



CASE STUDIES

COLLIERVILLE 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 Collierville 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 That order rescinded Order No. 2001-0011-DWQ.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 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 Collierville 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 five¹ 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, Ethylene, Tuolene 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.
 4. The results of any analysis done for each type of discharge.

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 dewater 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.

*Case Studies
Collierville Powerhouse Sump
North Fork Stanislaus River Hydroelectric Development Project
Northern California Power Agency*

- 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:

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
TPHg	mg/l or μ g/l	Grab	Case Study & Annual	DHS Method 8015M
Oxygenates (Benzene, Toluene, Ethylbenzene, Xylene)	mg/l or μ g/l	Grab	Case Study & Annual	DHS Method 8260B
TPHd	mg/l or μ g/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 USEPA approved 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.
3. The Discharger shall submit SMRs in accordance with the following requirements:

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.

- 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 Collierville Powerhouse sump discharge follows.

SECTION 2 GENERAL DESCRIPTION OF THE PROJECT

The Collierville Powerhouse includes two turbines with a total generating capacity of 253 MW. It is located on the Stanislaus River just upstream of New Melones Reservoir near Camp Nine in Calaveras County (Figure 1). It is owned by the Calaveras County Water District and operated by the Northern California Power Agency.

The powerhouse sump collects drainage from within the powerhouse and ancillary facilities. The two chambered powerhouse sump is an 11-foot wide, 13-foot long, and 36-foot deep concrete pit. It has an 11.5-foot high central baffle which runs from 6 inches from the bottom of the sump to El. 1081, 24 feet from the top of the chamber.

All drainage flows into the eastern most chamber of the powerhouse sump. Water from the western most chamber is pumped by 2 electric pumps, with a combined capacity of 520 gallons per minute, which discharge water into the powerhouse tailrace. The first pump is automatically started when the water elevation in the sump reaches 1,079 feet and the second pump is automatically started when the water elevation in the sump reaches 1,080 feet (1-foot from the top of the baffle and 25 feet from the top of the sump). Both pumps stop when the water level decreases to El. 1,073 feet (2 feet from the bottom of the sump).

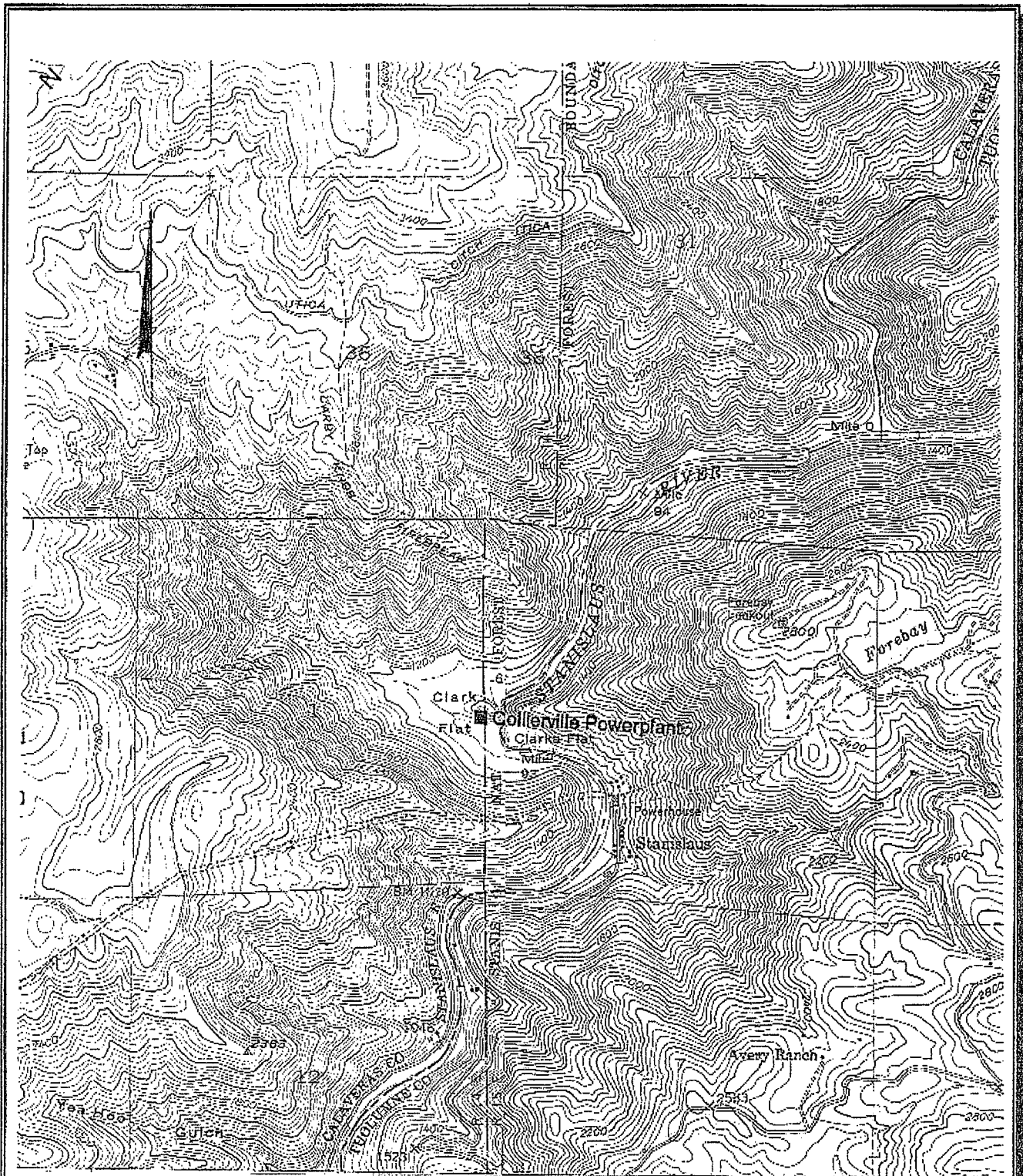
The sump is inspected at least once per month. The oil separation chamber (i.e., eastern most chamber) is cleaned out when hand measurements indicate that there is approximately 1-foot of oily substances in the chamber. Waste oils are pumped directly from the sump into a properly licensed service truck 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 413.8³, 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 (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 Maps
Stanislaus, California and Murphys, California



Figure 1
Collierville 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 Collierville 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 list of these facilities and their associated hazardous materials and/or environmentally damaging substances is provided below:

Location	Material	Volume	MSDS #
DC System	Acid	334 gallons	1016A
Emergency Diesel System	Diesel Fuel	500 gallons	1004
	Lubricating Oil	3 gallons	1012
	Coolant	8 gallons	1003
	Acid	2 gallons	1016
Generator Upper Bearing Oil Systems	Bearing Oil	500 gallons	1018
Generator Lower Bearing Oil Systems	Bearing Oil	240 gallons	1018
Cooling Water System	Heated Effluent and Backflush	Variable	N/A
Generator/Rotor Jack Portable Hydraulic System	Hydraulic Fluid	10 gallons	1007
Turbine/Valve Hydraulic System	Hydraulic Fluid	1,800 gallons	1018
Turbine Guide Bearing Oil System	Lubricating Oil	476 gallons	1018
Powerhouse Septic System	Domestic Wastewater	Variable	N/A
Station Service Water System	1% Chlorine	5 gallons	1002
Gantry Crane	Gear Lube	2 gallons	1012
Tailwater Depression System	Lubricating Oil	12 gallons	1010
Air Conditioning System	Small amount of Freon	--	N/A
Powerhouse Transformer	Transformer Oil	18,600 gallons	1017
Storage/Work Areas		Variable	N/A
Substation Transformer	Transformer Oil	310 gallons	1017

	Carbon Dioxide	32 Cubic Feet	1001
Fire Control System	Ammonium Phosphate	18 Fire Extinguishers	1005
	Sulfur Hexafluoride	Gas	1019
Collierville Switchyard	Anderol	1.1 gallons	1020
Powerhouse Sump	Waste Oil	Variable	1021
Collierville Microwave Building	Acid	12 gallons	1016B

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

Each of these systems is discussed in detail below. In addition, all piping at the Collierville Powerhouse is color coded as follows: CO2, red; water, blue; oil, yellow; and all containers are labeled appropriately.

