

## INTRODUCTION

The following report was completed to support the used oil management standards rulemaking that was developed by the Office of Solid Waste. This report summarizes 56 Superfund (NPL) Sites at which used oil damages have occurred. These sites, along with 7 other sites, appeared in a report entitled Burning Used Oil -- America's Undiscovered Lead Threat, which was submitted to EPA's RCRA Used Oil Docket (F-91-UPLP-FFFFF) in response to the September 23, 1991 Supplemental Notice of Proposed Rulemaking on used oil (56 FR 48000-48074) by the Natural Resources Defense Council, Sierra Club, The Izaak Walton League of America, and the Hazardous Waste Treatment Council.

This report begins with a summary chart of 56 Superfund sites that have incurred damages from used oil. This chart is found in Part I of this report. The remaining 7 sites (out of the total of 63), are sites at which used oil was either not handled or sites at which used oil handling was not a primary activity.

The 32 sites for which there are detailed summaries are described in Part II of this report. The descriptions include information on the type of used oil activity at the site, the years of used oil operations, location of the facility and a brief description of geology. In addition, the summaries include a description of the other activities that occurred at the site, either manufacturing activities or waste management activities. The summaries provide a description of the used oil handling activities, including the type of units in which the used oil was managed, and whether leaks or spills occurred. The summaries also include a description of the contaminated media at the site, major contaminants, remedial and removal actions that occurred, and any costs available for the remedial activities.

The sources are listed at the end of each summary. Hazard Ranking System (HRS) Documents and Records of Decision were also used as sources for the site summaries contained in this document.

Part III of this report describes an additional 24 sites. These site descriptions are much less detailed than the those in Part II, since the only sources used for these summaries were the HRS Packages and Records of Decision.

Based upon the research we performed, used oil was either not a primary activity, or was not ever handled at the following facilities, described in Part IV of this report:

- 1) Adams County Quincy Landfills, IL
- 2) Applied Environmental Services, NY
- 3) Chemical Control Corporation, NJ
- 4) Motco, Inc., TX
- 5) Oak Grove Landfill, MN
- 6) PAB Oil, LA
- 7) United Creosoting, TX

## TABLE OF CONTENTS

### PART I

- 1) SUMMARY TABLE - DAMAGES FROM USED OIL MANAGEMENT  
AT SUPERFUND SITES ..... 1

### PART II

- 1) A&F MATERIALS CO., IL ..... 10
- 2) ARROWHEAD REFINERY, CO., MN ..... 12
- 3) AVCO LYCOMING, PA ..... 14
- 4) BRIDGEPORT RENTAL AND OIL SERVICES, NJ ..... 16
- 5) COMBUSTION, INC., LA ..... 18
- 6) DIXIE OIL PROCESSORS, TX ..... 20
- 7) DOUBLE EAGLE REFINERY, OK ..... 22
- 8) DOUGLASSVILLE, PA ..... 24
- 9) THE DUBOSE OIL PRODUCTS COMPANY, FL ..... 25
- 10) DUTCHTOWN OIL TREATMENT, LA ..... 28
- 11) FOURTH STREET REFINERY, OK ..... 30
- 12) GAUTIER OIL COMPANY, MS ..... 32
- 13) GEIGER (C&M OIL), SC ..... 35
- 14) GENERAL MOTORS CORPORATION - CENTRAL FOUNDRY  
DIVISION, NY ..... 38
- 15) GURLEY OIL PIT, AR ..... 40
- 16) IMPERIAL OIL COMPANY, INC./CHAMPION CHEMICALS  
(IOC/CC), NJ ..... 42

17)	INTERSTATE POLLUTION CONTROL/ROTO ROOTER, IL .....	44
18)	LENZ OIL SERVICE, INC., IL .....	46
19)	MACON/DOCKERY (AKA CHARLES MACON LAGOON AND DRUM SITE), NC .....	48
20)	OLD INGER, LA .....	51
21)	PEAK OIL COMPANY, FL .....	52
22)	PETRO-CHEMICAL SYSTEMS, INC., TX .....	55
23)	PETROLEUM PRODUCTS CORPORATION, FL .....	56
24)	POTTER'S SEPTIC TANK PITS, NC .....	59
25)	PURITY OIL, CA .....	64
26)	SAND SPRINGS PETROCHEMICAL COMPLEX, OK .....	66
27)	SEALAND LIMITED, DE .....	68
28)	SILRESIM CHEMICAL CORPORATION, MA .....	70
29)	TRI-CITY CONSERVATION CORPORATION, FL .....	72
30)	WAYNE WASTE OIL, IN .....	75
31)	WHITEHOUSE OIL PITS, FL .....	80
32)	YORK OIL COMPANY SITE, NY .....	83
 PART III		
1)	ARRCOM CORP. (DREXLER ENTERPRISES), ID .....	86
2)	BRUIN LAGOON, PA .....	87
3)	CANNONS ENGINEERING CORP., MA .....	88
4)	COMET OIL, MT .....	89
5)	COMMENCEMENT BAY, WA .....	90

6)	EKOTEK, INC., UT .....	91
7)	ENVIROCHEM CORP. (ECC), IN .....	92
8)	ILADA ENERGY, CO., IL .....	93
9)	JOHNS' SLUDGE POND, KS .....	94
10)	KEEFE ENVIRONMENTAL SERVICES (KES), NH .....	95
11)	LASKIN/POPLAR OIL CO., OH .....	96
12)	LIQUID GOLD OIL CORP., CA .....	97
13)	LUKE AIR FORCE BASE, AZ .....	98
14)	MCKIN CO., ME .....	99
15)	MINKER/STOUT/ROMAINE CREEK, MO .....	100
16)	MONROE AUTO EQUIPMENT, NE .....	101
17)	PSC RESOURCES, MA .....	102
18)	QUAIL RUN MOBILE MANOR, MO .....	103
19)	SHENANDOAH STABLES, MO .....	104
20)	TIMES BEACH, MO .....	105
21)	TREASURE ISLAND NAVAL STATION, CA .....	106
22)	WASTE RESEARCH AND RECLAMATION CO. (WRRRC), WI .....	107
23)	WIDE BEACH DEVELOPMENT, NY .....	108
24)	WILLIAMS AIR FORCE BASE, AZ .....	109

PART IV

1)	ADAMS COUNTY QUINCY LANDFILLS #2 AND #3, IL .....	110
2)	APPLIED ENVIRONMENTAL SERVICES, NY .....	111

3)	CHEMICAL CONTROL CORPORATION (CCC), NJ .....	112
4)	MOTCO, TX .....	113
5)	OAK GROVE LANDFILL, MN .....	114
6)	PAB OIL AND CHEMICAL SERVICES, INC., LA .....	115
7)	UNITED CREOSOTING COMPANY, TX .....	116

**PART I**

# DAMAGES FROM USED OIL MANAGEMENT AT SUPERFUND SITES

Site	Type of Used Oil Facility	Used Oil and Used Oil Waste Management Practices	Type of Contaminated Media	Corrective Measures Taken
<b>Management of Used Oil in Surface Impoundments</b>				
Gurley Pit, AR	<ul style="list-style-type: none"> <li>- Recycling (re-refiner) Disposer</li> </ul>	<ul style="list-style-type: none"> <li>- Disposal of used oil recycling waste in unlined pit; pit overflowed</li> </ul>	<ul style="list-style-type: none"> <li>- soil</li> <li>- storm water</li> <li>- groundwater</li> <li>- surface water</li> </ul>	<ul style="list-style-type: none"> <li>- A spill was cleaned up and water levels in the pit were lowered</li> <li>- Periodic pumping of storm water from the pit</li> </ul>
Whitehouse Waste Oil Pits, FL	<ul style="list-style-type: none"> <li>- Recycler Disposer</li> </ul>	<ul style="list-style-type: none"> <li>- Disposal of waste oil and acid clay sludges from re-refining process in unlined pits</li> <li>- Dike rupture and pit contents overflowed onto adjacent property and into creek</li> <li>- 200,000 gallon oil spill during repairs</li> </ul>	<ul style="list-style-type: none"> <li>- surface water</li> <li>- soil</li> </ul>	<ul style="list-style-type: none"> <li>- EPA cleanup of 200,000 gallon spill</li> </ul>
Petroleum Products Corp., FL	<ul style="list-style-type: none"> <li>- Recycler (re-refining) Storage Disposer</li> </ul>	<ul style="list-style-type: none"> <li>- Stored used oil recycling wastes in unlined pits and an unlined lagoon; Covered pits</li> <li>- Disposal of sludges on soil</li> </ul>	<ul style="list-style-type: none"> <li>- soil</li> <li>- groundwater</li> </ul>	<ul style="list-style-type: none"> <li>- 1985 removal action: all contaminated water, oil, and drum sludges removed, all tanks dismantled, top soil excavated and backfilled</li> </ul>
Wayne Waste Oil, IN	<ul style="list-style-type: none"> <li>- Recycler Disposer</li> </ul>	<ul style="list-style-type: none"> <li>- Disposal of used oil recycling wastes onto surface soils, unlined pits, and trench</li> </ul>	<ul style="list-style-type: none"> <li>- soils</li> <li>- groundwater</li> <li>- surface water</li> </ul>	<ul style="list-style-type: none"> <li>- 1986-1987: 215 55-gallon drums excavated and removed</li> <li>- Liquids, sludges, and contaminated soils excavated and removed</li> <li>- 1988-1989: Removal and disposal of 125 additional drums</li> <li>- Excavation and removal of 5,400 tons of contaminated soil</li> <li>- Removal and disposal of the contents of 23 horizontal tanks</li> <li>- Installation of chain link fence</li> <li>- Certain areas backfilled</li> </ul>
Arrowhead Refinery, MN	<ul style="list-style-type: none"> <li>- Recycler Disposer</li> </ul>	<ul style="list-style-type: none"> <li>- Disposal of oily wastes in uncontained surface impoundment</li> <li>- Disposal of oily wastes in wastewater ditch</li> </ul>	<ul style="list-style-type: none"> <li>- soil</li> <li>- groundwater</li> <li>- surface water</li> </ul>	<ul style="list-style-type: none"> <li>- Ditch constructed to divert surface water flow around the surface impoundment</li> <li>- EPA recommended a remediation plan for groundwater</li> </ul>

