler who performed the analyses;
8. Analytical results.

V. Whole Effluent Toxicity Testing Requirements (Not Applicable)

VI. Land Discharge Monitoring Requirements (Not Applicable)

VII. Reclamation Monitoring Requirements (Not Applicable)

VIII. Receiving Water Monitoring Requirements - Surface Water and Groundwater (Not Applicable)

IX. Other Monitoring Requirements (Not Applicable)

X. Reporting Requirements

A. General Monitoring and Reporting Requirements

The Discharger shall submit the case studies as the first annual report. All reports submitted in response to this General Permit shall comply with signatory requirements set forth in V.B.2 in Attachment D.[2] All reports shall be submitted to the appropriate Regional Water Board Executive Officer.

B. Self-Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program website (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS website will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. The Discharger shall submit annual monitoring results to the Regional Water Board by the **20th day of March** for the preceding calendar year. The Discharger shall report in the SMR the results of all monitoring specified in this MRP under sections VI through IX. Additionally, the Discharger shall report in the SMR the results of any **PPP and PLAN** required by Special Provisions B VI.C.3 of this Order. The Discharger shall submit **annual** SMRs including the results of all required monitoring using USEPABapproved test methods or other test methods specified in this Order. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.

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[2] All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a principal executive officer or ranking elected official, or a duly authorized representative. The authorization must be in writing and submitted to the Regional Water Board, State Water Board or USEPA. A duly authorized representative may be a named individual or a named position.

3. The Discharger shall submit SMRs in accordance with the following requirements:

   a. The Discharger shall arrange all reported data in tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that are entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

   b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of this Order; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

   c. SMRs must be submitted to the appropriate Regional Water Board, signed and certified as required by the Standard Provisions (Attachment D).

C. Discharge Monitoring Reports (DMRs)

When requested by USEPA, the Discharger shall also complete and submit Discharge Monitoring Reports (DMRs) to USEPA. The submittal date shall be specified in the request.

The case studies for the Spicer Meadow Powerhouse sump discharge follows.

SECTION 2
GENERAL DESCRIPTION OF THE PROJECT

The Spicer Meadow Powerhouse includes three turbines with a total generating capacity of 5.5 megawatts (MW). It is on the outlet works of Spicer Meadow Dam, a 265-foot high rock-filled dam with an upstream concrete face, located on Highland Creek in Tuolumne County (Figure 1). It is owned by the Calaveras County Water District and operated by the Northern California Power Agency.

The Spicer Meadow Powerhouse contains a sump which collects drainage from within the powerhouse. The powerhouse sump, located under the south side of the powerhouse, is an 8-foot wide, 8-foot long, and 7-foot deep concrete pit (3,350 gallons capacity) which has a baffle that divides the sump into two chambers. The 42-inch high baffle begins 6 inches from the bottom of the sump and extends to 36 inches from the top.

All powerhouse drainage enters the eastern most portion of the sump. Fluids from the western most portion of the sump are pumped by two electrical pumps which discharge about 500 gallons per minute into the powerhouse afterbay (tributary to Highland Creek). The first pump is automatically activated when the water elevation in the sump reaches 6,359 feet (≈ 12 inches from the top of the baffle, 48 inches of freeboard). The second pump is activated when the water elevation in the sump reaches 6,359.5 feet (≈ 6 inches from the top of the baffle, 42 inches of freeboard). The pumps stop automatically when the water level decreases to a depth of about 24 inches.

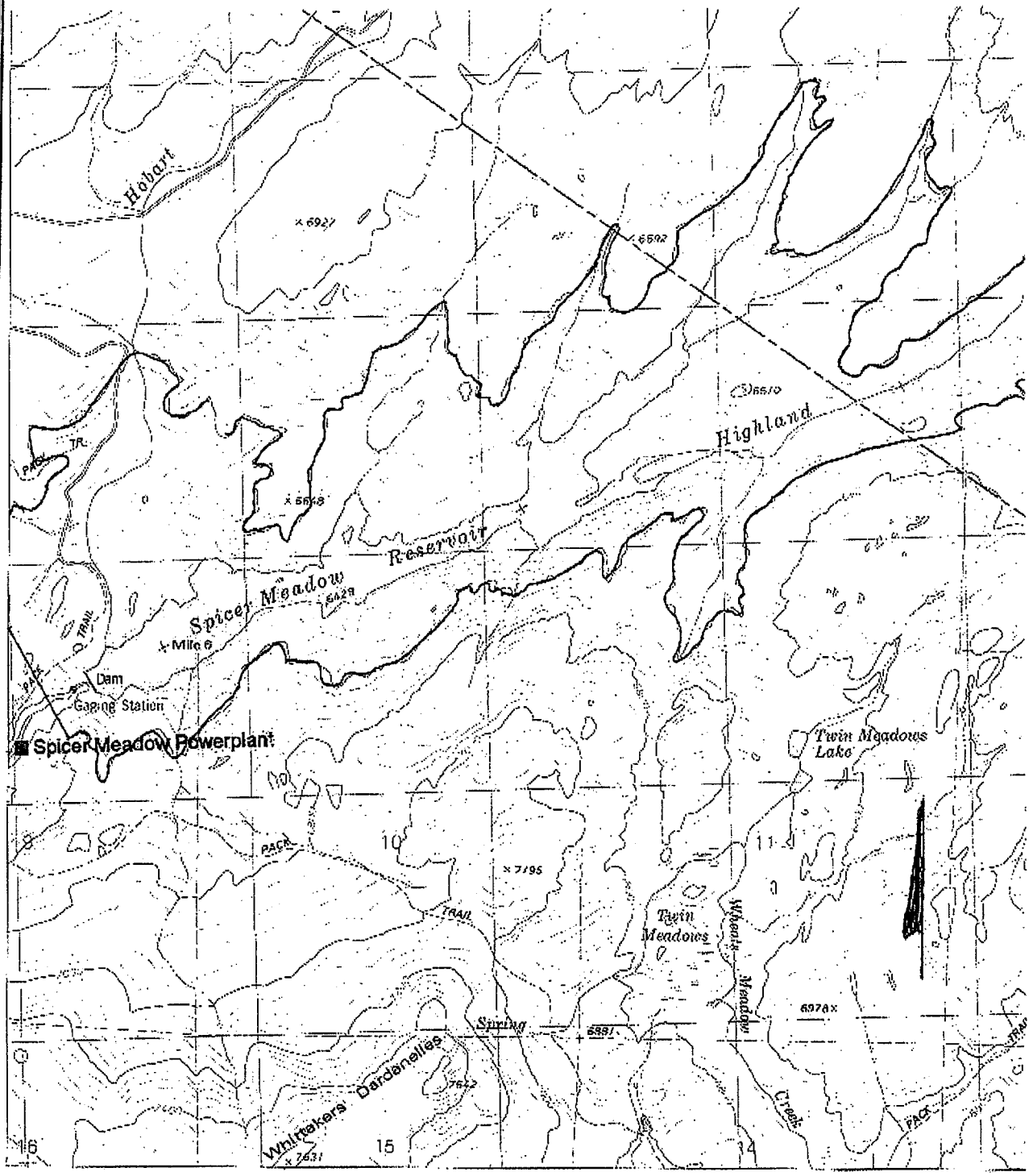
The sump is inspected at least once per month. Waste oil is removed from the sump when hand measurements indicate that there is approximately a 1-foot build-up of oily substances in the eastern most portion of the sump. Waste oils are pumped directly from the sump into a properly licensed service truck which recycles and/or disposes of the waste at approved locations.

The effluent from the sump has been monitored every twelve months for total petroleum hydrocarbons (EPA Method 418.1, detection limit 0.05 mg/l) and oil and grease (EPA Method 413.8[3], detection limit 0.1 mg/l). If detectable levels are found, the California Regional Water Quality Control Board, Central Valley Region (Regional Water Board) is notified and no further discharges from the sump are made until approved by the Regional Water Board.

On July 19, 2006, the State Water Board adopted Order No. 2006-0008-DWQ (NPDES Permit CAG990002), General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges from Utility Vaults and Underground Structures to Surface Waters. That permit requires annual monitoring of the following parameters:

- Total petroleum hydrocarbons as gasoline [report benzene, toluene, ethylene and xylene (BTEX)].

