HAZARDOUS WASTE CHARACTERISTICS SCOPING STUDY

APPENDICES

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U.S. Environmental Protection Agency
Office of Solid Waste

November 15, 1996

APPENDIX A

ENVIRONMENTAL RELEASE DESCRIPTIONS

The U.S. Environmental Protection Agency developed this appendix to illustrate the contamination caused by releases from the management of non-hazardous industrial wastes. The appendix contains 112 release descriptions fro states, covering groundwater, surface water, and soil contamination from a variety of industries, waste management prac and constituents. This appendix has three sections:

- Section A.1 presents 73 release descriptions compiled from file reviews of state industrial solid waste progra and state Superfund programs;

- Section A.2 contains six release descriptions for construction and demolition landfills, which are taken from another draft Agency report; and

- Section A.3 lists 29 California "designated waste" landfills that the State's Solid Waste Assessment Test (SWAT) database identifies as having releases to groundwater or surface water above regulatory standards.

Within each of the three sections, the release descriptions are organized by state in alphabetical order and within each st by alphabetical order of facility name.

The Agency contacted the states and facility owners/managers to solicit comments on draft versions of the releas descriptions. The Agency also released a draft version of the individual release descriptions to the public for comment a review on October 29, 1996 (see 61 *Federal Register* 55800). This final report reflects all relevant facility-specific comments that were received as of November 8, 1996.

SECTION A.1:

STATE INDUSTRIAL SOLID WASTE AND STATE SUPERFUND RELEASE DESCRIPTIONS

Facility Overview

Facility Name: Agrico Chemical Site
Location: Pensacola, Florida
Waste Stream: Wastewater

The 35-acre Agrico Chemical Site was used for the production of sulfuric acid and fertilizers from 1889 through 1975. The former plant buildings and process equipment were removed by 1979, leaving only concrete foundations.

In 1889, the founding company's industrial processes included producing sulfuric acid. Fertilizer production was the main activity from 1920 to 1975. The American Agricultural Chemical Company began fertilizer production in 1920 and operated the plant until 1963. Continental Oil Company owned and operated the facility from 196 1972. Agrico Chemical Company bought the facility in 1972 and continued production until June 1975. The site was ther sold in August 1977 to a privately held firm.

Due to the age of the facility, plant processes are not well documented. Operations from 1889 to 1920 included t production of sulfuric acid from pyrite. By 1920, sulfuric acid was produced from elemental sulfur instead of pyrite. Also i 1920, the plant began manufacturing normal superphosphate fertilizer. Superphosphate was produced through the diges of the source rock with sulfuric acid and water. The reaction produced anhydrite (calcium sulfate) and fluoride as by prod The anhydrite was sold with the superphosphate. From 1972 to 1975 the facility manufactured monoammonium phospha addition to superphosphate. In later years, the plant began adding micronutrients (zinc and magnesium) to the monoammonium phosphate.

Wastes and Waste Management Practices

Industrial wastewater was discharged to low-lying areas in the vicinity of the former process buildings. The wastewater ponded in four areas. The wastewater contained process products and by-products and was likely characteri by low pH levels and greater than background concentrations of sulfate, calcium, fluoride, silica, phosphate, sodium, chlo and a relatively high total dissolved solids content.

Extent of Contamination

By early 1957, Pensacola City officials noted declining pH levels, increasing lime requirements, and increasing concentrations of sulfate and fluoride in a public water supply well. Phase I field work was conducted from mid-1990 and completed by October 1990. The Phase I Report was presented to EPA on March 13, 1992. The results of the Phase I r suggested that additional sampling activities were necessary to adequately characterize the site.

Phase II sampling and analyses conducted in February 1992 consisted of more than 100 soil borings and the sampling of 34 existing and recently installed groundwater monitoring wells. The Phase II Remedial Investigation more fu identified the nature and extent of contamination associated with former site processes. Soil and groundwater contamina have resulted from wastewater discharge. Sludge has accumulated in previous wastewater discharge areas and infiltrati wastewater has caused a plume in the upper aquifer.

The table provided below shows that aluminum, chloride, fluoride, iron, manganese, nitrite/nitrate, and sulfate are above EPA's maximum contaminant level. In addition to the monitoring results presented below, the groundwater has be tested for EPA's Target Compound List and Hazardous Substance List, cyanide, PCBs, semi-volatiles, and pesticides. Groundwater pH levels have ranged from 3.35 to 10.7. Several nearby sources may have contributed to the existing groundwater contamination, therefore, not all the constituents identified below may be attributed to the Agrico site.

GROUNDWATER CONTAMINANTS COMPARED TO FLORIDA OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	FL Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Aluminum	110	0.2	--	0.05 to 0.2
Arsenic	0.164		0.05	--
Barium	0.069	2.0	2	--

Benzene	0.0015	0.001	0.005	--
Calcium	130	--	--	--
Chloride	270	250	--	250
Chromium (total)	0.038	0.1	0.1	--
Copper	0.031	1.0	1.3*	--
Fluoride	98	4.0	4	2
Iron	1.9	0.3	--	0.3
Lead	0.0066	0.015*	0.015*	0.05
Magnesium	11	--	--	--
Manganese	0.33	0.050	--	0.05
Mercury	0.00071	0.002	0.002	--
Nickel	0.055	0.1	0.1	--
Nitrite/nitrate	47	10	10	--
Phenol	0.02	0.01	--	--
Potassium	38	--	--	--
Radium-226 (pCi/l)	8.4	5**	--	--
Radium-228 (pCi/l)	12.4	--	--	--
Sodium	180	160	--	--
Sulfate	680	250	500	250
Xylenes	0.013	10	10	0.02
Zinc	0.026	5.0	--	5
2,4-Dinitrotoluene	0.025	0.002	--	--
Gross-alpha (pCi/l)	1.3	15	15	--
Gross-beta (pCi/l)	29.6	--	4 mrem	--

*Action level

**Combined level for Radium 226 and 228

In addition to the groundwater sampling results presented above, the soil has been tested for volatile- and semi-volatile organics, pesticides, gross alpha- and beta-activity, radium 226, and uranium 238.

SOIL CONTAMINANT LEVELS	
Contaminant	**Highest Detected Level (mg/kg)**
Fluoride	300,000
Nitrate	12
Sulfate	9,100

Corrective Actions/Regulatory Actions

In 1989, EPA listed the site on the CERCLA National Priority List. Conoco Inc. and Freeport McMoRan R P Ltd., former operators of the plant, entered into an Administrative Consent Order on September 29, 1989 to conduct a remedia investigation/feasibility study. A Consent Decree was signed in June 1993 for soil cleanup. Remediation of Operable Uni addresses the principal threat at the site by treating the most highly contaminated soils and wastes. Stabilized waste materials and soils contaminated at low levels will be consolidated on-site under a RCRA cap. Components of the on-site remediation have included:

1. Excavation and solidification/stabilization of approximately 125,000 cubic yards of contaminated sludge and s from the four ponds;
2. Consolidation of all stabilized sludge and soil into one containment area;
3. Construction of a slurry wall;
4. Installation of a RCRA cap over the containment area; and
5. Implementation of institutional controls to include security fencing access and deed restrictions.

Operable Unit 2 addresses groundwater concerns. The groundwater plume is discharging to Bayou Texar locate one mile from the site. There are no active water supply wells between the site and the groundwater discharge point, therefore, the contamination does not pose a risk as a current drinking water source. The groundwater remedy selected consists of monitoring groundwater conditions as natural attenuation, flushing, and dispersion occur since contaminant loadings to the groundwater have been eliminated. Selected components of the groundwater remedy include:

1. Groundwater monitoring of the sand and gravel aquifer;
2. Groundwater monitoring of Bayou Texar;
3. Door-to-door survey of irrigation wells;
4. Request access from private landowners to plug and abandon impacted irrigation wells;
5. Utilization of institutional controls to restrict new wells; and
6. Advisory program.

Sources of Information

Draft Phase II Remedial Investigation; Agrico Chemical Site, Pensacola, Florida, Volume I of III. Geraghty & Miller, Inc. fo Conoco Inc. and Freeport-McMoRan, April 29, 1992.

EPA Region IV Superfund Proposed Plan Fact Sheet, Agrico Chemical Site, prepared by U.S. EPA Region IV, February 1

Final Phase II Remedial Investigation; Agrico Chemical Site, Pensacola, Florida, Volume II of IV. Geraghty and Miller, Inc November 1993.

Final Phase II Remedial Investigation; Agrico Chemical Site, Pensacola, Florida, Volume III of IV. Geraghty and Miller, In Appendix F, November 1993.

Record of Decision: Operable Unit 1; Agrico Chemical NPL Site, Pensacola, Escambia County, Florida. EPA Region 4, September 29, 1992.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

ARIZONA CHEMICAL FLORIDA

Facility Overview

Facility Name:	Arizona Chemical Company
Location:	Panama City, Florida
Waste Stream:	Process wastewater
Media Affected:	Groundwater

The facility was established in 1936 to process International Paper mill by-products into useable chemicals. The first operation established was a crude sulfate turpentine unit to process terpene chemicals that can be found in household cleaners, solvents, flavorings, and fragrances. In 1945, the plant moved into a second area of paper mill by-products recovery, the conversion of black liquor soap from the pulping process into crude tall oil. The crude tall oil is further refined into high purity fatty acids and rosins used in printing inks, adhesives, protective coatings, and synthetic rubber. A polyterpene resin production unit was added in 1971, raising facility employment to approximatel 280. Limonene, a citrus by-product, was later added to the raw material base. Three Florida Class III surface water bodi exist within a one-half mile radius of the site, and are designated to be managed for recreation and propagation of healthy and wildlife.

Wastes and Waste Management Practices

Prior to December 1990, a rosin sump received wastewater from the plant and discharged to an unlined industria wastewater holding pond. No information was available in the State files on the pond other than a map showing it to be approximately 200 feet by 100 feet, with depths ranging from 3 to 10 feet.

Extent of Contamination

Groundwater samples collected from four monitoring wells around the pond were analyzed pursuant to the 1990 Consent Order and are summarized below. Concentrations of benzene, iron, manganese, sodium, and total dissolved so (TDS) exceeded Florida guidance standards. Pond sludge and sediment samples revealed elevated concentrations of inorganics, ethylbenzene, xylenes, and chlorinated pesticides. The Preliminary Contamination Assessment Report (PCA states that a comparison of the material in the pond with the adjacent groundwater quality suggests that the pond is not a source of contamination because ethylbenzene and xylenes were not detected in the groundwater. The suspected sourc these purgeable compounds in the semi-solid material is a result of accidental releases of process water entering the stormwater system from the resin sump. Chlorinated pesticides found in bottom layer sediments of the pond could not be traced to any historical usage of DDT at the site. Concentrations of metals found in the sludge are believed to be due to t adsorption concentration effect of organic material on metal concentrations in the incoming wastewater. The metals are believed to be from two major sources, cooling water flows into the pond containing corrosives from the heat exchangers, stormwater runoff from roads and parking lots.

GROUNDWATER CONTAMINANTS COMPARED TO FLORIDA OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	FL Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Benzene	0.0043	0.001	0.005	--
Iron	48	0.3	--	0.3
Manganese	0.068	0.05	--	0.05
Sodium	260	160	--	--
TDS	910	500	--	500

Corrective Actions/Regulatory Actions

The resin sump, which received wastewater from the resin plant, was taken out of service on December 1, 1990. Wastewater from the resin plant is now treated within a permitted treatment system. A January 8, 1990 Consent Order required that Arizona Chemical Company implement a groundwater study at the industrial wastewater holding pond. The facility continues in a remedial phase of the Consent Order.

Sources of Information

Preliminary Contamination Assessment Report, 1990.