Site	Type of Used Oil Facility	Used Oil and Used Oil Waste Management Practices	Type of Contaminated Media	Corrective Measures Taken
General Motors (Central Foundry Division), NY	- Disposer	- PCB-contaminated hydraulic fluids disposed on-site in lagoons - PCB-laden oily sludge periodically removed from lagoons and wastewater treatment plant, and disposed in on-site unlined industrial landfill	- sediments in surface water - soil - groundwater	- Dredging and excavation of PCB-contaminated sediments and soils in rivers and one creek and associated riverbanks and wetlands - Interim surface runoff control - Excavation of PCB-contaminated sludges, soil and debris - Recovery and treatment of groundwater downgradient from the site - Treatment of dredged/excavated material by means to be determined - In-place containment of less contaminated soils and control of groundwater through use of a composite cap and slurry wall
Charles Macon Lagoon & Drum (Macon/Dockery), NC	- Recycler - Storage	- Overflowing of waste oil surface impoundments (unlined)	- groundwater - soil	- Removed all wastes from the site; - Installed two on-site monitoring wells downgradient from the surface impoundments; filled, graded, and seeded all lagoons except one which was covered with a 3-foot clay cap - No measures taken
Fourth Street Abandoned Refinery, OK	- Recycler	- Numerous oil and sludge pits	- soil - groundwater and surface water "threatened"	- No remedial action has occurred
Sand Springs Petrochemical Complex, OK	- Recycler - Storage - Disposer	- Two pits for disposal of acid sludge from used oil recycling process - Surface impoundment to control runoff - Used oil stored in lagoons	- soil	- No remedial action has occurred
Bruin Lagoon, PA	- Disposer	- Overflowing unlined lagoon containing wastes from production of mineral oil - Wastes from motor oil re-refining were accepted from off-site - Spill of 3,000 gallons of acidic sludge caused large fish kill and shutdown of water supply systems	- surface water	- Backfilled lagoon and installed gas recovery wells
Gelger (C&M Oil), SC	- Storage - Incinerator	- Operated incinerator to burn waste oil - Stored oil in unlined lagoons; lagoons overflowed	- soil - shallow groundwater	- 1983: storage lagoons filled with soil



Site	Type of Used Oil Facility	Used Oil and Used Oil Waste Management Practices	Type of Contaminated Media	Corrective Measures Taken
Monroe Auto Equipment, NE	- Reclaimer	- Surface Impoundments	- groundwater (source of contamination unknown)	- Groundwater cleanup is ongoing under RCRA authority - Site was dropped from the proposed NPL in 1989
Williams Air Force Base, AZ	- Disposer	- Unlined surface impoundment	- soil - groundwater	- Participating in the DOD IRP - An RI/FS work plan was developed in 1989
Treasure Island Naval Station, CA	- Reclaimer	- Oil reclamation ponds - Unlined and undiked landfill and spill areas - Dumping of waste oil and solvents on site grounds	- soil - groundwater - surface water	- Participating in the DOD IRP - Some interim cleanup measures have been taken
John's Sludge Pond, KS	- Recycler - Disposer	- Wastes disposed in an open pit with no release controls - Flooding of the pit caused water contamination	- surface water - groundwater	- The City of Wichita cleaned up the site in 1986 - Post-closure monitoring and maintenance continue - Site removed from NPL
<b>Management of Used Oil in Tanks/Containers</b>				
Sealand Limited, DE	- Treatment of coal tar, No. 4 and No. 6 oil, ink oil waste, and oil/water mixture	- Stored used oil in steel and wooden tanks and 55-gallon drums; wooden tank and several drums were leaking	- soil	- Emergency Removal Action (12/93) - L-shaped retaining trench dug around storage area - Trench and storage area capped with clay and topsoil
Dubose Oil Co., FL	- Recycler - Storage - Disposer	- Oil spills associated with unloading operations and damaged drums - Buried drums on-site	- groundwater - surface water - soil	- Constructed lined vault to contain contaminated soils; constructed vault leachate collection and treatment system; excavated and removed buried drums.
Tri-City Oil Conservationists, FL	- Recycler	- Oil spill (3,000 gallons) - Leaks from tanks and lines	- groundwater - soil	- Covered waste oil spill with clean sand fill; removed contaminated waste oils, sludges, and contaminated soils from the site; removed 750 cubic yards of contaminated soils, three above-ground storage tanks, and sludges from one underground storage tank

Site	Type of Used Oil Facility	Used Oil and Used Oil Waste Management Practices	Type of Contaminated Media	Corrective Measures Taken
Avco Locomotive Division, PA	Storage (in USTs)	<ul style="list-style-type: none"> <li>Stored used oil in underground tanks</li> <li>Oily rinse waters treated on-site at wastewater treatment plant</li> </ul>	groundwater	<ul style="list-style-type: none"> <li>Pump and treat groundwater</li> </ul>
Commencement Bay, WA	Reclaimer	<ul style="list-style-type: none"> <li>Storage tanks</li> <li>Waste piles</li> <li>Oil spills</li> <li>Leaking barrels and drums</li> </ul>	<ul style="list-style-type: none"> <li>soil</li> <li>groundwater</li> </ul>	<ul style="list-style-type: none"> <li>Installation of stripping towers, a groundwater pump and treat system, and a vapor extraction system</li> </ul>
Liquid Gold Oil Corp., CA	<ul style="list-style-type: none"> <li>Recycler</li> <li>Re-refiner</li> </ul>	<ul style="list-style-type: none"> <li>Spills and leaks from storage tanks and tank cars</li> </ul>	<ul style="list-style-type: none"> <li>groundwater</li> <li>surface water</li> </ul>	<ul style="list-style-type: none"> <li>Removal of tanks and contaminated soil</li> </ul>
Arcor Corp. (Drexler Enterprises), ID	Recycler	<ul style="list-style-type: none"> <li>Leaking 45,000 gallon storage tank</li> <li>Other containers on a concrete pad</li> </ul>	<ul style="list-style-type: none"> <li>soil</li> <li>groundwater</li> </ul>	<ul style="list-style-type: none"> <li>Several emergency removals have been performed under RCRA</li> <li>Proposed cleanup has been planned</li> </ul>
Ilada Energy Co., IL	<ul style="list-style-type: none"> <li>Reclaimer</li> <li>Storage</li> <li>Blender</li> </ul>	<ul style="list-style-type: none"> <li>Oil spills</li> <li>Improper storage, handling, mixing and disposal of waste oil containing PCBs</li> <li>17 bulk storage tanks (11 million gallons capacity)</li> <li>Leaks from storage tanks</li> </ul>	soil	<ul style="list-style-type: none"> <li>All tanks were dismantled</li> <li>All used oil hauled off-site</li> <li>EPA is reviewing a draft RI</li> </ul>
Envirochem Corp., IN	Recycler	<ul style="list-style-type: none"> <li>Generated 5,000 gallons/day of oil recovery waste and 1,500 gallons/week of still bottoms</li> <li>Poor management of drum inventory</li> <li>Several spills</li> </ul>	<ul style="list-style-type: none"> <li>soil</li> <li>surface water (suspected)</li> <li>groundwater (suspected)</li> </ul>	<ul style="list-style-type: none"> <li>Negotiations to cleanup the site have occurred with PRP</li> </ul>
Cannons Engineering Corp., MA	<ul style="list-style-type: none"> <li>Reclaimer</li> <li>Storage</li> </ul>	<ul style="list-style-type: none"> <li>Storage drums</li> <li>Oil spills</li> </ul>	soil	<ul style="list-style-type: none"> <li>Cleanup has been completed</li> <li>Groundwater continues to be monitored</li> </ul>
Management of Used Oil -- Road Oiling				
Petrochemical Systems Inc., TX	Disposer	<ul style="list-style-type: none"> <li>Waste oils spread on roads</li> <li>Waste oils stored in several unlined pits</li> <li>Waste oils tilled into soils</li> </ul>	<ul style="list-style-type: none"> <li>groundwater</li> <li>soil</li> </ul>	<ul style="list-style-type: none"> <li>Excavated 5,900 cubic yards of soil in 1988 and backfilled</li> </ul>
Times Beach, MO	Disposer	<ul style="list-style-type: none"> <li>Road oiling for dust control</li> </ul>	soil	<ul style="list-style-type: none"> <li>Cleanup activities are ongoing</li> <li>1988 ROD ordered incineration of contaminated excavated soil</li> </ul>

Site	Type of Used Oil Facility	Used Oil and Used Oil Waste Management Practices	Type of Contaminated Media	Corrective Measures Taken
Minker/Stout/Romaine Creek, MO	- Disposer	- Road oiling for dust control	- soil	- During 1986-1987, 3 removal actions included soil excavation and interim storage - 1983: site was closed and access was restricted - 1990: remedial action was taken and a ROD was issued for thermal treatment of contaminated soil
Shenandoah Stables, MO	- Disposer	- Road oiling for dust control	- soil	- During 1986-1987 a removal action was taken for interim storage of 16 cubic yards of contaminated soil - In 1991 the site was dropped from the NPL
Quail Run Mobile Manor, MO	- Disposer	- Road oiling for dust control	- soil	- Federally funded cleanup has been completed - Restoration of a disrupted wetland area is scheduled for 1992
Wide Beach Development, NY	- Disposer	- Road oiling for dust control - Drum storage	- soil	- Participating in the Department of Defense Installation Restoration Program (DOD IRP) - Future cleanup activities are planned
Luke Air Force Base, AZ	- Disposer	- Road oiling - Waste disposal trench - Burning of waste oil	- soil - groundwater	
<b>Management of Used Oil in Both Tanks/Containers and Surface Impoundments</b>				
Purity Oil, CA	- Recycler - Disposer - Storage	- Disposal of oil and used oil recycling sludges in unlined pits - Stored used oil in at least one underground tank - Spills of oily waste occurred	- groundwater - soil	- Removed one tank - In 1985 removed 1,800 cubic yards of contaminated soils resulting from spills of oily wastes
Peak Oil/Bay Drum Co., IL	- Recycler (re-refining) - Disposer	- Disposed of used oil and acid sludge wastes in unlined surface impoundment, lagoons - Stored in tanks - Spills and leaks from tanks and tankers on-site	- soil - sediment	- 1987: Incinerated 4,000 cubic yards sludge - 1988 and 1989 removal action: removed 120,000 gallons tank liquids, 500 cubic yards tank sludge, 70,000 gallons tank water, and 22,000 gallons tank oil - 1990: mixed soil with sludge previously excavated and removed off-site for disposal