DC System

The DC System, located in an enclosed room in the southwest corner of the Turbine Floor of the Powerhouse, provides 48-volt power for controlled voltage and 125-volt power for controlled voltage and back-up for the 48-volt system. The enclosed room is provided with an emergency eyewash station and vent.

The 2 backup systems contain 81 battery cells which utilize a total of 334 gallons of sulfuric acid.

The DC System is contained. In the case of a spill, acid would remain within the enclosed room.

Emergency Diesel System

The Emergency Diesel System is located on the west side of the Transformer Yard. The system provides backup power to the Powerhouse. The Emergency Diesel System includes a diesel fuel storage tank, a lubricating oil reservoir, a coolant reservoir and 2 batteries. The diesel fuel tank is a 500-gallon above ground tank. The oil reservoir contains 3 gallons of lubricating oil, the coolant reservoir contains 8 gallons of coolant and the batteries contain 2 gallons of sulfuric acid.

When needed, lubricating oil, coolant and battery acid are replenished from small containers brought from the Murphys warehouse. No supplies are stored on site. The diesel fuel storage tank is serviced by an independent service truck which supplies fuel on an as-needed basis.

The Emergency Diesel System is contained in a 20-foot long, 16-foot wide and 0.5-foot deep concrete area. Containment includes a drain which allows rain water trapped in the containment area to drain into the Transformer bermed area that drains to the Powerhouse Sump.

Generator Upper Bearing Oil Systems

Two Generator Upper Bearing Oil Systems, located on the south side of Units 1 and 2 on the Generator level of the Powerhouse, provide lubrication to the upper bearings in the generators. These lubricating systems each contain 250 gallons of bearing oil (*a total of 500 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.

These lubricating systems are not contained. In the case of a spill, bearing oil would drain onto the concrete floor and eventually enter the Powerhouse Sump.

Generator Lower Bearing Oil Systems

The Generator Lower Bearing Oil Systems, located on the south side of Units 1 and 2 on the Turbine Level of the Powerhouse, provide lubrication to the lower bearings in the generators. These lubricating systems each contain 120 gallons of bearing oil (*a total of 240 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.

These lubricating systems are not contained. In the case of a spill, bearing oil would drain into the Powerhouse Sump.

Cooling Water System

The Cooling Water System supplies water to cool the generators and turbines. Located on the south side of the Turbine Level, three electric pumps with a combined capacity of 4,050 gallons per minute pump water from a sump (fed by gravity from the Powerhouse Turbine Pit) to the following systems: (1) 12 radiators, 6 located within each generator housing on the Generator Level; (2) 2 Upper Guide/Thrust Bearing Oil Heat Exchangers, located on the south outer wall of the generator housings; and (3) 2 Turbine Guide Bearing Oil Heat Exchangers located to the east of each unit on the turbine Level of the Powerhouse. Heated water is collected from each of the 3 systems and is discharged into the Tailrace at the Wheel Pits.

In addition, each of the 3 cooling water pumps includes a system to filter water from the sump. Periodically, these filters are backflushed and the backflush is discharged directly into the Tailrace through 3 small pipes located between the units.

Generator/Rotor Jack Portable Hydraulic System

The Generator/Rotor Jack Portable Hydraulic System provides for lifting the generator for maintenance. The portable unit is normally stored on the Generator Floor near one of the units. The system ties into the Jack System on the south side of the units on the Generator Level. The portable unit contains 10 gallons of hydraulic fluid.

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

This system is not contained. In the case of a spill, hydraulic fluid would drain into the Powerhouse Sump.

Turbine/Valve Hydraulic Systems

The Turbine/Valve Hydraulic Systems, one for each of the 2 units, provide hydraulic fluid from 2 master reservoirs located on the Turbine Level south of each unit to operate the needle point valves, deflector shields and spherical valves. Each system contains 900 gallons of hydraulic fluid (a total volume of 1,800 gallons).

Hydraulic fluids are replenished as needed from supplies brought from the Murphys warehouse. No supplies are stored on site.

These hydraulic systems are not contained. In the case of a spill, hydraulic fluid would drain onto the powerhouse floor and into the Powerhouse Sump.

Turbine Guide Bearing Oil Systems

The Turbine Guide Bearing Oil Systems, one for each unit, provide lubrication to the turbine guide bearings. These systems are located on the southwest side of each unit on the Turbine Level of the Powerhouse. Each system contains 238 gallons of lubricating oil (*a total of 476 gallons*).

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

The lubricating systems are not contained. In the case of a spill, lubricating oil would drain into the Powerhouse Sump.

Station Service Water System

The Station Service Water System, located on the Generator Level 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 solution is replenished as needed from supplies stored at the Murphys warehouse. No supplies are stored on site.

Gantry Crane

The Powerhouse Crane, located on the Deck Level of the Powerhouse, is used to remove large equipment. The electric-powered Gantry Crane contains a gear box and bull gears which contain 2 gallons of gear lube.

Fluids are replenished as needed from supplies brought from the Murphys warehouse.

The crane is not contained. If a spill should occur, fluid would drain onto the concrete deck and might eventually enter the Powerhouse Tailrace depending on the location of the spill.

Tailwater Depression System

The Tailwater Depression System, located on the east side of the Deck Level of the Powerhouse, includes 4 electric-powered compressors each located in an enclosure. The four compressors utilize a total of 12 gallons of lubricating oil.

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

The system is not contained. If a spill should occur, lubricating oil would run onto the concrete deck and into the Tailrace.

Air Conditioning System

The Control Unit for the Powerhouse Air Conditioning system is located in the east side of the Generator Level. The air conditioning system contains a small amount of Freon and is inspected at least once per month during the summer.

The system is not contained. However, in the case of a spill, Freon would evaporate.

Powerhouse Transformers

Three transformers (two active and one back-up) are located to the north of the Powerhouse in a Transformer Yard. These transformers convert Powerhouse generated power to 230 kV for transmission. Each of the transformers contains 6,200 gallons of transformer oil (a total of 18,600 gallons).

The transformers are inspected at least once per month.

Each transformer is located in a contained area. The contained area is a 19.7-foot wide, 24-foot long, 3-foot deep concrete pit with a pipe which, when manually opened, drains to the Powerhouse Sump. The total containment capacity at each transformer is about 10,640 gallons. The transformers sit on a grate over 6 inches of aggregate rock which leave about 6-inches of freeboard on the concrete containment wall.

In addition, a high pressure water system acts as fire protection should the transformers overheat. Water from a nearby tank will spray automatically onto the 2 main transformers should sensors indicate that the units are overheating. Most of the cooling water will drain into the containment area.