FDEP Northwest District Site Summary Memorandum, September 20, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

CENTRAL PACKING FLORIDA

Facility Overview

Facility Name: Central Packing

Location: Sumter County, Florida

Waste Stream: Slaughterhouse wastewaters

Central Packing Company is a meat packing plant. No major surface water bodies exist near the site. Several isolated, wet weather ponds in the vicinity contain soils with low infiltration potential.

Wastes and Waste Management Practices

The plant generates wastewater from washing and rinsing slaughtered animals. All drains in processing areas are routed to the wastewater treatment plant. One drain in the animal holding pen area is designated for washdown; it sends wastewater directly to the retention pond. The process wastewater is filtered through a rotary drum filter, recycled in concrete vats, chlorinated, discharged to a polishing pond, a pumped to a sprayfield for land application. The sprayfield has a berm around the Southern and Eastern sides to prevent surface runoff to low lying adjacent lands. The polishing pond is sealed with clay, and polishing pond sludge is either disposed of in an approved landfill or sold. Solid wastes such as bones, cartilage, and fat are collected and sold.

Extent of Contamination

Wastewater characteristics are monitored at six different locations along the treatment process. The results are submitted monthly to the Florida Department of Environmental Protection. Constituent concentrations of samples taken f treatment plant effluent, as it was applied to the sprayfield, are listed below. Concentrations of chloride, iron, manganese sodium, and sulfate exceeded Florida guidance standards.

GROUND WATER CONTAMINANTS COMPARED TO FLORIDA OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	FL Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Barium	0.28	2.0	2	--
Cadmium	0.0011	0.005	0.005	--
Calcium	121	--	--	--
Chloride	446.5	250	--	250
Chromium	0.001	0.1	0.1	--
Copper	0.062	1.0	1.3*	1.0
Fluoride	0.32	primary = 4.0, secondary = 2.0	4	2
Iron	0.38	0.3	--	0.3
Lead	0.008	0.015	0.015*	--
Magnesium	12.7	--	--	--
Manganese	0.23	0.05	--	0.05
Nitrate	0.197	10	10	--
Silver	0.002	0.1	--	0.1
Sodium	500	160	--	--
Sulfate	291	250	500	250
Sulfide	3.27	--	--	--
Zinc	0.38	5	--	5

*Action levels

Corrective Actions/Regulatory Actions

Several site investigations (4/92, 10/92, 6/94, and 11/95) noted that wastewater from the holding pens was being sent directly to the retention pond without treatment. The wastewater treatment plant was in disrepair according to the 6/9 inspection, and the 11/95 inspection noted that the retention pond was filled with manure.

Sources of Information

Central Packing Groundwater Monitoring Plan, June 20, 1984.

FDER Site Inspection Reports: April 1992, October 1992, June 1994, and November 1995.

FLORIDA INDUSTRIAL MACHINERY FLORIDA

Facility Overview

Facility Name:	Florida Industrial Machinery
Location:	Fort Walton Beach, Florida
Waste Stream:	Process wastewater
Media Affected:	Groundwater

Florida Industrial Machinery (FIM) rebuilds heavy engines. Several small surface water bodies exist on the site, including a small storm water pond and a filled gravel pit from former mining operations. A stocked fishing pond is also located near the site. Wetlands to the northeast, north, and south of the site are near the eastern margin of East Bay Swamp. The on-site man-made ponds and the off-site wetlands qualify for protection as Class III (Fresh) Surface Waters to be managed for "Recreation and for Propagation and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife."

Wastes and Waste Management Practices

The principal wastewater stream is discharge water from the engine teardown and washrack facility. All process wastewaters including engine test stand cooling water and waste oils formerly were discharged to the septic tank disposa system. The facility now uses a wastewater treatment and recycling system with an oil sump and skimmer to remove was oils for recycling. Waste oil is collected by a used oil recycling contractor. The system also contains a treatment facility to remove other impurities from the wastewater stream.

Extent of Contamination

Sampling of the former septic disposal area, considered the source of groundwater contamination, revealed elevated levels of lead and carbon tetrachloride, and low pH. No carbon tetrachloride concentration data were available i Florida files, however.

GROUNDWATER CONTAMINANTS COMPARED TO FLORIDA OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	FL Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Arsenic	0.032	0.05	0.05	--
Cadmium	0.0091	0.005	0.005	--
Chromium	0.04	0.1	0.1	--
Lead	0.060	0.015	0.015*	--
pH	4.9	6.5 - 8.5	--	6.5-8.5
Total phenols	0.013	0.01	--	--
Zinc	0.19	5	--	5

*Action level

Corrective Actions/Regulatory Actions

In March 1989, a representative of FDER inspected the FIM facility for compliance with FDER industrial wastewat standards. Following that inspection, FDER issued a Warning Notice notifying FIM that (1) the facility was operating improperly without a permit, and (2) the groundwater contamination violated Chapter 403, Florida Statutes, and the Rules FDER. Subsequently, FIM and FDER reached an agreement and a Consent Order was signed in August 1989 requiring Preliminary Contamination Assessment, which was completed in 1990. Soon after, FIM installed a closed-loop recycling system for cooling water, replacing the old septic tank disposal system. Cleanup is complete at the site, except for remed of petroleum-contaminated soil which is being land farmed.

Sources of Information

Contamination Assessment Report for Florida Industrial Machinery, Inc. Nassef Engineering & Company, Inc., Pensacola, Florida, June 1991.

FDEP Northwest District Site Summary Memorandum, September 20, 1995.

FLORIDA WIRE AND NAIL FLORIDA

Facility Overview

Facility Name:	Florida Wire and Nail
Location:	Quincy, Florida
Waste Stream:	Process wastewater
Media Affected:	Groundwater

Florida Wire and Nail (FWN) produced nails from 1978 to 1989. The nail manufacturing process consisted of purchasing rolled wire in bulk, cold drawing of the rod for sizing, cold cutting, and shaping the wire into nails. Prior to 1989, a portion of the nails were zinc galvanized using one of two processes. From 1978 until 1986, nails to be galvanized were "hot dipped," a process which heated a combination of nails, zinc powder, and an ammonium chloride flux in a gas fired furnace. The zinc coated nails were then quenched in a water solution to solidify the coating. The "hot dip" process was removed and replaced with mechanical cold galvanizing in 1986.

FWN ceased its nail production and galvanizing operations in 1989. At this time the nail manufacturing and zinc galvanizing equipment were removed and weaving looms were installed in the former nail production area. Since 1989, t facility has only manufactured woven fabric for the paper industry.

Five private wells are within one mile of the site, two of which are located in the direction of the zinc plume, which described below. These wells have not been confirmed as active or drinking water wells. The City of Quincy provides po water service to this area. FWN monitors the groundwater between the source area and the well area on a quarterly basi

Wastes and Waste Management Practices

From 1978 to October 1980, effluent from the galvanizing process was released out the back of the plant onto company land. No treatment occurred before release into the environment. From October 1980 until 1983, effluent was directed to a Florida Department of Environmental Regulation (FDER) permitted on-site holding pond. A sludge settling t a 10,000 gallon underground settling tank, and a 150,000 gallon retention pond were operated under this permit. On Apr 1983, the pond was closed, and pond sludge was stored in a lined landfill. In December 1992, FWN removed the buried sludge containing zinc and nitrate and disposed of this waste in a permitted landfill. From 1983 to 1986, the wastewater v recycled through a filter press without discharge. When the "hot dip" process was replaced, a permitted water treatment system was incorporated to treat all water prior to discharge into the city sewer system. A sludge settling tank and a 10,0 gallon underground settling tank operated under this permit.

Extent of Contamination

In 1983, unacceptable levels of zinc, nitrates, and chlorides were found in the unlined pond perimeter monitoring wells. Groundwater contamination was traced to waste disposal of zinc galvanizing sludge and wastewater between 197 1983, during the use of the "hot dip" process.

GROUNDWATER CONTAMINANTS COMPARED TO FLORIDA OR FEDERAL DRINKING WATER STANDARDS				
Contaminant	**Highest Detected Level (mg/l)**	**FL Standard (mg/l)**	**MCL (mg/l)**	**SMCL (mg/l)**
Chloride	1170	250	--	250
Nitrate	33.1	10.0	10	--
Zinc	83.9	5.0	--	5

Corrective Actions/Regulatory Actions

Two effluent and sludge disposal practices have caused violations of Florida regulations due to excessive amoun of zinc and chlorides leaching into the groundwater. Consent Order 89-0614, signed in 1989, required FWN to complete Preliminary Contamination Assessment Plan for groundwater contamination at the site. FDEP has required quarterly monitoring of groundwater at this site since 1990.

Sources of Information

Preliminary Contamination Assessment Plan, 1989.

Site Rehabilitation Completion Report, December 20, 1992.

FDEP Northwest District Site Summary Memorandum, September 20, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

STONE CONTAINER FLORIDA

Facility Overview

Facility Name:	Stone Container Corporation
Location:	Panama City, Florida
Waste Stream:	Process wastewater

The Stone paper mill has been in operation since 1931. Prior to that time a lumber mill was located at the site. Southern Kraft Company owned the paper mill when it was constructed. International Paper purchased it some time later, and then sold it to Southwest Forest Industries in 1979. Stone purchased the mill from Southwest Forest Industries in 1987. The mill produces Kraft liner board and bleached market pulp. Chemicals used in the paper manufacturing process since the mill was constructed include aluminum sulfate, calcium carbonate, calcium oxide, chlorine, chlorine dioxide, elemental oxygen, hydrogen peroxide, rosinsize, soc carbonate, sodium chlorate, sodium hydroxide, sodium hypochlorite, sodium sulfate, sodium sulfide, and sulfuric acid.

Wastes and Waste Management Practices

In 1955, primary clarification to remove settleable solids from the mill's effluent began. The treated effluent was discharged to St. Andrews Bay. Over the years, a small bayou in the area of the pretreatment pond was reclaimed using materials. A permit issued December 31, 1986 expired June 1, 1988. A timely operating permit renewal application was prior to the expiration of the 1986 operating permit. The facility operated without a permit until May 1990, when a Conser Order was signed.

The facility now operates an industrial wastewater pretreatment system associated with pulp and paper manufacturing. It consists of a lime pond, emergency clarifier, primary clarifier, pump station holding pond, ash sluice por stormwater ditch, and a primary clarifier ditch which conveys industrial wastewater and stormwater to the primary clarifier treatment. Primary treated effluent from the facility is discharged to Bay County Regional WWTF for additional treatment to discharge into St. Andrews Bay.

Extent of Contamination

Pits, ponds, and lagoons are in contact with groundwater. Groundwater sampling indicates plumes of contamina from the facility affecting the intermediate aquifer. The sampling revealed concentrations of several contaminants above Florida guidance standards including chloride, iron, manganese, sodium, and sulfate.

GROUNDWATER CONTAMINANTS COMPARED TO FLORIDA OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	FL Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Arsenic	0.962	0.05	0.05	0.05
Chloride	9150	250	--	250
Chromium	3.3	0.1	0.1	--
Iron	26.6	0.3	--	0.3
Lead	0.051	0.015	0.015*	--
Manganese	0.23	0.05	--	0.05
Nickel	0.84	0.10	0.10	0.10
Sodium	5600	160	--	--
Sulfate	1140	250	500	250
Zinc	0.08	5	--	5

*Action level

Corrective Actions/Regulatory Actions

The facility received a Notice of Violation in November 1988 for direct discharges of wastewater from the facility t the groundwater. Stone currently operates under a Consent Order requiring sampling every 90 days, implementation of corrective actions if sampling reveals continuing contamination, and reimbursement to FDEP for expenses.

Sources of Information

Stone Container Corporation Industrial Wastewater Pretreatment Facility Groundwater Investigation Report, Volume I, undated.

