DELPHI

FACILITY INVESTIGATIVE REPORT

APPENDIX A
SECTION 5

ENVIRONMENTAL PRIORITIES INITIATIVE 2-50

SOIL REMEDIATION CLOSURE REPORT 51-60

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, Ca. 94105

Certified Mail # P 887 519 032
Return Receipt Requested

In Reply H-4-4
Refer to:
EPA ID # CAD 008 323 396

JAN 8 1992

Mr. Ken Rayle
General Motors Corporation
Delco Remy Division
1201 North Magnolia Avenue
Anaheim, California 92083-3190

Dear Mr. Rayle:

Ecology and Environment, Incorporated has completed a Preliminary Assessment (PA) of General Motors Corporation, Delco Remy Division on behalf of the Environmental Protection Agency (EPA). During this investigation, Ecology and Environment, Incorporated gathered information in accordance with Section 3007 of the Resource Conservation and Recovery Act (RCRA) of 1976. A copy of the PA report is enclosed for your records.

Please note that EPA has withheld Section 9, the EPA Recommendation Section from you as EPA considers this section to contain enforcement confidential information. This section is exempt from the mandatory disclosure requirements, as provided in 40 C.F. R. Section 2.118 (a) (5), as matters that are inter-agency or intra-agency memoranda or letters which would not be available by law to a party other than an agency in litigation with the agency; or as provided in 40 C.F.R. Section 2.118 (a) (7) (A), as matters that are records or information compiled for law enforcement purposes, but only to the extent that the production of such enforcement records or information could reasonably be expected to interfere with enforcement proceedings.

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If you have any further questions regarding this report, please contact me at (415) 744-2043.

Sincerely,

Nancy J. Nadel
RCRA Corrective Action Section

Enclosure

cc: Don Cox, DHS
Joe Aldern, RWQCB
Dave Dixon, Orange County Health Care Agency

ENVIRONMENTAL PRIORITIES INITIATIVE
PRELIMINARY ASSESSMENT

Purpose: RCRA PA

Site: GMC Delco Remy
1201 Magnolia Avenue
Anaheim, California
Orange

Site EPA ID Number:	CAD008323396
TDD Number:	F9-9004-028
Program Account Number:	FCA1475RAA
FIT Investigators:	Tara Abbott Peter Towle
Date of Inspection:	June 22, 1990
Report Prepared By:	Tara Abbott TA
Through:	Su-san Wen
Report Date:	August 10, 1990
FIT Review/Concurrence:	5/22/90
Submitted To:	M. V. Cummings EPA Region IX Site Assessment Manager
cc:	FIT Master File Karen Schwinn

ecology and environment, inc.
160 SPEAR STREET, SAN FRANCISCO, CALIFORNIA 94105, TEL. 415/777-2811
International Specialists in the Environment

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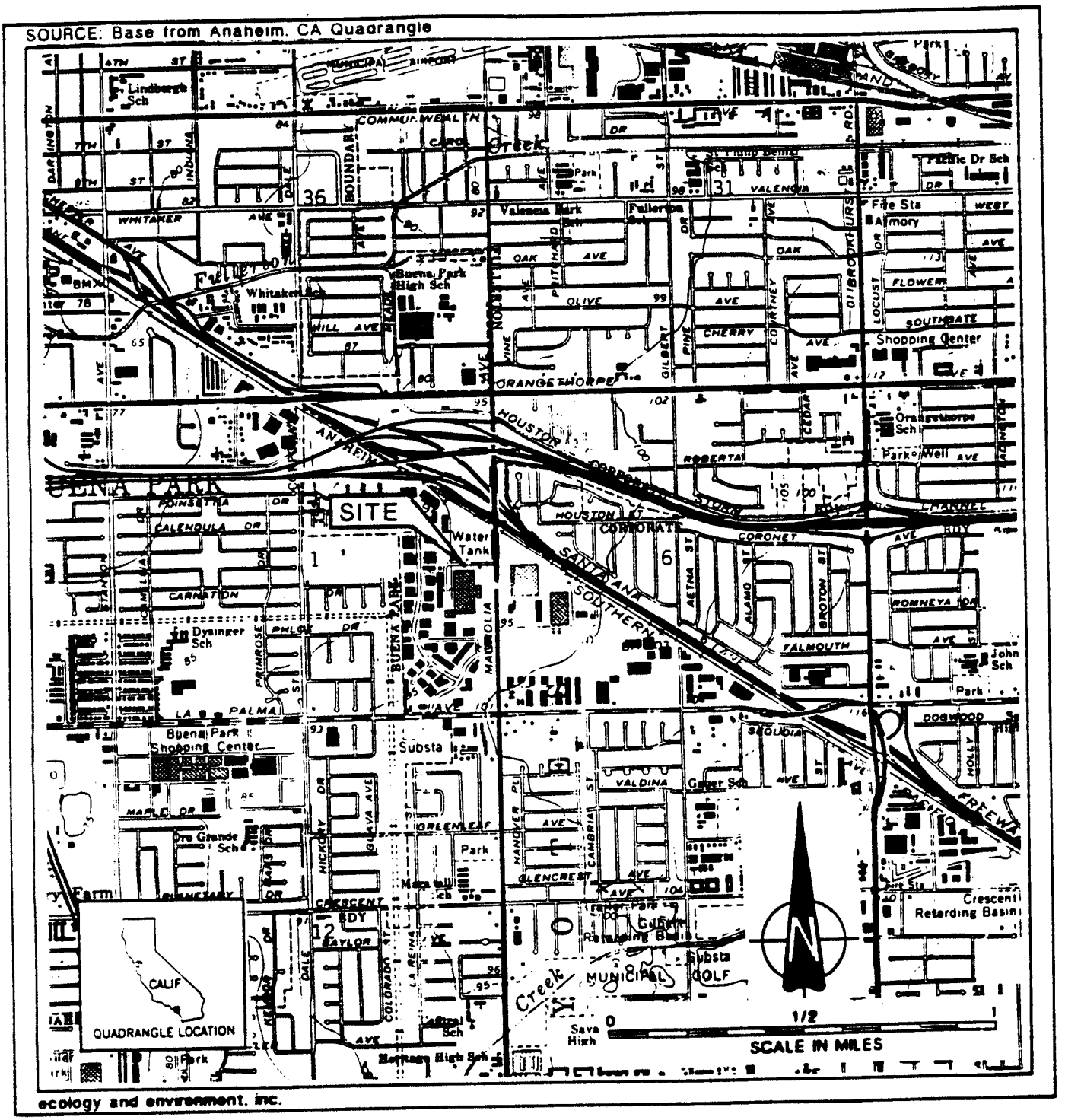

Figure 1 SITE LOCATION MAP
GMC DELCO REMY
1201 NORTH MAGNOLIA AVENUE
ANEHEIM, CALIFORNIA

solvents and paints with oil-based thinners, detergents, and water-based paints (1). More information regarding previously used restricted wastes is unknown to FIT.

Past waste management practices included the use of underground storage tanks and the storage of defective and old batteries along the railroad tracks in the north field area (27,29). Prior to 1975

2.2.2 CURRENT

Delco Remy currently uses a wet soluble process to manufacture 174 different battery models and approximately 3 million maintenace free lead acid automotive batteries per year (27,32). Operations include: the manufacture of lead acid batteries and plastic casings for the batteries; testing defective batteries returned under warranty; treating wastewater; and maintaining the manufacturing equipment (1).

The manufacture of lead acid batteries begins with the lead plates. Lead pigs or hogs (a hog equals 1 ton of lead) are melted, formed into a strip, and coiled (1,27). Soluble oil (2% oil, 98% water) is used to lubricate the lead as it is rolled to a specified thickness depending on whether it is to be used for a negative or positive plate. The lead is then trimmed to a specified width (scraps are remelted). After the lead cools and hardens, the lead strip is perforated. Soluble oil is used again as the lead is pressed and expanded to form a grid (27). The lead grid strip is cut into rectangular plates and is applied with lead oxide paste (1).

Lead oxide is formed when air is ~~blown~~ MOVED through molten lead WITH AGITATION in an oxide reactor. From the oxide reactor, the lead oxide goes to a settling chamber and to a storage hopper. The lead oxide is ground to particle size and sent through a cyclone collector and baghouse where lead oxide dust is collected. Sulfuric acid at ~~≥ 98%~~ 93% concentration is diluted to 50% concentration and added to the lead oxide to form a lead oxide paste that is 10% lead sulfate and 90% lead oxide (1). Baghouses provide down-draft ventilation. Air scrubbers clean the air of lead and ~~acid.~~ The lead oxide paste is spread on the lead grid strip. Negative plates are stored to dry; positive plates are exposed to 212°F and steamed to form crystals (1,27).

During final assembly, the plates and lead battery terminals are then placed into the plastic battery cases (made on site), and sulfuric acid is added to the battery (1). A plastic separator (bought from an outside manufacturer) is used to allow the sulfuric acid to penetrate the plates while preventing the positive and negative plates from touching each other (27). Once assembled, the batteries are charged in the formation department (1).

The plastic injection molding process uses a plastic rolling machine to form the battery cases and covers (27). The use of these hydraulic molding units generates waste hydraulic oil as well as hydraulic oil used for the lubrication of presses and other plant equipment (32).

The facility has performed battery autopsy and tested defective batteries since 1954 as part of its quality control program. Approximately 20 failed warranty batteries are received from customers per month (32).

During the battery autopsy, batteries are placed on a polyvinyl chloride (PVC)-coated workbench, the tops are cut off, and the acid is drained into a PVC-lined sink which drains to the wastewater treatment system. Acid is flushed from the batteries with water. The plastic battery tops are then banded back in place, and the batteries are stored on wooden pallets prior to shipment off site (1). ~~Acid from the batteries is collected and recycled.~~ Lead and plastic are reclaimed ~~and manifested to~~ by a smelter in the City of Industry ~~for incineration~~ (32).

During the manufacturing process, several components are cooled with water and create potential wastewater contaminated with lead, oil, or sulfuric acid. The dilution of sulfuric acid generates heat; heat is removed by a heat exchanger, and water in the heat exchanger is sent to a cooling tower; the lead strip mill is cooled with a heat exchanger; the hot water from the heat exchanger is sent to cooling towers; the plastic cases are cooled with water after they ~~are~~ formed and hot water is sent to cooling towers (1).