Storage/Work Area

The Storage/Work Area is located on the east side of the Turbine Floor. The storage area is within a fenced area with a locked gate. The work area contains various tools and machines and is normally locked.

The area is not contained. In the case of a spill, spilled material would enter the Powerhouse Sump.

Substation Transformer

The Substation Transformer is located on the west side of the Transformer yard within a fenced area. The transformer, which provides power to the substation, contains 310 gallons of transformer fluid.

Fluids are added as needed from supplies brought from the Murphys warehouse. No supplies are stored on site.

The transformer is contained within an 8-foot long, 10 foot wide concrete-lined, 8-inch deep bermed area. Containment includes a drain (normally closed) which, when opened, allows rain water trapped in the containment area to drain into the adjacent subgrade. Prior to draining, all waste oil that may be present in the containment area is removed, properly manifested and trucked off-site by a properly licensed hauler.

Fire Control System

The Collierville Powerhouse Fire Control System is composed of the following components:

Component	Cannery Deck	Generator Level	Turbine Level
Chemical Fire Extinguisher (Ammonium Phosphate Base) Class 4-A: 60B:C	2	9	7
Fire Water Hose or Portable Water Pump Sprayer	3	1	2
Fire Alarm (Manual)	---	3	2
Fire Watch (Automatic)	---	1	1
Carbon Dioxide System	---	32 Cylinders	---

The water hose draws water from the Cooling Water Sump.

When needed, the dry chemical fire extinguishers are recharged by a company specializing in that work. Carbon dioxide cylinders are replaced from supplies brought from the Murphys warehouse as needed.

Collierville Switchyard

The Collierville Switchyard includes 4 high voltage breakers each of which contain sulfur hexafluoride gas, and 3 ounces of anderol. The sulfur hexafluoride extinguishes arcs during breaker operations and the oil is a lubricant.

The high voltage breakers are inspected at least once per month.

The system is not contained. However, should a spill occur, the sulfur hexafluoride gas would go into the atmosphere and the oil would remain in the breakers.

SECTION 3 TYPICAL DISCHARGES THAT OCCUR IN THE PROJECT AREA

As shown previously on Figure 1, the Collierville Powerhouse is located adjacent to the Stanislaus River at Clark Flat in Calaveras County. The only other development in this area is the Stanislaus Powerhouse owned and operated by the Pacific Gas and Electric Company. It is immediately downstream of the Collierville Powerhouse on the other side of the river. It also discharges water from the powerhouse sump into the river.

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 520 gallons per minute into the powerhouse tailrace (tributary to the Stanislaus River). 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 the Stanislaus River.

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 SO₄)
- Sulfide (as S)

*Case Studies
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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 14, 2006 and June 6, 2007. These samples were analyzed for total petroleum hydrocarbons and total 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 Collierville Powerhouse Sump

Parameter	Results	Reporting Unit	Dilution Factor
Total Kjeldahl Nitrogen, mg/l	0.45	0.20	1.0
Methylene Blue Active Substances, mg/l	ND	0.10	1.0
Color, color units	5.0		1.0
Odor, threshold odor number	0		1.0
Turbidity, NTU	5.2		1.0
Total Organic Carbon, mg/l	3.5	2.0	1.0
Total Suspended Solids, mg/l	6.0	5.0	1.0
Fluoride, mg/l	ND	0.050	1.0
Nitrate + Nitrite as N, mg/l	0.13	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	0.050		1.0
Ammonia as N, mg/l	ND	0.20	2.0
Chemical Oxygen Demand, mg/l	13	10	1.0
N-Hexane Extractable Material, mg/l	ND	5.0	1.0
Total Phosphorus, mg/l	ND	0.050	1.0
Bromide, mg/l	ND	0.50	1.0
Sulfate, mg/l	0.97	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	0.180	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	7.48		
Ecoli	2.0	0	1.0
Fecal Coliform	2.0	0	1.0
Coliform	12	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 Collierville Powerhouse Sump

Constituent	Units	Concentration				
		12/08/99	1/14/99	2/3/99	2/17/99	3/3/99
N-Hexane Extractable Material	mg/l	ND	ND	ND	ND	ND
Total Suspended Solids	mg/l	12	ND	ND	ND	6.0
pH	units	7.7	7.65	7.62	7.35	7.48

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 Collierville 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 14, 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.

During the preparation of this Case Study, NCPA also sampled the effluent from the Collierville Sump. The results of that sampling are provided in Table 6-4.

Table 6-4
Sampling Results at the Collierville Sump Discharge
January 29, 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	6.9		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 Collierville 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 (MSDS) for those chemicals utilized at the Collierville Powerhouse. A summary of the MSDS's is provided below:

MSDS No.	Trade Name	Common Name
1001	Carbon Dioxide	Carbon Dioxide
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
1007	01657 Rando Oil HD 32	Hydraulic Fluid
1010	Mobil DTE Oil B	Hydraulic Oil
1012	023220 Meropa 150	Gear Lubricant
1016	Sulfuric Acid	Sulfuric Acid
1016A	001 FCLC Lead Acid Cell	Electric Storage Battery
1016B	Valve Regulated Lead Acid Battery	Electric Storage Battery
1017	Shell Diala 7 Oil AX	Transformer Oil
1018	Exxon Teresstic 46	Bearing Oil
1020	Anderol 500 Synthetic Compressor Oil	Compressor Oil
1021	Waste Oil	Variable

I. PRODUCT IDENTIFICATION		
MANUFACTURER GNB Industrial Power A Division of Exide Industries 3950 Sussex Avenue Aurora, IL 60504-7932	CHEMICAL/TRADE NAME (as used on label)	001FCLC Lead Acid Cell (Calcium)
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	Electrical Storage Battery
FOR EMERGENCY CHEMTREC (800) 424-9300 24-hour Emergency Response Contact Ask for Environmental Coordinator	DATE ISSUED:	May 4, 2005
		CHEMTREC INTERNATIONAL (703) 527-3887 – Collect

II. HAZARDOUS INGREDIENTS/IDENTITY INFORMATION					
			Approximate Air Exposure Limits (µg/m ³)		
Components	CAS Number	% by Wt.	OSHA	ACGIH	NIOSH
Inorganic components of:					
Lead	7439-92-1	52.4	50	50	50
Lead Dioxide	1309-60-0	20.8	50	50	50
Non-Hazardous Ingredients	N/A	8.2	N/A	N/A	N/A
Electrolyte (sulfuric acid)	7664-93-9	19-44	1000	200	1000
NOTE: Components are for a fully charged lead acid design. 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			
Materials (at normal temperatures) Electrolyte Volume of Sulfuric Acid – 42-71%		Specific Gravity (H ₂ O=1)	1.230 to 1.350
Boiling Point (Electrolyte)	203° F (at 760 mm Hg)	Vapor Pressure (mm Hg at 20 °C)	10
Melting Point	Not Applicable	Vapor Density (AIR=1)	Greater than 1
Solubility in Water	100%	% Volatiles by Weight	Not Applicable
Appearance and Odor	A clear liquid with a sharp, penetrating, pungent odor. A battery is a manufactured article; no apparent odor.	Evaporation Rate (Butyl acetate=1)	Less Than 1

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.	

IV. FIRE AND EXPLOSION HAZARD DATA (CONTINUED)

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 Unstable

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

Incompatibility: (materials to avoid)

Electrolyte: Contact of sulfuric acid 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

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 can occur only 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.

VI. HEALTH HAZARD DATA (CONTINUED)

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 clothes 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.