FDEP Northwest District Site Summary Memorandum, September 20, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

ZELLWOOD FARMS FLORIDA

Facility Overview

Facility Name:	Zellwood Farms
Location:	Zellwood, Florida
Waste Stream:	Process wastewater
Media Affected:	Groundwater

Zellwood Farms is a water-intensive mushroom growing, processing and packaging industry producing fresh mushrooms for human consumption. The farm has conscientiously reduced raw water usage and improved wastewater management over the past five years.

Wastes and Waste Management Practices

The mushroom growing and processing operation generates varying flows and a high strength organic wastewater as a result of the growing process and the raw materials at the farm. Before the current wastewater treatment system was constructed, these process wastewaters were discharg the groundwater through four infiltration cells. In the current industrial wastewater treatment and disposal system, upgrad 1992, process wastewater is pumped and screened and some fresh water added before the mixture is stored in two 12,0 gallon tanks for reuse. The remaining wastewater is conveyed to a 1.5 acre, clay-lined, constructed wetlands treatment system (CWTS). Treated effluent is discharged to groundwater through two of the existing high-rate infiltration cells. Imp on local groundwater associated with past use of the infiltration basins for wastewater treatment and disposal resulted in Zellwood Farms' constructing the CWTS and implementing water conservation and reuse practices.

Extent of Contamination

Nitrate levels in the groundwater, as determined through sampling of the monitoring wells, have fluctuated widely over the last several years. In November 1989, the highest level was detected in MW-10 on the western portion of the sit This level (431.5 mg/l) is believed to be an "outlier." Three months later, the well detected nitrate at 11.75 mg/l supporting outlier conclusion. The state and federal drinking water standard for nitrate is 10 mg/l.

Corrective Actions/Regulatory Actions

Through implementation of water-conservation and wastewater recycling practices, the farm has reduced water u by about 33 percent. Zellwood installed a water recycling system in 1987 to reduce water use and the volume of water entering the wastewater treatment system. Concrete curbs were constructed around the perimeter of the wharf area to prevent runoff from leaving the wharf and directly entering the groundwater system prior to any treatment. Runoff is now routed with process wastewater to the CWTS and some is used in the recycling system. In October 1994, Zellwood Farm (Terry Farms) was awarded a 1994 Florida Environmental Award in the Environmental Program Achievement Category, based on the success of their continuing Water Conservation and Wastewater Management Improvement Program.

Sources of Information

FDER Permit for Zellwood Farms, Inc., November 30 , 1982.

Zellwood Farms Industrial Wastewater Treatment Facility Study, Dames and Moore, 1992.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

Facility Overview

Facility Name:	Atlas Processing Company
Location:	Shreveport, Louisiana
Waste Stream:	Refinery sludge and process wastewater
Media Affected:	Groundwater and soil

Atlas Processing Company operates an oil refinery in Shreveport, Louisiana. The refinery has operated since 1923.

Wastes and Waste Management Practices

The facility disposes of wastewater and sludges from the process of refining oil from crude. The facility treats process water in a series of wastewater surface impoundments and discharges the effluent through a permitted NPDES outfall. The surface impoundments have been in existence for approximately 16 years. Past waste management practices have utilized an area adjacent to the surface impoundments known as the South Dirt Pile Area as temporary waste storage area for the storage of non-hazardous waste generated from the cleaning of the surface impoundments. In addition, impacted soils resulting from spills and leaks in the facility have also been temporarily stored the South Dirt Pile Area in the past. The wastes in the South Dirt Pile Area as well as the wastewater in the adjacent surf impoundments were tested and were determined not to be hazardous under TCLP. Sludges generated from the surface impoundments are disposed of off-site at a permitted facility. Prior to the existence of the wastewater impoundments and South Dirt Pile Area, this area was used as a process wastewater pond up until the 1970's. Presumably, the majority of t contamination to the soil and groundwater is related to the former wastewater pond. However, the South Dirt Pile Area m have also contributed volatile and semi-volatile organic compounds in the soil and groundwater.

In 1987, six (6) groundwater monitor wells were installed around the wastewater treatment impoundments. Four these wells are up-gradient and two are down-gradient of the surface impoundments. In 1995, four (4) permanent groundwater monitor wells were installed in the vicinity of the South Dirt Pile Area and down gradient of the surface impoundments. One of the wells was located in the middle of the South Dirt Pile Area and the other 3 were located down gradient of the South Dirt Pile Area.

In August 1995, soil samples were continuously collected from the ground surface to the termination depth of eac borehole. Groundwater monitoring wells were installed in each of the four soil boring holes. Groundwater is sampled quarterly.

Extent of Contamination

Groundwater - In 1995, groundwater samples were analyzed for metals and volatile and semi-volatile organics. T of eight metals were detected above the method detection limit. Volatile and semi-volatile organics were also detected, however, none of the samples exceeded the MCL. A thin layer of phase-separated hydrocarbons (PSH) equal to 0.01 foo was found in one monitoring well.

Since installation of the groundwater monitor wells around the impoundments, the facility has been sampling groundwater for chlorides, sulfate, pH, phenols, and BTEX quarterly and the results continuously reported to LaDEQ. Spe conductance and MEK were added to this list in 1993 and 1994, respectively. Sample results from 1996 indicated that chloride and sulfate exceeded the SMCL and specific conductance exceeded the SMCL and specific conductance exceed the MCL in some of the wells. However, it should be noted that the detected values have not changed significantly from t first sampling event in 1987.

The table below presents groundwater monitoring data from the 1995 sampling of the wells in the South Dirt Pile Area and the 1996 sampling of the wastewater impoundments groundwater monitor wells.
All wells are down gradient of the wastewater treatment impoundments except the well indicating high chlorides and spe conductance which were from an up-gradient well.

GROUNDWATER CONTAMINANTS COMPARED TO FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	MCL (mg/l)	SMCL (mg/l)

2-Methylnaphthalene	0.011	--	--
Acenaphthene	0.010	--	--
Barium	0.39	2.0	--
Carbon disulfide	0.024	--	--
Chlorides	1,350	--	250
Di-n-butylphthalate	0.006**	--	--
Fluorene	0.007	--	--
Lead	0.052	0.015	--
Naphthalene	0.006	--	--
Specific conductance (umhos/cm)	4,480	3,000	--
Sulfate	1,234	500	250
Xylene	0.016	10	--

*Also detected in laboratory blank
**Action level

Currently, the facility is sampling groundwater for chlorides, sulfate, specific conductance, phenols, BTEX, and MEK.

The following table presents sampling results from the free-floating PSH found in monitoring well 95-2. There are established SMCLs for the following constituents.

PHASE SEPARATED HYDROCARBON LEVELS

Contaminant	Highest Detected Level (µg/l)	MCL (mg/l)
1,3-Dithiolane, 2-methyl-2-	250	--
2-Butanone	140,000	--
2-Chloroethane	180,000	--
2-Methylnaphthalene	1,500,000	--
Acetone	1,100,000	--
Anthracene	210,000	--
Benzo(a)anthracene	210,000	0.0001
Benzo(a)pyrene	110,000	0.002
Benzo(g,h,i)perylene	80,000	--
Chrysene	300,000	0.0002
Fluorene	280,000	--
Indeno(1,2,3-cd)pyrene	70,000	0.0004
Methylene chloride	52,000	--
Naphthalene, 1 methyl-	4,800	--
Naphthalene, 1,5 dimethyl-	3,200	--
Naphthalene, 2 methyl-	4,000	--
Phenanthrene	1,300,000	--
Propanoic acid, 2-methyl	84	--
Pyrene	560,000	--
Thiophene, tetrahydro-2-methyl-	130	--
Unknown hydrocarbon	5,300	--

Please note that the laboratory report filed with LaDEQ indicated that 1,3 Dithiolane, 2-methyl-2-, naphthalene, 1-methyl-, naphthalene, 1,5-dimethyl-, naphthalene, 2-methyl-, and propanoic acid, 2-methyl-, were tentatively identified and that the identification and concentration of these compounds was based on the spectroscopists opinion due to presumptive evide only. Further, the concentration of unknown hydrocarbons identified from this analysis was also based on presumptive evidence.

A product identification analysis conducted on the PSH sample indicated the sample resembles a combination of diesel r organics and motor oil.

Soil - In 1995, during the installation of the 4 monitoring wells in the South Dirt Pile Area soil samples were continuously collected from the ground surface to the termination depth of each borehole. The samples were analyzed fo Skinner List Metals and copper, silver, tin, and zinc. Detectable concentrations were reported for 11 of the 16 metals analyzed: arsenic, barium, chromium, cobalt, copper, lead, nickel, selenium, tin, vanadium, and zinc. Numerous volatile semi-volatile organic compounds were also detected in the soil samples. In addition, total petroleum hydrocarbons were detected.

SOIL CONTAMINANT LEVELS

Contaminant	Highest Detected Level (µg/kg)
Arsenic	*
Barium	*
Benzo(a)anthracene	5,500
2-Butanone	28
Carbon disulfide	12
Chromium	*
Chrysene	9,100
Cobalt	*
Copper	*
Ethylbenzene	22
Lead	*
1-Methylnaphthalene	44,200
Naphthalene	4,500
Nickel	*
Phenanthrene	42,000
Pyrene	18,000
Selenium	*
Tin	*
TPH-Gasoline	560(mg/kg)
TPH-Lube Oil	22,000(mg/kg)
TPH-Diesel	9,600(mg/kg)
TPH-Kerosene	1,400(mg/kg)
Vanadium	*
Xylene	1,200
m,p-Xylene	720
o-Xylene	74
Zinc	*

*Detected at levels above the detection limit, no specific concentrations were provided in the LDEQ records

Corrective Actions/Regulatory Actions

The LDEQ Office of Solid Waste ordered Atlas to close the South Dirt Pile Area. The facility conducted a subsurface investigation down gradient of the South Dirt Pile Area in early 1996. The results of this investigation indicate that there is no apparent off-site migration from either the surface impoundments or the South Dirt Pile Area. LDEQ is allowing the site to conduct a comprehensive groundwater investigation to determine the facility-wide groundwater flow, s geology, and other factors. This investigation will required the installation of additional groundwater monitor wells through the facility. Facility perimeter groundwater monitor wells will be installed at the conclusion of these additional studies. Th LDEQ will reassess the closure order upon reviewing the investigation findings.

Sources of Information

Louisiana Department of Environmental Quality, Solid Waste Division files, June 1996.

Personal communication with Groundwater Protection Division, Louisiana Department of Environmental Quality, August 1

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996

Facility Overview

Beaird Industries manufactures steel vessels for the nuclear power industry at its Shreveport, Louisiana facility. As part of this manufacturing process, the facility sandblasts only non-painted, virgin metal surfaces. It does not reline, resurface, or repaint any metal surfaces. Historically, blasting sand has accumulated in and around the sand blasting building.

Facility Name:	Beaird Industries
Location:	Shreveport, Louisiana
Waste Stream:	Spent blasting sand and steel grit dust
Media Affected:	Groundwater

Wastes and Waste Management Practices

The accumulated spent blasting sand and steel grit dust were placed in an on-site waste pile. Previously, the fac used its spend blasting sand as fill-in on roads and low areas within the plant boundaries. This practice has ceased as a result of a compliance order from the Louisiana Department of Environmental Quality (LDEQ). Currently, the site operate under an exemption from the Louisiana solid waste regulations. LDEQ granted an exemption because the site developed environmentally sound method of recycling the blasting sand. Beaird now incorporates the waste in concrete or asphalt, disposes of the waste in a permitted off-site C & D landfill.

Extent of Contamination

The facility maintains that lead is a naturally occurring constituent in the sand. The site samples groundwater annually at 8 shallow wells and 4 deep wells. The groundwater data presented below from the January 1990 sampling ev show high levels of chromium and lead. 1993 test results indicate that chromium is below regulatory standards.