[3] Since 2006, EPA Method 1664A has been utilized in the analyses of oil and grease in accordance with the November, 3, 2005 approval by Erin Mustain, State Water Board.



Scale: 1:24,000 (1" = 2,000')

Source: USGS 7.5' Topographic Map
Spicer Meadow Reservoir, California

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Figure 1
Spicer Meadow Powerplant Location

Application for Permit to Discharge Wastewater
Northern California Power Agency

- Total petroleum hydrocarbons as diesel.
- Total oil and grease.
- pH.
- Total suspended solids.

There are several facilities at the Spicer Meadow Powerhouse which drain to the powerhouse sump. In addition, most of these facilities contain various volumes of hazardous materials and/or potentially environmentally damaging substances which have the potential to drain to the sump in case of a spill. A listing of these facilities and their associated hazardous materials and/or environmentally damaging substances is provided below:

Location	Material	Volume	MSDS#
DC System	Acid	40 gallons	1016C
Emergency Diesel System	Diesel Fuel	775 gallons	1004
	Lubricating Oil	4.5 gallons	1014
	Coolant	10 gallons	1003
	Acid	2 gallons	1016
Howell-Bunger Valve Governor	Hydraulic Fluid	40 gallons	1007
Generator Bearing Oil Systems	Bearing Oil	122 gallons	1008
Governor Cooling Water	Heated Effluent	5 gpm	N/A
Turbine Sealing System	No Pollutant		N/A
Butterfly Valve and Wicket Gate Governors	Hydraulic Fluid	157 gallons	1007
Station Service Water	1% Chlorine	15 gallons	1002
Powerhouse Sump	Waste Oil	Variable	1021
Transformer	Transformer Oil	960 gallons	1017
Fire Control System	Ammonium Phosphate	5 fire extinguishers	1005
Septic System		Variable	N/A

* MSDS refers to material safety data sheets contained in Appendix A.

Each of these systems is discussed in detail below. In addition, at the Spicer Meadow Powerhouse all piping is color coded as follows: CO_2, red; water, blue; oil, yellow; and all containers are labeled appropriately.

DC System

The DC system, located in the lower southwest corner of the powerhouse provides 125 volt power to the switchgear for the control units. The DC system includes 8 stacked modules of batteries, with 58 cells. These batteries contain a total volume of 40 gallons of sulfuric acid.

The DC system is not contained; however, the batteries are a non-spillage type which does not allow the acid to spill.

Emergency Diesel System

The Emergency Diesel System, located on the upper southeast corner of the Powerhouse, provides back-up power to station pumps.

Two diesel fuel storage tanks are located at this facility. One diesel fuel storage tank is a 750-gallon underground storage tank located outside the southeast corner of the Powerhouse. The underground storage tank was installed under Tuolumne County Environmental Health Department Permit No. 201-46ET001, Facility ID # 55002014601, Board of Equalization UST Storage Fee Account # TY(TK)HQ44-03905 which expires annually. The integrity of the underground tank is monitored by an electronic system. The second diesel fuel storage tank at this facility is an above ground 25-gallon tank located in the upper southeast corner of the Powerhouse. Other materials utilized in the emergency diesel system include 4.5 gallons of lubricating oil, 10 gallons of coolant, and 2 batteries containing a total of 2 gallons of sulfuric acid.

When needed, lubricating oil, coolant, and battery acid are replenished from small containers brought to the site from the Murphys warehouse. The diesel fuel storage tanks are serviced by an independent service truck, which supplies fuel on an as-needed basis.

Except for the underground storage tank, there are no containment facilities at this site. However, in the case of a spill, liquids would drain through the floor drain into the lower level of the Powerhouse Sump.

Howell-Bunger Valve Governor

Located in the lower northeast corner of the Powerhouse, the Howell-Bunger Valve Governor is used to operate the Howell-Bunger valves on the 48-inch and 12-inch diameter by-pass pipes. The governor contains 40 gallons of hydraulic fluid.

When needed, hydraulic fluid is brought to the site from supplies at the Murphys warehouse. Small quantities may be stored on-site for operational needs.

There are no containment facilities at this site. However, in the case of a spill, hydraulic fluid would drain into the floor drains and thence into the Powerhouse Sump.

Generator Bearing Oil Systems

Two Generator Bearing Oil Systems, located on the south side of Units 1 and 2, provide lubrication to the generator bearings in Units 1 and 2. The Unit 3 generator, which is considerably smaller, uses grease for lubrication. The Unit 1 and 2 generator oil-bearing systems each contain 61 gallons of bearing oil *(total of 122 gallons)*.

Bearing oil is added as needed from small containers brought from the Murphys warehouse. Small quantities may be stored on-site for operational needs.

The Unit 1 and 2 generator oil-bearing systems are contained in a 3-foot wide, 5-foot long, 2-foot deep concrete pit. In the case of a spill, all bearing oil would be contained in the concrete pit unless the spill occurred where the flexible tubing connects to the High Pressure Oil Pump. In that case, the bearing oil would drain into the Powerhouse Sump.

Governor Cooling Water Systems

The three governor cooling water systems, located on the north side of Units 1 and 2, provide cooling water to the three butterfly valves and wicket gate governors. Water is withdrawn from the power tunnel and gravity flows into the governor systems. The slightly heated water (≈ 5 gallons per minute) is discharged into the turbine water discharge (≈ 180 cubic feet per second = 80,800 gallons per minute) which enters the powerhouse afterbay. Due to the small volume of heated effluent and the approximate 16,200 to 1 dilution by the turbine water, there is no measurable effect on the receiving water.

Turbine Sealing Systems

The three turbine sealing systems, located on the north side of Units 1, 2 and 3 provide water to the turbine seals. Water is withdrawn from the power tunnel and gravity flows to the turbine. There are no hydraulic fluids, lubricators, etc., associated with the turbine sealing system nor does the water used in the system gain or lose any heat. Turbine sealing system water is released into a depression at the units and then drains into the powerhouse sump.

Butterfly Valve and Wicket Gate Governors

The three Butterfly Valve and Wicket Gate Governors, located on the west side of Units 1, 2, and 3, operate the turbine inlet butterfly valves and wicket gates. The two Unit 1 and 2 governors each contain 66 gallons of hydraulic fluid, while the Unit 3 governor contains 25 gallons of hydraulic fluid *(total of 157 gallons)*.

Hydraulic fluid is replenished as needed from supplies brought from the Murphys warehouse. Small quantities may be stored on-site for operational needs.

There are no containment systems at this facility. However, in the case of a spill, hydraulic oil would drain into the Powerhouse Sump.

Station Service Water System

The station service water system, located in the lower southwest corner of the powerhouse, provides potable water for the powerhouse. A 15-gallon chlorine (1% solution) storage tank is utilized in this system.

Chlorine (hypochlorite solution) is replenished as needed from supplies brought from the Murphys warehouse. No supplies are stored on site.

There are no containment facilities for this system; however, in the case of a spill, the chlorine solution would drain into the powerhouse sump.

Powerhouse Transformer

The Spicer Meadow Powerhouse Transformer, in the Transformer Yard outside of the southwest corner of the Powerhouse, converts 4.16 kV power from the generators to 21 kV power for transmission. The transformer contains 960 gallons of transformer oil.

Transformer oil is replenished from small containers brought from the Murphys warehouse as needed. No supplies are stored on-site.

In the case of a spill, transformer oil would drain into the 500-gallon capacity concrete containment area and then drain through a PVC pipe into the Powerhouse Sump.

Fire Control System

The Spicer Meadow Powerhouse fire control system contains the following components:

Components	Upper Level	Lower Level
Chemical Fire Extinguisher (Ammonium Phosphate Base) Class 4-A: 60B:C	2	3
Fire Water Hose	1	1
Fire Alarm (Manual)	1	---
Fire Alarm (Automatic)	1	---

The water hose draws water from the power tunnel, unless the tunnel is dewatered, at which times water is pumped from the afterbay.