Site	Type of Used Oil Facility	Used Oil and Used Oil Waste Management Practices	Type of Contaminated Media	Corrective Measures Taken
A&F Materials Reclaiming Inc., IL	<ul style="list-style-type: none"> <li>- Recycler</li> <li>- Storage</li> </ul>	<ul style="list-style-type: none"> <li>- 12 steel storage tanks containing oil and waste mixtures have failed on several occasions</li> <li>- Spills</li> <li>- Lagoons contained oily wastes</li> </ul>	<ul style="list-style-type: none"> <li>- soil</li> <li>- groundwater</li> </ul>	<ul style="list-style-type: none"> <li>- Removed waste/oil mixture that was held in tanks, removed waste and contaminated soils and removed the 12 tanks</li> <li>- Will remove building and process equipment, will treat groundwater and grade site</li> </ul>
Interstate Pollution Control Inc., IL	<ul style="list-style-type: none"> <li>- Storage</li> <li>- Recycler</li> </ul>	<ul style="list-style-type: none"> <li>- Unlined surface impoundment</li> <li>- Underground tanks for waste oil reclaiming</li> <li>- Leaking tanks and drums</li> </ul>	<ul style="list-style-type: none"> <li>- groundwater</li> <li>- soils</li> </ul>	<ul style="list-style-type: none"> <li>- 1979-1980: partial cleanup of the site including removal of hundreds of drums of waste oil, several tankers containing wastes and 120 yards of cyanide contaminated soil</li> <li>- In 1990, EPA recommended a fence to restrict access to the site, a surface cover for the lagoon, securing openings on the USTs and further testing for contamination</li> </ul>
Lenz Oil Service Inc., IL	<ul style="list-style-type: none"> <li>- Storage</li> </ul>	<ul style="list-style-type: none"> <li>- Underground storage tanks</li> <li>- Aboveground and partially buried steel tanks</li> <li>- Tanker trucks</li> <li>- Drums</li> <li>- Surface impoundments</li> </ul>	<ul style="list-style-type: none"> <li>- groundwater</li> <li>- surface water</li> <li>- soil</li> </ul>	<ul style="list-style-type: none"> <li>- Pumped all contaminated liquids from surface impoundments into tanks</li> <li>- Blocked the flow of surface runoff to the drainage ditch</li> <li>- 21,000 tons of soil were excavated and incinerated</li> <li>- Soil in the vicinity of the underground storage tank farm was excavated to 9 to 11 inches and incinerated</li> <li>- Soils around the surface impoundment were excavated and incinerated</li> <li>- All drums were shredded and incinerated</li> <li>- All drum, tank, tank truck contents were incinerated</li> </ul>
Old Inger Oil Refinery, LA	<ul style="list-style-type: none"> <li>- Recycler of refinery wastes and used oil (also an old refinery)</li> <li>- Disposer</li> </ul>	<ul style="list-style-type: none"> <li>- Used oil delivered by barge or truck and stored in tanks</li> <li>- Waste sludges disposed of in unlined lagoon (33,000 gallons) and above ground storage tanks</li> <li>- Oil Spill</li> </ul>	<ul style="list-style-type: none"> <li>- soil (in lagoon)</li> <li>- surface water and sediments</li> </ul>	<ul style="list-style-type: none"> <li>- No remedial action yet</li> <li>- Emergency action (1983) to prevent lagoon overflow</li> </ul>

Site	Type of Used Oil Facility	Used Oil and Used Oil Waste Management Practices	Type of Contaminated Media	Corrective Measures Taken
Dutchtown Treatment Plant, LA	<ul style="list-style-type: none"> <li>- Recycler</li> <li>- Disposer</li> </ul>	<ul style="list-style-type: none"> <li>- Unlined oily waste pond</li> <li>- Unlined oily waste pit</li> <li>- Seven aboveground vertical storage tanks</li> <li>- Two small horizontal tanks</li> <li>- One railroad tank car used as a horizontal tank</li> <li>- Some of the tanks have leaked</li> </ul>	<ul style="list-style-type: none"> <li>- shallow groundwater</li> <li>- soil</li> </ul>	<ul style="list-style-type: none"> <li>- Spilled material was removed and all storage tank valves were secured</li> </ul>
Combustion Inc., LA	<ul style="list-style-type: none"> <li>- Recycler</li> <li>- Storage</li> <li>- Disposer</li> </ul>	<ul style="list-style-type: none"> <li>- Used oil stored in tanks</li> <li>- Used oil, non-reclaimable tars, and paraffins disposed in unlined pits</li> </ul>	<ul style="list-style-type: none"> <li>- soil</li> <li>- groundwater</li> </ul>	<ul style="list-style-type: none"> <li>- Will remove all tanks, impoundment contents, and soils</li> </ul>
Gautier Oil Co., MS	<ul style="list-style-type: none"> <li>- Recycler</li> <li>- Storage</li> </ul>	<ul style="list-style-type: none"> <li>- Disposal in unlined pits</li> <li>- Storage in tanks</li> </ul>	<ul style="list-style-type: none"> <li>- soil</li> </ul>	<ul style="list-style-type: none"> <li>- 1985 removal action: all tanks, lagoon liquids and sludges, and visible sludge piles removed</li> <li>- 1985: 100,000 gallons creosote-contaminated oil from tanks recycled</li> </ul>
Bridgeport Rental, NJ	<ul style="list-style-type: none"> <li>- Recycler</li> <li>- Storage</li> <li>- Disposer</li> </ul>	<ul style="list-style-type: none"> <li>- Stored used oil in approximately 90 tanks and process vessels; some tanks leaked</li> <li>- Disposed of used oil and wastewaters in lagoon</li> </ul>	<ul style="list-style-type: none"> <li>- soil</li> <li>- surface water</li> </ul>	<ul style="list-style-type: none"> <li>- In 1982-1983, emergency action to lower lagoon level</li> <li>- Removal, disposal, and incineration of oily wastes, sediments, and sludges</li> <li>- Treatment of contaminated water</li> <li>- Tanks and drums excavated and disposed of on site</li> <li>- Lagoon drained and contaminated sediments removed</li> </ul>
Imperial Oil Co./Champion Chemicals, NJ	<ul style="list-style-type: none"> <li>- Recycler</li> <li>- Disposer</li> </ul>	<ul style="list-style-type: none"> <li>- Sources of contamination include: oil water separators, sludge waste pile, tank farm, floor drains, leach field holding used oil and wastewater, drum washing area, and waste dump</li> <li>- Oil spill contaminated soil and groundwater</li> </ul>	<ul style="list-style-type: none"> <li>- soil</li> <li>- groundwater</li> </ul>	<ul style="list-style-type: none"> <li>- Excavation of 3,700 cubic yards of contaminated soil with treatment and disposal off-site</li> <li>- Affected wetlands restored</li> <li>- Fence around perimeter erected</li> </ul>

Site	Type of Used Oil Facility	Used Oil and Used Oil Waste Management Practices	Type of Contaminated Media	Corrective Measures Taken
York Oil Co., NY	<ul style="list-style-type: none"> <li>- Recycler</li> <li>- Storage</li> <li>- Disposer</li> </ul>	<ul style="list-style-type: none"> <li>- Used oil stored in eight metal aboveground storage tanks, at least one underground storage tank, and three unlined lagoons</li> <li>- During heavy rains and spring thaw, oil-water emulsions from lagoons often overflowed into surrounding lands</li> </ul>	<ul style="list-style-type: none"> <li>- soil</li> <li>- groundwater</li> </ul>	<ul style="list-style-type: none"> <li>- During 1979-1981, emergency removal action: drained lagoons and placed PCB-contaminated used oil in aboveground storage tanks; consolidated contaminated soils into lagoons</li> <li>- Excavated 30,000 cubic yards of contaminated soils and solidified on-site</li> <li>- Installed 13 wells with on-site treatment of contaminated groundwater</li> <li>- Off-site thermal treatment of 25,000 gallons of contaminated tank oils</li> </ul>
Potter's Septic Tank Services, NC	<ul style="list-style-type: none"> <li>- Disposer</li> </ul>	<ul style="list-style-type: none"> <li>- Disposal of septage, waste oil, oil spill residues, tank bottom sludge in unlined impoundments</li> <li>- 20,000 gallon spill of used oil</li> </ul>	<ul style="list-style-type: none"> <li>- soil</li> <li>- groundwater</li> </ul>	<ul style="list-style-type: none"> <li>- May 1976: waste pumped out of pit for disposal</li> <li>- August 1976: 20,000 gallons of oil from breached pit removed off-site for recycling; 150 dump truck loads of contaminated sludge and soil removed for disposal</li> </ul>
Double Eagle Refinery Co., OK	<ul style="list-style-type: none"> <li>- Recycler</li> <li>- Storage</li> </ul>	<ul style="list-style-type: none"> <li>- 74 aboveground vertical tanks</li> <li>- 5 horizontal tanks</li> <li>- 9 waste lagoons/ponds storing used oil, one lined, some leaking; some lagoons overflowing</li> </ul>	<ul style="list-style-type: none"> <li>- soil</li> <li>- surface water</li> <li>- groundwater</li> </ul>	<ul style="list-style-type: none"> <li>- No measures taken</li> </ul>
Douglassville Disposal, PA	<ul style="list-style-type: none"> <li>- Recycler</li> <li>- Storage</li> <li>- Disposer</li> </ul>	<ul style="list-style-type: none"> <li>- Used oil placed in a storage tank</li> <li>- Waste oil and recycling sludge were placed in two on-site lagoons; lagoons washed into the Schuylkill River</li> <li>- Waste oil recycling sludges were land farmed</li> <li>- Waste oil filter cake dumped on ground</li> </ul>	<ul style="list-style-type: none"> <li>- surface water</li> <li>- soil</li> </ul>	<ul style="list-style-type: none"> <li>- No remedial action taken</li> </ul>
Dixie Oil Processors Inc., TX	<ul style="list-style-type: none"> <li>- Recycler</li> <li>- Damage not necessarily from this process</li> </ul>	<ul style="list-style-type: none"> <li>- 20 vessels and tanks, no leaks</li> <li>- 6 closed earthen pits</li> </ul>	<ul style="list-style-type: none"> <li>- soil</li> <li>- groundwater (However, contamination in these two media is not necessarily due to used oil recycling)</li> </ul>	<ul style="list-style-type: none"> <li>- 6,000 cubic yards of tar material removed</li> <li>- Removal of tanks started summer 1992</li> </ul>