GROUNDWATER CONTAMINANTS COMPARED TO FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	MCL (mg/l)	SMCL (mg/l)
Chromium	0.41	0.1	--
Lead	0.14	0.015*	--
Barium	0.37	2	--

*Action level

Corrective Actions/Regulatory Actions

LDEQ requires continued groundwater monitoring at the site, but does not plan to require remediation of groundwater.

Sources of Information

Louisiana Department of Environmental Quality, Solid Waste Division files, June 1996.

Personal communication with Solid Waste Division, Louisiana Department of Environmental Quality, August 1996.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

CITGO PETROLEUM CORPORATION - LOUISIANA REFINERY LOUISIANA

Facility Overview

Facility Name:	Citgo Petroleum Corp. Louisiana Refinery
Location:	Lake Charles, Louisiana
Waste Stream:	Refinery wastes
Media Affected:	Soil and groundwater

Citgo Petroleum Corporation owns and operates a crude oil refinery. The plant's operations are separated into two functional areas: the Lube Plant and the Refinery. The Refinery is the nation's sixth largest. It was built in 1944 to produce aviation fuel. Through the years, new process units and unit upgrades have enabled the Refinery to increase its capacity from 70,000 barrels to the present 320,000 barrels per day. The refinery processes a high-sulfate crude from Venezuela. The site is located near the Calcasieu River and the Indian Marais Bayou runs through the site boundaries.

Wastes and Waste Management Practices

The Citgo facility has six separate non-hazardous waste management areas:

1. Refinery Secondary Wastewater Treatment Surface Impoundments (P-0275). This area consists of four solid waste surface impoundments. The impoundments include a settling basin, polishing pond, aerobic sludge digester, and aerobic sludge settling basin. Semi-annual sampling occurs at four monitoring wells.

2. Lube Plant Clay Pond No. 3 (P-0277) operates under a standard permit issued on March 9, 1992.

3. Lube Plant Clay Ponds No. 1, 2, and 4 (OC-0091) completed final closure on September 23, 1992 and a closure certification was issued by LDEQ on October 2, 1995. Semi-annual groundwater sampling occurs at monitoring wells.

4. Lube Plant Secondary Wastewater Treatment Surface Impoundments (P-0276). The facility was allowed to operate under an interim operational plan while they comply with a Louisiana Department of Environmental Quality (LDEQ) Upgrade Order. A Standard Permit was issued for these facilities on March 9, 1992, which superseded the order to upgrade.

5. Refinery Land Treatment Plots No. 1, 2, and 3 (OU-0120). Semi-annual groundwater sampling is conducted four monitoring wells.

6. Refinery Cooling Tower Sludge Basin (OC-0185). The closure plan for the Lake Charles facility was submitte on November 11, 1991. A Notice of Deficiencies (NOD) was issued on March 1, 1996. CITGO responded to these NOD's on April 2, 1996. Semi-annual groundwater sampling is conducted at two monitoring wells.

In 1990, two Lube Plant wastewater treatment surface impoundments were reclassified from non-hazardous to hazardous. This reclassification was based on the promulgation of the Primary Sludge Rule.

Extent of Contamination

Widespread groundwater contamination has been detected at the facility. Several areas of groundwater contamination have been attributed to the non-hazardous waste management practices at the facility. Groundwater samp at the facility's monitoring wells analyzes pH, specific conductance, total dissolved solids, total organic carbon, total organ halogens, sulfate, chloride, sodium, phenols, iron, and manganese. Total organic carbon levels in the downgradient wells the Lube Plant Clay Pond Nos. 1, 2, 3, and 4, the Lube Plant Secondary Wastewater Treatment Surface Impoundments, the Refinery Cooling Tower Sludge Basin have been higher than in the upgradient wells at each area. The tables provide below indicate the highest detected levels of several groundwater monitoring constituents in downgradient wells. The dat presented below represent semi-annual sampling events from 1992 through mid-1995.

REFINERY SECONDARY WASTEWATER TREATMENT SURFACE IMPOUNDMENTS
GROUNDWATER CONTAMINANTS COMPARED TO

FEDERAL DRINKING WATER STANDARDS			
Constituent	**Highest Detected Level (mg/l)**	**MCL (mg/l)**	**SMCL (mg/l)**
Chloride	2,829	--	250
Iron	55.5	--	0.3
Manganese	6.74	--	0.05
Naphthalene	14.2	--	--
pH	4.71	--	6.5-8.5
Phenols	0.415	--	--
Sodium	1,270	--	--
Specific conductance (umhos/cm)	8,230	--	--
Sulfate	366	500	250
TOC	132.25	--	--
Total dissolved solids	7,712	--	500
Total organic halogens	0.52	--	--

LUBE PLANT CLAY POND NO. 3 GROUNDWATER CONTAMINANTS COMPARED TO FEDERAL DRINKING WATER STANDARDS			
Constituent	**Highest Detected Level (mg/l)**	**MCL (mg/l)**	**SMCL (mg/l)**
Chloride	390	--	250
Iron	21.1	--	0.3
Manganese	7.07	--	0.05
pH	4.92	--	6.5-8.5
Phenols	0.011	--	--
Sodium	419	--	--
Specific conductance (umhos/cm)	2,500	--	--
Sulfate	73*	500	250
Total dissolved solids	2,004	--	500
TOC	202.75	--	--
Total organic halogens	0.295	--	--

*Higher concentrations were found in upgradient well

Several constituents were detected in groundwater monitoring wells associated with Lube Plant Clay Ponds Nos. 1,2, and 4 (see table below). A brine pipeline lies adjacent to the southern border of these facilities. The constituents detected in the monitoring wells on the southern boundary of the Lake Charles facility are consistent with a release of brin LDEQ has not investigated the claim at this writing.

LUBE PLANT CLAY PONDS NO. 1, 2, AND 4 GROUNDWATER CONTAMINANTS COMPARED TO FEDERAL DRINKING WATER STANDARDS			
Constituent	**Highest Detected Level (mg/l)**	**MCL (mg/l)**	**SMCL (mg/l)**
Chloride	26,242	--	250
Iron	85	--	0.3
Manganese	21.9	--	0.05
pH	4.92	--	6.5-8.5
Phenols	0.693	--	--
Sodium	15,600	--	--
Specific conductance (umhos/cm)	57,900	--	--
Sulfate	575	500	250

TOC	247.25	--	--
Total dissolved solids	98,164	--	500
Total organic halogens	2.74	--	--

REFINERY LAND TREATMENT PLOTS NO. 1, 2, AND 3
GROUNDWATER CONTAMINANTS COMPARED TO
FEDERAL DRINKING WATER STANDARDS

Constituent	Highest Detected Level (mg/l)	MCL (mg/l)	SMCL (mg/l)
Chloride	5,060	--	250
Iron	69.80	--	0.3
Manganese	1.95	--	0.05
pH	5.97	--	6.5-8.5
Phenols	0.004	--	--
Sodium	3,520	--	--
Specific conductance (umhos/cm)	20,800	--	--
Sulfate	6,205	500	250
TOC	83	--	--
Total dissolved solids	25,236	--	500
Total organic halogens	0.084	--	--

REFINERY COOLING TOWER SLUDGE BASIN
GROUNDWATER CONTAMINANTS COMPARED TO
FEDERAL DRINKING WATER STANDARDS

Constituent	Highest Detected Level (mg/l)	MCL (mg/l)	SMCL (mg/l)
Chloride	574	--	250
Iron	2.79*	--	0.3
Manganese	1.11*	--	0.05
pH	4.98	--	6.5-8.5
Phenols	0.009	--	--
Sodium	409	--	--
Specific conductance (umhos/cm)	2,148	--	--
Sulfate	91	500	250
TOC	166.5	--	--
Total dissolved solids	1,694	--	500
Total organic halogens	0.16*	--	--

*Higher concentrations were found in upgradient well

Corrective Actions/Regulatory Actions

A closure plan was submitted and approved by LDEQ. The closure for this Lake Charles facility has been completed on September 23, 1992, and a closure certification by LDEQ was issued on October 2, 1995. LDEQ also issue an Order to Close for the Refinery Cooling Tower Sludge Basin on September 11, 1991.

Sources of Information

Louisiana Department of Environmental Quality, Solid Waste Division files, June, 1996.

Semi-Annual Groundwater Report - Solid Waste Facilities. Citgo Petroleum Corporation, January 1995-June 1995.

Personal communication with Groundwater Protection Division, Louisiana Department of Environmental Quality, August 1

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

DUPONT BURNSIDE PLANT LOUISIANA

Facility Overview

The Burnside Plant is owned by E.I. DuPont de Nemours & Company, Inc. The plant produces sulfuric acid from processes involving sulfur and spent sulfuric acid.

Facility Name:	DuPont Burnside Plant
Location:	Darrow, Louisiana
Waste Stream:	Sulfuric acid production wastewater
Media Affected:	Groundwater

Wastes and Waste Management Practices

DuPont maintains two permitted industrial non-hazardous waste surface impoundments to contain and treat process wastewater. Seven groundwater monitoring wells located around the two impoundments are sampled on a semi-annual basis. Three of the wells are located upgradient.

Extent of Contamination

The table below presents data from the semi-annual sampling events from 1986 to 1995. Sampling has revealed concentrations of sulfate and total dissolved solids above Federal standards.

GROUNDWATER CONTAMINANTS COMPARED TO FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	MCL (mg/l)	SMCL (mg/l)
TDS	1,750	--	500
Chromium	0.061*	0.1	--
pH	6.75-7.19	--	6.5-8.5
Specific conductance (umhos/cm)	1,785	--	--
Sulfate	1,018	500	250
TOC	138	--	--

* Higher concentrations of chromium were found in one upgradient well. LDEQ is not certain that the chromium levels i groundwater can be attributed to the two surface impoundments.

Corrective Actions/Regulatory Actions

LDEQ is considering requiring the site to remediate groundwater due to continued sulfate exceedances.

Sources of Information

Louisiana Department of Environmental Quality, Solid Waste Division files, June 1996.

Second Semi-Annual Groundwater Monitoring Report. E.I. Du Pont de Nemours and Company, Inc. Burnside Facility, January 20, 1996.

Personal communication with Groundwater Protection Division, Louisiana Department of Environmental Quality, August 1

Facility Overview

Facility Name:	Georgia Gulf Landfarm
Location:	Iberville Parish, Louisiana
Waste Stream:	Process wastes, including biosludge, brine solids, lime

Georgia Gulf operates a 170-acre landfarm with 130 acres useable for disposal. The landfarm is located a little over 1 mile from the Mississippi River. The landfarm was formerly used for sugar cane farming. The site is in a recharge zone of the Mississippi River. As a result, the groundwater flow varies seasonably. The groundwater table is very shallow (7 feet to 9 feet depth). There is no known potential source of contamination to groundwater in the vicinity, other than the landfarm.

Wastes and Waste Management Practices

The following wastes were disposed of in the landfarm in 1994:

Biosludge	578.3 tons (dry sludge basis)
Brine solids	2,386.0 tons (dry sludge basis)
Lime solids	5,262.1 tons (dry sludge basis)
Desiccant	1.0 tons

The facility samples the groundwater semiannually from five monitoring wells installed in 1985 and at an additiona three wells installed in 1986. The soil is sampled semi-annually. The permitted capacity of the landfarm is 1,020,000 wet weight tons. Approximately 63.28 dry tons/acre were applied in 1994.

Extent of Contamination

Soil and groundwater contamination has been detected at the facility. Contaminants of concern include chlorides and sodium. In general, LDEQ believes that the impact to soil and groundwater can be attributed to the landfarm. Fluctuations in the groundwater flow direction can, however, affect sampling results. The table below presents groundwa monitoring data from January to June 1996.