Wastewater from the facility is collected in a 25-foot by 30-foot holding basin where caustic soda (sodium hydroxide) is added to neutralize the acid in the wastewater and to cause the lead to become insoluble. The water is mixed and pumped into three neutralization basins with a total area of 40 feet by 10 feet (32). Sodium hydroxide is added, and the water is filtered through rubber-lined cast iron units with stainless steel filter coated with diatomaceous earth. The filtered water is ~~continuously~~ monitored for pH and lead before discharge to the County sewer (1,27,32).

2.2.3 FUTURE

According to the facility, two new treatment processes are projected for future use. A new soluble oil treatment system has been installed which will reduce the amount of soluble oil waste generated by 98 percent. The system should begin operation in 1991 (27,32).

Additionally, a new wastewater treatment system will use a polymer iron-based chemical filter press rather than diatomaceous earth to remove lead from sludge. This system will increase the amount of reclaimed lead and reduce the sludge sent to a landfill by over 40 percent (27).

3. APPARENT PROBLEM

Several on-site spills of petroleum hydrocarbons, sodium hydroxide, and lead during the history of the facility have resulted in the contamination of groundwater and soil. In addition, there is a potential for a release to the surface water, air and on-site pathways.

On February 15, 1986, 300 gallons of waste soluble oil were spilled from a waste oil storage tank on site (31). Oil absorbent booms were placed in the stormwater drainage ditch, and absorbent material was placed

around the tank area. Free liquid was vacuumed into waste drums. Sampling of stormwater indicated oil and grease at 5.0 milligrams per liter (mg/L) less than the 15 mg/L permitted by the California Regional Water Quality Control Board, Santa Ana Region (RWQCB) in the facility's National Pollutant Discharge Elimination System (NPDES) permit (31).

During removal of its underground storage tanks in 1986, the facility detected petroleum hydrocarbon contaminated soil. All stained soil was removed and sampled under the supervision of RWQCB (29). The quantity of contaminated soil removed is unknown to FIT.

RWQCB required the facility to install a monitoring well to determine if contaminants were reaching the shallow groundwater located 30 feet beneath the site. In July 1986, monitoring well MW1 was installed 30 feet from the leaking tank area, and samples were tested for several parameters. No contamination was detected; however, the water had a pH of 9.6 and was the color of "rootbeer" (27,29).

Two additional monitoring wells, MW2 and MW3, were installed in July 1988, to determine groundwater flow and patterns beneath the site. Groundwater samples were analyzed for total petroleum hydrocarbons and heavy metals; no contamination was detected (29).

Delco Remy's consultant attributed the nature of the groundwater's discoloration to a leaking underground storage tank (installed in 1954) which contained sodium hydroxide. The leaking of sodium hydroxide into the soil caused the soil's natural organic material, humic acid, to mobilize; the leaching of humic acid into the groundwater caused the rootbeer color. The facility's consultant believes that the pH level will lower and the calcium content will rise, causing the humic acid to precipitate back into the soil and the water to clear naturally as water moves through the aquifer. RWQCB requested that a monitoring well be installed directly downgradient of MW1 to support this hypothesis and has required one year of quarterly monitoring. MW4 was installed December 14, 1989 (see Figure 2). Three rounds of sampling, including the first quarter of the required monitoring, have supported this theory (27,29).

~~RWQCB directed~~ Delco Remy ~~to~~ build a stormwater retention basin to prevent runoff from the facility. Soil was sampled on the western perimeter of the north field and along the railroad tracks where an unlined storm drainage ditch had collected runoff and carried it out to the storm drain (26,30). Analytical results of soil samples taken during excavation of the basin area indicated lead contamination. ~~The back lot~~ of the Delco Remy site had been formerly used to store intact and cracked lead acid batteries. Apparently, sulfuric acid containing lead leaked from the batteries, contaminating the lot and the on-site storm drainage ditch with lead. Overland flow was directed into the ditch and out to storm drains (29,30).

From May to August 1989, soil was removed from the ditch and from the basin area and piled in the north field. Sampling was conducted along the ditch under the supervision of the Orange County Health Care Agency's Environmental Health Unit to demonstrate that all contaminated soil had been removed. Once the soil had been removed, it was chemically treated

on site using an Ensotech system to turn heavy metals into insoluble silicates (29,30). After analytical results demonstrated that the soil was no longer contaminated, approximately 3,000 cubic yards of treated soil were sent to the Santiago Class 3 landfill (29).

In addition to the two excavated areas (the ditch and present location of the basin), a lead-contaminated area 300 feet by 18 feet still remains in the north field area (29).

The facility contended that the lead level in soils in the area might be high due to the burning of leaded fuels, from passing cars on nearby freeways: the Santa Ana Freeway (Interstate 5), O~~range Freeway (#57)~~, and ~~Garden Grove Freeway (#22)~~ (30). Results of soil samples taken by the facility 3 feet from one of the freeways indicated high concentrations of lead. The facility believes these results indicate the entire area around the site has ~~high~~ concentrations of lead. According to the Environmental Health Unit, lead concentration in soils drops off significantly only 25 feet from the freeway. The ~~agency has asked Delco Remy to sample soil closer to the site and further from the freeways for~~ more representative background locations (30).

4. REGULATORY INVOLVEMENT

The Delco Remy facility is listed under GMC Delco Remy in the May 8, 1990 RCRA database as a Large Quantity Generator and as a Treatment, Storage and Disposal Facility (TSDF).

The facility notified the EPA of hazardous waste activity on August 14, 1980. On November 17, 1980, the facility filed its initial Part A Permit application (1,17). On March 6, 1981, the California Department of Health Services (DHS) issued the facility an Interim Status Document for the treatment of wastewater containing lead and acid, for reclaiming lead on site, and for the storage of hazardous wastes in tanks, roll-off containers, and 55-gallon containers (1). Both the facility's wastewater treatment system and its battery autopsy practice (cutting open approximately 100 batteries per month and dumping the acid out) are considered treatment under California law and are authorized by the state (4,33).

In September 1985, DHS conducted an inspection at the facility and recommended that DHS not withdraw the facility's Part A Permit due to the need for correction of various violations. A spill containment area was constructed with materials incompatible with wastes for which it was designed to contain, and the steam cleaning room was not properly bermed (1). In November 1987, Delco Remy applied to DHS for a variance from a hazardous waste facility permit (32). In September 1987, the facility sent a letter to the EPA updating its Part A Permit application (43).

In May 1989, DHS issued the facility a variance for its wastewater treatment and neutralization of battery acid (6). On April 3, 1990, the facility sent a letter to the EPA requesting withdrawal of its interim

Remy's consultant collected soil samples from 0 to 12 inches and from 12 to 24 inches below the bottom of the storm drainage ditch and from 0 to 6 and 12 to 18 inches below ground surface (bgs) in the north field (26). Values for pH in surface soils ranged from 7.05 to 8.85. Tables 5-1 and 5-2 indicate the highest levels of lead found in the samples.

TABLE 5-1

HIGHEST TOTAL LEAD CONCENTRATIONS IN ON-SITE SOIL

Depth of Sample	Result	Background	TTLC*
0" to 6"	9,850 mg/kg	51 mg/kg	1,000 mg/kg

*TTLC = Total Threshold Limit Concentration.

TABLE 5-2

HIGHEST SOLUBLE LEAD CONCENTRATIONS IN ON-SITE SOIL

Depth of Sample	Result	Background	STLC*
0" to 12"	225 mg/L	N/A	5.0 mg/L
12" to 24"	18 mg/L	0.8 mg/L	5.0 mg/L

*STLC = Soluble Threshold Limit Concentration.

Prior to its removal in 1986, a 12,000-gallon sodium hydroxide underground storage tank caused the release of an unknown quantity of sodium hydroxide to groundwater (27,29). Also in 1986, four 19,000-gallon underground diesel (product) boiler tanks and one 12,000-gallon underground tank containing flux oil (for rubber products) were removed. One 500-gallon gasoline tank was removed in 1989 (27,29).

Two furnaces were used to reclaim lead on site until 1984. Resorcinol and trichloroethane (TCA) were formerly used on site and may have been present in the facility's wastewater (27). According to the facility, land disposal restricted wastes are no longer generated (1,27). More information regarding previously used restricted wastes is unknown to FIT.

Can not be

5.1.2 CURRENT

No - Byproduct or Sludge

Delco Remy currently generates hazardous waste during the manufacture of lead acid batteries, during maintenance of manufacturing equipment, while testing defective batteries returned under warranty, and in the treatment of wastewater (1,26).

The facility manages its hazardous waste through four general waste streams: wastes containing solid lead are reclaimed for lead at an off-site lead smelter; wastewater containing dissolved lead and acid is treated in the on-site wastewater treatment unit; spent diatomaceous

NOT TRUE

earth from the wastewater treatment unit filters is disposed of at a Class I landfill; and wastewater containing ~~oil is~~ shipped to a recycler (1).

Approximately 606 tons of diatomaceous earth were sent to a landfill in 1989. Two 20-cubic yard roll-off bins are used to temporarily store the diatomaceous earth. Additionally, 211 tons of oil and 3,284 tons of lead and spent batteries were sent to recyclers in 1989 (27). A 1988 DHS inspection report indicated that 4,530 tons of lead were sent to a recyler, RSR Quemetco in City of Industry (EPA ID No. CAD066233966); 75 tons of earth were shipped to Casmalia Resources landfill (EPA ID No. CAD02748125); and 5,000 gallons of oil containing wastewater were sent to Chem Tech in Vernon (EPA ID No. CAT080033681) (1).

Non Waste - Take issue

Management of hazardous waste generated at Delco Remy is divided into waste collection areas, accumulated material storage areas, and regulated discharges.

5.1.2.1 Waste Collection and Pure Product Areas

30-gallon Steel Buckets: NOT A SOLID WASTE

Lead dross and scrap lead are collected in buckets at satellite accumulation points near the strip milling machines. When full, the buckets are removed and stored ~~in the hazardous waste storage area (1)~~. AN INDOOR STAGING AREA

55-gallon Containers: NOT A SOLID WASTE

Lead slurry and defective battery plates are collected in 55-gallon containers at satellite collection points near the plate pasting machines before being stored ~~in the hazardous waste storage area~~ (1,32). AN INDOOR STAGING AREA

Plastic-lined Cardboard Boxes: NOT A SOLID WASTE

Reclaimed lead (including off-specification plates) is collected in plastic lined boxes and sent to an off-site smelter.