When needed, the chemical fire extinguishers are recharged by a company specializing in that work.

Should it become necessary to utilize the fire control system, all drainage would flow to the powerhouse sump.

SECTION 3
TYPICAL DISCHARGES THAT OCCUR IN THE PROJECT AREA

As shown previously on Figure 1, the Spicer Meadow Powerhouse is located at the end of U.S. Forest Service Road 7N75 in Tuolumne County within the Stanislaus National Forest in the northeast quarter of Section 9, Township 6 North, Range 18 East, Mount Diablo Base and Meridian. Other than the North Fork Stanislaus River Hydroelectric Development Project's recreation facilities, there is no other development within the project area.

Consequently, due to the remote location, there are no other discharges to Highland Creek other than stormwater runoff and snowmelt.

SECTION 4
RATIONALE FOR SELECTION OF SAMPLING LOCATIONS

As previously discussed in Section 2, all powerhouse drainage enters the eastern most portion of the sump. Fluids from the western most portion of the sump are pumped by two electrical pumps which discharge about 500 gallons per minute into the powerhouse afterbay (tributary to Highland Creek). An effluent sampling port was previously installed in the discharge piping. Therefore, effluent samples were collected from this port which represents the total discharge to Highland Creek.

SECTION 5
SAMPLING METHODS, LOCATIONS AND FREQUENCY OF MONITORING

Sampling Methods

During preparation of the May 1999 Case Studies, grab samples were collected at the sampling port installed in the effluent discharge line. Water was allowed to run for approximately one minute through the sampling port and then water samples were placed in sample bottles supplied by the state-approved laboratory. The sample bottles were then placed in an ice chest containing blue ice and transported to a state-approved laboratory, under the appropriate chain-of-custody, for analysis.

Locations

Grab samples were collected at the sampling port installed in the effluent discharge line.

Frequency of Monitoring

One grab sample was collected on March 3, 1999 and analyzed for the following constituents:

Biochemical Oxygen Demand (BOD)
Chemical Oxygen Demand (COD)
Total Organic Carbon (TOC)
Total Suspended Solids (TSS)
Ammonia (as N)
pH
Bromide
Chlorine, Total Residual
Color
Odor
Turbidity
Coliform
Ecoli
Fecal Coliform
Fluoride
Nitrate-Nitrite (as N)
Nitrogen (Total Kjeldahl)
N-Hexane Extractable Materials
Phosphorus (Total as P)

Sulfate (as SO_4)
Sulfide (as S)
Surfactants (MBAS)
Aluminum (Total)
Barium (Total)
Boron (Total)
Cobalt (Total)
Iron (Total)
Magnesium (Total)
Molybdenum (Total)
Manganese (Total)
Tin (Total)
Titanium (Total)

In addition, grab samples were collected on five separate occasions (i.e., December 8, 1998, January 13, 1999, February 2, 1999, February 17, 1999 and March 3, 1999) and analyzed for the following constituents:

N-Hexane Extractable Materials
Total Suspended Solids
pH

In addition to the above, the Northern California Power Agency has sampled the effluent annually in compliance with the terms of the General Permit 2001-0011-DWQ. These grab samples were collected on the following dates: June 5, 2001, May 9, 2002, May 23, 2003, May 26, 2004, July 22, 2005, August 26, 2005, June 13, 2006 and June 6, 2007. These samples were analyzed for total petroleum hydrocarbons and total oil and grease.

During the preparation of this Case Study, NCPA again sampled the discharge from the Spicer Meadow Powerhouse Sump. This sample was collected on February 4, 2008 and analyzed for total petroleum hydrocarbons as gas, benzene, toluene, ethylbenzene, xylene, total petroleum hydrocarbons as diesel, pH, total suspended solids, and oil and grease.

SECTION 6
RESULTS OF SAMPLING

As previously described in Section 5, one grab sample was collected at the sampling port on March 3, 1999. The results of that sampling are provided in Table 6-1.

Table 6-1
Sampling Results at Spicer Meadow Powerhouse Sump

Parameter	Results	Reporting Limit	Dilution Factor
Total Kjeldahl Nitrogen, mg/l	0.34	0.20	1.0
Methylene Blue Active Substances, mg/l	ND	0.10	1.0
Color, color units	0		1.0
Odor, threshold odor number	0		1.0
Turbidity, NTU	<1.0		1.0
Total Organic Carbon, mg/l	2.1	2.0	1.0
Total Suspended Solids, mg/l	ND	5.0	1.0
Fluoride, mg/l	ND	0.050	1.0
Nitrate + Nitrite as N, mg/l	ND	0.10	1.0
Sulfide, mg/l	ND	1.0	1.0
Biochemical Oxygen Demand, mg/l	ND	3.0	1.0
Residual Chlorine, mg/l	0.020		1.0
Ammonia as N, mg/l	ND	0.20	2.0
Chemical Oxygen Demand, mg/l	ND	10	1.0
N-Hexane Extractable Material, mg/l	ND	5.0	1.0
Total Phosphorus, mg/l	--	0.050	1.0
Bromide, mg/l	ND	0.50	1.0
Sulfate, mg/l	0.63	0.50	1.0
Aluminum, mg/l	ND	0.200	1.0
Barium, mg/l	ND	0.020	1.0
Cobalt, mg/l	ND	0.020	1.0
Iron, mg/l	ND	0.10	1.0
Magnesium, mg/l	ND	1.00	1.0
Manganese, mg/l	ND	0.020	1.0
Molybdenum, mg/l	ND	0.020	1.0
Tin, mg/l	ND	0.50	1.0
Boron, mg/l	ND	0.050	1.0
Titanium, mg/l	ND	0.050	1.0
pH, standard units	7.25		
Ecoli	--	0	1.0
Fecal Coliform	--	0	1.0
Coliform	<2	0	1.0

In addition, grab samples were collected on five separate occasions and analyzed for N-hexane extractable material, total suspended solids, and pH. The results of that sampling are provided in Table 6-2.

Table 6-2
Sampling Results at Spicer Meadow Powerhouse Sump

Constituent	Units	Concentration				
		12/08/99	1/14/99	2/4/99	2/17/99	3/4/99
N-Hexane Extractable Material	mg/l	ND	ND	ND	ND	ND
Total Suspended Solids	mg/l	5.0	ND	ND	6.2	ND
pH	units	7.8	7.43	7.58	7.36	7.25

Notes: ND = non-detectable levels.
N-Hexane Extractable Material by EPA Method 1664, reportable limit 5.0 mg/l.
Total Suspended Solids by EPA Method 160.2, reportable limit 5.0 mg/l.
pH by EPA Method 9040.

As stated above, the Northern California Power Agency has also taken grab samples of the effluent on an annual basis and analyzed them for total petroleum hydrocarbons and total oil and grease. The results of that sampling are provided in Table 6-3.

Table 6-3
Sampling Results at Spicer Meadow Powerhouse Sump

Sampling Date	Total Petroleum Hydrocarbons as Diesel	Total Petroleum Hydrocarbons as Motor Oil	Total Petroleum Hydrocarbons	Total Oil and Grease
June 5, 2001	ND	ND	---	ND
May 9, 2002	---	---	ND	ND
May 22, 2003	---	---	ND	ND
May 26, 2004	---	---	ND	ND
July 22, 2005	ND	---	700 µg/l	100 µg/l
August 26, 2005	ND	---	ND	ND
June 13, 2006	ND	ND	---	ND
June 6, 2007	ND	---	---	ND

Notes: ND = Non-detectable levels.
- - - = Not analyzed.

August 26, 2005 sampling conducted after completion of remedial measures.

Table 6-4
Sampling Results at the Spicer Meadow Sump Discharge
February 4, 2008

Parameter	Results	Reporting Limit	Method
TPHg	ND	50 µg/l	8015M DHS
Benzene	ND	1 µg/l	8260B DHS
Toluene	ND	1 µg/l	8260B DHS
Ethylbenzene	ND	1 µg/l	8260B DHS
Xylene	ND	1 µg/l	8260B DHS
TPHd	ND	50 µg/l	8015M DHS
TPHd w/silica gel	ND	50 µg/l	8015M DHS
pH	7.0		EPA 150.1
Total Suspended Solids	ND	2.0 mg/l	EPA 160.2
Oil and Grease	ND	1000 µg/l	EPA 1664
Oil & Grease w/silica gel	ND	1000 µg/l	EPA 1664

Analysis by Sparger Technologies, Inc., Environmental Laboratories, DHS Certification No. 1614.