Site	Type of Used Oil Facility	Used Oil and Used Oil Waste Management Practices	Type of Contaminated Media	Corrective Measures Taken
Comet Oil, MT	- Re-refiner	<ul style="list-style-type: none"> <li>- Storage tanks</li> <li>- Surface Impoundments</li> <li>- Sludge piles</li> <li>- Spill of 25,000 gallons of waste oil onto soil</li> </ul>	<ul style="list-style-type: none"> <li>- soil</li> <li>- groundwater</li> </ul>	<ul style="list-style-type: none"> <li>- Covered part of the site with 3 to 5 feet of soil</li> <li>- Site was dropped from the NPL after a recalculation of the hazard ranking score</li> </ul>
Keete Environmental Services, NH	- Storage	<ul style="list-style-type: none"> <li>- Leaking storage tanks and drums</li> <li>- Overflowing surface impoundment</li> </ul>	<ul style="list-style-type: none"> <li>- soil</li> <li>- groundwater</li> <li>- surface water (not necessarily due to used oil)</li> </ul>	<ul style="list-style-type: none"> <li>- Bids for water and soil treatment systems have been requested</li> </ul>
Laskin/Poplar Oil Co., OH	<ul style="list-style-type: none"> <li>- Storage</li> <li>- Disposer</li> </ul>	<ul style="list-style-type: none"> <li>- 32 aboveground storage tanks</li> <li>- Retention pond</li> <li>- Oiling of roads and horse racing track</li> <li>- Spreading contaminated soils</li> <li>- Discharge of contaminated water</li> </ul>	<ul style="list-style-type: none"> <li>- soil</li> <li>- groundwater</li> <li>- surface water</li> </ul>	<ul style="list-style-type: none"> <li>- Incineration of 302,000 gallons of waste oil (1982)</li> <li>- Treatment of 430,000 gallons of contaminated water (1982)</li> <li>- Solidification of 205,000 gallons of sludge (1982)</li> <li>- Removal of 250,000 gallons of oil and wastewater</li> <li>- Removal actions are currently in progress</li> </ul>
Ekotek, UT	- Recycler	<ul style="list-style-type: none"> <li>- Waste piles and pits</li> <li>- Incineration</li> <li>- Leaking tanks and drums</li> <li>- Unlined surface impoundment</li> </ul>	- groundwater	<ul style="list-style-type: none"> <li>- RI/FS is planned</li> </ul>
Waste Research and Reclamation Co., WI	- Recycler	<ul style="list-style-type: none"> <li>- Spills from drum handling and storage</li> <li>- Unlined impoundment</li> </ul>	- groundwater	<ul style="list-style-type: none"> <li>- Pumping and treating groundwater</li> <li>- Extraction wells</li> </ul>
McKin Co., ME	<ul style="list-style-type: none"> <li>- Storage</li> <li>- Disposer</li> </ul>	<ul style="list-style-type: none"> <li>- 22 aboveground storage tanks</li> <li>- Asphalt-lined lagoon</li> <li>- Incinerator</li> <li>- Discharge of wastes onto the ground</li> <li>- On-site burial</li> </ul>	<ul style="list-style-type: none"> <li>- soil</li> <li>- groundwater</li> </ul>	<ul style="list-style-type: none"> <li>- Emergency actions in the late 1970s and early 1980s</li> <li>- Soil remediation was completed in 1987</li> <li>- Groundwater remediation is in progress</li> </ul>
PSC Resources, MA	<ul style="list-style-type: none"> <li>- Reclaimer</li> <li>- Storage</li> </ul>	<ul style="list-style-type: none"> <li>- Leaking storage tanks</li> <li>- Saturated containment dikes</li> <li>- Oil spill</li> </ul>	<ul style="list-style-type: none"> <li>- soil</li> <li>- groundwater</li> <li>- surface water</li> </ul>	<ul style="list-style-type: none"> <li>- Removal of approximately 1 million gallons of sludges and oil</li> <li>- Final cleanup is planned</li> </ul>

**PART II**



1) **A&F MATERIALS CO., IL**

The A&F Materials Greenup site was originally used as a waste oil reclaiming/processing facility. The facility was in operation from 1977 to 1980, when the site was closed and abandoned. The site is comprised of four acres bounded by farmland and woodlands. The Embarrass River flows 1200 feet north of the site. A north-flowing drainage ditch associated with the site is located 200 feet west of the site. Ground water in the area flows north toward the Embarrass River. There are no public or private ground water wells downgradient of the site.

Other waste materials from various generators were accepted and stored on-site in tanks and lined lagoons. They were combined in a batching process with spent acids, spent caustics, emulsion breakers, a catalyst, and bauxite. Intermediate by-products were stored in twelve tanks. Liquid alum, fuel oil, and fire retardant were reportedly produced for resale.

The site includes a building containing processing equipment, two waste-filled lagoons, and twelve steel storage tanks (seven contain waste material). Of the seven tanks containing waste, two contain small amounts of sludge (primarily alum), three are full of an aqueous waste, and one contains a small quantity of oil, water, and sludge.

Lagoon No. 1 measures 110 feet by 110 feet, varying in depth from 5 feet to 9 feet. Lagoon No. 4 measures 40 feet by 30 feet, varying in depth from 2 feet to 4 feet. These lagoons contain a total a 7,000 cubic yards of sludge.

In 1978, four storage lagoons overflowed, leading to a spill of waste materials that contaminated soil and surface water. Several other spills and tank failures have occurred at the site (detailed information was not available), including at least one occasion when waste material was released to fields located north and west of the site.

The majority of the contaminants present at the site are from chemicals used in, or derived from, waste oil reclaiming and processing. Contamination at the site can generally be divided into two categories, waste materials and contaminated materials. The waste materials include sludges, oils, and aqueous wastes contained in the lagoons and tanks. Contaminated materials include lagoon soils, tanks, processing equipment, the processing building, and soils surrounding the tank farm and processing area.

Investigations have determined that on-site wastes contain PCBs, benzene, toluene, trichloroethylene, dicyclopentadiene, phenols, polynuclear aromatic hydrocarbons, lead, chromium, cadmium, aluminum, zinc, and iron.

Three areas of soil contamination were identified in the Remedial Actions: the

## A&F MATERIALS CO., IL (continued)

tank farm, the western edge of the processing building, and west of the on-site lagoons. Results of surface water investigations indicated no contamination from the site. Ground-water sampling indicated low levels of contamination, the most significant of which included trichloroethylene (35 ug/l), sulfate (3,940 mg/l), and TDS (5,830 mg/l).

Three removal actions have been initiated by the site PRP and the EPA has conducted several additional response actions. The major portion of the oil phase present in the tank wastes was separated and removed. This oil was combined with oil skimmed from the lagoons and stored in 55-gallon drums. The tanks themselves were also removed.

### SOURCES

- 1) Remedial Investigation for the A&F Materials Site. October 1984.
- 2) Feasibility Study for the A&F Materials Site. January 1985.

2) ARROWHEAD REFINERY, CO., MN

Arrowhead operated a used oil reclamation facility from 1945 to 1977. The 10-acre site is located in a wetland area of St. Louis County, in Hermantown, Minnesota. This site was primarily used for recycling waste oil. Waste products from the reclamation process were disposed of on-site. A site map shows an autobody shop on the site, but no other activities are mentioned.

In 1976, the Minnesota Pollution Control Agency (MPCA) ordered Arrowhead to discontinue recycling operations and stop dumping sludge. In 1977, Arrowhead complied, notifying MPCA that the operations had been terminated. EPA monitoring of the site in 1980 showed surface water contaminated with PCBs, lead, and cyanide. EPA determined that the site was in violation of Section 311 of the Clean Water Act because surface water flowed through it, transporting contaminants to a nearby wetland area and eventually into navigable waters. Soil, sediment, and ground water were also found to be contaminated. The site was placed on the NPL in 1983 and a draft RI/FS was completed in 1986. Groundwater remediation and sludge removal activities have been planned and soil treatability studies are in progress.

Waste oil was stored at the site and recycled through a process involving treatment with sulfuric acid. Wastes from the recycling process included process water, sludge, and filter cake. These by-products and other materials, including acids, crankcase oil, detergents, acryloids, and motor oil additives, were all dumped into an unlined, 2-acre surface impoundment (sludge lagoon).

The sludge lagoon was the major site of contamination. The sludge was identified as having hazardous potential for corrosivity, toxic metals (especially lead), and toxic and carcinogenic contaminants. Other contaminants found at the site included benzene, carbon tetrachloride, chloroform, trans-1,2-dichloroethene, trichloroethane, vinyl chloride, and benzaprene. Surface water was found to be contaminated within 100 feet of the sludge lagoon. Soil was suspected to be contaminated up to 450 feet from the lagoon and ground water contaminated within 70 feet of the lagoon.

Because of the violation of the Clean Water Act, EPA ordered construction of a waste water ditch to divert surface water flow around the sludge lagoon. Ground-water remediation and sludge removal have also been planned. The EPA recommended alternative described in the FS included ground-water treatment at an estimated cost of \$23 million to \$24 million.

# ARROWHEAD REFINERY CO., MN (continued)

## SOURCES

- 1) **Draft Feasibility Study, Arrowhead Refinery Co. August 27, 1986.**
- 2) **Draft Remedial Investigation, Arrowhead Refinery Co. April 9, 1986.**

### 3) AVCO LYCOMING, PA

Used oil was generated and disposed (by road oiling) at the Avco Lycoming site. The site occupies approximately 28 acres on the south side of High Street on Oliver Street and is approximately 4000 feet north of the Williamsport Municipal Water Authority (WMWA) Emergency Backup Well Field in the western central portion of Williamsport, Pennsylvania.

Though currently owned by Textron, the plant was owned and operated previously by AVCO Lycoming and has been operating for over 50 years. Historically, the manufacture of airplane engines has been the primary operation at this site. Other processes have included the production of automobile engines, sewing machines, sandpaper, and silk. Currently, industrial activities include electroplating, parts manufacturing, engine cleaning, premanufacturing, and assembly of aircraft engines. Wastes generated from these operations include oily rinse waters, used solvents, waste oil and grease. Oily rinse waters are treated on-site at a NPDES permitted treatment facility and all other wastes are transported off-site for disposal or reclamation.

In 1984, the WMWA noted the presence of certain volatile organic compounds, TCE and DCE specifically, in the ground water at their emergency backup supply well field located south of the Avco Lycoming site. Subsequently, in November 1985, Avco Lycoming entered into a Consent Order and Agreement (COA) with the Pennsylvania Department of Environmental Resources (PADER) to develop and implement a remedial action plan that included remedial activities such as withdrawing ground water from both shallow and deep wells, chemically precipitating metals from the water, air stripping the water, applying fume incineration to the exhaust from the air stripper and discharging the treated water to Lycoming Creek, as well as requiring that air stripping towers be installed on the back-up wells.