Concrete Channel: NOT A SOLID WASTE

Waste lead oxide slurry, generated from the plate pasting operation, is washed into a concrete channel which leads to the "1983 Vaccuum Filter Machine" (1).

1983 Vacuum Filter Machine: NOT A SOLID WASTE

The machine spreads the lead oxide slurry on a sheet of filter paper and applies a vacuum to the underside of the paper which extracts water from the slurry. Water is sent to the wastewater treatment unit to be treated and to precipitate the dissolved lead. The lead oxide residue and filter paper are put in open containers for further air drying and are sent to the hazardous waste storage area (32).

THIS IS SENT FOR RECLAIMING

NOT A SOLID WASTE

Baghouse:

Lead dust from plate ~~drying~~ FACTING is collected in a baghouse. The baghouse is emptied once ~~a year~~ at least yr, and the dust containing lead is stored in 55-gallon containers in the reclaim room (1).

Outdoor Tank Area:

Raw Process Materials

Outside storage tanks include three 8,500-gallon pure acid tanks, two 6,000-gallon acid-reclaim tanks, and one 7,000-gallon karbated acid tank (37).

Aboveground storage tanks located outside include two 180,000-pound tanks containing polypropylene, one 6,000-gallon tank of waste oil, one 1,500-gallon oxygen-storage tank, one 511-gallon argon tank. ~~A cooling tower is also located outside (27)~~.

Hydraulic Oil Collection Channels:

Epoxy coated concrete collection channels surround the plastic battery case molding units. These channels contain water contaminated with hydraulic oil resulting from any leakage of the hydraulic molding machines (32).

Battery Autopsy Area:

Old batteries are cut open, the acid is drained, and batteries are tested in the battery autopsy area to determine the reason for failure (1).

The floor in the area is constructed of 12-inch thick concrete and sealed with protective epoxy coating. Secondary containment is provided by the sloped concrete floor which directs the waste to the wastewater treatment unit (32). Lead and plastic are reclaimed. Acid is collected and recycled (1).

Indoor Sodium Hydroxide Tank

The 5,600-gallon sodium hydroxide storage tank is located over an epoxy-coated concrete sump with no drains.

5.1.2.2 Accumulated Material Storage Areas

Hazardous Waste Storage Area

The hazardous waste storage area is located inside a warehouse ~~which previously housed the old on-site smelter~~. The area stores empty, unused drums as well as 55-gallon drums which contain virgin materials, acids, and hazardous waste. A grated trench with a sump contains any spilled material (1).

During the site reconnaissance, FIT noted 55-gallon drums labeled as containing polychlorinated biphenyls (PCBs). The drums contain the ballasts of fluorescent lights which require separate disposal according to the facility (27).

Collection/processing Tanks:

Soluble oil wastewater from processing is collected in four 120-gallon tanks and stored on a concrete slab with drainage to the wastewater treatment system (32). Blind sump with pump to the waste oil tank

Washdown of equipment:

Oil-contaminated wastewater from equipment washdown is collected in a 6,000-gallon tank (see Outside Tank Area). The facility generates 5,000 gallons of oil wastewater per month (1).

Outside Wooden Pallets: Not a Solid Waste

Defective batteries from the final assembly process are loaded on pallets and stored in an area between the manufacturing building and the warehouse. After the used batteries are tested, they are resealed and stored with other defective batteries (27).

Indoor Gondola Bin and Roll-off Bins:

Contaminated diatomaceous earth is dumped into an indoor gondola bin which is periodically dumped into two 20-cubic-yard, uncovered, roll-off bins. Secondary containment around the filter press and indoor gondola bin is provided by an epoxy-coated, sloped, concrete floor which drains back into the wastewater treatment system. The roll-off bins are located outside (27,32).

The roll-off bins are plastic-lined and may also contain other lead-contaminated material, gloves, ~~and baghouse filter~~s. Lead-contaminated clothing may be sent to a reclaimer for lead. An estimated average of 30 cubic yards of diatomaceous earth are used per month (27).

Analytical results of the contaminated diatomaceous earth, sampled in December 1988, indicated lead at 4,600 mg/kg and density at 1.18 grams/centimeter (41).

5.1.2.3 Regulated Discharges

Wastewater Treatment Unit

The wastewater treatment unit's 90,000-gallon holding basin and three 12,000-gallon neutralization basins are located outside and are ALL constructed of concrete and coated with an acid-resistant epoxy material. The sodium hydroxide and reclaim water tanks are constructed of fiberglass (32).

The holding and neutralization basins and the reclaim water tank are constructed as flow-through process underground tanks and do not have secondary containment (32). The wastewater treatment unit treats approximately 26 million gallons of water per year (1).

In March 1989, analysis of the influent to the water treatment system holding basin indicated the following (38):

TABLE 5-3

WASTEWATER TREATMENT UNIT INFLUENT

Contaminant	Result
Lead	8.9 mg/L
Copper	0.23 mg/L
Oil & Grease	28 mg/L
pH	2.13

Analytical results of water recovered from the hydraulic oil treatment system and sent to the wastewater treatment system for further processing, sampled June 1988, indicated the following maximum levels at (42):

TABLE 5-4

WASTEWATER TREATMENT UNIT, HYDRAULIC SYSTEM EFFLUENT

Contaminant	Results
Soluble Lead	1.08 mg/L
Suspended Lead	0.87 mg/L
Oil & Grease	562 mg/L

Analytical results of the water treatment system final discharge to Orange County Sanitation District, sampled in December 1988 and January 1989, indicated the following (39,40):

TABLE 5-5

WASTEWATER TREATMENT UNIT EFFLUENT

Contaminant	1988 Results	1989 Results
Soluble lead	0.010 mg/L	0.003 mg/L
Suspended lead	0.052 mg/L	0.001 mg/L
Copper	0.07 mg/L	0.04 mg/L
Oil & Grease	5 mg/L	1 mg/L
pH	7.75	7.61

Stormwater Retention Basin:

All runoff flows to the 380,000-gallon-capacity stormwater basin, except runoff from the lawn or the parking lot (27). ~~A pipe takes the~~ Stormwater, along a natural course, through a filter, and into the

Pumped two

Magnolia storm drain. Delco Remy's NPDES permit requires testing for lead, oil and grease, total dissolved solids, and clarity. The facility will try to reuse any future stormwater in the plant (27).

5.2 GROUNDWATER

Monitoring wells installed downgradient of an underground sodium hydroxide storage tank in 1986 indicated brownish colored groundwater with a pH of over 9.6 and documented an observed release to the groundwater (27,29).

The site lies in the Lower Santa Ana River Basin (11). Three groundwater-bearing units underlie the site: the upper, middle, and lower units (15). The upper system occurs in stream terrace and older alluvium deposits which extend from 0 to 700 feet bgs (15). Discontinuous layers may cause hydraulic continuity between the ground surface and the Talbert aquifer (11). Depth to the Talbert aquifer beneath the site is approximately 120 feet bgs. The middle system appears to be confined and occurs at approximately 700 to 2,000 feet bgs and consists of multiple layers of sandstone and gravel deposits. The Main aquifer of the middle system occurs at approximately 700 feet bgs. The lower aquifer system is comprised of Pleistocene and older sediments. It occurs at approximately 2,500 to 3,800 feet bgs, in conglomerate, sandstone, and siltstone (15).

According to Delco Remy's consultant, a silty clay lense and clayey silt exists from the ground surface to 20 to 25 feet bgs. Sand and a mixture of sand, silt and clay are intermittent below 25 feet. Groundwater is encountered at approximately 30 feet bgs. Groundwater flows in a southwesterly direction beneath the site (29).

The City of Anaheim's well #12 is the nearest well to the site and is located 0.75 miles southeast of the site (34,35). This well is perforated from 450 to 498 feet bgs and is one of 36 wells in the city's system. The city of Anaheim uses 70 percent groundwater and 30 percent Metropolitan Water District (MWD) water (a blend of Colorado River water, state water, and treated water from Lake Matthew) to provide 53,769 service connections with drinking water (34,35). Well #16 is located 1.8 miles from the site and is perforated from 384 to 414 feet bgs. Well #106 is located 1.8 miles southwest from the site and is perforated at 182 to 202 feet bgs, 210 to 224 feet bgs, and 540 to 560 feet bgs (34,35).

The City of Fullerton obtains 60 percent of its drinking water from a system of 12 municipal wells and 40 percent from the MWD. Water from these sources is not blended. Water from the MWD serves the northern part of the city, while local groundwater serves the southern part. Groundwater serves an estimated population of 66,000 (60 percent of Fullerton's population of 110,000) (14).

Although all the Fullerton wells are interconnected, they are usually dedicated to one of four service zones. All wells tap the upper aquifer (14). The nearest Fullerton municipal well, airport well #9, is located 1.5 miles northwest of the site (14,16).

Bastanchury Water Company owns a well located 2.3 miles northeast of the site which produces approximately 5,000 5-gallon bottles of water per day (one person uses an estimated 1-3 bottles per month) (9).

Groundwater from a City of Buena Park well, located 2.5 miles northwest of the site, is blended with MWD water to serve 65,000 people (10).

The facility uses municipal water for drinking and uses an on-site well for watering the lawn (8). The net annual precipitation for the site is approximately 3.5" (18,19).

An observed release of sodium hydroxide to groundwater, the presence of lead contaminated soil on site, and the shallow depth to the groundwater indicates the potential for contamination of the Talbert aquifer which supplies drinking water to a large population.

5.3 SURFACE WATER

The nearest surface water body is Fullerton Creek, located approximately 1.7 miles downslope and northwest of the Delco Remy site (23). Fullerton Creek joins Coyote Creek approximately 2 miles downstream from the site. After approximately 6 miles, Coyote Creek merges with the San Gabriel River which runs for 4 miles before emptying into the Pacific Ocean (12,13,23). Both Fullerton Creek and Coyote Creek are concrete-lined channels with an average flow rate of 4.7 cubic feet per second (cfs). The San Gabriel River is also concrete-lined and has an average flow of 154.73 cfs. The creeks and river are used only for wastewater discharge, including reclaimed sewage effluent, and have no other beneficial uses within 15 miles of the probable point of entry of contaminants from the site (12,13,23). An estimated 69,913 pounds of fish are caught per year in a 3-mile radius from the San Gabriel River's point of confluence with the Pacific Ocean (24). There are no known sensitive environments within 15 miles of the probable point of entry of contaminants from the site to the surface water pathway (20).