As can be seen by the above sampling results, the discharge from the Spicer Meadow Sump is in compliance with the terms of Order No. 2006-0008-DWQ, NPDES No. CAG990002), *General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges from Utility Vaults and Underground Structures to Surface Waters.*

SECTION 7
CERTIFICATION

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

Ed Warner, Manager
Hydroelectric Operations
Northern California Power Agency

3/10/08
Date

APPENDIX A
MATERIAL SAFETY DATA SHEETS

APPENDIX A
MATERIAL SAFETY DATA SHEETS

Appendix A contains the Material Safety Data Sheets (MDSD) for those chemicals utilized at the Spicer Meadow Powerhouse. A summary of the MSDS's is provided below:

MSDS No.	Material Name	Common Name
1002	Regular Chlorine Bleach	Sodium Hypochlorite
1003	02055 Startex Anti-freeze Coolant	Coolant
1004	00449 Texaco Diesel 2	Diesel Fuel
1005	Pyro Chem Dry Chemical Fire Extinguisher	Ammonium Phosphate
1006	00995 Multifak EP 2	Industrial Gear Oil
1007	01657 Rando Oil HD 32	Hydraulic Fluid
1008	02778 Rando Oil HD 100	Generator Bearing Oil
1014	Caterpillar CD/SF Plus 10W30	Diesel Engine Oil
1016	Sulfuric Acid	Sulfuric Acid
1016C	Valve Regulated Lead Acid Battery	Electric Storage Battery
1017	Shell Diala7 Oil AX	Transformer Oil
1021	Waste Oil	Various Oil Products

EXIDE TECHNOLOGIES

MATERIAL SAFETY DATA SHEET

1016C

I. PRODUCT IDENTIFICATION

MANUFACTURER
GNB Industrial Power
A Division of Exide Technologies
3950 Sussex Avenue
Aurora, IL 60504-7932

CHEMICAL/TRADE NAME (as used on label): ABSOLYTE IIP, CHAMPION, and ELEMENT Valve Regulated Lead Acid Battery

FOR INFORMATION
Primary: MACTEC Engineering and Consulting, Inc.
Attention: DeLyn Thompson (770) 421-3364
Secondary: Environmental, Safety & Health
Attention: Fred Ganster (610) 921-4052

CHEMICAL FAMILY/ CLASSIFICATION: Electric Storage Battery

DATE ISSUED: November 1, 2006

FOR EMERGENCY
CHEMTREC (800) 424-9300
24-hour Emergency Response Contact
Ask for Environmental Coordinator

CHEMTREC INTERNATIONAL (703) 527-3887 - Collect

II. HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

			Approximate Air Exposure Limits ($\mu g/m^3$)		
Components	CAS Number	% by Wt.	OSHA	ACGIH	NIOSH
Inorganic components of:					
Lead	7439-92-1	67-77	50	50	50
Antimony	7440-36-0	0.2-0.4	500	500	500
Cadmium	7440-43-9	0.2-0.3	5	2*	Ca‡
Copper	7440-50-8	< 1	1000†	1000	1000 †
Tin	N/A	< 0.2	2000	2000	2000
Electrolyte (sulfuric acid)	7664-93-9	18-23	1000	200	1000
Case Material: Polypropylene	9003-07-0	2-5	N/A	N/A	N/A
Separator	N/A	2-3	N/A	N/A	N/A

† As metal dust
* Respirable fraction
‡ Any substance that NIOSH considers to be a potential occupational carcinogen is designated by the notation "Ca."
NOTE: Inorganic lead and electrolyte (water and sulfuric acid solution) are the primary components of every battery manufactured by Exide Technologies or its subsidiaries. Other ingredients may be present dependent upon battery type. Polypropylene is the principal case material of automotive and commercial batteries.

III. PHYSICAL DATA

Boiling Point (Electrolyte)	203° F (at 760 mm Hg)	Specific Gravity (H_2O=1)	1.230 to 1.350
Melting Point	Not Applicable	Vapor Pressure (mm Hg at 20 °C)	10
Solubility in Water	100%		
Evaporation Rate (Butyl acetate=1)	Less Than 1	Vapor Density (AIR=1)	Greater than 1
Appearance and Odor	A clear liquid with a sharp, penetrating, pungent odor. A battery is a manufactured article; no apparent odor.	% Volatiles by Weight	Not Applicable

IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point: Not Applicable

Flammable Limits: LEL = 4.1% (Hydrogen Gas in air) ; UEL = 74.2%

Extinguishing media: CO_2; foam; dry chemical

Special Fire Fighting Procedures:

Use positive pressure, self-contained breathing apparatus. Beware of acid splatter during water application and wear acid-resistant clothing, gloves, face and eye protection. If batteries are on charge, shut off power to the charging equipment, but, note that strings of series connected batteries may still pose risk of electric shock even when charging equipment is shut down.

Unusual Fire and Explosion Hazards:

In operation, or when on charge, batteries generate hydrogen and oxygen gases (hydrogen is highly flammable and oxygen supports combustion). They must always be assumed to contain these gases which, if ignited by burning cigarette, naked flame or spark, may cause battery explosion with dispersion of casing fragments and corrosive liquid electrolyte. Carefully follow manufacturer's instructions for installation and service. Keep away all sources of gas ignition, ensure that adequate ventilation is provided, and do not allow metallic articles to simultaneously contact the negative and positive terminals of a battery.

V. REACTIVITY DATA

Stability: Stable X Unstable ___

Conditions to Avoid: Prolonged overcharging and overheating current; sparks and other sources of ignition.

Incompatibility: (materials to avoid)

Electrolyte: Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, most metals, carbides, chlorates, nitrates, picrate, sulfur trioxide gas, strong oxidizers, and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas.

Lead compounds: Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen, potassium, carbides, sulfides, phosphorus, sulfur, and reducing agents.

Hazardous Decomposition Products:

Electrolyte: Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, hydrogen sulfide, hydrogen.

Lead compounds: Temperatures above the melting point are likely to produce toxic metal fume, vapor, or dust; contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas.

Hazardous polymerization: May Occur _____ Will Not Occur X

VI. HEALTH HAZARD DATA

Routes of Entry:

Electrolyte: Harmful by all routes of entry. Under normal conditions of use, sulfuric acid vapors and mist are not generated. Sulfuric acid vapors and mist may be generated when product is overheated, oxidized, or otherwise processed or damaged.
Lead compounds: Under normal conditions of use, lead dust, vapors, and fumes are not generated. Hazardous exposure may occur when product is heated above the melting point, oxidized or otherwise processed or damaged to create dust, vapor, or fume.

Inhalation:

Electrolyte: Breathing of sulfuric acid vapors or mists may cause severe respiratory irritation.
Lead compounds: Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs.

Ingestion:

Electrolyte: May cause severe irritation of mouth, throat, esophagus, and stomach.
Lead compounds: Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhea, and severe cramping. This may lead rapidly to systemic toxicity. Acute ingestion should be treated by physician.

Skin Contact/Skin Absorption

Electrolyte: Severe irritation, burns, and ulceration. Sulfuric acid is not readily absorbed through the skin.
Lead compounds: Not readily absorbed through the skin.

Eye Contact:

Electrolyte: Severe irritation, burns, cornea damage, blindness.
Lead compounds: May cause eye irritation.

Effects of Overexposure - Acute:

Electrolyte: Severe skin irritation, burns, damage to cornea may cause blindness, upper respiratory irritation.
Lead compounds: Headache, fatigue, abdominal pain, loss of appetite, nausea, vomiting, diarrhea, muscular aches and weakness, sleep disturbances, and irritability.

Effects of Overexposure - Chronic:

Electrolyte: Possible erosion of tooth enamel; inflammation of nose, throat, and bronchial tubes, and scarring of the cornea.
Lead compounds: Anemia; neuropathy, particularly of the motor nerves, with wrist drop; kidney damage; reproductive changes in both males and females.