At present, waste oil and other wastes (except for oily rinsewaters) are sent off-site for treatment and disposal. However, prior to 1980, wastes (the type is unknown) were evaporated in an on-site concrete sump and the residue was drained into the sanitary sewer. Also, from 1956 to 1962, AVCO stored cadmium, copper, and chromium-containing sludge from its electroplating operations in a lined, on-site lagoon prior to disposal. No remedial activities had taken place at this site as of May 1989.

According to estimates from a Feasibility Study (FS), the cost for installing shallow recovery wells is \$414,000 and the cost for installing deeper wells is \$130,000. The FS also estimated that the air stripping operation cost \$88,000 and fume incineration cost \$75,000. The FS also estimates that the metals precipitation process cost \$316,000.

# AVCO LYCOMING, PA (continued)

## SOURCE

- 1) Remedial Investigation/Feasibility Study, The ERM Group. May 1989.

#### 4) BRIDGEPORT RENTAL AND OIL SERVICES, NJ

The Bridgeport Rental and Oil Services (BROS) facility served as a used oil storage and disposal facility. From at least the late 1950's, storage tanks existed on the site, although aerial photographs reveal that light dumping into a lagoon occurred as early as 1940. Operations continued until 1982. The BROS site is a 30-acre facility located in Logan Township, New Jersey, two miles south of the Delaware River. The topography is nearly flat. At least part of the site drains into the Little Timber Creek.

The BROS site has been used in the past for waste oil storage and recovery, and for storage tank leasing. Formerly, the site was a sand and gravel mining operation which created the lagoon. Mining on the site began in the late 1930's and continued into the early 1970's. The site is now used (as of 1984) for truck leasing and maintenance operations.

A ROD was signed in 1984. Since that time, numerous emergency cleanup actions have occurred and continue to occur. EPA is assessing ground water remedial strategies for cleanup of ground water and related contamination.

Used oil was stored in numerous containers at this site. About 90 tanks, process vessels, drums, and the 12.7-acre lagoon (which contains a substantial quantity of water, a waste oil layer floating on the surface of the water, and an oily sludge/sediment) are located at the site. The 12.7 acre contaminated lagoon bottom extends into the unconfined water table aquifer, although the semi-impervious oily sludge/sediment at the bottom retards the movement of the lagoon water. PCBs were detected in lagoon oil (maximum = 850 mg/kg), the lagoon sediment (maximum = 1,400 mg/kg), and in tank wastes (maximum = 330 mg/kg).

The oily layer on the lagoon contains approximately 2.5 million gallons of oil. There are 60,000 cubic yards of sludge/sediment layer on the lagoon bottom. The tanks and drums contain approximately 600,000 gallons of oil, oily waste, and sludges. The eastern dike of the lagoon was breached in the early 1970's, causing a significant area of vegetative damage. In the spring of 1982 and the spring of 1983, the lagoon level rose dramatically and the lagoon almost overflowed. On these two occasions, EPA took emergency action to lower the lagoon level by pumping the lagoon and treating the liquid waste. The lagoon also contains metal debris and battery cases. A plume of contaminated ground water exists under the lagoon, extending in three directions. The primary constituents in the plume include: oil and grease, petroleum hydrocarbons, methylene chloride (possibly a laboratory contaminant), and other volatile organics. Pesticides have also been detected in some samples. Other contaminants found at the site include benzene, toluene, and acetone.

## BRIDGEPORT RENTAL AND OIL SERVICES, NJ (continued)

The remediation activities involve removal, disposal, and incineration of oily wastes, sediments, and sludge. Also, contaminated water was treated and tanks and drums excavated and disposed of on-site. Remediation also included draining the lagoon and removing all contaminated sediments underneath. The capital costs of this remediation were projected to be \$57,672,000, in 1984. Annual operating and maintenance costs were estimated to be \$2,000.

### SOURCES

- 1) BROS Remedial Investigation Report, Logan Township, New Jersey. July 1984.
- 2) Record of Decision, Remedial Alternative Selection. December 1984.



5) COMBUSTION, INC., LA

Combustion, Inc. operated a small oil reclamation plant and disposal facility in Livingston Parish, Louisiana about 3 miles north of Denham Springs. No non-used oil related industrial activities are known to have occurred at this site. The facility began accepting used oil during the late 1960's and continued operations until 1982. The shallow stratigraphy of the site is characterized by two zones. The first zone is predominantly clay and extends to a depth of about 10 feet. The second zone is a sand and gravel unit, approximately 40 to 50 feet thick, that comprises the uppermost aquifer at the Process Area. In the central and southeastern part of the Process Area, the aquifer contains a soft peat and clay interlayer.

Combustion, Inc. began to close the facility in late 1980. The Louisiana Department of Environmental Quality analyzed waste from the site in 1983 and issued a State Compliance Order to the site owner in 1984. Since 1984, the site was allegedly sold to unknown parties and the former owner declared that he was financially unable to clean up the site.

An RI/FS for the site is underway. There are plans by the State to remove all tanks, impoundments, and soils soon. While the facility was still in operation, oily feedstocks were received in either Tank 1 or one of the ponds. According to the former site caretaker, the most recent reclamation process operated by Combustion, Inc. operated as follows:

- 1) Oily fluids, typically with 20 percent basic sediments and water (BS&W), were received in Tank 1 near the entrance of the plant site. Some material was also received in what is now called Pond C at the pond site;
- 2) The material was pumped into three "cookers" along with other fluids of varying percentages of BS&W to create a mixture of at least 50% BS&W;
- 3) Salt was then added and the material was heated to 190 degrees Fahrenheit; and
- 4) Following mixing, the material was allowed to separate and the recoverable oil was transferred to one of two "sale" tanks.

Non-reclaimable tars, paraffins, waste oils, sediments, and wastewater were deposited in several of the 14 unlined ponds located in two separate areas on the site. The oily wastes in the ponds overflowed into a roadside ditch, however, as of 1991, data indicated that there were no releases from the ponds to the uppermost aquifer. A total of 22 above-ground storage tanks with a total capacity of 913,300 gallons were used to store oil, water and sludge. These tanks are not known to be leaking. Two underground

## COMBUSTION, INC., LA (continued)

storage tanks with a capacity of at least 24,000 gallons were also used for this purpose; information on their condition was not found. Also, 35 drums of unknown origin and contents were stored in the Process Area of the site. Tanks on-site may have been used to store other materials, and the previous owner may have treated hazardous chemicals at the site. Some co-management with PCBs probably occurred in these tanks.

Several spills of unknown quantities are reported to have occurred in the Process Area of the site. Information on how spills occurred was not found. Also, routine "pond storage" of oily wastes occurred in the ponds mentioned above. The 35 drums found on-site were removed and taken off-site for disposal in July 1989, in accordance with a removal action authorized by the Louisiana Department of Environmental Quality. Contaminants at the site consisted mainly of hydrocarbons, benzene, styrene, chlorinated hydrocarbons, and PCBs. Contaminated media include an unknown volume of soil and ground water.

As mentioned above, remediation plans by the State call for removal of all tanks, ponds, and contaminated media in the near future. The cost of this remediation project is unknown.

### SOURCE

- 1) Preliminary Remedial Investigation Report, Volume 1, Combustion, Inc., Livingston Parish, Louisiana. November 7, 1991 (revised).

6) DIXIE OIL PROCESSORS, TX

From 1978 to 1985, Dixie Oil Processors (DOP) recovered and blended oil from local chemical plants and refinery residues. DOP is a 26.6-acre site located in Harris City, Texas, 20 miles southeast of Houston. It is comprised of two parcels of land separated from each other in a north-south direction by Dixie Farm Road, and in an east-west direction by Mud Gully. The parcels are referred to as DOP North and DOP South. Mud Gulley flows into Clear Creek which is destined for the Gulf of Mexico.

Ground water flow in the Numerous Sand Channels Zone (NSCZ) is generally toward Mud Gully, at a rate of approximately 11 feet per year. A locally continuous clay layer underlies the NSCZ and, combined with an upward hydraulic gradient through it, tends to retard migration into deeper zones.

Aerial photographs of the site taken prior to 1969 show the remnants of old lagoons, oil stock tanks, and other surface facilities associated with crude oil production and storage on DOP North and DOP South.

DOP North was the site of Intercoastal Chemical Company's (ICC) copper recovery and hydrocarbon washing operations from 1969 to 1978. ICC's operations began in 1969. The copper recovery operation used a series of surface impoundments to store cupreous wastewater prior to processing and treated wastewater prior to discharge. Wastewaters from the hydrocarbon washing operation were also discharged into one of the impoundments. A total of six impoundments were used in ICC operations. The impoundments were closed from 1975 through 1977, with residues in place.

Dixie Oil Processors began operations on DOP South in 1978, manufacturing fuel oil, creosote extender, and molybdenum concentrate catalyst using primarily phenolic tank bottom tars and glycol cutter stock generated by local refining, chemical, and petrochemical facilities. Other activities included oil recovery, regeneration of cupreous chloride catalysts, and hydrocarbon washing to produce ethylbenzene, toluene, aromatic solvents, and styrene pitch. Twenty process and waste vessels and tanks were identified at DOP South, five of which contained waste materials that were characteristic hazardous waste. Two wastewater treatment sumps were also identified at DOP South but these did not contain characteristic hazardous waste.

No leaks or spills have been reported. In 1984 Dixie removed 6,000 cubic yards of soils contaminated with phenolic tars. Contamination of the soil and ground water primarily resulted from ICC's copper recovery/hydrocarbon washing activities at DOP North. The volume of identified pit contents at DOP North is approximately 107,400

## DIXIE OIL PROCESSORS, TX (continued)

cubic yards of copper recovery and hydrocarbon washing wastes and volume of affected soils is 7,730 cubic yards. Several compounds have been found in the NSCZ ground water including chlorinated hydrocarbons, phenolics, and copper. No ground water contamination has been found in the Fifty Foot Sand Aquifer.

EPA has approved a remedial design for this facility. Remedial construction was scheduled to begin in May of 1992. The remediation includes removal of all tanks and vessels at DOP South.

### SOURCES

- 1) Remedial Investigation Volume I. March 1987.

## 7) DOUBLE EAGLE REFINERY, OK

The Double Eagle Refinery collected, stored and re-refined used motor oil and stored and distributed the final product. The refinery was active as early as 1929 and continued operations until approximately 1980. The site is located in southeast Oklahoma City, Oklahoma in an area of mixed residential and industrial uses. The site is situated northwest of Interstate 35 and the North Canadian River. The Double Eagle Refinery consists of approximately 12 acres and is bounded to the north by Union Pacific Railroad tracks and on the west by North Eastern Avenue.