All runoff from the site flows to the stormwater retention basin except runoff from the lawn or parking lot. A pipe takes the stormwater along a natural course through a filter and into the Magnolia Street storm drain (27). RWQCB regulates the facility's storm drainage through NPDES No. CA0107093 (2).

The facility is located in a 100-year flood zone where shallow flooding occurs with an average depth of 1 foot (25). Because the area is flat, a flood would significantly increase the potential for a release to the surface water pathway (25). The 2-year, 24-hour rainfall for the area is approximately 2.5 inches (21).

Although the site is located in a 100-year flood zone, the potential for a release of hazardous substances from the facility to surface water is low due to the site's location in an industrial area and its distance to Fullerton Creek.

5.4 AIR

There have been no documented releases of contaminants to the air, however a lead-contaminated area of 300 feet by 18 feet still exists on site creating a potential for a future release (28,29). Due to the continued presence of lead-contaminated soil on site, there is a potential for a future release to the air.

The facility has at least 60 air permits through the South Coast Air Quality Management District (5). Approximately 380 employees work at the site (8). Population within a 4-mile radius surrounding the facility includes the following (22):

TABLE 5-6

POPULATION WITHIN A 4-MILE RADIUS OF THE SITE

Distance (miles)	Population
0 - 0.25	401
0.25 - 0.5	2,757
0.5 - 1	12,462
1 - 2	71,922
2 - 3	70,136
3 - 4	55,000

There are no sensitive environments within 4 miles of the site (20).

5.5 ON-SITE

A lead contaminated area, approximately 300 feet by 18 feet, still exists at the site (29,30). During an investigation by the facility, lead was found in soil samples taken from 0 to 6 inches, 0 to 12 inches, 12 to 18 inches, and 12 to 24 inches (26). Although approximately 3,000 cubic yards of contaminated soil were treated and removed, the ~~north~~ field area is still contaminated and remediation has not taken place (26,29).

The nearby population for the on-site pathway includes the following (22):

TABLE 5-7

POPULATION WITHIN A 1-MILE RADIUS OF THE SITE

Distance (miles)	Population
0 - 0.25	401
0.25 - 0.5	2,757
0.5 - 1	12,462

The site is fenced around the entire perimeter and entrance is through a guard gate manned 24 hours per day (30).

6. SUMMARY OF FIT INVESTIGATIVE ACTIVITIES

On June 22, 1990, Peter Towle and Tara Abbott, E & E FIT, met with Delco Remy representatives: Ken Rayle, Murray Sandberg, Ron Burk, and Al Wichman to discuss the facility's past and present waste management practices. A tour of the facility was led by Mr. Sandberg (27).

7. EMERGENCY RESPONSE CONSIDERATIONS

The National Contingency Plan [40 CFR 300.415(b)(2)] authorizes the Environmental Protection Agency to consider emergency response actions at those sites which pose an imminent threat to human health or the environment.

There is no apparent need for emergency response at this time because the plant is fenced around the entire perimeter and entrance is through a guard gate manned 24 hours per day (30). The site is currently being remediated under the direction of RWQCB and the Orange County Health Care Agency (30).

8. SUMMARY OF HRS CONSIDERATIONS

The General Motors Corporation, Delco Remy Division (Delco Remy) site is located at 1201 Magnolia Avenue in Anaheim, California. Delco Remy has manufactured lead acid automotive batteries since 1954. The facility is listed in the May 8, 1990 Resource Conservation and Recovery Act database as a large quantity generator and as a treatment, storage, and disposal facility with a permit withdrawal status.

In 1986, a waste oil storage tank spilled on site, and a leaking underground storage tank was discovered. Contaminated soil was removed, and a monitoring well was installed. Samples from the monitoring well indicated a sodium hydroxide tank had leaked and leached humic acid into the groundwater. Groundwater monitoring is continuing and is overseen by the Regional Water Quality Control Board. In 1989, the facility conducted sampling of its ~~north~~ field before construction of a stormwater drainage basin. Results of these samples indicated high concentrations of lead. Although some of the soil was removed, lead-contaminated soil is still present. The facility is working with the Orange County Health Care Agency to determine ~~whether this area needs further~~ remediation.

The depth to groundwater beneath the site is approximately 30 feet. The depth to the shallowest drinking water aquifer is 120 feet. The cities of Anaheim, Fullerton, and Buena Park all have wells within 4 miles of the site which are blended with surface water to serve a large drinking water population. The nearest surface water bodies are flood-control channels with no other beneficial uses; however, the San Gabriel River empties into the Pacific Ocean within 15 miles of the probable point of entry.

The following are significant Hazard Ranking System factors associated with the General Motors Corporation, Delco Remy Division site:

- Observed release to the groundwater;
- Groundwater within 4 miles of the site serves a large population; and
- Documented soil contamination creates a potential for a future release to the air, surface water, and on-site pathways.

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APPENDIX A

Contact Log and Reports

PA CONTACT LOG

Facility Name: GMC Delco Remy
Facility ID: CAD008323396

Name	Affiliation	Phone #	Date	Information
Bob Ford	City of Fullerton Water Dept.	714-738-6886	1/18/90	See Contact Report.
Chuck Fowler	City of Buena Park Water Dept.	714-521-9023	3/2/90	See Contact Report.
John Mitchell	LA County Dept. of Public Works	818-458-3537	3/5/90	See Contact Report.
Bruce Moore	Orange County Environmental Management Agency	714-567-6366	3/5/90	See Contact Report.
Jim Adolph	California Dept. of Fish and Game	805-524-0962	3/5/90	See Contact Report.
Dave Deary	Bastanchury Water Co.	714-870-4022	3/6/90	See Contact Report.
Carl Bernhardt	RWQCB	714-782-4130	6/5/90	The facility is permitted for stormwater discharge under RWQCB #82180 and NPDES #CA0107093.
Joe Aldern	RWQCB	714-782-4130	6/5/90	See Contact Report.
Richard Hubbell	DOHS	213-590-4868	6/5/90	See Contact Report.
Charlene Christopher	South Coast Air Quality Management District	818-572-6200	6/5/90	See Contact Report.
Chris Crompton	Orange Co. Environmental Management Agency	714-567-6366	6/5/90	No immediate records. For in depth file search send written request.

ta/gmc/clcr

PA/SI CONTACT LOG (continued)

Facility Name: GMC Delco Remy
Facility ID: CAD008323396

Name	Affiliation	Phone #	Date	Information
Emmanuel Mensah	DOHS	916-855-7859	6/6/90	See Contact Report.
Bea Mitchell	Orange Co. Sanitation District	714-962-2411	6/6/90	See Contact Report.
Ken Rayle	Delco Remy	714-220-6048	6/7/90	See Contact Report.
Bruce Moore	Orange County Environmental Management Agency	317-646-2957	6/19/90	See Contact Report.
Mark Komoto	City of Anaheim Dept. of Public Works	714-990-7661	6/19/90	See Contact Report.
Carol Barry	Delco Remy	317-646-2957	6/19/90	Purpose of site inspection.
Ken Rayle	Delco Remy	714-220-6048	6/20/90	Confirmed appointment for Friday, June 22.
Dr. Esmaili	Dames & Moore	714-433-2000	6/26/90	See Contact Report.
Bruce Bowman	City of Anaheim Public Utilities Department	714-999-5100	6/26/90	See Contact Report.
Dave Dixon	Orange Co. Health Care Agency	714-667-3600	6/26/90	See Contact Report.

ta/gmc/clcr

SITE RECONNAISSANCE INTERVIEW AND OBSERVATIONS REPORT

Ecology and Environment, Inc.		
Field Investigation Team (FIT)		
160 Spear Street, Suite 1400		
San Francisco, California 94105		
(415) 777-2811		
E & E PERSON(S) CONDUCTING INTERVIEW AND MAKING OBSERVATIONS:		
Tara Abbott and Peter Towle		
FACILITY REPRESENTATIVE(S):	**TITLE:**	**PHONE:**
Ken Rayle	Project Engineer	714-220-6048
Murray Sandberg		
SITE NAME: GMC Delco Remy		**DATE:** 06/22/90
CITY/STATE: Anaheim, California		**EPA ID#:** CAD008323396

The following information was obtained during the interview:

(Also present at the meeting were Ron Burk, Engineering Assistant and Al Wichmann, Personnel Director. Ron Burk joined us on the facility tour. Fred Bercher, the plant manager, introduced himself in the wrap-up meeting.)

Operations began at the Delco Remy plant in 1954.

Changes in the process: A hard rubber battery case was formerly manufactured on site rather than the current polypropylene case. The facility now buys a plastic separator which was formerly manufactured on site. The technology of making plates has changed, but according to Mr. Sandberg, the waste streams have remained the same. Two furnaces were used to reclaim lead until 1984 when it became more cost effective to have the lead reclaimed by a recycler.

In 1986, four 19,000-gallon underground diesel (product) boiler tanks, one 12,000-gallon underground tank containing sodium hydroxide, and one 12,000-gallon underground tank containing flux oil (for rubber products) were removed under the supervision of the Regional Water Quality Control Board. One 500-gallon underground gasoline tank was removed in 1989.

Although the facility originally filed a Part A permit application, hazardous waste has only been stored on site over 90 days a few times; since 1986, no hazardous waste has been stored on site for over 90 days. The facility recently sent a letter to the EPA requesting its status be changed to generator only. The facility has never filed a Part B application.

The wastewater treatment area's first holding tank is 20'5" by 30'5". Three additional sumps have a water level of 13 feet and are each 10'5" wide and 38'3" in length.

The stormwater collection sump has a containment capacity of 380,000 gallons.

In December 1989, a small section of friable asbestos was removed. Resorcinol was used in an old lead grid molding process as a glue in the mold coat; it hasn't been used in a long time. Trichloroethane was once used as a cleaner but is no longer used.

When an oil line spilled in the boiler room in February 1986, 12,000 to 14,000 gallons of diesel fuel #2 spilled on site and traveled to the wastewater treatment area. The plant was shut down and cleaned up. No oil traveled off site. After the cleanup, sampling indicated petroleum hydrocarbons in the water processed through filters.