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.

VII. PRECAUTIONS FOR SAFE HANDLING AND USE (CONTINUED)

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, 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, filled with acid, Class 8, UN 2794 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 Packing Instruction 800. For ocean shipments, reference International Maritime Dangerous Goods Code, P8120.

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).

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.

IX. OTHER REGULATORY INFORMATION (CONTINUED)

(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.

<u>Chemical</u>	<u>CAS</u>	<u>Percent by Weight</u>
Lead (Pb)	7439-92-1	52.4
Electrolyte: Sulfuric Acid	7664-93-9	19.44
Lead Dioxide (PbO ₂)	1309-60-0	20.8

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

VENDEE AND THIRD PERSONS ASSUME THE RISK OF INJURY PROXIMATELY CAUSED BY THE MATERIAL IF REASONABLE SAFETY PROCEDURES ARE NOT FOLLOWED AS PROVIDED FOR IN THE DATA SHEET, AND VENDOR SHALL NOT BE LIABLE FOR INJURY TO VENDEE OR THIRD PERSONS PROXIMATELY CAUSED BY ABNORMAL USE OF THE MATERIAL EVEN IF REASONABLE PROCEDURES ARE FOLLOWED.

ALL PERSONS USING THIS PRODUCT, ALL PERSONS WORKING IN AN AREA WHERE THIS PRODUCT IS USED, AND ALL PERSONS HANDLING THIS PRODUCT SHOULD BE FAMILIAR WITH THE CONTENTS OF THIS DATA SHEET. THIS INFORMATION SHOULD BE EFFECTIVELY COMMUNICATED TO EMPLOYEES AND OTHERS WHO MIGHT COME IN CONTACT WITH THE PRODUCT.

WHILE THE INFORMATION ACCUMULATED AND SET FORTH HEREIN IS BELIEVED TO BE ACCURATE AS OF THE DATE HEREOF, EXIDE TECHNOLOGIES MAKES NO WARRANTY WITH RESPECT THERETO AND DISCLAIMS ALL LIABILITY FROM RELIANCE THEREON. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE FOR THEIR PARTICULAR CIRCUMSTANCES.

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SAFETEC

CHEMICAL COMPLIANCE ON DEMAND

Standard OptionsOptions Menu
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Product Name: 00449 Texaco Diesel 2

Manufacturer: Chevron

Revision Date: 4/10/1989

Record Options

Common Names:

Report Options

Notes:

Additional OptionsView MSDS
Document

Synonyms:

Navigation Options**Ingredients**

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

HMIS

Health: 3

Flammability: 2

Reactivity: 0

Protective: 1

NFPA

Toxicity: 1

Fire: 1

Reactivity: 1

Special: 1

Facility

Facility	Department	Archived	Status
Hydro		<input type="checkbox"/>	

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:	<input checked="" type="checkbox"/> Fire	<input type="checkbox"/> Sudden Release	<input type="checkbox"/> Reactivity
Tier II Report Exemption:	<input checked="" type="checkbox"/> Immediate	<input checked="" type="checkbox"/> Delayed	
Chemical State:	<input type="checkbox"/> Solid	<input checked="" type="checkbox"/> Liquid	<input type="checkbox"/> Gas
Chemical Type:	<input type="checkbox"/> Pure	<input checked="" type="checkbox"/> Mixture	<input type="checkbox"/> Undefined
Specific Gravity:	0.852		

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CHEMICAL COMPLIANCE ON DEMAND

Standard Options

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Product Name: 01842 Havoline Superior Grade 10W-30
 Manufacturer: Chevron
 Revision Date: 9/17/1991

Record Options

Common Names:

Report Options

Notes:

Additional Options

- View MSDS
- Document

Synonyms:

Navigation Options

Ingredients

Chemical Name	CAS #	Max %	% Range
Solvent-Dewaxed Heavy Paraffinic Petroleum Distillates	64742-65-0	94.99%	80.00-94.99
1,2,4-TRIMETHYLBENZENE		100.00%	
ISOPROPYL ALCOHOL		100.00%	
C-9 Aromatic Hydrocarbons		100.00%	
CUMENE		100.00%	
Oleylamine		100.00%	
Zinc Dithiophosphate	84605-29-8	0.99%	0.10-0.99
1,3,5-Trimethylbenzene		100.00%	
Zinc Dithiophosphate	25103-54-2	0.99%	0.10-0.99
Zinc		0.12%	0.12

HMIS

Health:
 Flammability:
 Reactivity:
 Protective:
 NFPA
 Toxicity:
 Fire:
 Reactivity:
 Special:

Facility

Facility	Department	Archived	Status
Hydro		<input checked="" type="checkbox"/>	

Attributes

Regulations

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

First Aid

Eye: Flush eyes with plenty of water for several minutes. Get medical attention if eye Irritation persists.

Skin: Wash skin with plenty of soap and water for several minutes. Get medical attention if skin irritation develops or persists.

Inhalation: If irritation, headache, nausea, or drowsiness occurs, remove to fresh air. Get medical attention if breathing becomes difficult or symptoms persist.

Ingestion: If more than several mouthfuls have been swallowed, give two glasses of water (16 oz.). Get medical attention.

Other: Remove and dry-clean or launder clothing soaked or soiled with this material before reuse. Dry cleaning of contaminated clothing may be more effective than normal laundering. Inform individuals responsible for cleaning of potential hazards associated with handling contaminated clothing.

Personal Protection

Eye: Chemical-type goggles or face shield recommended to prevent eye contact.

Skin: Workers should wash exposed skin several times daily with soap and water. Soiled work clothing should be laundered or dry-cleaned at least once a week.

Inhalation: Airborne concentrations should be kept to lowest levels possible. If vapor, mist or dust is generated, use respirator approved by MSHA or NIOSH as appropriate. Supplied air respiratory protection should be used for cleaning large spills or upon entry into tanks, vessels, or other confined spaces. See below for applicable permissible concentrations.

Ventilation: Adequate to meet component occupational exposure limits (see Section 2).

Other:**Spill Measures**

Ventilate area. Avoid breathing vapor. Use self-contained breathing apparatus or supplied air for large spills or confined areas. Contain spill if possible. Wipe up or absorb on suitable material and shovel up. Prevent entry into sewers and waterways. Avoid contact with Skin, eyes or clothing.

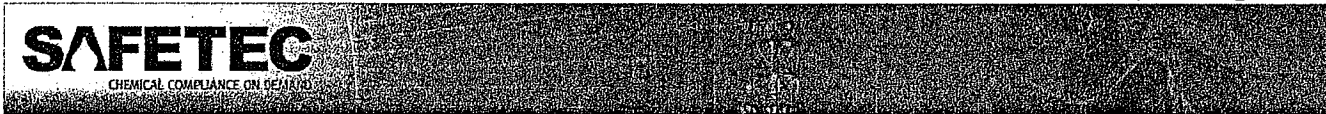
SARA Properties:

Hazard Properties:	<input type="checkbox"/> Fire	<input type="checkbox"/> Sudden Release	<input type="checkbox"/> Reactivity
	<input checked="" type="checkbox"/> Immediate	<input checked="" type="checkbox"/> Delayed	
Tier II Report Exemption:	<input type="checkbox"/> Exempt On New Inventory		
Chemical State:	<input type="checkbox"/> Solid	<input checked="" type="checkbox"/> Liquid	<input type="checkbox"/> Gas
Chemical Type:	<input type="checkbox"/> Pure	<input checked="" type="checkbox"/> Mixture	<input type="checkbox"/> Undefined
Specific Gravity:	<input type="text" value="0.8876"/>		