Carcinogenicity:

Electrolyte: The National Toxicology Program (NTP) and the International Agency for Research on Cancer (IARC) have classified "strong inorganic acid mist containing sulfuric acid" as a substance that is carcinogenic to humans. This classification does not apply to sulfuric acid solutions in static liquid state or to electrolyte in batteries. Batteries subjected to abusive charging at excessively high currents for prolonged periods of time without vent caps in place may create a surrounding atmosphere of the offensive strong inorganic acid mist containing sulfuric acid.
Lead compounds: Listed as a 2B carcinogen, likely in animals at extreme doses. Proof of carcinogenicity in humans is lacking at present.

Medical Conditions Generally Aggravated by Exposure:

Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions. Contact of electrolyte (water and sulfuric acid solution) with skin may aggravate skin diseases such as eczema and contact dermatitis. Contact of electrolyte (water and sulfuric acid solution) with eyes may damage cornea and/or cause blindness. Lead and its compounds can aggravate some forms of kidney, liver, and neurologic diseases.

Emergency and First Aid Procedures:

Inhalation:

Electrolyte: Remove to fresh air immediately. If breathing is difficult, give oxygen.
Lead compounds: Remove from exposure, gargle, wash nose, eyes and lips; consult physician.

Ingestion:

Electrolyte: Give large quantities of water; **do not** induce vomiting; consult physician.
Lead compounds: Consult physician immediately.

Skin:

Electrolyte: Flush with large amounts of water for at least 15 minutes; remove contaminated clothing completely, including shoes, and do not wear again until cleaned. If acid is splashed on shoes, remove and discard if they contain leather.
Lead compounds: Wash immediately with soap and water. Lead compounds are not readily absorbed through the skin.

Eyes: Electrolyte and Lead compounds: Flush immediately with large amounts of water for at least 15 minutes; consult physician immediately.

VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Handling and Storage:

Store batteries under roof in cool, dry, well-ventilated areas that are separated from incompatible materials and from activities which may create flames, sparks, or heat. Keep away from metallic objects that could bridge the terminals on a battery and create a dangerous short-circuit. Single batteries pose no risk of electric shock but there may be increasing risk of electric shock from strings of connected batteries exceeding three 12-volt units.

Charging:

There is a possible risk of electric shock from charging equipment and from strings of series connected batteries, whether or not being charged. Shut-off power to chargers whenever not in use and before detachment of any circuit connections. Batteries being charged will generate and release flammable hydrogen gas. Charging space should be ventilated. Keep battery vent caps in position. Prohibit smoking and avoid creation of flames and sparks nearby. Wear face and eye protection when near batteries being charged.

Spill or Leak Procedures:

Remove combustible materials and all sources of ignition. Stop flow of material and contain spill by diking with soda ash, etc. Carefully neutralize spill with soda ash, etc. Make certain mixture is neutral then collect residue and place in a drum or other suitable container with a label specifying "contains hazardous waste" or (if uncertain call distributor regarding proper labeling procedures). Dispose of as hazardous waste. If battery is leaking, place battery in a heavy duty plastic bag. Wear acid resistant boots, face shield, chemical splash goggles and acid resistant gloves. DO NOT RELEASE UNNEUTRALIZED ACID.

VII. PRECAUTIONS FOR SAFE HANDLING AND USE (CONTINUED)

Waste Disposal Methods:

Sulfuric Acid: Neutralize as described above for a spill, collect residue and place in a container labeled as containing hazardous waste. Dispose of as a hazardous waste. If uncertain about labeling procedures, call your local battery distributor or listed contact. DO NOT FLUSH LEAD CONTAMINATED ACID TO SEWER.

Spent batteries: Send to secondary lead smelter for recycling following applicable federal, state, and local regulations.

Precautionary Labeling:

POISON - CAUSES SEVERE BURNS
DANGER - EXPLOSIVE GASES
CORROSIVE - CONTAINS SULFURIC ACID
KEEP AWAY FROM CHILDREN

VIII. CONTROL MEASURES

Engineering Controls and Work Practices:

Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid-resistant. Handle batteries cautiously. Make certain vent caps are on securely. If battery case is damaged, avoid bodily contact with internal components. Wear protective clothing, eye and face protection, when charging or handling batteries. Follow all manufacturers' recommendations when stacking or palletizing. Do not allow metallic materials to simultaneously contact both the positive and negative terminals of the batteries. Use a battery carrier to lift a battery or place hands at opposite corners to avoid spilling acid through the vents. Avoid contact with internal components of the batteries.

Hygiene Practices:

Wash hands thoroughly before eating, drinking or smoking after handling batteries.

Respiratory Protection:

None required under normal conditions. If an overcharging or overheating condition exists and concentrations of sulfuric acid mist are known or suspected to exceed PEL, use NIOSH or MSHA-approved respiratory protection.

Protective Clothing:

None required under normal conditions. If battery case is damaged, use rubber or plastic acid-resistant gloves with elbow-length gauntlet and acid-resistant apron, clothing, and boots.

Eye Protection:

None required under normal conditions. If battery case is damaged, chemical goggles or face shield.

Emergency Flushing:

In areas where water and sulfuric acid solutions are handled in concentrations greater than 1%, emergency eyewash stations and showers should be provided, with unlimited water supply.

IX. OTHER REGULATORY INFORMATION

NFPA Hazard Rating for sulfuric acid:

Flammability (Red) = 0 Health (Blue) = 3 Reactivity (Yellow) = 2
Sulfuric acid is water-reactive if concentrated.

TRANSPORTATION:

US DOT identification and description for this battery is:
Batteries, wet, non-spillable, 8, UN 2800, PG III
Label: Corrosive
(Exceptions 173.159, paragraph (d), C.F.R. 49)
For air shipments, see International Air Transportation Association (IATA) Dangerous Goods Regulations Manual, special provisions A-48 and A-67. For ocean shipments, reference International Maritime Dangerous Goods Code, P. 8121.

This is to certify that the "Non-Spillable" batteries are capable of withstanding the Vibration and Pressure Differential Test, and at a temperature of 55°C, the electrolyte will not flow from a ruptured or cracked case. The batteries have been protected against short circuits and securely packaged. The batteries and outer packaging must be plainly marked "Non-Spillable" or "Non-Spillable Battery".

RCRA: Spent lead-acid batteries are not regulated as hazardous waste when recycled. Spilled sulfuric acid is a characteristic hazardous waste; EPA hazardous waste number D002 (corrosivity).

IX. OTHER REGULATORY INFORMATION (CONTINUED)

CERCLA (Superfund) and EPCRA:

(a) Reportable Quantity (RQ) for spilled 100% sulfuric acid under CERCLA (Superfund) and EPCRA (Emergency Planning and Community Right to Know Act) is **1,000 lbs.** State and local reportable quantities for spilled sulfuric acid may vary.

(b) Sulfuric acid is a listed "Extremely Hazardous Substance" under EPCRA, with a Threshold Planning Quantity (TPQ) of **1,000 lbs**

(c) EPCRA Section 302 notification is required if **1,000 lbs** or more of sulfuric acid is present at one site. An average automotive/commercial battery contains approximately 5 lbs of sulfuric acid. Contact your Exide representative for additional information.

(d) EPCRA Section 312 Tier Two reporting is required for non-automotive batteries if sulfuric acid is present in quantities of **500 lbs** or more and/or if lead is present in quantities of 10,000 lbs or more.

(e) **Supplier Notification:**
This product contains a toxic chemical or chemicals subject to the reporting requirements of section 313 of (Title) III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

Chemical	CAS	Percent by Weight
Lead (Pb)	7439-92-1	67-77
Electrolyte: Sulfuric Acid (H_2SO_4)	7664-93-9	18-23
Cadmium (Cd)	7740-43-9	0.2-0.3

If you distribute this product to other manufacturers in SIC Codes 20 through 39, this information must be provided with the first shipment of each calendar year.
Note: The Section 313 supplier notification requirement does not apply to batteries that are "consumer products".