While working with RWQCB regarding a proposed stormwater basin and a National Pollutant Discharge Elimination System (NPDES) permit, the facility decided to sample the soil before excavation. Soil was sampled where a previous system had collected runoff in an unlined ditch and carried it out to the storm drain. Samples analyzed by Soluble Threshold Limit Concentration (STLC) and Total Threshold Limit Concentration (TTLC) methods indicated lead contamination. A plan was proposed with Dames & Moore to remediate the area. Approximately 1,200 cubic yards of dirt with low lead concentrations were removed and sent to a Class 3 landfill. Background samples were taken as requested by Orange County Health which indicated concentrations of lead above the on-site samples. These samples were taken near the freeway. Three lead hot spots still remain. The facility is still waiting for Orange County Health (contact: Dave Dixon) to specify its requirements for remediation.

The area of contaminated soil which still remains is 300 feet x 18 feet. The highest lead concentrations were found in soil samples taken 6" to 1'6" below ground surface (bgs).

During its removal in 1986, RWQCB and the facility discovered that the sodium hydroxide tank (installed in 1954) was ruptured and had leaked into the ground. At RWQCB's request, a groundwater monitoring well was installed approximately 30 feet from the previous location of the leaking tank. Although the groundwater was analyzed for several parameters, the only significant result was its pH at a high of 9.6 and its color, a dark brown. Dames & Moore has been working with Delco Remy to install three additional monitoring wells and to implement a quarterly sampling program as required by RWQCB. The depths of the

monitoring wells range from 33′ to 37′. A Dames & Moore scientist believes the color of the water is due to a liquefying of humus (organic matter) in the soil and believes the problem will take care of itself.

Water from an on-site well with a depth of 693′ is used to water the lawn. Groundwater flows northwest.

The Process:

One-ton blocks of lead are called hogs; smaller blocks are called pigs.

In the 1970s, the facility began producing maintenance-free batteries with tin, calcium, aluminum, and (primarily) lead melted together. The lead is the grid of the plate (what takes the current to the vehicle).

Soluble oil (2% oil, 98% water) is used to lubricate the lead as it is rolled to a specified thickness depending on whether it is to be used for a negative or positive plate. The lead is trimmed to a specified width (scraps are remelted), and after the lead cools and hardens, holes are punched in the strip. Soluble oil is used again as the lead is pressed and expanded to form a grid.

Wastewater is sumped to the "1983 machine" which prefilters the water to get rid of its high concentrations of lead for reclaiming. Reclaimed lead, including off-specification plates, is put in plastic lined boxes and sent to an off-site smelter.

Negative plates are stored to dry; positive plates are steamed and exposed to 212°F to form crystals.

Aboveground storage tanks located outside include two 180,000-pound tanks containing polypropylene, one 6,000-gallon tank of waste oil, one 1,500-gallon oxygen storage tank, and one 511-gallon argon tank. In addition, one 5,600-gallon sodium hydroxide tank is located near the wastewater treatment system. Soluble oil wastewater is collected in four 120-gallon tanks.

Liquid lead mixes with oxygen in the air to form lead oxide; the lead oxide is ground to particle size and mixed with sulfuric acid in paste mixers.

A plastic rolling machine is part of the plastic injection molding process which forms cases and covers.

A plastic separator is used to separate the positive and negative plates and allow the sulfuric acid to penetrate the plates while preventing the plates from touching each other.

Acid is added to the batteries, and the level checked. Baghouses provide down draft ventilation. Air scrubbers clean air of lead and acid. Sulfuric acid is delivered in a concentrated form and must be diluted. Different uses require different strengths. Failed batteries

are looked at in the battery autopsy area. The acid is dumped from the batteries. The lead and plastic are reclaimed, and the acid is collected and recycled.

Wastewater from the facility is collected in a holding pit where caustic soda (sodium hydroxide) is added to neutralize the water and bring the pH to a pH of 4 to 5. The water is stirred, taken through three treatment basins, and then filtered through filters coated with diatomaceous earth before going to the county sewer. The contaminated earth is dumped into an indoor gondola bin which is periodically dumped into a 20-cubic yard outdoor roll-off bin. The roll-off bin is plastic lined and may also contain other lead contaminated material, gloves, and baghouse filters. Lead contaminated clothing can be sent to a reclaimer for the lead. An estimated average of 30 cubic yards of diatomaceous earth are used per month.

A new process would eliminate the use of diatomaceous earth and significantly reduce the amount of sludge disposed of at a Class 1 landfill.

The facility is considering reusing some of the filtered wastewater in the plant's production.

Approximately 10,800 batteries are manufactured per day. The batteries are charged, labeled, and packaged.

Hazardous waste storage area: Empty unused drum as well as 55-gallon drums contain virgin materials, acids, and hazardous waste empty, unused drums. A trench with a sump would contain any spilled material which could then be pumped into a drum.

All runoff flows to the stormwater basin except runoff from the lawn or the parking lot. A pipe takes the stormwater along a natural course, through a filter, and into the Magnolia storm drain. Delco Remy's NPDES permit requires testing for lead, oil and grease, total dissolved solids, and clarity. The facility will try to reuse any future stormwater in the plant.

In October 1987, the underground gas tanks were brought above ground, and a fire protection system was installed. The lead contaminated area is located adjacent to the stormwater basin.

Hazardous waste generated in 1989 included 606 tons of waste from the roll-off bins (including diatomaceous earth) sent to a landfill; 211 tons of oil were recycled; 3,284 tons of recycled lead and spent batteries. The amount of generated roll-off bin waste was based on a 30-cubic yard roll-off bin (instead of the actual size of 20-cubic yards).

Call Dr. "Essi" Esmaili at Dames and Moore for recent lead results and information regarding monitoring wells. Mr. Rayle will call him first to give approval.

delco/recon

The following observations were made during the site reconnaissance visit:

The hazardous waste storage area had two drums containing polychlorinated biphenyl (PCB) ballasts from fluorescent lights. These PCB ballasts require separate disposal and are collected and shipped to ENSCO. Other hazardous waste is shipped to Chemical Waste Management in Kettleman Hills.

The stormwater basin was empty and dry.

CONTACT REPORT

AGENCY/AFFILIATION: City of Fullerton		
DEPARTMENT: Water Department		
ADDRESS/CITY: Fullerton		
COUNTY/STATE/ZIP: Orange/California		
CONTACT(S)	**TITLE**	**PHONE**
1. Bob Ford		714-738-6886
2.		
E & E PERSON MAKING CONTACT: Lorene Flaming		**DATE:** 1/18/90
SUBJECT: Groundwater Use		
SITE NAME: GMC Delco Remy*		**EPA ID#:** CAD008323396

The City of Fullerton gets 60 percent of its drinking water from municipal wells and 40 percent from the Metropolitan Water District. Water from these two sources is not blended. Water purchased from the district serves the north part of the city while wells serve the south part. The population of Fullerton is 110,000, therefore the wells serve an estimated population of 66,000. The area served by wells is divided into three zones. Although all the wells are interconnected, they are usually dedicated to a single zone. No figures are available on the population served by each zone.

Bob will send a map indicating all well locations and their respective zones. Depth to groundwater in Fullerton is generally 80 to 100 feet. All wells tap the upper aquifer.

* This Contact Report was originally used for Pacific Tank Ltd. (CAD982360471).

ta/gmc/clcr

CONTACT REPORT

AGENCY/AFFILIATION: City of Buena Park		
DEPARTMENT: Water Department		
ADDRESS/CITY: 6650 Beach Blvd., Buena Park		
COUNTY/STATE/ZIP: Orange, California 90621		
CONTACT(S)	**TITLE**	**PHONE**
1. Chuck Fowler	Water Engineer	714-521-9023
2.		ext. 237
E & E PERSON MAKING CONTACT: Helena Brykarz		**DATE:** 3/2/90
SUBJECT: Buena Park water supply		
SITE NAME: GMC Delco Remy*		**EPA ID#:** CAD008323396

Buena Park's drinking water supply is provided by both Metropolitan Water District (MWD) and its 8 municipal wells (50% each). Of the wells, 3 of the major ones are located close to Fullerton between Commonwealth Ave. and Freeway 91. The well nearest is at Beach Blvd. and Malvern Ave. Each produces approximately 1,200-1,500 acre feet/year. The wells are approximately 1,000 feet deep and are perforated from 225 feet to the bottom. Groundwater flows in a southwesterly direction. There has been no contamination noted (no TCEs, PCEs, etc.). The groundwater supply is pumped into the system together with MWD water. The system serves 65,000 residents in Buena Park.

* This Contact Report was originally used for Scientific Spray Finishes (EPA ID# CAD981385602).

ta/gmc/clcr

CONTACT REPORT

AGENCY/AFFILIATION: L.A. County Department of Public Works		
DEPARTMENT: Waste Management Division		
ADDRESS/CITY: P.O. Box 1460, Alhambra		
COUNTY/STATE/ZIP: Los Angeles, CA 91802-1460		
CONTACT(S)	**TITLE**	**PHONE**
1. John Mitchell		(818) 458-3537
2.		
E & E PERSON MAKING CONTACT: Helena Brykarz		**DATE:** 3/5/90
SUBJECT: Surface water information		
SITE NAME: GMC Delco Remy*		**EPA ID#:** CAD008323396

The mean flow of Coyote Creek and San Gabriel River above their confluence, from 1987-1988, in cubic feet per second (cfs) is:

	Coyote Creek	San Gabriel River
October	80	115
November	26	121
December	72	116
January	156	138
February	46	152
March	14	125
April	102	101
May	10	44
June	10	97
July	11	92
August	9	114
September	21	85

These figures are not additive. To get the flow rate below the confluence, add the figures.

Both, Coyote Creek and San Gabriel River, are concrete lined ditches for wastewater from various sources, including reclaimed wastewater from sewage effluent. There are no uses for this water.

* This contact report was originally used for Scientific Spray Finishes (CAD981385602).

ta/gmc/clcr

CONTACT REPORT

AGENCY/AFFILIATION: Orange County Environmental Management Agency		
DEPARTMENT: Water Pollution Unit		
ADDRESS/CITY: P.O. Box 4048, Santa Ana		
COUNTY/STATE/ZIP: Orange, CA 92702		
CONTACT(S)	**TITLE**	**PHONE**
1. Bruce Moore		(714) 567-6366
2.		
E & E PERSON MAKING CONTACT: Helena Brykarz		**DATE:** 3/5/90
SUBJECT: Surface water downstream from the site		
SITE NAME: GMC Delco Remy		**EPA ID#:** CAD008323396

The average flow rate of Fullerton Creek is 4.73 cubic feet per second (1988 data). The agency does not monitor Coyote Creek, and San Gabriel River is monitored by the L.A. County. Call John Mitchell at (818) 458-3537. Moore doubts that there is any drinking water or fishing use of these surface waters.