GROUNDWATER CONTAMINANTS COMPARED TO FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	MCL (mg/l)	SMCL (mg/l)
Chlorides	590	--	250
pH	6.2-6.6	--	6.5-8.5
Sodium	160	--	--
Specific conductance (umhos/cm)	2330	--	--
TDS	1,660	--	500
Total hardness	1020	--	--
Total Kjeldahl nitrogen	2.73	--	--
TOC	6.3	--	--
Zinc	0.147	--	5

The table below presents soil sampling data from 1994.

SOIL CONTAMINANT LEVELS (1994)

Constituent	Highest Detected Level (mg/kg)
Cadmium	2.0
Calcium	180,000

Chromium	28
Copper	23.6
Magnesium	14,000
Mercury	0.106
pH	9.3
Sodium	5,590
Total Kjeldahl nitrogen	1,010
TOC	508

Corrective Actions/Regulatory Actions

LDEQ requires continued sampling of groundwater and soil. No remedial action is currently planned.

Sources of Information

Louisiana Department of Environmental Quality, Solid Waste Division files, June 1996.

Personal communication with Groundwater Protection Division, Louisiana Department of Environmental Quality, August 1

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

Facility Overview

Facility Name:	Gretna Machine and Iron Works
Location:	Harvey, Louisiana
Waste Stream:	Washwater from production of heavy metal products

The Gretna Machine and Iron Works facility is owned by Trinity Industries. Gretna reconditions barges at the Harvey, Louisiana site.

Wastes and Waste Management Practices

Gretna generated paint wastes and burned waste oils in two boilers. A 1.5 acre surface impoundment had been used as a dewatering/evaporation pit since before 1957. The impoundment contains oily solid residues from past waste management activities. Wastes were generated during the degassing and cleaning of barges. The unlined pi received washwater from gas-freeing and barge-cleaning operations. Historically, it has been a repository for wastes fron barges such as gasoline, diesel, #6 oil, and creosote.

In 1986, the site was required to characterize the wastewater in the impoundment. The analysis indicated the presence of hazardous constituents, but not at levels to be considered hazardous waste. The Louisiana Department of Environmental Quality (LDEQ) could not successfully document that the site was receiving hazardous wastes from barges Gretna claims to have received only oil and gas products, no listed hazardous waste. Gretna also states that the impoundment never received washwater that tested positive for hazardous characteristics. The site was deactivated in 1 before the Toxicity Characteristic Leaching Procedure Test became effective, and remains under the jurisdiction of the Louisiana State Office of Solid Waste.

Extent of Contamination

The table below presents 1994 ground water sampling data from downgradient wells. Benzene and pentachlorophenol were both above Federal drinking water standards.

GROUNDWATER CONTAMINANTS COMPARED TO FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	MCL (mg/l)	SMCL (mg/l)
2-Methyl-4,6-dinitrophenol	0.0736	--	--
2,4-Dichlorophenol	0.0089	--	--
2,4-Dimethylphenol	0.0575	--	--
2,4-Dinitrophenol	0.010	--	--
2,4,6-Trichlorophenol	0.0036	--	--
4-Nitrophenol	0.0552	--	--
Benzene	0.157	0.005	--
Pentachlorophenol	0.0083	0.001	--
pH	6.1-7.3	--	6.5-8.5
Phenol	0.0024	--	--
Specific conductance (umhos/cm)	17,030	--	--
TOC	37.5	--	--
TOX	0.224	--	--

Corrective Actions/Regulatory Actions

The impoundment was capped in 1993. A 1994 State inspection noted artesian conditions in the monitoring wells which were attributed to the capping of the impoundment. No remediation of the groundwater or upgrade of the monitorin wells is planned. LDEQ plans to continue requiring post- closure groundwater monitoring.

Sources of Information

Louisiana Department of Environmental Quality, Solid Waste Division files, June 1996.

Personal communication with Groundwater Protection Division, Louisiana Department of Environmental Quality, August 1

Facility Overview

The International Paper, Louisiana Mill plant in Bastrop, Louisiana is a pulp and paper mill. Manufacturing unit operations include wood processing, pulping, bleaching, power and steam generation, chemical recovery, paper machine operation, roll finishing, sheet finishing, and shipping. The nearest surface water body is Stalkinghead Creek. The groundwater table ranges from 30 to 80 feet in depth in Bastrop.

Facility Name:	International Paper - Louisiana Mill
Location:	Bastrop, Louisiana
Waste Stream:	Inorganic light metal salts Inorganic liquids Lime kiln slake

Wastes and Waste Management Practices

The facility disposed of the following wastes in two inorganic settling basins: inorganic light metal salts, inorganic liquids, lime kiln slake, solid waste from a digester, bark, and other wood waste. These settling basins were operated for approximately 18 years before closing in 1989.

Extent of Contamination

Eight groundwater monitoring wells are sampled quarterly by International Paper personnel using LDEQ approve sampling methods. Data are reported semi-annually. Levels of arsenic, chromium, manganese, iron, selenium, and sulfa were above Federal drinking water standards. In the table below, data are presented from quarterly groundwater samplin results from 1990-1995.

GROUNDWATER CONTAMINANTS COMPARED TO FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)*	MCL (mg/l)	SMCL (mg/l)
Arsenic	0.148	0.05	--
Barium	0.371	2	--
Calcium	186	--	--
Chlorides	207	--	250
Chromium	0.115	0.1	--
Iron	8.6	--	0.3
Magnesium	57.1	--	--
Manganese	34.4	--	0.05
pH	5.3 - 10.7	--	6.5 - 8.5
Potassium	3.62	--	--
Selenium	0.08	0.05	--
Sodium	796	--	--
Sulfates	1,081	500	250
TDS	2,396	--	500

*Some of the maximum detected levels were found in upgradient wells, however, the LDEQ indicated that the upgradi wells were installed too close to the impoundment. The exceedances presented in this table are generally attributed to inorganic settling basins, according to the LDEQ.

An alum plant owned by a third party is located upgradient to International Paper's facility. Reports on file with the Louisiana DEQ from that facility show an apparent mounding and release from their solid waste impoundment which flow toward International Paper's monitoring system. International Paper believes that parameters such as sulfates, TDS and sodium are contributed to by the off-site plant.

Corrective Actions/Regulatory Actions

The mill closed two inorganic settling basins on August 15, 1989. Pond closure involved the drainage and remov of sludge from the south pond followed by removal of 6,000 cubic yards of soil. The site installed a concrete vault where

wastewater is now disposed. The LDEQ is currently evaluating statistical analyses provided by the site to determine whe
any remedial action will be required.

Sources of Information

Louisiana Department of Environmental Quality, Solid Waste Division files, June 1996.

Personal communication with Groundwater Protection Division, Louisiana Department of Environmental Quality, August 1

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

DEAN FOODS - PILGRIM FARMS SITE MICHIGAN

Facility Overview

Facility Name:	Dean Foods - Pilgrim Farms Site
Location:	Bentheim, Michigan
Waste Stream:	Pickle brine wastewater
Media Affected:	Groundwater

Dean Foods-Pilgrim Farms Site was originally a pickle processing facility; however, its operations have gradually been downsized to include only pickle washing and handling. On May 26, 1989, the facility ceased its treated process wastewater spray irrigation operations; on January 18, 1991, the facility ceased its relishing operations; and in 1993, the facility ceased its pickling operations. Dean Food's Inc. bought the site in 1990.

Located downgradient from the site, approximately 75 feet away from the seepage lagoons, is Black Creek, a tributary of Rabbit River. The top of the uppermost aquifer is 3 20 feet below surface. Groundwater flows east and southeast from the lagoons toward Black Creek. A localized mound occurs beneath the seepage lagoons with groundwater flowing radially away from the lagoons. The soils underlying the s consist of fine to medium-grained yellow-brown sand with thin clay and silt layers to depths ranging from 17 to 41 feet. Cl underlies the sand beneath most of the site.

Wastes and Waste Management Practices

Wastewater consisting of pickle brine from the pickling vats (until 1993) and then washwater from pickle washing operations (to present) was treated on-site in settling and groundwater seepage lagoons. The facility had a Michigan groundwater discharge permit and currently has a permit for washwaters without additives.

Extent of Contamination

Results from sampling conducted in 1994 showed that chloride from the seepage lagoons was contaminating groundwater east of the facility. This contaminated groundwater was migrating toward Black Creek. Water samples take from Black Creek in 1994 showed that levels of chloride were not exceeding State water quality standards. In fact, sampl revealed that a significant portion of the brine constituents were actually migrating beneath Black Creek, not into it. Samp results from previous years, however, showed levels of total dissolved solids in Black Creek to be exceeding water quality standards. The impact to the aquifer was found to extend to the clay layer.

GROUNDWATER CONTAMINANTS COMPARED TO MICHIGAN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	MI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Bicarbonate, alkalinity	984	--	--	--
Calcium	291	--	--	--
Chloride	6,950	--	--	250
Iron, dissolved	31.1	--	--	0.3
Magnesium, dissolved	70	420*	--	--
Nitrogen, ammonia	49	--	--	--
Nitrogen, nitrate	33	10*	10	--
Nitrogen, nitrite	0.17	1*	1	--
pH	7.68	--	--	6.5-8.5
Phosphorus, total	5.4	--	--	-
Potassium, dissolved	140	--	--	--
Sodium, dissolved	4520	160*	--	--
Specific conductance (umhos/cm)	17.192	--	--	--
Sulfate	894	--	500	250

* Generic State drinking water standards, which should be reevaluated if conditions at a particular site do not meet the cri used to set the generic standards

In addition, residents near the site have complained of a serious mosquito biting problem. The Michigan Department of Public Health investigated the problem and determined that the species *Aedes Dorsalis*, which breeds in a salt water environment, was found in large populations at nearby residences. It was determined that the wall of one of the site's pickle brine seepage lagoons was leaking salt water to a nearby wetland, creating the breeding environment for the mosquitoes.

Corrective Actions/Regulatory Actions

Fiberglass tanks were installed to replace the leaking wooden vats that previously stored the pickles and brine. In November 1987, Pilgrim Farms was placed on Michigan's Act 307 Priority List with a rating of 31 (on a scale of 0-48, with being the most severe). No treatment of contaminated groundwater has been proposed.

As a temporary corrective action for the mosquito problem, Pilgrim Farms applied larvicide to the wetland that wa serving as the mosquitoes' breeding habitat. A suggested long-term treatment was draining the wetland.

Sources of Information

Letter from the Michigan Department of Public Health to the Director of Environmental Health, Allegan County Health Department, May 20, 1985.

Site Description/Executive Summary for Pilgrim Farms Pickle Plant; Groundwater Quality Division of the Michigan Depart of Natural Resources, October 22, 1985.

Letter from the Permits Section of the Waste Management Division to Pilgrim Farms, November 24, 1987.

Pilgrim Farms' Proposal for Bentheim Permit Renewal, August 15, 1989.

Act 307 Master Data Form and attached Site Scoring Documentation Sheet; Environmental Response Division, Decembe 1990.

Department of Natural Resources Waste Management Division Staff Report, January 15, 1991.

Letter from Pilgrim Farms, Inc. to the Michigan Department of Natural Resources and attached sampling data, April 25, 19

Attached sampling data letter from WW Operation Services to Dean Foods, November 15, 1991.

Map included in letter from WW Operation Services to the Michigan Department of Natural Resources, Waste Manageme Division, September 3, 1992.

Sampling data from the Hydrogeological Investigation Report for the Pilgrim Farms Site, Bentheim, Michigan; WW Engineering & Science, November 1993.

Letter from Dean Foods to the Michigan Department of Natural Resources, November 18, 1993.

Letter from WW Operation Services to the Michigan Department of Natural Resources, December 21, 1993.