CAA: Exide Technologies supports preventative actions concerning ozone depletion in the atmosphere due to emissions of CFC's and other ozone depleting chemicals (ODC's), defined by the USEPA as Class I substances. Pursuant to Section 611 of the Clean Air Act Amendments (CAAA) of 1990, finalized on January 19, 1993, Exide established a policy to eliminate the use of Class I ODC's prior to the May 15, 1993 deadline.

TSCA: Each ingredient chemical listed in Section II of this MSDS is also listed on the TSCA Registry.

CANADIAN REGULATIONS: All chemical substances in this product are listed on the CEPA DSL/NDSL or are exempt from list requirements.

CALIFORNIA PROPOSITION 65:

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

PREPARED BY:

GNB INDUSTRIAL POWER
A DIVISION OF EXIDE TECHNOLOGIES
3950 SUSSEX AVENUE
AURORA, IL 60504-7932
(800) 872-0471

1004

SAFETEC
CHEMICAL COMPLIANCE

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Product Name: 00449 Texaco Diesel 2

Manufacturer: Chevron

Revision Date: 4/10/1989

Common Names:

Notes:

Synonyms:

Ingredients

Chemical Name	CAS #	Max %	% Range
Hydrocarbons		100.00%	100

HMIS

Health: 3
Flammability: 2
Reactivity: 0
Protective:

NFPA

Toxicity:
Fire:
Reactivity:
Special:

Facility

Facility	Department	Archived	Status
Hydro		☒	

Attributes

Regulations

First Aid

Eye: As with most foreign materials, should eye contact occur, flush eyes with plenty of water.

Skin: Wash exposed areas with soap and water.

Inhalation: Should symptoms noted under physiological effects occur, remove to fresh air. If not breathing, apply artificial respiration.

Ingestion: Do NOT induce vomiting. Aspiration may cause chemical pneumonia.

Other: Other Instructions: None.

Personal Protection

Eye: Chemical type goggles or face shield optional.

Skin: Exposed employees should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water, and laundering or dry cleaning soiled work clothing at least weekly. Gloves resistant to chemicals and petroleum distillates recommended.

Inhalation: Supplied air respiratory protection for cleaning large spills or upon entry into tanks, vessels, or other confined spaces.

Ventilation: Normal.

Other:

Spill Measures

(Transportation Spills Call CHEMTREC (800) 424-9300) Avoid all personal contact. Ventilate area. Avoid breathing vapor. Use self-contained breathing apparatus or supplied-air mask for large spills in confined area. Contain spill if possible. Wipe up or absorb on suitable material and shovel up.

SARA Properties:

Hazard Properties:	☑ Fire	☐ Sudden Release	☐ Reactivity
	☑ Immediate	☑ Delayed	
Tier II Report Exemption:	☐ Exempt On New Inventory		
Chemical State:	☐ Solid	☑ Liquid	☐ Gas
Chemical Type:	○ Pure	● Mixture	○ Undefined
Specific Gravity:	0.852		

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SAFETEC
CHEMICAL COMPLIANCE CERTIFIED

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Product Name: Caterpillar CC/SF Plus 10W-30

Manufacturer: Exxon (ExxonMobil)

Revision Date: 12/18/1986

Common Names:

Notes:

Synonyms:

Ingredients

Chemical Name	CAS #	Max %	% Range
Refined Mineral Oils		100.00%	>80
Zinc (Elemental Analysis)	744-06-6	0.12%	0.12
Additives and/or other ingreds.		20.00%	<20

HMIS

Health:
Flammability:
Reactivity:
Protective:

NFPA

Toxicity: 0
Fire: 1
Reactivity: 0
Special:

Facility

Facility	Department	Archived	Status
Hydro		☒	

Attributes

Missing 1 or More Pages
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Regulations

Michigan PIPP
NYC Hazardous Substance List

First Aid

Eye: Flush with water.

Skin: Wash contact areas with soap and water.

Inhalation: Not expected to be a problem.

Ingestion: Not expected to be a problem. However, if greater than 1/2 liter (pint) ingested, immediately give 1 to 2 glasses of water and call a physician, hospital emergency room or poison control center for assistance. Do not induce vomiting or give anything by mouth to an unconscious person.

Other:

Personal Protection

Eye: Normal industrial eye protection practices should be employed.

Skin: No special equipment required. However, good personal hygiene practices should always be followed.

Inhalation: No special requirements under ordinary conditions of use and with adequate ventilation.

Ventilation: No special requirements under ordinary conditions of use and with adequate ventilation.

Other:

Spill Measures

Environmental Impact: Report spills as required to appropriate authorities. U.S. coast guard regulations require immediate reporting of spills that could reach any waterway including intermittent dry creeks. Report spill to coast guard toll free number 800-424-8802. Procedures If Material is Released or Spills: Absorbs on fire retardant trusted sawdust, diatomaceous earth, etc. Shovel up and dispose of current applicable laws and regulations, and product characteristics at time of disposal.

SARA Properties:

Hazard Properties:	☐ Fire	Sudden Release ☐	☐ Reactivity
	☑ Immediate	☑ Delayed	
Tier II Report Exemption:	☐ Exempt On New Inventory		
Chemical State:	☐ Solid	☑ Liquid	☐ Gas
Chemical Type:	○ Pure	◉ Mixture	○ Undefined
Specific Gravity:			

1003

SAFETEC
CHEMICAL COMPLIANCE

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Product Name: 02055 Startex Anti-Freeze Coolant

Manufacturer: Chevron

Revision Date: 6/9/1986

Common Names:

Notes:

Synonyms:

Ingredients

Chemical Name	CAS #	Max %	% Range
1,2-Ethanediol	107-21-1	99.99%	95.00-99.99
Borax	1303-96-4	3.99%	1.00-3.99

HMIS

Health:
Flammability:
Reactivity:
Protective:

NFPA

Toxicity:
Fire:
Reactivity:
Special:

Facility

Facility	Department	Archived	Status
Hydro		☒	

Attributes

Image As Received By Customer
Missing HMIS and/or NFPA
Missing 1 or More Pages
No Ingredients on MSDS

Regulations

CERCLA
HAPs - CAA 112(b)
HAPs - Non-Carcinogen
HAPs - Organic
Michigan PIPP
NESHAPs
New Jersey RTK Hazardous Substance List
North Carolina HAPs
NPRI
NYC Hazardous Substance List
Pennsylvania Hazardous Substances List
SARA 313

First Aid

Eye: Flush with water for fifteen minutes.

Skin: Wash exposed areas with soap and water.

Inhalation: Remove to fresh air; if not breathing apply artificial respiration. Get medical attention. Keep affected person warm and at rest.

Ingestion: Give large quantities of water, then induce vomiting immediately. Get immediate medical attention. Do not make an unconscious person vomit. Never give anything by mouth to an unconscious person.

Other: None.

Personal Protection

Eye: Chemical type goggles or face shield optional.

Skin:

	Exposed employees should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water, and laundering or dry cleaning soiled work clothing at least weekly.
Inhalation:	Supplied air positive pressure full-facepiece respirators in emergencies, cleaning spills, entry into tanks, confined spaces.
Ventilation:	Normal.
Other:	

Spill Measures

(Transportation Spill Call CHEMTREC (800) 424-9300) Avoid contact with eyes. Contain spill if possible. Wipe up or absorb on suitable material and shovel up. Remarks: Waste Classification: Product has been evaluated for RCRA characteristics and does not meet criteria of a hazardous waste if discarded in its purchased form.