He doesn't believe there is any flooding at Fullerton Creek. There is a dam at the headwaters (1/2 mile north of Harbor Blvd. and Brea Blvd).

* This contact report was originally used for Scientific Spray Finishes (CAD981385602).

ta/gmc/clcr

CONTACT REPORT

AGENCY/AFFILIATION: California Department of Fish and Game		
DEPARTMENT: Fillmore Hatchery		
ADDRESS/CITY:		
COUNTY/STATE/ZIP:		
CONTACT(S)	**TITLE**	**PHONE**
1. Jim Adolph		(805) 524-0962
2.		
E & E PERSON MAKING CONTACT: Helena Brykarz		**DATE:** 3/5/90
SUBJECT: Fishing in the San Gabriel River		
SITE NAME: GMC Delco Remy		**EPA ID#:** CAD008323396

Department of Fish and Game stocks the forks of the San Gabriel River:

North fork - 2,000 lb/yr
East fork - 11,000 lb/yr
West fork - 5,000 lb/yr

The department does not stock the lower part of the San Gabriel River which is within 15 miles downstream of the site. He doesn't know if there is any fishing in the lower part of the river.

* This contact report was originally used for Scientific Spray Finishes (CAD981385602).

ta/gmc/clcr

CONTACT REPORT

AGENCY/AFFILIATION: Bastanchury Water Company		
DEPARTMENT:		
ADDRESS/CITY: 601 W. Valencia		
COUNTY/STATE/ZIP: Fullerton, CA 92632		
CONTACT(S)	**TITLE**	**PHONE**
1. Dave Deary	Plant Manager	(714) 870-4022
2.		
E & E PERSON MAKING CONTACT: Helena Brykarz		**DATE:** 3/6/90
SUBJECT: Well use		
SITE NAME: GMC Delco Remy		**EPA ID#:** CAD008323396

The well located at 601 W. Valencia is used for bottled drinking water. Everyday Bastanchury produces 5,000 5-gallon bottles of water (25,000 gallons/day). It is difficult to determine how many people are served by this water supply. On the average, one person may use one to three bottles per month.

No contamination of the water has been noted. The county has strict controls for bottled water and the well is tested monthly.

* This contact report was originally used for Scientific Spray Finishes (CAD981385602).

ta/gmc/clcr

CONTACT REPORT

AGENCY/AFFILIATION: Regional Water Quality Control Board, Santa Ana		
DEPARTMENT: Pollutant Investigation Section		
ADDRESS/CITY: 6809 Indiana Avenue, Suite 200, Riverside		
COUNTY/STATE/ZIP: California		
CONTACT(S)	**TITLE**	**PHONE**
1. Joe Aldern		714-782-4130
2.		
E & E PERSON MAKING CONTACT: Tara Abbott		**DATE:** 6/5/90
SUBJECT: RWQCB involvement		
SITE NAME: GMC Delco Remy		**EPA ID#:** CAD008323396

The facility has had two spills. Petroleum hydrocarbons were detected in soil when six underground storage tanks were removed. The contaminated soil was excavated.

More recently a sodium hydroxide tank leaked to the groundwater increasing the pH of the groundwater and dissolving the natural humic acids in the soil. The water looked like rootbeer.

The facility has installed four wells, two as background wells. Water from the well downgradient of the spill has been neutral and clean. It appears that there is a natural buffering occurring. No active cleanup is necessary. RWQCB will oversee four quarters of monitoring until all the groundwater has neutralized.

ta/gmc/clcr

CONTACT REPORT

AGENCY/AFFILIATION: California Department of Health Services, Region 4		
DEPARTMENT: Enforcement and Surveillance Unit		
ADDRESS/CITY: 245 West Broadway, Suite 350, Long Beach		
COUNTY/STATE/ZIP: Orange County, California 90802		
CONTACT(S)	**TITLE**	**PHONE**
1. Richard Hubbell		213-590-4868
2.		
E & E PERSON MAKING CONTACT: Tara Abbott		**DATE:** 6/5/90
SUBJECT: Inspections		
SITE NAME: GMC Delco Remy		**EPA ID#:** CAD008323396

After his inspection in May 1989, Mr. Hubbell issued a report of violation to the facility on June 2, 1989. The facility sent documentation of its compliance. DOHS has not inspected the facility since that time.

The plant cuts open about 100 batteries per month and dumps the acid out, considered treatment under California law. Mr. Hubbell believes that Emmanual Mensah, now at Region 1 (916-855-7859) worked on a variance for the plant.

DOHS Permitting Unit is not currently involved at the site.

At the time of Mr. Hubbell's inspection, Delco Remy was involved in excavation of lead contaminated dirt at the site. Apparently, Delco Remy had sampled soil prior to the construction of the storm water retention basin and had detected lead.

ta/gmc/clcr

CONTACT REPORT

AGENCY/AFFILIATION: South Coast Air Quality Management District		
DEPARTMENT:		
ADDRESS/CITY: 9150 Flair Drive, El Monte		
COUNTY/STATE/ZIP: Orange County, California 91731		
CONTACT(S)	**TITLE**	**PHONE**
1. Charlene Christopher	Public Records Coordinator	818-572-6200
2.		
E & E PERSON MAKING CONTACT: Tara Abbott		**DATE:** 6/5/90
SUBJECT: Permits and violations		
SITE NAME: GMC Delco Remy		**EPA ID#:** CAD008323396

The facility has at least 60 active air permits. There are no records of complaints or violations.

For copies of the permits, send a written request.

ta/gmc/clcr

CONTACT REPORT

AGENCY/AFFILIATION: California Department of Health Services, Region 1		
DEPARTMENT: Toxic Substances Control Program		
ADDRESS/CITY: Sacramento		
COUNTY/STATE/ZIP: California		
CONTACT(S)	**TITLE**	**PHONE**
1. Emmanuel Mensah		916-855-7859
2.		
E & E PERSON MAKING CONTACT: Tara Abbott		**DATE:** 6/6/90
SUBJECT: DOHS involvement		
SITE NAME: GMC Delco Remy		**EPA ID#:** CAD008323396

Mr. Mensah wrote a variance for the facility for its wastewater treatment and neutralization of battery acid. He last inspected the facility in early May 1989.

ta/gmc/clcr

CONTACT REPORT

AGENCY/AFFILIATION: Orange County Sanitation District		
DEPARTMENT:		
ADDRESS/CITY: 10844 Ellis Avenue, Fountain Valley		
COUNTY/STATE/ZIP: Orange County, California 92708		
CONTACT(S)	**TITLE**	**PHONE**
1. Bea Mitchell		714-962-2411
2.		ext. 363
E & E PERSON MAKING CONTACT: Tara Abbott		**DATE:** 6/6/90
SUBJECT: Permits/violations		
SITE NAME: GMC Delco Remy		**EPA ID#:** CAD008323396

The facility has a wastewater permit with the county for water discharged in the sewer. The county inspects the facility and samples its wastewater four times a year. The wastewater is analyzed for heavy metals, total toxic organics (TTOs), and cyanide.

The county's sewer empties into the ocean. Ms. Mitchell cannot recall any violations or problems with the facility within the last three years.

ta/gmc/clcr

CONTACT REPORT

AGENCY/AFFILIATION: General Motors Corporation		
DEPARTMENT: Delco Remy		
ADDRESS/CITY: 1201 North Magnolia Ave., P.O. Box 3190, Anaheim		
COUNTY/STATE/ZIP: Orange County, California 92083-3190		
CONTACT(S)	**TITLE**	**PHONE**
1. Ken Rayle	Environmental Manager	714-220-6048/6001
2.		
E & E PERSON MAKING CONTACT: Tara Abbott		**DATE:** 6/7/90
SUBJECT: Site reconnaissance		
SITE NAME: GMC Delco Remy		**EPA ID#:** CAD008323396

A site reconnaissance was scheduled for Friday, June 22 at 9 a.m. He will take duplicate photographs. In regards to health and safety, they have an enclosed oxide manufacturing system which requires the wearing of respirators. There is a clean room where we can view one side of the system.

The facility uses the city's water for drinking. One well on site is used only to water the grass.

The facility currently employs 380 people.

ta/gmc/clcr

CONTACT REPORT

AGENCY/AFFILIATION: City of Anaheim		
DEPARTMENT: Department of Public Works		
ADDRESS/CITY: 200 S. Anaheim Blvd., Anaheim		
COUNTY/STATE/ZIP: Orange Co., California 92805		
CONTACT(S)	**TITLE**	**PHONE**
1. Mark Komoto	Chief	714-999-5100
2.		
E & E PERSON MAKING CONTACT: Tara Abbott		**DATE:** 6/19/90
SUBJECT: Flood zones		
SITE NAME: GMC Delco Remy		**EPA ID#:** CAD008323396

Site is located in Zone X: shallow flooding with an average depth of less than 1 foot. Zone X varies within 100-year flood zone.

Because the area is flat, during a flood any chemicals could be washed into the river. For a facility to be out of the 100-year flood zone, they need to have a pad 1 foot above the water surface elevation.

ta/gmc/clcr

CONTACT REPORT

AGENCY/AFFILIATION: Dames & Moore		
DEPARTMENT:		
ADDRESS/CITY: 6 Hutton Center Drive, Suite 700, Santa Ana		
COUNTY/STATE/ZIP: Orange County, California 92707		
CONTACT(S)	**TITLE**	**PHONE**
1. Dr. "Essi" Esmaili		714-433-2000
2.		
E & E PERSON MAKING CONTACT: Tara Abbott		**DATE:** 6/26/90
SUBJECT: Soil and groundwater contamination		
SITE NAME: GMC Delco Remy		**EPA ID#:** CAD008323396

Lead contamination in soil:

o Dames & Moore November 4, 1988 report:

Figure 2 shows areas of sampling. NW1 has the highest lead concentration, NW4 is less and NW7 even less; the lead concentration reduces along the railroad track. The rest of the field had much lower concentrations of lead.

Defective and old batteries were stored along the railroad tracks. It is suspected that leaks in the batteries caused the lead contamination. Contamination is at about 1 foot below ground surface (bgs) in general.

The rest of the north field used to be an unlined ditch (see Figure 2). Overland flow was directed into the ditch and out to storm drains.