Outcropping geological formations near the site include the Hennessey Group and the Garber-Wellington Formations. The bedrock formations have a westward regional dip of 30 to 40 feet per mile. The site is located approximately two miles west of the outcrop of the Hennessey Shale and the Garber Sandstone and Wellington Formation.

Alluvial deposits along the North Canadian River are capable of yielding several hundred gallons of water per minute (gpm) from shallow permeable beds of sand and gravel. Water supplies are sufficient for domestic and stock use in areas in which the alluvium has five or more feet of saturated thickness.

Double Eagle recycled approximately 500,000 to 600,000 gallons of waste motor oil per month into finished lubricating oil. Used motor oils were obtained from truck fleets, garages, automobile dealers, industrial facilities, and government agencies throughout the State of Oklahoma. The used oils were stored primarily in 74 above-ground vertical tanks and 5 horizontal tanks within the refinery area. Double Eagle re-refined the used oil by treating it with sulfuric acid, which settled the solids and used primary refining processes for the oil. This recycling process generated approximately 80,000 gallons of oil sludge per month. Process sludges were then disposed of in the ponds and the lagoon on-site.

Double Eagle was also involved in the collection and storage of waste solvents and other products. These materials were obtained from industrial operations and the Federal Aviation Administration.

Tank bottoms (i.e., solids generated from product storage) were transferred from the used oil storage tanks by pump or tank trucks into process tanks. Process tanks were steam heated and, through gravity separation, the oil rose to the top of the vessel and was skimmed. Water was drained and oily sediments from the tank bottoms were mixed with clay to make road-base material for the site. There was alleged off-site dumping of this material in areas throughout Oklahoma City. As of 1976, operations consisted only of de-watering the oil for sale as fuel oil. There were also some sludges generated by this process that were disposed of on-site.

## DOUBLE EAGLE REFINERY, OK (continued)

Three waste pits containing oil sludge have not been used since 1968. There are also five ponds on-site, four of which serve as surface impoundments for rain water and waste sludge and one that has no apparent signs of containing waste sludge. An earthen lagoon was primarily used to store and evaporate cooling water. Nevertheless, ninety percent of the earthen lagoon currently contains solidified and emulsified waste oil. At the time the site was put on the NPL, approximately 2,500 cubic yards of heavy metal contaminated waste oils were present in the lagoon and ponds. Some of these storage units were found to be leaking waste material.

There is evidence of petroleum staining occurring at the site as early as 1963. Off-site sampling of soils conducted in January 1986 indicated elevated levels of target compounds also found in the waste pits. This contamination follows the vehicle tracks from the site to a radio tower area. An expanded inspection, conducted in 1987-1988, identified elevated levels of organics, PCBs, and metals in the on-site sludges. These contaminants were also detected in surface waters and sediments on-site, as well as in the eastern and western drainage areas leading off-site. No subsurface soil or ground water data have been generated.

The site is still in the RI/FS phase. No ROD has been prepared for the site.

### SOURCE

- 1) Work Plan for Conducting the Remedial Investigation and Feasibility Study at the Double Eagle Refinery Superfund Site and the Fourth Street Refinery Superfund Site. January 18, 1991.

8) DOUGLASSVILLE, PA

The Douglassville site, owned and operated by Berks Associates, is located off Route 724 near Douglassville, PA. Berks has been in operation since 1941 and, up to 1979, was involved in the production of recycled lubrication oils. Since 1979, the facility has been operating as a used oil processor.

Until 1979, Berks was involved in the production of recycled lubrication oils. Waste oil sludges were placed in two on-site lagoons until 1972. Between 1972 and 1979 the waste oil sludge was used to produce fuel and roof coatings. Certain of the products made from recycling used oil were stored in one 250,000 gallon tank. When the markets for fuel and roof coatings became unprofitable, the waste sludges were landfarmed. In 1979, as a result of the Pennsylvania Department of Environmental Resources mandating operational corrections associated with the landfarm configuration, Berks discontinued production of lubrication oils and started processing recycled waste oil for use as industrial boiler fuel. Since 1979, no wastes have been disposed of on site.

A Site Inspection and Site Hazard Ranking of the Douglassville site was conducted on April 20, 1982. The study concluded that if Berks Associates continued their practice of using an on-site well for drinking purposes, Berks should either filter the water with carbon filters or purchase bottled water to avoid long-term health effects associated with the low-level presence of some chlorinated organic compounds detected in the well water. A toxicological review of the well water has shown acute hazards from ingestion to be slight to negligible.

As stated above, until 1972, waste oil sludges were placed in two on-site lagoons. The lagoons were washed into the Schuylkill River by Hurricane Agnes in 1972 and their contents carried downstream for about 15 miles. Subsequently, the former lagoon areas were emptied and backfilled. One of the former lagoon areas is now dissected by a road which, in part, carries surface runoff to the Schuylkill River. In 1979, Berks began landfarming their waste oil sludge on-site in the former lagoon areas. No removal or remedial activities have taken place at this site.

Estimates of the costs of remedial actions to test and remove oil and solvent-stained surface soils, and the possibility of removing wastewater sludge remaining in the bottom sediment depths of the backfilled lagoons, are \$290,000 and \$115,000 for the Remedial Investigation and Feasibility Study, respectively. These estimates include the monies required for analytical testing.

SOURCE

- 1) Berks Associates, Field Trip Report. 1982.

9) THE DUBOSE OIL PRODUCTS COMPANY, FL

The Dubose Oil Products Company (DOPC) is located on a 20-acre site in Escambia County near Cantonment, Florida. Jack's Branch, which is adjacent to the site, flows into the Perdido River, which discharges into Perdido Bay. The DOPC site was operated between 1979 and 1981 as a storage, treatment, recycling, and disposal facility for waste oils, and is currently inactive.

The site generally consists of structures (including an open-sided "hog barn") and surface ponds to collect site seepage and runoff (identified as the Leachate Collection Pond, the North Pond, and the Southwest Sump). A batch thermal treatment unit was used at the site to recover usable oil product from reusable solvent, blended fuel oil, diesel fuel oil, and thicker liquid residues that collected at the bottom of the five on-site product storage tanks (sizes unknown). Spent pickle liquor was added to the treatment tank to facilitate the mixing of waste oils and solvents and to act as a thermal medium. Soda ash was added to neutralize the pickle liquor due to the corrosive nature of the high pH liquor. After treatment, recovered oil products were stored for subsequent tanker transport and sale, primarily to local asphalt companies.

A second treatment tank was used to treat waste diesel fuel separately from the higher weight fuel oils treated in the tank discussed above. Solvents were not blended with the diesel fuel and the recovery process did not require thermal treatment. Rather, treatment of diesel waste fuel consisted of rock salt filtration.

The DOPC site lies in the Coastal Plain province, and is situated along the north flank of the Gulf Coast geosyncline. Long continued subsidence of this geosyncline has resulted in the deposition of sand, clay, and limestone beds, most of which thicken towards the Gulf. These beds dip about 30-35 feet per mile toward the southwest in the western panhandle of Florida.

Other wastes managed (treated) at the site between 1979 and 1981 included petroleum refining wastes, wood treatment processing wastes, paint wastes, spent solvents, and spent pickling liquors. Empty drums were stored in an on-site storage area. Reusable drums were sold to another firm that hauled the empty drums off-site. Drums that were dropped or otherwise damaged during handling operations were crushed and stacked for possible resale as scrap metal. An unknown number of these crushed drums were buried on-site as backfill.

From 1979 through mid-1980, drums of waste oils were unloaded adjacent to the drum storage area and the contents were emptied into a tank transport vehicle (apparently for transport to another area of the site). The contents of the vehicle were then passed through a filter and into a treatment tank through a gravity feed line. The filter separated suspended solids and larger objects from the



THE DUBOSE OIL PRODUCTS COMPANY, FL (continued)

liquid wastes. Solids removed by the filter were periodically removed and hauled to a sanitary landfill.

In mid-1980, procedural changes at the site lead to the unloading of drums in another area of the site (adjacent to an on-site "hog barn"). This change was made to reduce soil contamination from oil spills associated with unloading operations and damaged drums. Contents were pumped out in the barn and gravity-fed to the treatment tank. The floor of the barn was concrete and a drainage system around the perimeter of the barn was able to capture oil spills from the unloading area and site stormwater runoff. Drainage from the system was channeled through an oil water separator and recovered oils were gravity-fed back to the treatment tank; remaining stormwater was allowed to drain to the ground.

A routine inspection by the Florida Department of Environmental regulation (FDER) in March 1982 found that the site was operating without a permit (type unspecified). Subsequent sampling visits determined that drums were buried on-site and that on-site springs, seeps, soil, sediment, surface water and ground water were contaminated with organics. Sampling of North Pond found 1,1,1-trichloroethane and trichloroethene at concentrations of 1.4 ppb and 1.9 ppb, respectively. In addition, phenol and pentachlorophenol were found at concentrations of 0.3 ppb.

The RI/FS, conducted from February through October, 1988 and released in 1989, indicated low to undetectable levels of semi-volatile organic chemicals (VOCs) in surrounding soils, sediments, and water. The site investigation found that no drums remained buried at the site; however, a small room within the barn contained drums and cans. These drums and cans appeared to be leaking (unspecified material) and draining toward the northwestern edge of the barn.

Specifically, analysis of soil samples from areas receiving discharge from the hog barn indicated detectable levels of polyaromatic hydrocarbons (PAHs) and phenols. Analyses of soils around the barn indicated a few localized areas of low residual contamination (primarily PAHs and phenols). In two areas, fuel-related VOCs were detected. Tests of soils north of the site's North Pond indicated no contamination. Tests of soils in the berms around a soil containment vault (built as part of site remediation activities, discussed later) indicated high levels of contaminants, including volatile and semi-volatile organics. Samples from the vault indicated relatively low contaminant levels in the upper 20 feet, while the bottom 10-15 feet contained soils and liquids highly contaminated with volatile and semi-volatile organics. However, levels of trace metals, pesticides, and PCBs were low to undetectable.

Shallow ground water table samples contained VOCs. However, the deep aquifer

## THE DUBOSE OIL PRODUCTS COMPANY, FL (continued)

was found to be free of contaminants. This is thought to be due to the presence of a protective clay layer between the aquifer and the shallow water table zone. Water samples taken from wells 1,000 to 2,000 feet to the north of the site indicated no contamination. Analyses of surface water and sediment of receiving bodies indicated that compounds were present at levels similar to background levels found in local areas unaffected by the DOPC site. Air samples reflected the low levels of soil and surface water contamination at the site. VOCs were undetected in air and dust samples taken during the RI.