Letter from Earth Tech to the Permits Section of the Michigan Department of Natural Resources regarding NPDES permit application, August 10, 1994.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

Facility Overview

Facility Name:	Flamm Pickle Company
Location:	Eau Claire, Berrien County, Michigan
Waste Stream:	Pickle process wastewater (brine)
Media Affected:	Vegetation

Flamm Pickle and Packing Company is located in Eau Claire, Berrien Co., Michigan. The facility has been producing pickles and relishes for institutional and wholesale distribution since 1922, and its ownership has not changed in that time. Cucumbers are trucked to the plant where they are washed, sorted, and stored in tanks containing brine. They are subsequently washed and desalted, flavored, packed, and shipped. Usable aquifers are believed to be located in the vicinity of the plant, which is also located in close proximity to both the St. Joseph River and its tributary, Love Creek.

Wastes and Waste Management Practices

Wastewater is derived from the heavy usage of water in most stages of the pickle-production process. Cucumbe arrive at the plant, are washed, and are placed into brine tanks to cure for a period varying from ten days to over one yea When they are removed, they are washed and desalted, which requires steam, fresh water, and the addition of alum. So the brine from processing is used as starter brine for fresh cucumbers. Wastewater is also produced as a result of the va processes to flavor, prepare, and pack the whole or sliced pickles, and relishes. These processes may include the use of sugar, additional salt, and/or vinegar. Wastewater that is not to be reused is strained to remove solids which are hauled a and is stored in a collection tank. Seepage from the brine tanks is also pumped to this collection tank.

From approximately 1978 to approximately 1990, the wastewater flowed from the tank by gravity to the two-cell seepage lagoon area located along the St. Joseph River bottom land. Waste Management Division experts of the Plainw Michigan District believe the lagoons provided inadequate treatment and did not protect the groundwater.

Extent of Contamination

The Department of Natural Resources (DNR) inspected the seepage lagoons on August 16, 1984. Inspectors fou the first of the two lagoons to be turbid blue in color. This pond flowed into the second lagoon which was a muddy pink co Both ponds had an odor and were full to capacity with evidence of overflow at lower edges and salt crystallized in nearby An overflow was observed in progress by the inspectors, who noted wet ground for about ten feet from the pond. They fu noted that this discharge was the likely cause of death for many trees in a nearby marsh.

DNR's August 16, 1984, inspection, and a subsequent January 3, 1985, inspection of the seepage lagoons led to issuance of a letter on January 23, 1985, from a Water Quality Specialist in the Plainwell District. In this letter, DNR point continued evidence of repeated overflow as an apparent violation of the facility's groundwater discharge permit.

Corrective Actions/Regulatory Actions

Efforts continue on the part of the State to work with the facility to establish a new system of proper treatment, bu of April, 1996 the issue had yet to be resolved.

Sources of Information

Report of Wastewater Survey, Michigan Water Resources Commission (WRC), May 8, 1968.

Briefing Memo, Michigan WRC, October 3, 1974.

Report of an Industrial Wastewater Survey, Michigan DNR, November 24-25, 1975.

Letter from Township of Sodus, Michigan to Michigan DNR, July 28, 1984.

Michigan WRC Facility Inspection Report, August 16, 1984.

Michigan DNR Interoffice Communication, September 4, 1984.

Letter from Plainwell DNR to Flamm Pickle, January 23, 1985.

Diagram of wastewater flow through facility and map of facility and surrounding area from permit application, undated.

Letter from Michigan DNR to Flamm Pickle, June 29, 1990.

Michigan DNR Interoffice Communication, April 25, 1996.

Facility Overview

Facility Name:	Murco, Inc.
Location:	Plainwell, Allegan County, Michigan
Waste Stream:	Paunch, animal manure solid waste, and process wastewater from meat packaging and rendering

Murco has operated in Plainwell, Michigan for over 70 years. Facility operations include on-site kill, processing, and packaging of beef for human consumption and rendering facilities for the processing of meat scraps, bones, viscera, and blood for the animal food and cosmetics industries. The Chart Drain and its East Branch tributary merge on-site and have associated wetlands. The Chart Drain merges with the Kalamazoo River one-fourth mile east of the property. A confined aquifer is beneath the clay till that underlies the site (except in the immediate vicinity of the Chart Drain). This aquifer serves as the major water source for most domestic wells in the immediate area. Solid wastes the raising of animals, including animal manures, are not hazardous wastes when returned to the soils as fertilizer (40 CF 261.4(b)(2)(ii)).

Wastes and Waste Management Practices

The on-site waste stream includes approximately 1,000,000 gallons per day of process wastewater, paunch (undigested food materials remaining in the rumen of the cattle's stomach at the time of slaughter), animal manure solid waste, and settleable solids from the initial collection stages of the wastewater treatment system. Wastewater is treated through a series of clarifiers; one anaerobic and four subsequent aerobic ponds. Treated wastewater is currently applied agricultural fields owned by Murco using spray irrigation under a discharge permit issued by the State in 1976. Solid was are also applied to the land using soil injection.

Extent of Contamination

The land application of liquid and solid waste has elevated concentrations of constituents in the groundwater, surface water, and soil at the site.

Groundwater - All groundwater constituents sampled for were found regularly to exceed background concentratio for groundwater in the area. In addition, iron, nitrate, nitrite, sodium, and total dissolved solids (TDS) were found to excee State or Federal drinking water standards as specified below.

GROUNDWATER CONTAMINANTS COMPARED TO MICHIGAN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	MI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Ammonia	142	--	--	--
Bicarbonate	1420	--	--	--
Chloride	148	--	--	250
COD	210	--	--	--
Dissolved calcium	205	--	--	--
Iron	5.31	--	--	0.3
Magnesium	57.8	420	--	--
Nitrate	104	10	10	--
Nitrite	1.4	--	1	--
pH	7.8	--	--	6.5-8.5
Sodium	163	160	--	--
TDS	2700	--	--	500
Total phosphorus	7.08	--	--	--

Surface Water - Nitrate levels in two of the five samples taken along the Chart Drain were found to exceed both groundwater background levels for the site as well as State and Federal drinking water standards. Nitrate is reduced as t

Chart Drain flows east prior to discharge to the Kalamazoo River. This decline may be caused by uptake of the nitrogen l the wetland vegetation.

SURFACE WATER CONTAMINANTS COMPARED TO MICHIGAN OR FEDERAL DRINKING WATER STANDARDS				
Contaminant	**Highest Detected Level (mg/l)**	**MI Standard (mg/l)**	**MCL (mg/l)**	**SMCL (mg/l)**
Ammonia	10.0	--	--	--
COD	127.0	--	--	--
Nitrate	45.7	10	10	--
Nitrite	0.02	--	1	--
TDS	3092.0	--	--	500
Toluene	<.005	1.0	1.0	--

Soil - The constituents of concern at Murco's agricultural fields that received treated wastewater via spray irrigatio and solid wastes via soil injection are phosphorous, nitrates, and ammonia. As shown in the table below, all three were fo in concentrations exceeding background levels at the site; however, calcium, magnesium, and potassium were considera lower than background levels.

SOIL CONTAMINANTS COMPARED TO BACKGROUND CONCENTRATIONS		
Contaminant	**Average Detected Level (mg/kg)**	**Average Background Concentration (mg/kg)**
Ammonia	5.47	0.25
Calcium	337.1	18,008
Magnesium	53.5	6,025
Nitrates	5.43	0.58
Phosphorous	283.4	173
Potassium	65.0	108

Corrective Actions/Regulatory Actions

Murco has been phasing out the current wastewater treatment system since August 1995. Ponds 1 through 4 are undergoing closure and are being replaced by a new 9.9 million gallon anaerobic pond that has been constructed and is i use. As of May 1996, one aerobic pond remained in use. A new treatment system is expected to be constructed by Janu 1997, operational by July 1997, and will eliminate the land application of wastewater.

Sources of Information

Remedial Investigation Report, STS Consultants Ltd. for Murco, Inc., May 6, 1996.

Facility Overview

Facility Name: Wexford Sand Company, Yuma Site

Location: Slagle Township, Wexford County, Michigan

Waste Stream: Wastewater from sand washing

Wexford Sand Company's Yuma site in Slagle Township, Michigan is primarily a surface sand mining and washing operation. The Yuma site was once used as a waste disposal area for spent core sand from Ford Motor Company's Cleveland casting plant. The site is currently used to dispose of the fine sands removed via the beneficiation process.

The site is located in a sparsely populated area with almost level topography. The land one-quarter mile west (downgradient) of the site is part of the Manistee National Forest. The Manistee River is located approximately 3.5 m northwest of the site and Slagle Creek is located 1.5 miles southwest of the site.

The soil underlying the site consists of sorted and stratified sands and gravels. The aquifer at the disposal site appears to be homogeneous and unconfined. The water table is estimated to be 30 to 40 feet below the ground surface. nearest potable wells lie 0.25 miles northwest and north of the site. Other wells lie 1.0 to 1.5 miles to the north in the town Yuma. Groundwater migrates in a westerly direction. The average groundwater gradient is about 0.3 to 0.5 percent in th vicinity of the disposal site.

Wastes and Waste Management Practices

The site is considered an unlicensed type III landfill, which has never been properly capped and closed. Approximately 800,000 tons of the spent foundry sand was dumped at the Yuma site between 1977 and 1982. The wastewater generated from the sand beneficiation process is treated to remove conditioning reagents, namely Pamak-4 a Pine Oil. Pamak-4 consists of oil derived fatty acids and small amounts (4-12%) of resin (rosin) acids. Many of the fatty a found in this product are common components of the human diet. Approximately 90% of the Pine Oil or terpineol consists mixed terpene alcohols.

The wastewater treatment system for the sand beneficiation process consists of three linked ponds, representing area of 1.86 million square feet or approximately 42.7 acres. Pond No. 1 is the largest of the three ponds; it is used as a sedimentation/seepage lagoon. Outfall consisting of fine sand waste material from the sand clarification process and fron sand purification process enter this pond through a pipe and drainage ditch, respectively. Outfall from the drying operatio enters this pond via a pipe. The combined wastewater flow into the lagoon is 3.176 million gallons per day.

Pond No. 2 functions as a stabilization lagoon for wastewater from Pond No. 1. The wastewater is allowed to furt biodegrade prior to discharge to Pond No. 3.

Pond No. 3 serves as a holding pond for the treated wastewater. Approximately 24 percent of the treated wastewater is recycled from Pond No. 3 to the processing plant. The calculated wastewater removal rates by evaporation infiltration are 0.129 million gallons per day and 2.32 million gallons per day, respectively.

Groundwater monitoring wells are sampled quarterly.

Extent of Contamination

A 1986 hydrogeological report for the years 1980 through 1986 showed levels of ammonia-N, calcium, chloride, conductivity, iron, magnesium, nitrate-N, phenol, sodium, and sulfate present in the groundwater above background level These elevated levels are attributable to the disposal of spent core sand from Ford Motor Company's Cleveland casting p The levels of these parameters, except that of iron, are all now within drinking water quality limits. Although levels of iron groundwater are elevated, they are lower than in the 1986 report because the company has ceased disposing of spent co sand on the site.

Groundwater sampling results in 1990 indicate that current sand washing operations are degrading groundwater quality beyond the sand mining property. Downgradient wells on Federal forest land showed that PAMAK and elevated le

of manganese are present in the aquifer. The PAMAK is not biodegrading as the company had thought it would. The sa washing operation has never held a permit to discharge as is required under the Water Resources Commission Act.

An isochemical contour of Pamak-4 from the July 1988 analytical results indicates that contamination is present i the groundwater. According to a May 1989 hydrogeological report by ASI, these levels of Pamak-4 in the groundwater do pose a significant impact to the environment based on its low toxicity levels.

A September 28, 1994, memo from the Michigan Department of Natural Resources states that sampling results o site show levels of manganese and arsenic to be above permittable limits.