From May to august 1989, soil was removed from the ditch and from the basin area (Figure 2 in Dames and Moore report) and piled in the north field. Sampling was conducted along the ditch under Orange County Health Care Agency to demonstrate that all contaminated soil had been removed. Once soil had been removed, it was chemically treated on site to turn heavy metals into insoluble silicates. After analytical results demonstrated that the soil was no longer contaminated, 3,000 cubic yards of treated soil were sent to the Santiago Class 3 landfill.

With the exception of the two excavated areas (the ditch and present location of the basin), lead contaminated soil still remains.

ta/gmc/clcr

Groundwater contamination:

During the removal of the facility's underground storage tanks in 1986, they discovered soil contaminated with petroleum hydrocarbons. All stained soil was removed and sampled under the supervision of several agencies. (Dr. Esmaili was unaware of the amount of contaminated soil which was removed).

Due to the shallow groundwater located 30 feet beneath the site, RWQCB asked for the installation of a monitoring well. In July 1986, MW#1 was installed adjacent to the tank area and samples were tested for several parameters. No contamination was detected; however, the water had a pH of greater than 9, and its color was like rootbeer.

Two additional monitoring wells were installed in July 1988, MW2 and MW3, to determine the groundwater flow and patterns. Groundwater flows in a southwesterly direction beneath the site. Groundwater samples were analyzed for total petroleum hydrocarbons and heavy metals, no contamination was detected.

After an extensive investigation, the nature of the discoloration has been attributed to sodium hydroxide leaking from an underground storage tank and contaminating the soil. The sodium hydroxide in the soil then mobilized the soil's natural organic material (humic acid) which leached into the groundwater causing the rootbeer color. As discolored water moves through the aquifer, the pH will go down and the calcium content will rise, causing the humic acid to precipitate back into the soil and the water to clear naturally. RWQCB has accepted this explanation but requested that a monitoring well be installed directly downgradient of MW#1. Sampling of the downgradient MW#4, installed December 14, 1989, has supported Dames & More's explanation. RWQCB has required 1 year of quarterly monitoring. Three rounds of sampling, including the first quarter of monitoring have indicated no change in MW#4.

During well installation and soil excavation, Dames & Moore has found a silty clay lens and clayey silt from the surface to 20 to 25 feet bgs. Sand and a mixture of sand, silt and clay are intermittent below 25 feet.

ta/gmc/clcr

CONTACT REPORT

AGENCY/AFFILIATION: City of Anaheim		
DEPARTMENT: Public Utilities Department		
ADDRESS/CITY: P.O. Box 3222, Anaheim		
COUNTY/STATE/ZIP: Orange County, California 92803		
CONTACT(S)	**TITLE**	**PHONE**
1. Bruce Bowman	Principal Water Engineer	714-999-5100
2.		
E & E PERSON MAKING CONTACT: Tara Abbott		**DATE:** 6/26/90
SUBJECT: Well information		
SITE NAME: GMC Delco Remy		**EPA ID#:** CAD008323396

The City of Anaheim blends 70% groundwater and 30% Metropolitan Water District water (a blend of Colorado River water, state water, and treated Lake Matthew water) to provide 53,769 service connections with drinking water.

City Wells	Distance to site	Perforations
12	0.75 miles	450-498 feet
16	1.8 miles	384-414 feet
106	1.8 miles	182-202 feet
		210-224 feet
		540-560 feet

These three wells have a small output, #12 has the largest of the three.

ta/gmc/clcr

Mr. Dixon will write a letter to Ken Rayle at Delco Remy to clarify the agency's request.

ta/gmc/clcr

APPENDIX B

Photodocumentation

FIELD PHOTOGRAPHY LOG SHEET

DATE: 6/22/90

TIME: 3:00 p.m.

DIRECTION:

South

WEATHER:

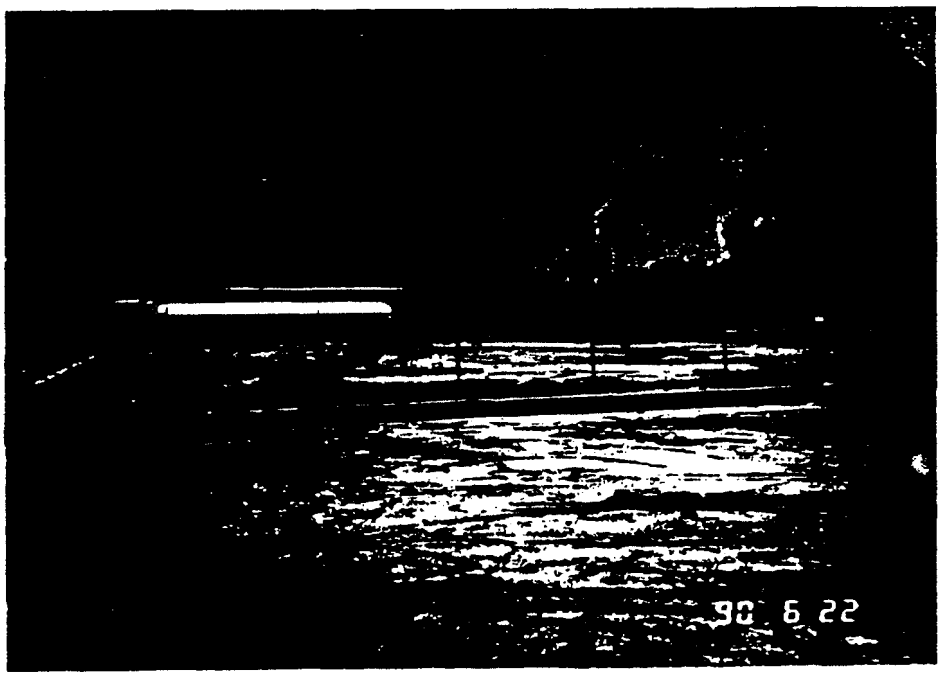
sunny, warm

PHOTOGRAPHED BY:

Peter Towle

DESCRIPTION:

Two 20-cubic yard roll-off bins contain lead-contaminated diatomaceous earth and other waste from the wastewater treatment system.



DATE: 6/22/90

TIME: 2:45 p.m.

DIRECTION:

North

WEATHER:

sunny, warm

PHOTOGRAPHED BY:

Peter Towle

DESCRIPTION:

Lead contaminated soil area adjacent to stormwater retention basin (to left of field.

ta/gmc/fpls

FIELD PHOTOGRAPHY LOG SHEET

DATE: 6/22/90

TIME: 2:35 p.m.

DIRECTION:

North

WEATHER:

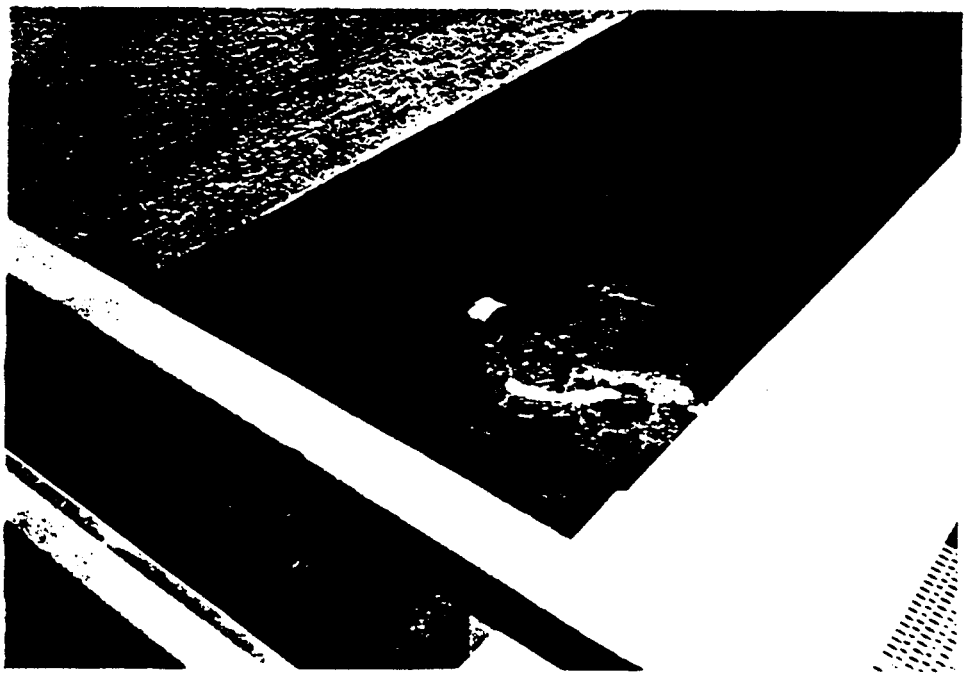
Sunny, warm

PHOTOGRAPHED BY:

Peter Towle

DESCRIPTION:

Hazardous Waste/Chemical Storage Area: Grated trench leads to sump which contains any spilled material until it can be piped into a drum.



DATE: 6/22/90

TIME: 2:55 p.m.

DIRECTION:

East

WEATHER:

Sunny, warm

PHOTOGRAPHED BY:

Peter Towle

DESCRIPTION:

Sodium hydroxide is added to neutralize wastewater collected in this holding pit in the first step of the wastewater treatment system.

ta/gmc/fpls

ENV AMERICA

16 TECHNOLOGY DRIVE

SUITE 154

IRVINE

CALIFORNIA

92618

(949) 453-9191

FAX (949) 453-9292

ENVIRONMENTAL

ENGINEERING

CONSULTING

& CONSTRUCTION

February 25, 1999

Mr. Eric Weng
Delphi Energy & Engine Management Systems
1201 North Magnolia Avenue
Anaheim, California 92801

RE: SOIL REMEDIATION CLOSURE REPORT
Northwest Field - Anaheim Operations
1201 North Magnolia Avenue
Anaheim, California
DELPHI Purchase Order No. JCS01823
ENV America Project No. DEL-01-T002.102

Dear Mr. Weng:

ENV America Incorporated (ENV America) is pleased to submit two copies of the enclosed Soil Remediation Report for the project referenced above. Tim Renner's comments on the "Draft" version of the report have been fully incorporated. One copy of the report should be submitted to County of Orange Health Care Agency, using the following address:

Mr. Luis Lodrigueza
Hazardous Waste Specialist
Hazardous Materials Management Section
Environmental Health Division
Orange County Health Care Agency
2009 East Edinger Avenue
Santa Ana, California 92705-4720

ENV America sincerely appreciates the opportunity to have participated on this project, and looks forward to being of continued service. Should you have any questions regarding the report, or the project in general, please do not hesitate to contact either of the undersigned at (949) 453-9191.