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1003

**Standard Options**

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Product Name: 02055 Startex Anti-Freeze Coolant
Manufacturer: Chevron
Revision Date: 6/9/1986

Record Options

Common Names:

Report Options

Notes:

Additional Options

View MSDS
Document

Synonyms:

Navigation Options**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

HMISHealth: Flammability: Reactivity: Protective: **NFPA**Toxicity: Fire: Reactivity: Special: **Facility**

Facility	Department	Archived	Status
Hydro		<input type="checkbox"/>	

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:	<input type="checkbox"/> Fire	<input type="checkbox"/> Sudden Release	<input type="checkbox"/> Reactivity
	<input checked="" type="checkbox"/> Immediate	<input checked="" type="checkbox"/> Delayed	
Tier II Report Exemption:	<input type="checkbox"/> Exempt On New Inventory		
Chemical State:	<input type="checkbox"/> Solid	<input checked="" type="checkbox"/> Liquid	<input type="checkbox"/> Gas
Chemical Type:	<input type="checkbox"/> Pure	<input checked="" type="checkbox"/> Mixture	<input type="checkbox"/> Undefined
Specific Gravity:	1.13		

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1016



Standard Options

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Product Name: 001FCLC - Lead Acid Cell (Calcium)
 Manufacturer: Exide Technologies (GNB)
 Revision Date: 9/17/2003

Record Options

Common Names:

Report Options

Notes:

Additional Options

- View MSDS Document

Synonyms:

Navigation Options

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:

Fire:

Reactivity:

Special:

Facility

Facility	Department	Archived	Status
Hydro		<input type="checkbox"/>	

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:	<input type="checkbox"/> Fire	<input type="checkbox"/> Sudden Release	<input checked="" type="checkbox"/> Reactivity
	<input checked="" type="checkbox"/> Immediate	<input checked="" type="checkbox"/> Delayed	
Tier II Report Exemption:	<input type="checkbox"/> Exempt On New Inventory		
Chemical State:	<input type="checkbox"/> Solid	<input checked="" type="checkbox"/> Liquid	<input type="checkbox"/> Gas
Chemical Type:	<input type="checkbox"/> Pure	<input checked="" type="checkbox"/> Mixture	<input type="checkbox"/> Undefined
Specific Gravity:	1.35		

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SAFETEC
 CHEMICAL COMPLIANCE ON DEMAND
Standard Options
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 Product Name: Teresstic 46
 Manufacturer: Exxon (ExxonMobil)
 Revision Date: 6/1/1989
Record Options

Common Names:

Report Options

Notes:

Additional Options
 View MSDS
 Document

Synonyms:

Navigation Options**Ingredients**

Chemical Name	CAS #	Max %	% Range
Lubricating Oil Base Stocks	72623-87-1	100.00%	Greater Than 99
Lubricating Oil Base Stocks	64742-65-0	100.00%	Greater Than 99
Proprietary Additives		1.00%	Less Than 1
Lubricating Oil Base Stocks	64742-54-7	100.00%	Greater Than 99

HMIS
 Health: 1
 Flammability: 1
 Reactivity: 0
 Protective:
NFPA
 Toxicity: 1
 Fire: 1
 Reactivity: 0
 Special:
Facility

Facility	Department	Archived	Status
Hydro		<input type="checkbox"/>	

Attributes**Regulations**
 CEPA 1.2 UVCBs
 CEPA Master List
First Aid
Eye: If splashed into the eyes, flush with clear water for 15 minutes or until irritation subsides. If irritation persists. Call a physician.

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

Inhalation: Vapor pressure is very low. Vapor inhalation under ambient conditions is normally not a problem. If overcome by vapor from hot product. Immediately remove from exposure and call a physician. If breathing is irregular or has stopped, start resuscitation; administer oxygen, if available. If overexposed to oil mist, remove from further exposure until excessive oil mist condition subsides.

Ingestion: If ingested, DO NOT induce vomiting; call a physician immediately.
Other:**Personal Protection**
Eye: Use splash goggles or face shield when eye contact may occur.

Skin: Use chemical-resistant gloves. If needed, to avoid prolonged or repeated skin contact.

Inhalation: Use supplied-air respiratory protection in confined or enclosed spaces, if needed.
Ventilation:

Use local exhaust to capture vapor, mists or fumes, if necessary. Provide ventilation sufficient to prevent exceeding recommended exposure limit or buildup of explosive concentrations of vapor in air. No smoking, flame or other ignition sources.

OTHER PROTECTIVE EQUIPMENT: Use chemical-resistant apron or other impervious clothing. If needed, to avoid contaminating regular clothing, which could result in prolonged or repeated skin contact. **WORK PRACTICES / ENGINEERING CONTROLS:** Keep containers closed when not in use. Do not store near heat, sparks, flame or strong oxidants. In order to prevent fire or explosion hazards, use appropriate equipment. Information on electrical equipment appropriate for use with this product may be found in the latest edition of the National Electrical Code (NFPA-70). This document is available from the National Fire Protection Association.

Other:

Batterymarch Park, Quincy, Massachusetts 02269.
PERSONAL HYGIENE: Minimize breathing vapor, mist or fumes. Avoid prolonged or repeated contact with skin. Remove contaminated clothing; launder or dry-clean before re-use. Remove contaminated shoes and thoroughly clean before re-use; discard if oil-soaked. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed from skin by waterless hand cleaners followed by washing thoroughly with soap and water.

Spill Measures

Recover free product. Add sand, earth or other suitable absorbent to spill area. Minimize breathing vapors. Minimize skin contact. Open all windows and doors. Keep product out of sewers and watercourses by diking or impounding. Advise authorities if product has entered or may enter sewers, watercourses, or extensive land areas. Assure conformity with applicable governmental regulations.

SARA Properties:

Hazard Properties:	<input type="checkbox"/> Fire	<input checked="" type="checkbox"/> Sudden Release	<input type="checkbox"/> Reactivity
	<input checked="" type="checkbox"/> Immediate	<input checked="" type="checkbox"/> Delayed	
Tier II Report Exemption:	<input type="checkbox"/> Exempt On New Inventory		
Chemical State:	<input type="checkbox"/> Solid	<input checked="" type="checkbox"/> Liquid	<input type="checkbox"/> Gas
Chemical Type:	<input type="checkbox"/> Pure	<input checked="" type="checkbox"/> Mixture	<input type="checkbox"/> Undefined
Specific Gravity:	:0.88		

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Standard Options

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Product Name: Regular Clorox Bleach
 Manufacturer: Clorox Co.
 Revision Date: 8/1/1987

Record Options

Common Names:

Report Options

Notes:

Additional Options

- View MSDS Document

Synonyms:

Ingredients

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

Navigation Options

HMIS

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

NFPA

Toxicity:
 Fire:
 Reactivity:
 Special:

Facility

Facility	Department	Archived	Status
Hydro		<input type="checkbox"/>	

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

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

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Standard Options

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Product Name: 02320 Meropa 150
 Manufacturer: Chevron
 Revision Date: 1/6/1983

Record Options

Common Names:

Report Options

Notes:

Additional Options

- View MSDS Document

Synonyms:

Navigation Options

Ingredients

Chemical Name	CAS #	Max %	% Range
Methacrylate polymer		1.00%	Less Than 1
Sulfur Phosphorus		5.00%	1-5
Petroleum Oil		100.00%	Greater Than 95