GROUNDWATER CONTAMINANTS COMPARED TO MICHIGAN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	MI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Ammonia-N	0.15	ID	--	--
Arsenic	0.05	0.05	0.05	--
Bicarbonate (mg $CaCO_3$/l)	449	--	--	--
COD	19	--	--	--
Conductivity (umhos/cm)	786	--	--	--
Iron	9.6	ID	--	0.3
Lead	0.31	0.004	--	0.3
Manganese	0.89	0.18	--	0.05
Nitrate-N	3.1	10	10	--
Pamak-4	2.3	1.0*	--	--
pH	8.4	--	--	6.5-8.5
Total alkalinity (mg $CaCO_3$/l)	449	--	--	--
TOC	13	--	--	--

*A May 1989 Hydrogeologic Investigation Report conducted by ASI states that the "anticipated allowable level of Pamal is 1 mg/l."

ID = Inadequate data to develop criterion.

Corrective Actions/Regulatory Actions

No corrective or regulatory actions have been taken.

Sources of Information

Hydrogeologic Investigation Report; May 1989, ASI.
Sampling results from ANATECH Laboratories, November 7, 1994.

Michigan Department of Natural Resources, Waste Management Division, memorandum to Wexford Sand, October 22, 1

Michigan Department of Natural Resources, Hydrogeologic Review Unit, Waste Management Division, memorandum to Wexford Sand, September 28, 1994.

Facility Overview

Baker Commodities, Inc. operates a slaughterhouse in Albuquerque, New Mexico. The depth to groundwater is approximately 10 feet.

Facility Name:	Baker Commodities, Inc.
Location:	Albuquerque, New Mexico
Waste Stream:	Slaughterhouse wastewater
Media Affected:	Groundwater

Wastes and Waste Management Practices

Approximately 4,320 gallons per day of wastewater was discharged to the unlined lagoon until the plant closed in 1990.

Extent of Contamination

The table below identifies the highest level of each constituent detected in downgradient wells. Groundwater is monitored at four wells. Nitrate and total dissolved solids were found to be above New Mexico or Federal standards.

GROUNDWATER CONTAMINANTS EXCEEDING NEW MEXICO OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	NM Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Ammonia	46.9	--	--	--
Kjeldahl nitrogen	57.6	--	--	--
Nitrate	10.4	10	10	--
Total dissolved solids	3104	1000	--	500

Corrective Actions/Regulatory Actions

All operating wells are currently in compliance with state requirements. After the plant closed in 1990, the facility filled in their lagoons. The New Mexico Environment Department requires the plant to monitor groundwater quarterly.

Sources of Information

New Mexico Environment Department, Groundwater Section, Database printout and corresponding files, 1995.

BIAD CHILE PROCESSING PLANT - GARFIELD NEW MEXICO

Facility Overview

Facility Name: Biad Chile Processing Plant - Garfield

Location: Garfield, New Mexico

Waste Stream: Food processing wastewater

Media Affected: Groundwater

Biad Chile Processing Plant - Garfield is located in Garfield, New Mexico, in Dona Ana County. The facility washes red chiles, which are then dehydrated and powdered on-site. The wastestream produced from this process is chile wastewater.

Wastes and Waste Management Practices

Up to 90,000 gallons per day of chile wastewater is screened for solids and discharged via concrete irrigation ditches to a minimum of 16 acres of farmland. The discharge occurs during fall and winter months, September through January.

Extent of Contamination

The table below identifies the highest level of each constituent detected in downgradient wells. Groundwater is monitored tri-annually at three wells. Nitrate/nitrite and total dissolved solids were found to be above New Mexico or Fede standards.

GROUNDWATER CONTAMINANTS EXCEEDING NEW MEXICO OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	NM Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Nitrate/nitrite as N	29	10	10	--
pH	7.19-8.01	6.5-8.5	--	6.5-8.5
Total dissolved solids	2,400	1,000	--	500
Total filterable residue	2366	--	--	--
Water Kjeldahl nitrogen	2.0	--	--	--

Corrective Actions/Regulatory Actions

The New Mexico Environment Department requires the site to continue monitoring groundwater three times a yea The facility is planning to close its plant this year.

Sources of Information

New Mexico Environment Department, Groundwater Section, database printout and corresponding files, 1995.

Facility Overview

Biad Chile Processing Plant - Leasburg is located in Leasburg, New Mexico, in Dona Ana County. The depth to groundwater is approximately 8 feet. The facility washes red chiles, which are then dehydrated and powdered on-site. The wastestream produced from this process is chile wastewater.

Facility Name:	Biad Chile Processing Plant - Leasburg
Location:	Leasburg, New Mexico
Waste Stream:	Food processing wastewater
Media Affected:	Groundwater

Wastes and Waste Management Practices

Up to 90,000 gallons per day of chile wastewater is screened for solids and discharged via concrete irrigation ditches to a minimum of 16 acres of farmland. The discharge occurs during fall and winter months of September through January. No more than 200 pounds of total nitrogen per year acre are allowed to be land applied.

Extent of Contamination

The table below identifies the highest level of each constituent detected in downgradient wells. Groundwater is monitored tri-annually at three wells. Nitrate/nitrite and total dissolved solids were found to be above New Mexico or Fed standards.

GROUNDWATER CONTAMINANTS EXCEEDING NEW MEXICO OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	NM Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Nitrate/nitrite as N	25	10	10	--
pH	7.19-7.58	6.5-8.5	--	6.5-8.5
Total dissolved solids	900	1,000	--	500
Total filterable residue	2366	--	--	--
Water Kjeldahl nitrogen	2.0	--	--	--

Corrective Actions/Regulatory Actions

The New Mexico Environment Department requires the site to continue monitoring groundwater three times a yea

Sources of Information

New Mexico Environment Department, Groundwater Section, database printout and corresponding files, 1995.

BIAD CHILE PROCESSING PLANT - MESILLA NEW MEXICO

Facility Overview

Facility Name:	Biad Chile Processing Plant - Mesilla
Location:	Mesilla, New Mexico
Waste Stream:	Food processing wastewater
Media Affected:	Groundwater

Biad Chile Processing Plant - Mesilla is located in Mesilla, New Mexico. The facility washes red chiles, which are then dehydrated and powdered on-site. The wastestream produced from this process is chile wastewater. The depth to groundwater is approximately 20 feet.

Wastes and Waste Management Practices

Up to 90,000 gallons per day of chile wastewater is screened for solids and discharged via concrete irrigation ditches to a minimum of 16 acres of farmland. The discharge occurs during fall and winter months of September through January.

Extent of Contamination

The table below identifies the highest level of each constituent detected in downgradient wells. Groundwater is monitored tri-annually at three wells. Nitrate/nitrite was found to be above New Mexico or Federal standards.

GROUNDWATER CONTAMINANTS EXCEEDING NEW MEXICO OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	NM Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Kjeldahl nitrogen	1.5	--	--	--
Nitrate/nitrite as N	16	10	10	--
pH	7.20-7.84	6.5-8.5	--	6.5-8.5
Total filterable residue	1059	--	--	--

Corrective Actions/Regulatory Actions

The New Mexico Environment Department requires the site to continue monitoring groundwater three times a yea

Sources of Information

New Mexico Environment Department, Groundwater Section, database printout and corresponding files, 1995.

KOCH MATERIALS COMPANY NEW MEXICO

Facility Overview

Facility Name: Koch Materials Company

Location: Eddy County, New Mexico

Waste Stream: Process wastewater

Koch Materials Company is an asphalt plant located in Eddy County, New Mexico. The facility was operated by Elf management until April 1993 and has been under Koch management since then. The approximate depth to groundwater at the plant is 50 feet.

Wastes and Waste Management Practices

Koch Materials Company produces water softener back wash, small amounts of boiler blowdown, and laboratory water from asphalt emulsion. The company operates a synthetically-lined pond for evaporation. The pond receives 1,000 gallons per day of wastewater. The facility's water management permit permits flow up to 2,000 gallons/day. The flow is non-contact waste waters, except for very minor quantities of laboratory waste water from asphalt emulsion road paving material testing.

Extent of Contamination

The table below identifies the highest level of each constituent detected in downgradient wells. Methylene chlori and total dissolved solids were found to be above New Mexico or Federal standards. However, of note, the groundwater resource in question is brine and non-potable; and the State of New Mexico has said that purgeable organics (*e.g.,* methylene chloride, Method 8240) are within state standards.

GROUNDWATER CONTAMINANTS EXCEEDING NEW MEXICO OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	NM Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Chloride	47.9	250	--	250
Chloromethane	1.4	--	--	--
Di-n-butylphthalate	19	--	--	--
Methylene chloride	4	0.1	0.005	--
Total dissolved solids	1,248	1,000*	--	500

* The facility indicated that the State of New Mexico has determined that background for TDS in the groundwater media in question is ~3,200 mg/l.

Corrective Actions/Regulatory Actions

The New Mexico Environment Department requires the site to continue monitoring groundwater semi-annually. T facility has stopped using the lagoon and are only using evaporation. The facility will continue to monitor for two years for closure.

Sources of Information

New Mexico Environment Department, Groundwater Section, database printout and corresponding files, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996

LEPRINO FOODS CHEESE PLANT NEW MEXICO

Facility Overview

Facility Name: Leprino Foods Cheese Plant

Location: Roswell, New Mexico

Waste Stream: Food processing wastewater

Leprino Foods Cheese Plant is located in Roswell, New Mexico. The depth to ground water is approximately 33

feet. The groundwater is monitored quarterly at 15 monitoring wells located in a sandstone formation which is connected the artesian groundwater aquifer.

Wastes and Waste Management Practices

Leprino Foods Cheese Plant produces an average of 750,000 gallons per day of food processing wastewater. A maximum of 6,000 gallons of domestic wastewater is chlorinated, combined with process wastewater, and directed to a fl equalization tank. Wastewater from the flow equilization tank is treated in an extended-aeration activated sludge system consisting of two aeration basins and clarifiers. Treated effluent is stored in a newly constructed 42 million gallon synthetically-lined lagoon and the two existing synthetically lined lagoons. Treated effluent is used to irrigate 450 acres o cropland Sludge is processed by aerobic digesters and stored in a 9 million gallon synthetically lined lagoon.

Extent of Contamination

The table below identifies the highest level of each constituent detected in downgradient wells. Nitrate and total dissolved solids were found to be above New Mexico or Federal standards.

GROUNDWATER CONTAMINANTS EXCEEDING NEW MEXICO OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	NM Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Ammonia	0.5	--	--	--
Chemical oxygen demand	20	--	--	--
Conductivity	5,640	--	--	--
Nitrate	30	10	10	--
Total dissolved solids	4,320	1,000	--	500
Total Kjeldahl nitrogen	1.0	--	--	--

Corrective Actions/Regulatory Actions

The New Mexico Environment Department requires the site to continue monitoring groundwater quarterly.

Sources of Information

New Mexico Environment Department, Groundwater Section, database printout and corresponding files, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

Facility Overview

Santa Fe Ingredients Company, Inc. is located in McCormack County, New Mexico. The facility washes red chiles, which are then dehydrated and powdered on-site. The wastestream produced from this process is chile wastewater. The depth to groundwater is approximately 150 feet.

Facility Name:	Santa Fe Ingredients Company, Inc.
Location:	Hidalgo County, New Mexico
Waste Stream:	Food processing wastewater
Media Affected:	Groundwater

Wastes and Waste Management Practices

Up to 750,000 gallons per day of washwater is discharged to a tar-lined concrete sump, then pumped through a solids separator screen and through a gated distribution to a land application area of approximately 120 acres. This area is bermed to prevent surface runoff. The facility is not allowed to land apply more than 200 pounds of total nitrogen per acre per year.

Extent of Contamination

The table below identifies the highest level of each constituent detected in downgradient wells. Fluoride and nitrate/nitrite were found to be above New Mexico or Federal standards.