Respectfully submitted,

ENV America Incorporated

Daniel J. Gifford, C.E.G.
Senior Project Manager

E. Essi Esmaili, Ph.D., R.G.
Principal
Ext 1280

Enclosures

cc: Tim Renner, Delphi, Anderson, Indiana

SOIL REMEDIATION CLOSURE REPORT
Northwest Field
Delphi Energy & Engine Management Systems Facility
1201 North Magnolia Avenue
Anaheim, California
Orange County Health Care Agency Case No. 88IC80

Prepared for:

Delphi Energy & Engine Management Systems
1201 North Magnolia Avenue
Anaheim, California 92801
(714) 220-6027
and
Delphi Energy & Engine Management Systems
2900 South Scatterfield Road, Room 18-225
Anderson, Indiana 46013
(765) 646-3292

Prepared by:

ENV America Incorporated
16 Technology, Suite 154
Irvine, California 92618
(949) 453-9191
FAX (949) 453-9292
ENV America Project No. DEL-01-T002.102

February 25, 1999

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Exhibit B	Preliminary Sampling Results
Exhibit C	Laboratory Reports for Confirmation Samples and Stockpile Samples
Exhibit D	Laboratory Reports for Soil Stockpile Disposal Profiling
Exhibit E	Soil Disposal Manifests

1.0 INTRODUCTION

ENV America Incorporated (ENV America) was retained by Delphi Energy & Engine Management Systems (Delphi-E) to mitigate lead-impacted soil in the Northwest Field of the Delphi-E facility in Anaheim, California. This project was implemented in compliance with a January 5, 1998, regulatory directive from the Orange County Health Care Agency (OCHCA). Further background information is presented in Section 2.0 of this report.

As shown on Figure 1, the facility is located on the west side of Magnolia Avenue, immediately south of the Santa Ana Freeway (I-5). The facility, formerly known as the Delco Remy facility, is engaged in the manufacturing of lead-acid batteries for use in motor vehicles and marine vessels. The facility is occupied by a main factory building, several smaller buildings that house related support operations. The majority of the facility is covered with landscaping and concrete and asphaltic pavements.

The Northwest Field is situated in the northwest portion of the facility, as the name would imply. The general layout of the facility and the location of the Northwest Field are depicted on Figure 2. The Northwest Field is an unpaved, fenced portion of the facility which is rarely used. Existing features within the Northwest Field include the following: a Union Pacific Railroad spur running along the eastern side of the field; a subterranean concrete retention basin in the southwest portion of the field; a metal building structure; an abandoned gas transfer compound adjacent to the railroad tracks; and, local light poles around the perimeter of the field. Numerous underground utility lines are known to transect the Northwest Field. The configuration of these features is shown on Plate I.

The scope of work completed for this project included: review of available documents pertaining to the Northwest Field; the collection and analyses of near-surface soil samples for delineation of lead-impacted soil; excavation and export of lead-impacted soil; confirmation soil sampling and analyses to verify that significantly-impacted soil was removed; and, preparation of this report. The scope of work was implemented in accordance with ENV America's "Remedial Action Plan" (RAP), dated March 16, 1998.

2.0 PERTINENT SITE INFORMATION

2.1 General Information

The subject facility was constructed in 1954 for the purpose of lead-acid battery manufacturing and has been in continual use to the present time. Available information indicates that the Northwest Field has been of minimal use, other than serving as an access corridor for railroad deliveries and shipments. At one point, defective batteries were temporarily stored in the southern portion of the Northwest Field, along the west side of the railroad tracks. Apparently, the batteries leaked acid, which contained dissolved lead, into near-surface soils.

2.2 Previous Site Work by Others

In June and August of 1988, Dames & Moore conducted several phases of soil investigations at the Northwest Field (Dames & Moore, 1989). These investigations mainly included the sampling and analysis of surface and near-surface soil. Dames & Moore analyzed the samples for total lead, and/or soluble lead. Selected samples were also analyzed for pH.

The results of the Dames & Moore investigations indicated lead concentrations ranging from 3.8 milligrams per kilogram (mg/kg) to 9,850 mg/kg. Soluble lead concentrations ranged from less than the detection limit of 0.1 milligrams per liter (mg/l) to 1,130 mg/l. The only samples containing significantly elevated lead concentrations (i.e., greater than 1,000 mg/kg) were located along the west side of the railroad tracks. The highest soluble lead concentrations were also detected in these two samples. Total lead concentrations at other locations of the Northwest Field were significantly below 1,000 mg/kg.

The pH values of the surface soils in the Northwest Field ranged from 8.15 to 8.85. These pH values are within the alkaline range (7-14) and indicate that the soil effectively neutralized the acid leaks from the defective batteries, as would be expected. Subsequently, neutralization of the acid solutions caused precipitation of lead in the near surface soil; hence, high concentrations of lead in the surface soil. Significantly lower lead concentrations, detected in the samples collected from 1 to 1.5 feet below ground surface (bgs) along the west side of the railroad tracks, indicate the strong capability of the soil at the site to limit the downward migration of lead. Pertinent data regarding the Dames & Moore study is included in Exhibit A.

2.3 Recent Work by ENV America

Based on data generated during the Dames & Moore study, ENV America prepared the March 16, 1998 RAP. The RAP outlined a tentative plan of action to remove lead-impacted soil along the western side of the railroad tracks in the Northwest Field. The proposed cleanup goal was set at 1,000 mg/kg and was based on the Preliminary Remediation Goals (PRGs) established by the United States Environmental Protection Agency (USEPA), Region 9.

The RAP was approved by the OCHCA in a letter dated April 6, 1998. In accordance with the RAP, ENV America conducted a preliminary sampling program to further delineate the extent of lead-impacted soil. The results of preliminary sampling and analyses were presented in a document entitled "Project Status Report," dated August 12, 1998, which was submitted to the OCHCA. The sample locations and analytical results are shown on Plate I, and the tabulated analytical data is included in Exhibit B.

3.0 REMEDIATION ACTIVITIES

3.1 Soil Excavation and Sampling

Based on the preliminary sampling data, ENV America excavated the areas delineated on Plate II, between August 25 and 31, 1998. The excavations were made by means of a backhoe. As indicated on Plate II, the excavations generally extended to approximately 6 inches bgs. As indicated on Plate II, local areas were excavated deeper, to a maximum depth of about 24 inches bgs.

The excavated soil was placed in temporary stockpiles with the backhoe loader and a bobcat loader. The temporary soil stockpiles were placed in areas where soil had yet to be excavated. The locations of temporary stockpiles are shown on Plate II. The soil beneath the temporary stockpiles was excavated to the appropriate depth after the stockpiles were removed.

During the early stages of the excavation program, confirmation soil samples were collected and analyzed in order to verify that the excavation depths were sufficient. On Friday, August 28, 1998, additional confirmation samples, which constitute the majority of confirmation samples collected, were obtained under the observation of Mr. Luis Lodrigueza, a Hazardous Waste Specialist with the Hazardous Materials Management Section of the OCHCA. Based on analytical data indicating elevated lead concentrations in local areas, additional excavations and confirmation sampling were performed on Monday, August 31, 1998. Once the stockpiles were removed, additional confirmation samples were also collected beneath each stockpile.

If preliminary confirmation samples contained total lead concentrations exceeding the approved cleanup goal of 1,000 mg/kg, then the areas were excavated deeper and additional confirmation samples were collected. The locations of all confirmation soil samples are identified on Plate II. As described in Section 4.0 of this report, two isolated areas with total lead concentrations in excess of the cleanup goal were not fully remediated due to access limitations. Except for these two isolated areas, the lead-impacted soil exceeding 1,000 mg/kg of lead was removed from the Northwest Field.

Soil samples were collected by direct insertion of a laboratory-supplied, 4-ounce glass sample jar. In some cases, where the soil to be sampled was exceedingly hard, the soil was first partially dislodged with a garden shovel in order to facilitate the ease of sampling. The sample jars were sealed with a Teflon-lined, threaded lid, appropriately labeled, and submitted under chain of custody to a state-certified analytical laboratory.

3.2 Analytical Testing

All soil samples were submitted under chain of custody to Orange Coast Analytical, Inc. (Orange Coast), of Tustin California. Orange Coast is certified by Cal/EPA to perform analytical testing of soil samples. Each confirmation soil sample was analyzed for total lead by USEPA Method 6010. The results of total lead analyses for confirmation samples are tabulated in Table 1 and are shown on Plate II. Complete laboratory reports for confirmation samples are attached in Exhibit C.

3.3 Backfilling

Once soil excavation and soil sampling activities were completed, the excavated areas were backfilled with onsite soil. The backfill material (soil) was obtained from a previously existing, old soil stockpile, located on the north side of the former aboveground propane tank location. This soil had been generated during excavation of the subterranean retention basin located in the southwest corner of the Northwest Field (Plates I and II). Prior to use, this soil stockpile was sampled and analyzed for total lead to verify its suitability as backfill material. The results of analyses are plotted on Plate II, and the laboratory reports are included in Exhibit C.

The soil was placed in the excavated areas in thin lifts, moisturized with potable water as needed, and wheel-rolled in place with a backhoe. The entire excavation area was then surface graded to mirror the original ground-surface profile.

3.4 Soil Profiling, Export, and Disposal

The temporary soil stockpiles which were generated during this project, along with three previously existing stockpiles (Plate II), were sampled on September 10, 1998. The sampling program for waste profiling is described below.

Four soil stockpile groups were established. From each stockpile group, an eight-point composite sample was collected. The stockpile samples were analyzed by Orange Coast by the Toxicity Characteristic Leaching Procedure (TCLP) for metals, semi-volatile organic compounds, volatile organic compounds, flashpoint, corrosivity, reactive cyanide and reactive sulfide. The results of analyses were used solely for disposal profiling. Laboratory reports for soil stockpile disposal profiling are included in Exhibit D.

Between November 13 and 30, 1998, the temporary soil stockpiles and the three previously existing soil stockpiles were loaded into fifteen gondola rail cars by means of a front-end loader. As indicated earlier, soil underlying each stockpile was excavated to the appropriate depth and confirmation samples were obtained. The soil, classified as RCRA hazardous waste, was then transported via rail to the Laidlaw Environmental Services/Safety-Kleen "Lone Mountain" facility in Waynoka, Oklahoma. A total mass of 1,108.32 tons of soil was sent to the Lone Mountain facility. Manifests documenting disposal are included in Exhibit E.