HMIS

Health:
 Flammability:
 Reactivity:
 Protective:

NFPA

Toxicity:
 Fire:
 Reactivity:
 Special:

Facility

Facility	Department	Archived	Status
Hydro		<input checked="" type="checkbox"/>	

Attributes

- No Regulation Section
- No HMIS and/or NFPA

Regulations

First Aid

Eye: As with most foreign materials, should eye contact occur, flush eyes with plenty of water.
Skin: None considered necessary.
Inhalation: None considered necessary.
Ingestion: None considered necessary.
Other: Other Instruction: 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: None required if exposures are within permissible concentrations; see below.
Ventilation: Normal.
Other:

Spill Measures

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: 0.8913

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Standard Options

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Product Name: Mobil DTE Oil BB
 Manufacturer: Exxon (ExxonMobil)
 Revision Date: 12/6/1984

Record Options

Common Names:

Report Options

Notes:

Additional Options

- View MSDS Document

Synonyms:

Navigation Options

Ingredients

Chemical Name	CAS #	Max %	% Range
Refined Mineral Oils		100.00%	>95
ADDITIVES AND/OR OTHER INGREDIENTS		5.00%	<5

HMIS

Health:

Flammability:

Reactivity:

Protective:

NFPA

Toxicity:

Fire:

Reactivity:

Special:

Facility

Facility	Department	Archived	Status
Hydro		<input type="checkbox"/>	

Attributes

No HMIS and/or NFPA

Regulations

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: No special equipment required. Generally eye contact is unlikely with this type material. If eye contact is likely, safety glasses with side shields or chemical type goggles should be worn.

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

Procedures if Material is Released or Spilled: Adsorb on fire retardant treated sawdust, diatomaceous earth, etc. Shovel up and dispose of at an appropriate waste disposal facility in accordance with current applicable laws and regulations, and product characteristics at time of disposal. 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.

SARA Properties:

Hazard Properties:	<input type="checkbox"/> Fire	<input type="checkbox"/> Sudden Release	<input type="checkbox"/> Reactivity
	<input type="checkbox"/> Immediate	<input type="checkbox"/> Delayed	
Tier II Report Exemption:	<input type="checkbox"/> Exempt On New Inventory		
Chemical State:	<input type="checkbox"/> Solid	<input checked="" type="checkbox"/> Liquid	<input type="checkbox"/> Gas
Chemical Type:	<input type="checkbox"/> Pure	<input checked="" type="checkbox"/> Mixture	<input type="checkbox"/> Undefined
Specific Gravity:			

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Standard Options

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Product Name: Shell Diala Oil AX
 Manufacturer: Shell
 Revision Date: 7/24/1985

Record Options

Common Names:

Report Options

Notes:

Additional Options

- View MSDS Document

Synonyms:

Navigation Options

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		<input type="checkbox"/>	

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 sewers 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.

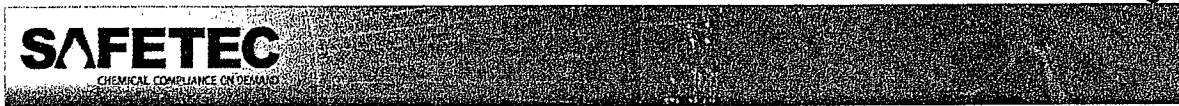
SARA Properties:

Hazard Properties:	<input type="checkbox"/> Fire	<input type="checkbox"/> Sudden Release	<input type="checkbox"/> Reactivity
	<input checked="" type="checkbox"/> Immediate	<input checked="" type="checkbox"/> Delayed	
Tier II Report Exemption:	<input type="checkbox"/> Exempt On New Inventory		
Chemical State:	<input type="checkbox"/> Solid	<input checked="" type="checkbox"/> Liquid	<input type="checkbox"/> Gas
Chemical Type:	<input type="checkbox"/> Pure	<input checked="" type="checkbox"/> Mixture	<input type="checkbox"/> Undefined
Specific Gravity:	0.883		

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1005



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Product Name: ABC Multipurpose
 Manufacturer: Tyco International (Mallinckrodt)
 Revision Date:

Record Options

Common Names:

Report Options

Notes:

Additional Options
 View MSDS Document

Synonyms:

Ingredients

Chemical Name	CAS #	Max %	% Range
---------------	-------	-------	---------

Navigation Options

HMIS

Health:

Flammability:

Reactivity:

Protective:

NFPA

Toxicity:

Fire:

Reactivity:

Special:

Facility

Facility	Department	Archived	Status
Hydro		<input checked="" type="checkbox"/>	

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

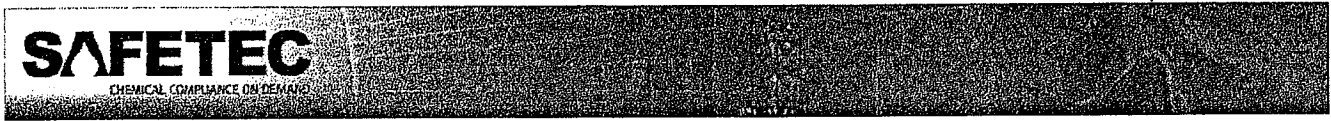
Tier II Report Exemption: Exempt On New Inventory

Chemical State: Solid Liquid Gas

Chemical Type: Pure Mixture Undefined

Specific Gravity: 1

1001



Standard Options

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- Sign Out

Product Name: CO2
 Manufacturer: Unknown Manufacturer
 Revision Date:

Record Options

Common Names:

Report Options

Notes:

Additional Options

- View MSDS Document

Synonyms: Dry Ice; Carbonic Acid

Navigation Options

Ingredients

Chemical Name	CAS #	Max %	% Range
CO2		100.00%	

HMIS

Health:
 Flammability:
 Reactivity:
 Protective:

NFPA

Toxicity:
 Fire:
 Reactivity:
 Special:

Facility

Facility	Department	Archived	Status
Hydro		<input type="checkbox"/>	

Attributes

- No Regulation Section
- Unknown Manufacturer
- No HMIS and/or NFPA
- Missing Revision Date

Regulations

First Aid

Eye:

Skin:

Inhalation: Remove exposed person at once to uncontaminated area, keep warm and quiet, administer oxygen if loss of consciousness has occurred, begin artificial respiration if breathing has stopped, call physician at once. Treat for frostbite if necessary.

Ingestion:

Other:

Personal Protection

Eye:

Skin:

Inhalation: Respiratory protection-self-contained breathing apparatus, positive pressure hose mask, or air-line mask. Protective clothing- leather gloves cylinder & solid handling.

Ventilation: Local exhaust or general ventilation sufficient to maintain concentration below 1/2%, and to assure adequate oxygen.

Other: None.

Spill Measures

Use adequate ventilation. Check cylinder weights for loss. Replace if more than 10% weight reduction.