SARA Properties:

Hazard Properties:	☐ Fire	☐ Sudden Release	Reactivity
	☑ Immediate	☑ Delayed	
Tier II Report Exemption:	☐ Exempt On New Inventory		
Chemical State:	☐ Solid	☑ Liquid	☐ Gas
Chemical Type:	☐ Pure	☑ Mixture	☐ Undefined
Specific Gravity:	1.13		

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SAFETEC
CHEMICAL COMPLIANCE

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Product Name: 001FCLC - Lead Acid Cell (Calcium)

Manufacturer: Exide Technologies (GNB)

Revision Date: 9/17/2003

Common Names:

Notes:

Synonyms:

Ingredients

Chemical Name	CAS #	Max %	% Range
Lead	7439-92-1	52.40%	52.4
Non-Hazardous Ingredients		8.20%	8.2
Lead Dioxide (PbO2)	1309-60-0	20.80%	20.8
Lead Compounds		100.00%	
Electrolyte: Sulfuric Acid	7664-93-9	44.00%	19-44

HMIS

Health:
Flammability:
Reactivity:
Protective:

NFPA

Toxicity: 3
Fire: 0
Reactivity: 2
Special:

Facility

Facility	Department	Archived	Status
Hydro			

Attributes

Regulations

California Regulated Substances List
CERCLA
Clean Water Act
EPCRA Section 302 EHS
Global Automotive Declarable Substance List
HAPs - CAA 112(b)
HAPs - Carcinogen
HAPs - Inorganic
IARC-2A
IARC-2B
Michigan PIPP
New Jersey RTK Hazardous Substance List
North Carolina HAPs
North Carolina TAPs
NPRI
NYC Hazardous Substance List
OSHA Carcinogen
Pennsylvania Hazardous Substances List
SARA 313
Section 304 EHS

First Aid

Eye: Sulfuric Acid - flush immediately with cool water for at least 15 minutes, then consult physician. Lead Compounds - flush immediately with cool water for at least 15 minutes, then consult physician.

Skin: Sulfuric Acid - flush with large amounts of water for at least 15 minutes, remove any contaminated clothing and do not wear again until cleaned If acid is splashed on shoes, remove and discard if they contain leather. Lead Compounds are not readily absorbed through the skin.

Inhalation:

	Sulfuric Acid - Remove to fresh air immediately If breathing is difficult, give oxygen. Lead Compounds - Remove from exposure; gargle, wash nose and eyes and consult physician.
Ingestion:	Sulfuric Acid - give large quantities of water; DO NOT induce vomiting, then consult physician. Lead Compounds - consult a physician.
Other:	
Personal Protection	
Eye:	Chemical splash goggles or face shield.
Skin:	Rubber or plastic acid resistant gloves with elbow length gauntlet.
Inhalation:	None are required under normal conditions. If an overcharge or overheating condition exists and concentrations of sulfuric acid mist are known or suspected to exceed PEL, use NIOSH or MSHA approved respiratory protection.
Ventilation:	Store and handle lead acid batteries in well ventilated areas. Work Practices: Make certain vent caps are on tightly. Follow all manufacturers' recommendations when stacking or palletizing. Do not allow metallic materials to simultaneously contact both the positive and negative terminals of the batteries. Use a battery carrier to lift a battery or place hands at opposite corners to avoid spilling acid through the vents. Avoid contact with internal components of the batteries.
Other:	Other Special Clothing and Equipment: Acid resistant apron. Under severe exposure or emergency conditions, wear acid resistant clothing and boots.

Spill Measures

Remove combustible materials and all sources of ignition. Stop flow of material and contain spill by diking with soda ash (sodium carbonate) or quick lime (calcium oxide). Carefully neutralize spill with soda ash, etc. Make certain mixture is neutral then collect residue and place in a drum or other suitable container with a label specifying "contains hazardous waste" or (if uncertain call distributor regarding proper labeling procedures) Dispose of as hazardous waste. If battery is leaking, place battery in a heavy duty plastic bag Wear acid resistant boots, faceshield, chemical splash goggles and acid resistant gloves. DO NOT RELEASE UNNEUTRALIZED ACID.

SARA Properties:

Hazard Properties:	☐ Fire	☐ Sudden Release	☑ Reactivity
	☑ Immediate	☑ Delayed	
Tier II Report Exemption:	☐ Exempt On New Inventory		
Chemical State:	☐ Solid	☑ Liquid	☐ Gas
Chemical Type:	☐ Pure	☉ Mixture	☐ Undefined
Specific Gravity:	1.35		

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SAFETEC
CHEMICAL COMPLIANCE SYSTEMS

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Product Name: 01657 Rando Oil HD 32

Manufacturer: Chevron

Revision Date: 9/7/1989

Common Names:

Notes:

Synonyms:

Ingredients

Chemical Name	CAS #	Max %	% Range
Solvent-Dewaxed Heavy Paraffinic Petroleum Distillates	64742-65-0	99.99%	95.00-99.99
Zinc		0.03%	0.029

HMIS

Health: 0
Flammability: 1
Reactivity: 0
Protective:

NFPA

Toxicity:
Fire:
Reactivity:
Special:

Facility

Facility	Department	Archived	Status
Hydro			

Attributes
Poor Quality Image

Regulations
CEPA 1.2 UVCBs
CEPA Master List
Michigan PIPP
NYC Hazardous Substance List

First Aid

Eye: As with most foreign materials, should eye contact occur, flush eyes with plenty of water.

Skin: Wash exposed areas with soap and water.

Inhalation: If irritation or drowsiness occurs, remove to fresh air.

Ingestion: None considered necessary.

Other: None.

Personal Protection

Eye: Chemical type goggles or face shield optional.

Skin: Exposed employees should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water, and laundering or dry cleaning soiled work clothing at least weekly.

Inhalation: If vapor, mist or dust is generated in excess of permissible concentrations (see pg.4) use respirator approved by MSHA or NIOSH.

Ventilation: Adequate to meet component permissible concentrations.

Other:

Spill Measures

(Transportation Spill Call CHEMTREC (800) 424-9300) Contain Spill if possible. Wipe up or absorb on suitable material and shovel up. Remarks: Waste Classification: Product has been evaluated for RCRA characteristics and does not meet criteria of a hazardous waste if discarded in its purchased form.

SARA Properties:

Hazard Properties:	☐ Fire	☐ Sudden Release	☐ Reactivity
	☑ Immediate	☐ Delayed	
Tier II Report Exemption:	☐ Exempt On New Inventory		
Chemical State:	☐ Solid	☑ Liquid	☐ Gas
Chemical Type:	○ Pure	● Mixture	○ Undefined
Specific Gravity:	0.8681		

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SAFETEC
CHEMICAL COMPLIANCE OUTSOURCING

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Product Name: 02778 Rando Oil HD 100

Manufacturer: Chevron

Revision Date: 9/7/1989

Common Names:

Notes:

Synonyms:

Ingredients

Chemical Name	CAS #	Max %	% Range
Zinc		0.03%	0.029
Solvent-Dewaxed Heavy Paraffinic Petroleum Distillates	64742-65-0	99.99%	95.00-99.99

HMIS

Health: 0
Flammability: 1
Reactivity: 0
Protective:

NFPA

Toxicity:
Fire:
Reactivity:
Special:

Facility

Facility	Department	Archived	Status
Hydro			

Attributes

Regulations
CEPA 1.2 UVCBs
CEPA Master List
Michigan PIPP
NYC Hazardous Substance List

First Aid

Eye: As with most foreign materials, should eye contact occur, flush eyes with plenty of water.

Skin: Wash exposed areas with soap and water.

Inhalation: If irritation or drowsiness occurs, remove to fresh air.

Ingestion: None considered necessary.

Other: None.

Personal Protection

Eye: Chemical type goggles or face shield optional.

Skin: Exposed employees should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water, and laundering or dry cleaning soiled work clothing at least weekly.

Inhalation: If vapor, mist or dust is generated in excess of permissible concentrations (see pg.4) use respirator approved by MSHA or NIOSH.

Ventilation: Adequate to meet component permissible concentrations.

Other:

Spill Measures

Procedures In Case of Breakage of Leakage (Transportation Spill Call CHEMTREC (800) 424-9300): Contain spill if possible. Wipe up or absorb on suitable material and shovel up. Remarks: Waste Classification: Product has been evaluated for RCRA characteristics and does not meet criteria of a hazardous waste if discarded in its purchased form.

SARA Properties:

Hazard Properties:	☐Fire	Sudden ☐Release	☐Reactivity
	☑Immediate	☐Delayed	
Tier II Report Exemption:	☐Exempt On New Inventory		
Chemical State:	☐Solid	☑Liquid	☐Gas
Chemical Type:	○Pure	◉Mixture	○Undefined
Specific Gravity:	0.8871		

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SAFETEC

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Product Name: Regular Clorox Bleach

Manufacturer: Clorox Co.