Remediation activities at the site have included an Emergency Action (November 1984 to May 1985) during which a lined vault to contain contaminated soils and a vault leachate collection and treatment system were constructed. Buried drums were also excavated and removed. The soil containment vault has the capacity to hold approximately 38,000 cubic yards of contaminated soil material.

The costs to remediate the site were estimated in the site Feasibility Study. The actual costs of the project were described as being dependent on final project scope, competitive market conditions, final site conditions required, implementation schedule, and other variable factors. Total estimated present worth of remediation alternatives ranged from \$85,000 (no action alternative) to \$16,416,000 (incineration alternative).

### SOURCES

- 1) Draft Remedial Investigation Report for Dubose Oil Products Company Site. January 1989.
- 2) Closure Plan for Dubose Oil Product Company Cantonment Facility. July 1982.
- 3) Draft Feasibility Study for Dubose Oil Product Company Cantonment Facility. January 1990.
- 4) Remedial Investigation/Feasibility Study Work Plan for Dubose Oil Products Company Site. August 1986.

## 10) DUTCHTOWN OIL TREATMENT, LA

The Dutchtown Oil Treatment site is an abandoned waste oil reclamation plant that was operational from 1965 to 1982. The 21.5-acre site is located in Dutchtown, Louisiana, at the intersection of Interstate 10 and Highway 74. The area contained within the fenced waste site complex is approximately 5 acres in size. Surface drainage generally flows to the south and ties into the drainage system associated with Highway 74 and Interstate 10. The drainage system ultimately flows in Grand Goudine Bayou, located approximately 1,875 feet south of the Dutchtown site. From Grand Goudine Bayou, runoff is transported through a series of small rivers and canals and ultimately to Lake Pontchartrain. Regional private drinking water wells range from 200 to 1,000 feet below ground surface.

The Dutchtown site facilities were used to recycle waste oils from 1965 to 1982. There were no other industrial activities conducted on the site. In October 1980, the owner was issued orders and directives to suspend reclamation operations after the owner failed to apply for the required permits to operate an on-site hazardous waste treatment, storage and disposal facility. In January 1984 the site was considered abandoned.

Soil remediation at the site has been completed. In addition, a Draft Remedial Investigation has been completed and the Feasibility Study for groundwater remediation is in progress.

The waste complex consisted of 0.07-acre waste pit, a 0.8-acre holding pond, seven above-ground vertical storage tanks, two small horizontal tanks and a railroad tank car used as a horizontal tank. The waste pit was an excavated depression with no containment levees or berms. The depth of the pit was estimated to be 3 feet. The holding pond consisted of three cells containing a total waste volume of approximately 1.2 million gallons. The oily waste was stratified into three layers consisting of a floating oil phase, water phase and bottom sludge. The pit and pond were removed when the soil remediation was performed.

The Dutchtown site includes seven vertical storage tanks which are surrounded by a secondary containment berm approximately 2 feet in height. Five of the vertical storage tanks were used to contain unprocessed waste oil and the other two stored finished recycled oil. There are also two horizontal fuel storage tanks and one rail tank car, all of which are located over a concrete pad with no secondary containment structures. The storage tanks (horizontal and vertical) were estimated to contain a total of 60,900 gallons of liquids and sludge.

## DUTCHTOWN OIL TREATMENT, LA (continued)

An emergency response was performed in March 1987 by a U.S. EPA Emergency Response Team to clean up a spill event resulting from vandalism of one of the storage tanks. The spilled material was removed and all storage tank valves were secured. No volumes of removed materials were provided. The primary contaminants in the soil and ground/water are benzene, styrene, ethylbenzene and xylene.

The soil remediation involved treatment of 4,500 cubic yards of contaminated soil, removal of 450,000 gallons of oil and water from soil washing, and treatment of 50 million gallons of contaminated stormwater. No costs were presented.

### SOURCES

- 1) Work Plan, Expedited Response Action. November 1990.
- 2) Sampling and Analysis Plan QAPP. February 1990.
- 3) Work Plan, RI/FS. January 1990.

## 11) FOURTH STREET REFINERY, OK

The Fourth Street Refinery is an inactive refinery and recycling site located in southeast Oklahoma City, Oklahoma in an area of mixed residential and industrial uses. The site is situated northwest of Interstate 35 and the North Canadian River. The Fourth Street site is located within three tracts of land in the 2200 block of Northeast Fourth Street also known as Martin Luther King Boulevard. The 27.7-acre site is bound on the west by Northeastern Avenue, on the north by Northeast Fourth Street, on the east by Interstate 35, and on the south by the Union Pacific Railroad tracks. A drainage ditch runs along the southern boundary of the property and ends in an off-site drainage pond to the east.

Century Petroleum owned land within the current site boundary during the 1920's. From the mid-1940's to the late 1950's, Planet Oil Refinery reclaimed surplus oil from nearby Tinker Air Force base. The Fourth Street refinery initiated operation in the early 1940's on land leased from the Rock Island Railroad. Operations ceased during the late 1960's.

Outcropping geological formations near the site include the Hennessey Group and the Garber-Wellington Formations. The bedrock formations have a westward regional dip of 30 to 40 feet per mile. The site is located approximately two miles west of the outcrop of the Hennessey Shale and the Garber Sandstone and Wellington Formation.

Alluvial deposits along the North Canadian River are capable of yielding several hundred gallons of water per minute (gpm) from shallow permeable beds of sand and gravel. Water supplies are sufficient for domestic and stock use in areas in which the alluvium has five or more feet of saturated thickness.

Old abandoned refinery equipment, numerous waste lagoons and ponds, and old building foundations remain at the site. Construction debris and garbage also remain on-site. Operations at the site generated oily waste by-product materials from the reclaiming/refining process. In 1963, breaches in the berms surrounding the lagoon allowed spills of waste material into the surrounding environment.

Site contaminants include the pesticides aldrin, dieldrin, and chlordane; the heavy metals arsenic, cadmium, chromium, and lead; barium; chlordane; and PCBs. Pesticides were found at levels of health concern in surface soils only. Surface and sub-surface soils at the site contain the PCB Aroclor-1260. On-site well monitoring results show heavy metals to be the primary health concern in ground water. Lead is of concern in all environmental media, including on and off-site soils, sludge, surface water, and ground water.

## **FOURTH STREET REFINERY, OK (continued)**

The site is still in the RI/FS phase. No ROD has been prepared for the site.

### **SOURCES**

- 1) **Work Plan for Conducting the Remedial Investigation and Feasibility Study at the Double Eagle Refinery Superfund Site and the Fourth Street Refinery Superfund Site. January 18, 1991.**
- 2) **Interim Health Assessment for Fourth Street Abandoned Refinery. December 30, 1991.**
- 3) **Memorandum from Thomas Walzer, FIT to Keith Bradley, EPA Region VI Regarding Sampling at the Fourth Street Abandoned Refinery. December 17, 1985.**

12) GAUTIER OIL COMPANY, MS

Although the Gautier NPL site was utilized primarily by wood treating/preserving facilities for approximately 100 years, it was most recently occupied by Gautier Oil Company for waste oil recycling. Gautier Oil Company removed, transported, disposed of and recycled used oil, as well as disposing of other wastes, from 1979 to 1982. The site occupies 3 acres and is located at 217 Graveline Road, Gautier, Mississippi 39553, in Jackson County. East of the site is a system of surface waters and wetlands, extending approximately two miles, which opens into Pascagoula Bay and the Mississippi Sound.

L & N Creosote Works treated crossties, poles and timber at the site beginning in the 1870's. In 1979, Gautier Oil Company took over the operations at the site. Of the many companies which contracted with Gautier, the following information is known:

- Degussa Company sold Gautier 12,060 pounds of used oil for disposal
- Gautier cleaned up a small spill for Hewchem, removing 3,000 gallons of surface water containing 25-30 gallons of naphthenic acid.

Ingalls Shipbuilding also contracted with Gautier for the collection, transportation and disposal of liquid and drummed waste material from December 1, 1979 through June 30, 1981. The contract included the removal of a total of 3,857,857 gallons of liquid waste:

- 2,695,733 gallons oily bilge water
- 68,659 gallons wastewater from pretest labs
- 222,876 gallons waste oil and water from facility maintenance steam cleaning and oil draining slab
- 838,989 gallons spent pickle liquor
- 31,600 gallons electric shop wastes.

Gautier also removed 1,000 drums containing waste and surplus chemicals from Ingalls Shipbuilding operations.

In 1972, Delta Creosote constructed an unlined treatment lagoon to retain and treat wastewater from wood preserving prior to its discharge. When Gautier took over in 1979, all storage and process tanks were cleaned out. Once they began operations, used oil was brought to the facility in tankers and at least once by a barge. Their oil recycling process consisted of a boiler that supplied steam to a kettle in which the oil and water were separated. The treated water was then exposed to two gravel beds and another separator prior to discharge into the aerated lagoon. During much of its operation, Gautier had a permit to release the treated water effluent to the nearby Pascagoula River. In 1980, Gautier cited the following storage capacities on an EPA

## GAUTIER OIL COMPANY, MS (continued)

Preliminary Design Capacities information form:

- 600,000 gallons of tank storage capacity
- 20 gallons/hour incineration capacity
- 20,000 gallons/day tank waste treatment capacity
- 40,000 gallons/day surface impoundment treatment capacity
- 20 cubic yards filter cake storage capacity

The estimated annual generation of EPA hazardous waste was 900 pounds K054, 400 pounds D002, and 100 pounds D001. Prior to removal actions in 1985 (discussed below), the site contained a process building, several tanks, vats and drums, the treatment lagoon, and an elevated water tank and well.

Limited laboratory testing was conducted in 1984 and 1985 on samples from the receiving area, and soil and sludge piles on-site. The results showed high levels of lead and chromium; numerous signs such as polycyclic aromatics and phthalate esters of creosote were present in the samples. The following contaminants were also found in soil samples:

phenol	3900 ppm
phenanthrene	7600 ppm
pyrene	3000 ppm
diethylphthalate	1650 ppm
crysene	700 ppm
pentachlorophenol	800 ppm
fluorene	3500 ppm
lead	320 ppm
chromium	56 ppm
benzene	16 ppm
bis(2-ethylhexyl)phthalate	160 ppm
PAHs	100 - 1,270 ppm
trichloroethylene	0.15 ppm
chloroform	0.0015 ppm
arsenic	0.007 ppm

A removal action by Seaboard Railroad Systems (the current owner) from June 11 through October 17, 1985 involved removing all tanks, lagoon liquids and sludges, visible sludge piles, and all visibly contaminated soils, buildings, drums and other waste. In addition, 100,000 gallons of creosote-contaminated oil was recovered and recycled from the storage tank sludge.