SARA Properties:

Hazard Properties:	<input type="checkbox"/> Fire	<input type="checkbox"/> Sudden Release	<input type="checkbox"/> Reactivity
	<input checked="" type="checkbox"/> Immediate	<input checked="" type="checkbox"/> Delayed	
Tier II Report Exemption:	<input type="checkbox"/> Exempt On New Inventory		
Chemical State:	<input type="checkbox"/> Solid	<input type="checkbox"/> Liquid	<input checked="" type="checkbox"/> Gas
Chemical Type:	<input type="checkbox"/> Pure	<input type="checkbox"/> Mixture	<input checked="" type="checkbox"/> Undefined
Specific Gravity:	<input type="checkbox"/> 1.52		

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Standard Options

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Product Name: Accudri SF6
 Manufacturer: Honeywell (AlliedSignal)
 Revision Date: 5/1/1989

Record Options

Common Names:

Report Options

Notes:

Additional Options

- View MSDS Document

Synonyms:

Ingredients

Chemical Name	CAS #	Max %	% Range
Sulfur Hexafluoride	2551-62-4	100.00%	

Navigation Options

HMIS

Health:

Flammability:

Reactivity:

Protective:

NFPA

Toxicity:

Fire:

Reactivity:

Special:

Facility

Facility	Department	Archived	Status
Hydro		<input checked="" type="checkbox"/>	

Attributes

- No HMIS and/or NFPA
- Poor Quality Image

Regulations

- Global Automotive Declarable Substance List
- NPRI
- NYC Hazardous Substance List
- Pennsylvania Hazardous Substances List

First Aid

Eye:
Skin:

Inhalation: Immediately remove to fresh air. If breathing has stopped, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen provided a qualified operator is available. Call a physician.

Ingestion:

Other:

Personal Protection

Eye: Safety glasses.

Skin: Not generally required.

Inhalation: Use self-contained breathing apparatus or air-supplied respirator.

Ventilation: Mechanical (General).

Other: Not generally required.

Spill Measures

Evacuate unprotected personnel. Protected personnel (Section E) may shut off leak. Product will disperse itself.

SARA Properties:

Hazard Properties: Fire Sudden Release Reactivity
 Immediate Delayed

Tier II Report Exemption:	<input type="checkbox"/> Exempt On New Inventory		
Chemical State:	<input type="checkbox"/> Solid	<input type="checkbox"/> Liquid	<input checked="" type="checkbox"/> Gas
Chemical Type:	<input type="checkbox"/> Pure	<input type="checkbox"/> Mixture	<input checked="" type="checkbox"/> Undefined
Specific Gravity:	<input type="checkbox"/>		

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1020



Standard Options

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Product Name: Anderol 500 Synthetic Compressor Oil
 Manufacturer: Huls America (Vestimid)
 Revision Date: 11/9/1990

Record Options

Common Names:

Report Options

Notes:

Additional Options

- View MSDS Document

Synonyms:

Ingredients

Chemical Name	CAS #	Max %	% Range
---------------	-------	-------	---------

Navigation Options

HMIS

Health:

Flammability:

Reactivity:

Protective:

NFPA

Toxicity:

Fire:

Reactivity:

Special:

Facility

Facility	Department	Archived	Status
Hydro		<input type="checkbox"/>	

Attributes

- No Regulation Section
- No Ingredients on MSDS

Regulations

First Aid

Eye: Flush eyes with water for 15 minutes. Call a physician if irritation develops.
Skin: Wash skin with soap and water.
Inhalation: Remove to fresh air. Give artificial respiration or oxygen if necessary.
Ingestion: Induce vomiting if victim is conscious. Call a physician. Never give anything by mouth to an unconscious person.

Other:

Personal Protection

Eye: Chemical splash goggles or face shield.
Skin: Impermeable gloves to minimize skin contact.
Inhalation: If overheated, use appropriate NIOSH-approved respiration protective equipment.
Ventilation: Local Exhaust: Recommended. Mechanical: Recommended. Special: N/A. Other: N/A.
Other: OTHER PROTECTIVE EQUIPMENT: Eye wash fountain. Safety shower. Wash contaminated clothing before reuse.

Spill Measures

Cover with an inert, absorbent material and remove to disposal container. Flush residual material with water. Obey all relevant federal, state and local laws.

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: 0.95

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1021



Standard Options

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Product Name: Waste Oil
 Manufacturer: Northern California Power Agency
 Revision Date: 6/8/1992

Record Options

Common Names:

Report Options

Notes:

Additional Options

- View MSDS Document

Synonyms:

Ingredients

Chemical Name	CAS #	Max %	% Range
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Navigation Options

HMIS

Health:

Flammability:

Reactivity:

Protective:

NFPA

Toxicity:

Fire:

Reactivity:

Special:

Facility

Facility	Department	Archived	Status
Hydro		<input checked="" type="checkbox"/>	

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

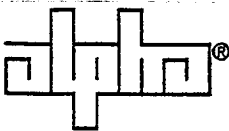
Mixture

Undefined

Specific Gravity:

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MATERIAL SAFETY DATA SHEET

1016B

SECTION I: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Chemical/Trade Name (Identity used on label): Valve Regulated Lead-Acid Battery	Chemical Family/Classification: Electric Storage Battery
Synonyms/Common Name: Lead Acid Battery	HMIS Rating for Sulfuric Acid: 302X
	Shipping Regulations: See Section IX

COMPANY NAME: **GASTON BATTERY INDUSTRIAL LTD.**

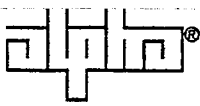
ADDRESS: **ROOM 1713A WELL FUNG INDUSTRIAL CENTRE,
68 TA CHUEN PING STREET, KWAICHUNG, HONGKONG**

CONTACT: Alpha Industrial Power, Inc. Tel: 800-996-6104. Fax# 678-584-9259

24HR Emergency Tel#: Chemtrec: 1-800-424-9300

SECTION II: HAZARDOUS INGREDIENTS

MATERIAL:	% by Wt.	CAS Number	EIGHT HOUR EXPOSURE LIMITS		
			OSHA PEL	ACGIH TLV	Other NIOSH REL
Specific Chemical Identity: LEAD					
Common Name: GRID	50	7439-92-1	50 µg/m ³	150 µg/m ³	100 µg/m ³
Specific Chemical Identity: LEAD DIOXIDE					
Common Name: LEAD OXIDE	21	1309-60-0	50 µg/m ³	150 µg/m ³	100 µg/m ³
Specific Chemical Identity: LEAD SULFATE					
Common Name: ANGLESITE	<1	7446-14-2	50 µg/m ³	150 µg/m ³	100 µg/m ³
Specific Chemical Identity: SULFURIC ACID (40%)				1 mg/m ³ STEL	
Common Name: BATTERY ELECTROLYTE (ACID)	22	7664-93-9	1mg/m ³	3mg/m ³ (15 Min. Max./8 hr.shift)	1mg/m ³

**SECTION III: Physical Data**

Material is (at normal temperatures): <u>X</u> SOLID <u>X</u> LIQUID <u> </u> Gas	Appearance and Odor: Battery electrolyte (acid) is a clear to cloudy liquid with a sharp penetrating, pungent odor. Acid saturated lead oxide is a dark reddish-brown to gray solid with slight acidic odor.
Boiling Point (at 760 mm Hg) Lead 1755°C Battery Electrolyte (Acid) 110-112°C	Melting Point: Lead 327.4°C
Specific Gravity: (H ₂ O =1) Battery Electrolyte (Acid) 1.300	Vapor Pressure: <u>X</u> (mm Hg at 20°C) (PSIG) Battery Electrolyte (Acid) 11.7
Vapor Density (Air = 1) Battery Electrolyte (Acid) 3.4	Solubility in H ₂ O Lead and Lead Dioxide are not soluble. Battery electrolyte (acid) is 100% soluble in water
% Volatile By Weight Not Determined	Evaporation rate (Butyl Acetate =1) Not Determined

SECTION IV: Health Hazard Information

NOTE: Under normal conditions of battery use, internal components will not present a health hazard. The following is provided for battery electrolyte (acid) and lead for exposure that may occur during battery production or container breakage or under extreme heat conditions such as fire.