Revision Date: 8/1/1987

Common Names:

Notes:

Synonyms:

Ingredients

Chemical Name	CAS #	Max %	% Range
Sodium Hypochlorite	7681-52-9	5.20%	5.2

HMIS

Health: 2*
Flammability: 0
Reactivity: 1
Protective: B

NFPA

Toxicity:
Fire:
Reactivity:
Special:

Facility

Facility	Department	Archived	Status
Hydro			

Attributes

No Regulation Section

Regulations

CERCLA
Clean Water Act
Michigan PIPP
NYC Hazardous Substance List
Pennsylvania Hazardous Substances List

First Aid

Eye: Immediately flush eyes with plenty of water. If irritation persists, see a doctor.

Skin: Remove contaminated clothing. Wash area with water.

Inhalation: If breathing problems develop remove to fresh air.

Ingestion: Drink a glassful of water and call a physician.

Other:

Personal Protection

Eye:

Skin:

Inhalation:

Ventilation: Use general ventilation to minimize exposure to vapor or mist.

Other: Hygienic Practices: Wear safety glasses. With repeated or prolonged use, wear gloves. Work Practices: Avoid eye and skin contact and inhalation of vapor or mist.

Spill Measures

Small quantities of less than 5 gallons may be flushed down drain. For larger quantities wipe up with an absorbent material and dispose of in accordance with water to minimize oxidizing effect on spilled surface.

SARA Properties:

Hazard Properties:	Fire	Sudden Release	Reactivity

	☑ Immediate	☑ Delayed	
Tier II Report Exemption:	☐ Exempt On New Inventory		
Chemical State:	☐ Solid	☑ Liquid	☐ Gas
Chemical Type:	☐ Pure	☑ Mixture	☐ Undefined
Specific Gravity:	1.085		

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SAFETEC

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Product Name: Waste Oil

Manufacturer: Northern California Power Agency

Revision Date: 6/8/1992

Common Names:

Notes:

Synonyms:

Ingredients

Chemical Name	CAS #	Max %	% Range

HMIS

Health:
Flammability:
Reactivity:
Protective:

NFPA

Toxicity:
Fire:
Reactivity:
Special:

Facility

Facility	Department	Archived	Status
Hydro		☒	

Attributes

No HMIS and/or NFPA
No Regulation Section
No Ingredients on MSDS

Regulations

First Aid

Eye: As with most foreign materials, should eye contact occur, flush eyes with plenty of water.

Skin: Wash exposed areas with soap and water.

Inhalation: If irritation or drowsiness occurs, remove to fresh air.

Ingestion: None considered necessary.

Other: Other Instructions: Refer to Material Safety Data Sheet for the particular product in the waste oil.

Personal Protection

Eye: Chemical type goggles or face shield optional.

Skin: Exposed employees should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times with soap and water, and laundering or dry cleaning soiled work clothing.

Inhalation: If vapor, mist or dust is generated in excess of permissible concentrations, use respirator approved by MSHA or NIOSH.

Ventilation: Adequate to meet component permissible concentrations.

Other:

Spill Measures

(Transportation Spills: Call CHEMTREC (800) 424-9300). Contain spill if possible. Wipe up or absorb on suitable material and temporarily store in a sealed drum for proper subsequent disposal. Remarks: See Material Safety Data Sheet for particular product in the waste oil.

SARA Properties:

Hazard Properties:	☐ Fire	Sudden Release ☐	☐ Reactivity
	☑ Immediate	Delayed	

Tier II Report Exemption:	Exempt On New Inventory		
Chemical State:	Solid	Liquid	Gas
Chemical Type:	Pure	Mixture	Undefined
Specific Gravity:			

SAFETEC
CHEMICAL COMPLIANCE

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Product Name: Shell Diala Oil AX

Manufacturer: Shell

Revision Date: 7/24/1985

Common Names:

Notes:

Synonyms:

Ingredients

Chemical Name	CAS #	Max %	% Range
Solvent Refined, Hydrotreated Middle Distillate	64742-46-7	100.00%	60-100
Butylated Hydroxy Toluene	128-37-0	0.20%	<0.2
Severely Hydro-Treated Light Naphthenic Distillate	64742-53-6	40.00%	0-40

HMIS

Health: 1
Flammability: 1
Reactivity: 0
Protective:

NFPA

Toxicity:
Fire:
Reactivity:
Special:

Facility

Facility	Department	Archived	Status
Hydro		☒	

Attributes

Poor Quality Image

Regulations

NPRI
NYC Hazardous Substance List
Pennsylvania Hazardous Substances List

First Aid

Eye: Flush eyes with water. If irritation occurs, get medical attention.

Skin: Remove contaminated clothing/shoes and wipe excess from skin. Flush skin with water. Follow by washing with soap and water. If irritation occurs, get medical attention.

Inhalation: Remove victim to fresh air and provide oxygen if breathing is difficult. Get medical attention.

Ingestion: Do not induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Get medical attention.

Other:

Personal Protection

Eye:

Skin: Wear chemical-resistant gloves and other protective clothing as required to minimize skin contact. No special eye protection is routinely necessary. Test data from published literature and/or glove and clothing manufacturers indicate the best protection is provided by nitrile gloves.

Inhalation: If exposure may or does exceed occupational exposure limits (section IV) use a NIOSH-approved respirator to prevent overexposure. In accord with 29 CFR 1910.13 use either an atmosphere-supplying respirator or an air-purifying respirator for organic vapors and particulates.

Ventilation:	This product is classified as an oil under section 311 of the clean water act. Spills entering (a) surface water or (e) any water courses or severs entering/leading to surface waters that cause a sheen must be reported to the national response center. 800-424-8002

Other:

Spill Measures

May burn although not readily ignitable. Use cautions judgment when cleaning up large spills. Large Spills: Wear respirator and protective clothing as appropriate. Shut off source of leak if safe to do so. Dike and contain. Remove with vacuum trucks or pump to storage salvage vessels. Soak up residue with an absorbent such as clay, sand, or other suitable materials; dispose of properly. Flush area with water to remove trace residue. Small Spills: Take up with an absorbent material and dispose of properly.

SARA Properties:

Hazard Properties:	☐ Fire	☐ Sudden Release	☐ Reactivity
	☑ Immediate	☑ Delayed	
Tier II Report Exemption:	☐ Exempt On New Inventory		
Chemical State:	☐ Solid	☑ Liquid	☐ Gas
Chemical Type:	☐ Pure	◉ Mixture	☐ Undefined
Specific Gravity:	0.883		

SAFETEC

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Product Name: ABC Multipurpose

Manufacturer: Tyco International (Mallinckrodt)

Revision Date:

Common Names:

Notes:

Synonyms:

Ingredients

Chemical Name	CAS #	Max %	% Range

HMIS

Health:
Flammability:
Reactivity:
Protective:

NFPA

Toxicity:
Fire:
Reactivity:
Special:

Facility

Facility	Department	Archived	Status
Hydro		☐	

Attributes

Poor Quality Image
No Ingredients on MSDS
No HMIS and/or NFPA
No Regulation Section
Missing Revision Date

Regulations

First Aid

Eye:

Skin:

Inhalation:

Ingestion:

Other: Cleanse thoroughly.

Personal Protection

Eye:

Skin:

Inhalation:

Ventilation:

Other: OTHER PROTECTIVE EQUIPMENT: To avoid discomfort-respiratory, eye, and surface protection may be worn.

Spill Measures

Avoid breathing powder dust. Powder is slightly hygroscopic and corrosive; clean immediately after use. May be handled dry by sweeper, vacuum, air etc. and washed down with water.

SARA Properties:

Hazard Properties:	☐ Fire	☐ Sudden Release	☐ Reactivity
	☑ Immediate	☐ Delayed	
Tier II Report Exemption:	☐ Exempt On New Inventory		
Chemical State:	☑ Solid	☐ Liquid	☐ Gas
Chemical Type:	☐ Pure	☐ Mixture	☑ Undefined
Specific Gravity:	1		