**GAUTIER OIL COMPANY, MS (continued)**

No cost information pertaining to these removal actions was available. EPA dropped the site from the NPL after the 1985 cleanup efforts.

**SOURCES**

- 1) **Gautier Information Request Response. April 10, 1986.**
- 2) **Ingalls Shipbuilding correspondence concerning Gautier Oil Company to Grezelle Bennett. May 7, 1985.**
- 3) **OSC Report for Gautier Oil Company. June - October 1985.**
- 4) **Preliminary Health Assessment for Gautier Oil Company. June 25, 1990.**
- 5) **Process Design Capacities for Gautier Oil Company, Environmental Protection Agency. November 12, 1980.**
- 6) **RCRA Summary for Gautier Oil Company. August 27, 1987.**
- 7) **US Department of Commerce, Environmental Response Section for Gautier Oil Company. March 22, 1989.**
- 8) **US Department of Commerce, National Oceanic and Atmospheric Administration, letter from John Lindsay to James Sargent. March 22, 1989.**

13) GEIGER (C&M OIL), SC

The Geiger (C&M Oil) site, located in South Carolina, is approximately 5 acres in size. The facility incinerated waste oil and stored waste oil in impoundments from 1969 to 1971. There were eight unlined lagoons on-site that were built to hold used oil; the bottoms of these lagoons were at or near the water table. There are estuarine streams and tidal wetlands located one mile to the north and south of the site, and the surface water from the site drains into an on-site pond.

Operations at the Geiger site began in March 1969, when a tentative permit was given to the owner to construct and operate an incinerator to burn waste oil. Eight irregularly shaped unlined lagoons were built between 1969 and 1971 to hold the used oil, as mentioned above. These lagoons were approximately one foot deep, and the eight lagoons covered an area 50 feet wide and 100 feet long. At the end of 1971, the South Carolina Pollution Control Authority ordered Adams to stop all burning activities and waste disposal due to complaints by neighboring residents. In addition, Adams was ordered to take remedial actions to prevent spillage, leakage, or seepage of oil from the site. (How the oil was spilled or leaked at this particular point in the site's history is unknown.) In April 1974, owners adjacent to the site complained of overflowing oil from the lagoons. An investigation indicated that there had been recent active oil dumping and overflowing, and the site was closed. EPA became involved in February 1980, after the site had been abandoned. Before the site was abandoned, an attempt was made to recover the oil, but it failed. No waste oil disposal or recovery operations are known to have occurred at the site since 1980. In March 1982, Mr. Geiger purchased the property.

An RI/FS was completed for the Geiger site in December 1985, and a Final FS was completed in January 1987. Analysis of the waste oil residues indicated they were similar to automotive crank cases and oils, brake fluids and degreasing compounds. EPA estimated the quantity of oily waste in each lagoon to be 18,700 gallons (374 55-gallon drums). The total quantity of waste oil on site was estimated to be 149,600 gallons (2,992 55-gallon drums). No specific information was available about whether the oily wastes were ever removed. In mid-1983, after Mr. Geiger purchased the property, he filled the lagoons with soil and stored construction equipment on the site.

Sampling and analysis during the RI/FS have determined there are no serious organic contaminants in the soils, surface waters, sediments or private wells. The contamination found in the ground water is limited to the shallow portion of the water table aquifer, and the levels do not present any immediate health risk:

GEIGER (C&M OIL), SC (continued)

<u>Compound</u>	<u>Concentration (<math>\mu\text{g/l}</math>)</u>
arsenic	6 - 66
chloroform	8 - 32
dimethyl phthalate	11
bis(2-ethylhexyl) phthalate	1200
naphthalene	18
2-methylphenol	32
4-methylphenol	71
chloroethane	250
toluene	5.3 - 2,000
2,4-dimethylphenol	20
lead	250
cadmium	13

Since contaminant migration is not taking place nor is it widespread and/or severe, no remedial action is considered for the surface water or sediments. The only contaminants of concern in the soil are heavy metals, specifically lead (740 ppm), mercury (1.3 ppm) and chromium (1,100 ppm).

Of the possible alternatives, capping may be the most preferable (see Table One for alternatives and cost information). Treatment of the ground water is not justified at this time, but it will be monitored.

SOURCES

- 1) Final FS for Geiger Site. January 1987.
- 2) RI/FS for Geiger Site. July 1986.

GEIGER (C&M OIL), SC (continued)

REMEDIAL SOIL ALTERNATIVE	CAPITAL COST (\$1000)	PRESENT WORTH O&M COST (\$1000)	TOTAL PRESENT WORTH (\$1000)
1. Cap	567	405	972
2. Vegetative Cover Gravel Cover	214 256	405 397	619 653
3. Partial Excavation and Cap	614	405	1,019
4. Partial Excavation and Vegetative Cover Gravel Cover	261 312	405 397	666 710
5. Excavation, On-Site Incineration, and Solidification/Stabilization	5,191	367	5,558
6. Excavation and Off-Site Disposal	3,910	367	4,227
NO ACTION	0	0	0
PERIODIC MONITORING	0	367	367

14) GENERAL MOTORS CORPORATION - CENTRAL FOUNDRY DIVISION,  
NY

General Motors - Central Foundry Division (G.M.) has operated an aluminum casting plant at this approximately 270-acre facility in St. Lawrence County in Massena, New York since 1959. Until 1980, PCBs were a component of hydraulic fluids used in diecasting machines at the facility. Wastewater containing PCB-laden oil was disposed in lagoons at this facility. PCB-laden sludge was removed periodically from the lagoons and wastewater treatment plant and placed in disposal areas and in an industrial landfill on site. The facility is bordered on the north by the St. Lawrence River, on the east by the St. Regis Mohawk Indian Reservation, and on the south by the Raquette River. Part of the G.M. site is undeveloped, and wetlands lie to the east of the facility in the area surrounding Turtle Creek. Turtle Creek and the adjacent wetlands serve as discharge areas for shallow ground-water flow south toward the Raquette River.

As mentioned above, the facility serves as an aluminum casting plant. In the early 1960's, as part of routing operations, wastewater containing PCB-laden oil passed through the 1.5 million gallon lagoon and then to the St. Lawrence River. In 1968-1969, a lined interceptor lagoon was buried and is considered by EPA to be a part of the North Disposal Area. In 1976, a wastewater treatment system was installed at the plant. In that system, wastewater was sent to the 350,000 gallon lagoon for solids settling. Treated waste was pumped to the 500,000-gallon and 10 million gallon lagoons for reuse as plant process water. Periodically, water was discharged to the St. Lawrence River from the 1.5 million gallon lagoon. The 1.5 million gallon lagoon was not used for settling after 1976; however, after 1976, water containing PCB sludges was passed through the 1.5 million gallon lagoon prior to discharge to the St. Lawrence River. After further modifications to G.M.'s wastewater treatment process, the 350,000-gallon lagoon was taken out of service in 1980.

The site has been broken down into two operable units. The Record of Decision (ROD) for the first operable unit was signed on December 17, 1990; the second operable unit ROD was signed on March 31, 1992. During operations, PCB-laden sludge from the 1.5 million gallon lagoon and from the wastewater treatment plant was periodically removed and placed in the North and East Disposal Areas and in the Industrial Landfill. The Industrial Landfill has also received foundry sand, soil and concrete excavated during plant construction, diecasting machines, and solid industrial waste. The Landfill was covered with an interim cap in 1987-1988. The North Disposal Area also received construction debris, soil and tree stumps. The East Disposal Area contains soil and sludge along with construction debris and concrete. The North and East Disposal Areas and the Industrial Landfill were not lined. As mentioned above, the facility contains five lagoons (four of which are still active) with a total capacity of approximately 12.35 million gallons. There also exist two distinct disposal areas and an industrial landfill.

GENERAL MOTORS CORPORATION - CENTRAL FOUNDRY DIVISION, NY  
(continued)

In 1975, a berm surrounding the East Disposal Area was breached. Water and sludge flowed east to the St. Regis Mohawk Reservation and to Turtle Creek. Visible spill material was removed from the Reservation and transported back to the G.M. property. In 1970, PCB-contaminated soil was excavated during plant expansion and was placed on the north bank of the Raquette River.

Contaminated media at the site include: sediments, soil, sludges, and ground water. In the East Disposal Area, it is estimated that there are approximately 174,000 cubic yards of soil, debris and sludge with PCB concentrations greater than 10 ppm. The Industrial Landfill contains approximately 424,000 cubic yards of soil, debris and sludge with concentrations of PCBs greater than 10 ppm. The three other major contaminants found at the site are: polyaromatic hydrocarbons (PAHs), phenols and volatile organic compounds (VOCs).

Remediation activities on the first operable unit include: dredging and excavation of sediments and soils from PCB contaminated areas in the St. Lawrence and Raquette Rivers, Turtle Creek, and associated riverbanks and wetlands; interim surface runoff control to prevent migration of contamination from the East Disposal Area; excavation of PCB-contaminated sludges, soil and debris in the North Disposal Area and around the four industrial lagoons; excavation of PCB-contaminated soil on St. Regis Mohawk Reservation land adjacent to the G.M. facility; recovery and treatment of ground water downgradient from the site; and, treatment of dredged/excavated material by means yet to be determined. Assuming a 10 year remediation schedule, the present worth of this remediation plan was estimated in 1990 to be \$78 million.

Remediation activities on the second operable unit include: excavation and treatment of sludge, visibly oily soil, and highly contaminated soil in the East Disposal Area; in-place containment of less contaminated soils and control of ground water in the East Disposal Area through the use of a composite cap and slurry wall, and; recontouring and regrading followed by containment of contaminated material and ground water control in the Industrial Landfill through the use of a composite cap and slurry wall. Present worth costs to perform this part of the remediation was estimated in 1992 to be between \$31 and \$45 million.

#### SOURCES

- 1) Record of Decision, General Motors Corporation - Central Foundry Division Site, First Operable Unit. December 17, 1990.
- 2) Record of Decision, General Motors Corporation - Central Foundry Division Site, Second Operable Unit. March 31, 1992.