ROUTES AND METHODS OF ENTRY

Skin Contact

Battery electrolyte (acid) may cause irritative contact dermatitis.

Skin Absorption

Skin absorption is not a significant route of entry.

Eye Contact

Battery electrolyte (acid) will irritate the eyes upon contact.

Ingestion

Hands contaminated by contact with internal components of a battery can cause ingestion of lead/lead compounds. Hands should be washed prior to eating or drinking.

SIGNS AND SYMPTOMS OF OVEREXPOSURE

Acute Effects

Acute effects of overexposure to lead compounds are GI (gastrointestinal) upset, loss of appetite, diarrhea, constipation with cramping, difficulty in sleeping and fatigue. Exposure and/or contact with battery electrolyte (acid) may lead to acute irritation of the skin, corneal damage of the eyes if not washed immediately, and irritation to the mucous membranes of the eyes and upper respiratory system, including the lungs.

Chronic Effects

Lead and its compounds may cause chronic anemia, damage to the kidneys and nervous system. Lead may also cause reproductive system damage and can affect developing fetuses in pregnant women. Battery electrolyte (acid) may lead to scarring of the cornea and



chronic bronchitis, as well as erosion of tooth enamel in mouth breathers in repeated exposures.

POTENTIAL TO CAUSE CANCER

The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mist containing sulfuric acid" as a Category 1 carcinogen, a substance that is carcinogenic to humans. The ACGIH has classified "strong inorganic acid mist containing sulfuric acid" as an A2 carcinogen (suspected human carcinogen). These classifications do not apply to liquid forms of sulfuric acid or sulfuric acid solutions contained within a battery. Inorganic acid mist (sulfuric acid mist) is not generated under normal use of this product. Misuse of the product, such as overcharging, may however result in the generation of sulfuric acid mist.

The IARC study classified lead as an A3 carcinogen (animal carcinogen). While the agent is carcinogenic in experimental animals at relatively high doses, the agent is unlikely to cause cancer in humans except under uncommonly high levels of exposure. For further information, see the ACGIH's pamphlet, *1996 Threshold Limit Values and Biological Exposure Indices*.

EMERGENCY AND FIRST AID PROCEDURES

Inhalation

Consult a physician if any of the acute effects listed above develop.

Skin

Wash thoroughly with soap and water. If acid is splashed on clothing, remove and discard. If acid is splashed in shoes, remove them immediately and discard.

Eyes

IMMEDIATELY rinse with cool running water for at least 15 minutes. Seek medical attention after rinsing.

Ingestion

Lead/Lead compounds: Consult a physician.

Battery Electrolyte (Acid): Do not induce vomiting. Refer to a physician immediately.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Inorganic lead and its compounds can aggravate chronic forms of kidney, liver, and neurological diseases. Contact of battery electrolyte (acid) with the skin may aggravate skin diseases such as eczema and contact dermatitis.



SECTION V: FIRE AND EXPLOSION DATA

Flash Point (test method) Hydrogen - 259°C	Auto Ignition Temperature Hydrogen 580°C	Flammable Limits in Air, % by 3/4 Vol. (Hydrogen) Lower - 4.1 Upper - 74.2
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Extinguishing Media

Dry chemical, foam, or CO₂

Special Fire Fighting Procedures

Use positive pressure, self-contained breathing apparatus.

Unusual Fire and Explosion Hazard

Hydrogen and oxygen gases are produced in the cells during normal battery operation (hydrogen is flammable and oxygen supports combustion). These gases enter the air through the vent caps. To avoid the chance of a fire or explosion, keep sparks and other sources of ignition away from the battery.

SECTION VI: REACTIVITY DATA

Stability	Conditions to Avoid
<input type="checkbox"/> Unstable <input checked="" type="checkbox"/> Stable	Sparks and other sources of ignition. Prolonged overcharging and/or overheating.

Incompatibility (materials to avoid)

Lead/lead compounds: Potassium, carbides, sulfides, peroxides, phosphorus, sulfur.

Battery electrolyte (acid): combustible materials, strong reducing agents, most metals, carbides, organic materials, chlorates, nitrates, picrates, and fulminates.

Hazardous Decomposition Products

Lead/Lead compounds: Oxides of lead and sulfur

Battery electrolyte (acid): Hydrogen, sulfur dioxide, sulfur trioxide

Hazardous Polymerization Conditions to Avoid

<input type="checkbox"/> May Occur <input checked="" type="checkbox"/> Will Not Occur	High temperatures. Battery electrolyte (acid) will react with water to produce heat. Can react with oxidizing or reducing agents.
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SECTION VII: CONTROL MEASURES

Engineering Controls

Store lead acid batteries with adequate ventilation. Room ventilation is required for batteries utilized for standby power generation. Never recharge batteries in an unventilated, enclosed space.

Work Practices

Do not remove vent caps. Follow shipping and handling instructions, which are applicable to the battery type. To avoid damage to terminals and seals, do not double-stack industrial batteries.

Personal Protective Equipment

Respiratory Protection

None required under normal handling conditions. If an overcharge or overheating condition exists and concentrations of sulfuric acid mist are known or suspected this may cause respiratory irritation. If irritation occurs, wear a respirator suitable for protection against acid mist.

Eyes and Face

Chemical splash goggles are preferred. Also acceptable is a chemical face shield worn over safety glasses with solid side shields.

Hands, Arms, and Body

Rubber or plastic acid resistant gloves with elbow length gauntlet.

Other Special Clothing and Equipment

Under severe exposure or emergency conditions, wear acid resistant clothing and boots.



SECTION VIII: SAFE HANDLING PRECAUTIONS

Hygiene Practices

Following contact with internal battery components, wash hands thoroughly before eating, drinking, or smoking.

Projective Measures to be Taken During Non-Routine Tasks, Including Equipment Maintenance

Wear recommended eye protection. If clothing becomes saturated with acid, remove and wash affected area with water for 15 minutes. Discard saturated clothing. Do not permit flames or sparks in the vicinity of battery(s).

SPILL OR LEAK PROCEDURES

Protective Measures to be Taken if Material is Released or Spilled
Remove combustible materials and all sources of ignition. Contain spill with soda ash (sodium carbonate) or quicklime (calcium oxide). Mix well. Make certain mixture is neutral, then collect residue and place in a drum or other suitable container. Dispose of as a hazardous waste.

Wear acid-resistant boots, chemical face shield, chemical splash goggles, and acid-resistant gloves.

DO NOT RELEASE UNNEUTRALIZED ACID!

Waste	Disposal	Method
Battery Electrolyte (Acid):	Neutralize as above for a spill, collect residue, and place in a drum or suitable container. Dispose of as a hazardous waste.	

DO NO FLUSH LEAD-CONTAMINATED ACID INTO SEWER.

Batteries: Send to lead smelter for reclamation following applicable Federal, state, and local regulations.

Product can be recycled along with automotive (SLI) lead acid batteries.

OTHER HANDLING AND STORAGE PRECAUTIONS.

None Required.

SECTION IX: DEPARTMENT OF TRANSPORTATION AND INTERNATIONAL SHIPPING REGULATIONS

DOT	Battery, wet non-spillable, not subject to regulations
IATA	Not restricted for air transport - compliance with IATA/ICAO Special Provision A67
IMO	Battery, wet non-spillable, not subject to regulations