GROUNDWATER CONTAMINANTS EXCEEDING NEW MEXICO OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	NM Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Alkalinity (as $CaCO_3$)	158.5	--	--	--
Bicarbonate	2.83	--	--	--
Bicarbonate alkalinity	172.7	--	--	--
Calcium	111.3	--	--	--
Carbonate	0.34	--	--	--
Carbonate alkalinity	10.2	--	--	--
Chloride	60	250	--	250
Fluoride	2.41	1.6	4	2
Magnesium	11.9	--	--	--
Nitrate/nitrite as N	12.9	10	10	--
Potassium	5.5	--	--	--
Sodium	100.4	--	--	--
Sulfate	165.3	600	500	250
Total dissolved solids	500	1,000	--	500
Total filterable residue	601	--	--	--
Water Kjeldahl nitrogen	0.4	--	--	--

Corrective Actions/Regulatory Actions

The New Mexico Environment Department requires the site to continue monitoring groundwater semi-annually.

Sources of Information

New Mexico Environment Department, Groundwater Section, database printout and corresponding files, 1995.

GEORGIA-PACIFIC CORPORATION NEW YORK

Facility Overview

Facility Name:	Georgia-Pacific Corporation
Location:	Warwick, New York
Waste Stream:	Process wastewater from paper finishing
Media Affected:	Groundwater and surface water

Georgia-Pacific Corporation operates a paper finishing plant in the town of Warwick, Orange County, New York. An unnamed tributary approximately 300 feet from Wawayanda Creek is the nearest surface water body.

Wastes and Waste Management Practices

The facility discharges process wastewater into their adjacent lagoon. Process wastewater from the operation of Georgia Pacific Corp.'s paper finishing plant is discharged into an adjacent clay-lined lagoon.

Extent of Contamination

Groundwater - The table below identifies the constituents analyzed and detected in the 1992 groundwater sampli and the highest detected level of each constituent in downgradient wells. Arsenic, chromium, lead, manganese, and zinc levels were found to be consistently above New York or Federal standards.

GROUNDWATER CONTAMINANTS EXCEEDING NEW YORK OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	NY Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Arsenic	0.027	0.025	0.05	--
Chromium	0.088	0.05	0.1	--
Lead	0.041	0.025	0.015*	--
Manganese	10.8	0.3	--	0.05
Zinc	0.5	0.3	--	5.0

*Action level

Surface water - The table below identifies the constituents analyzed and detected in the 1992 surface water sampling and the highest detected level of each constituent in downstream samples. Lead levels were found to be above Federal standards.

SURFACE WATER CONTAMINANTS EXCEEDING NEW YORK OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	NY Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Alkalinity (as $CaCO_3$)	74	--	--	--
Cadmium	0.00005	0.01	0.005	0.001
Calcium	30.4	--	--	--
Chloride	28.5	250	--	250
Copper	0.0023	0.2	1.0*	1.0
Fluoride	0.09	1.5	4.0	2.0
Hardness (as $CaCO_3$)	105	--	--	--
Lead	0.0010	0.025	0.015*	--
Magnesium	7.0	35	--	--
Nickel	0.0008	--	0.1	--
Nitrogen, ammonia, as N	0.012	--	--	--
Nitrogen, Kjeldahl, as N	0.27	--	--	--

Contaminant	Highest Detected Level (mg/l)	NY Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Nitrogen, nitrate (+NO_2) as N	0.56	10	10	--
pH	8.0	6.5-8.5	--	6.5-8.5
Phosphate	0.074	--	--	--
Potassium	1.4	--	--	--
Sodium	15.5	20	--	--
Sulfate	27.8	250	500	250
TDS	201	500	--	500
Turbidity	4.3 NTU	5 NTU	--	--
Zinc	0.005	0.3	--	5.0

*Action level

Corrective Actions/Regulatory Actions

A 1992 Order on Consent requires Georgia-Pacific to conduct groundwater sampling of the existing monitoring w for all metals. The samples shall be both filtered and unfiltered. Georgia-Pacific may, at their discretion, install new wells near the existing wells and sample the new wells in addition to the existing wells. After an evaluation of the sample, the Department shall determine if Georgia-Pacific will be required to submit and implement an Approved Investigative Report groundwater study addressing the need to protect the water supply of the town of Warwick was required to be prepared a the Department planned to review the soil sample results for the stream sediment, the clay liner of the lagoons, the residu material that may still be in the lagoons, and/or tanks at the site. No information was readily available on the implementa of this Order.

Sources of Information

Order on Consent, 1992.

Letter from Georgia-Pacific Corporation to New York State Department of Environmental Conservation, March 19, 1984.

Report on Preliminary Soil and Foundation Investigation, Proposed Paper Finishing Plant, 1992 surface water sampling data.

Letter from New York State Department of Environmental Conservation to Georgia-Pacific Corp., February 7, 1992.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

HOLLINGSWORTH AND VOSE COMPANY NEW YORK

Facility Overview

Facility Name:	Hollingsworth and Vose Company
Location:	Easton, New York
Waste Stream:	Paper mill sludge
Media Affected:	Groundwater

Hollingsworth and Vose Company is headquartered in East Walpole, Massachusetts and has two paper mills located in the towns of Easton and Greenwich, New York. The mills manufacture miscellaneous specialty papers, specifically, papers for oil, water, and air filter products. The Greenwich mill has been in operation since 1880 and produces approximately 18 tons of paper per day. The Easton mill produces approximately 44 tons of paper per day. Hollingsworth and Vose has owned the mills for over 40 years. The landfill was constructed in 1974 and is situated adjacent to the Batten Kill River.

Wastes and Waste Management Practices

Approximately 2,625 tons of paper sludge with 15-20% solids is disposed of per year. The sludge is dewatered o time in drying beds. When the drying beds fill and dewatering has been maximized, the sludge is excavated and hauled t landfill. Leachate from the drying beds is collected in an underdrain system and pumped to a clarifier. Under standard operating procedures, sludge disposal in the landfill occurs once a year. The sludge disposal landfill is devoid of liners ar leachate collection capabilities.

Extent of Contamination

Groundwater sampling downgradient from the landfill was conducted monthly. Sampling has detected phenol lev consistently above New York State standards. Phenols additionally are found to meet or exceed the NYS drinking water standards in 75% of upgradient samples.

GROUNDWATER CONTAMINANTS EXCEEDING NEW YORK OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	NY Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
pH	6.87-8.09	6.5-8.5	--	6.5-8.5
Phenol	0.022	0.001	--	--

Corrective Actions/Regulatory Actions

No information was readily available on any remediation of the contaminated groundwater.

Sources of Information

Hollingsworth and Vose Company Multi-Media Inspection, June 16, 1993.

New York State Department of Environmental Conservation, Memorandum, "Program Summary for Hollingsworth and Vo Inspection," August 17, 1993.

Hollingsworth & Vose, Annual/Quarterly Report, 1995.

Personal Communication, Al Majors, Tennessee Department of Environment and Conservation, Division of Solid Waste Management, August 28, 1996.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

Facility Overview

Facility Name:	International Environmelting Corp.
Location:	Dunkirk, Chautauqua County, New York
Waste Stream:	Spent casting sand and construction wastes

The International Environmelting Corp. facility is located in an industrial area where two foundries operated for eighty or more years. The two foundries, Skeleton Shovel Company and True Temper Corporation, manufactured metal items, such as steam radiators and shovels. Manufacturing operations continued at the site from at least 1915 to 1985. An environmental investigation was conducted at the site, including soil and groundwater sampling in 1989. A second investigation including soil and groundwater sampling was conducted in 1993 and submitted to the New York State Department of Environmental Conservation (DEC).

Wastes and Waste Management Practices

Both of the foundries formerly located on the site used spent casting sand and construction wastes to fill in the low lying areas near their plants. Excavations on site before 1975 provided a major source of fill for the parking lot on the nor side of the facility. In addition, construction waste and truck fleet maintenance waste was added to the fill material. This waste stream included copper pipe, solder, galvanized ferrous metals, and brass filings. The fill area varies from grade to depths of eight feet. In later years, parking lots and buildings were built on most of the property.

Extent of Contamination

The facility conducted an environmental investigation in 1993 and submitted the soil and groundwater sampling results to the DEC. These results are presented in the following tables.

Groundwater - The table below presents the results of the groundwater analysis. Arsenic, chromium, lead, and nickel were all detected above State or Federal standards.

GROUNDWATER CONTAMINANTS COMPARED TO NEW YORK OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (µg/l)	NY Standard (µg/l)	MCL (µg/l)	SMCL (µg/l)
Arsenic	200	50	50	--
Cadmium	1.5	10	10	--
Chromium	65.0	50	50	--
Lead	345	50	50	--
Mercury	.5	2	2	--
Nickel	278	76.8	--	--
Zinc	1,180	5,000	--	5,000
TPH	3,600,000	--	--	--
Tetrachoroethene	1,450	--	--	--
Xylenes	40	--	10,000	--

Soil - The soil samples generally were taken from boring holes through the overlying concrete. Some surface soi samples were taken from unpaved ground. Arsenic, benzene, copper, mercury, nickel, and zinc were all detected in soil boring samples at levels higher than those set by DEC. The table below presents the results of the soil sampling.

SOIL CONTAMINANTS COMPARED TO NEW YORK STATE STANDARDS

Contaminant	Surface Soil Samples Highest Detected Level (mg/kg)	Soil Boring Samples Highest Detected Level (mg/kg)	Proposed DEC* Soil Cleanup Objectives For Inactive Hazardous

			Waste Sites (mg/kg)
Arsenic	29.7	35.60	7.0
Chromium	16.4	16.60	50
Copper	--	2250	25
Lead	2930	1070	--
Mercury	--	0.26	0.1
Nickel	--	28.8	13
Thallium	--	--	150
Zinc	--	1770	20
Benzene	--	0.03	0.06
Toluene	--	0.027	1.5
TPH	3,600	170	--
Tetrachoroethene	1.45	--	1.4
p-Xylene/m-Xylene	0.04	--	1.2

*Telephone conversation with the Technology Section, DEC.

Corrective Actions/Regulatory Actions

Most of the property is covered by asphalt paving or buildings. The facility plans to pave additional areas to provi new parking. In addition, the groundwater underlying the property is perched and is not used as a drinking water source. view of this site's unique characteristics, DEC chose not to list this site on the Registry of Inactive Hazardous Waste Disp Sites. DEC, however, recommended that the facility "clean up those few areas that show elevated total metals" and prov "letter report on such action" to DEC.

Sources of Information

Letter from DEC addressed to International Environmelting Corporation.

DEC internal memorandum, dated April 13, 1993.

Hazardous Substance Waste Disposal Nomination Form, May 3, 1994.

Results of the Soil and Groundwater Sampling at the Prospective Enviromelting Facility in Dunkirk, NY. Groundwater Technology for the DEC, April 2, 1993.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996

Facility Overview

Facility Name:	International Paper Company, Ticonderoga Mill
Location:	Ticonderoga, New York
Waste Stream:	Paper mill sludge
Media Affected:	Groundwater

International Paper Company's (IPCo.) Ticonderoga Mill facility has two paper making machines which have the combined capacity to produce 840 tons per day of fine alkaline printing quality papers. Up to 700 tons of pulp per day is also produced. IPCo. operates a paper sludge landfill in the town of Ticonderoga, in Essex County, New York. The landfill is underlain in most areas by three distinct geologic units: a varved clay zone, a silty sand zone, and a bedrock formation. The silty sand zone is absent in localized areas on the western portion of the landfill. Groundwater in the three geologic zones generally flows to the east-northeast. The shallow groundwater also flo the southeast in the southeast region of the landfill. The facility is located one-half mile west of Lake Champlain.

Wastes and Waste Management Practices

In 1982, IPCo. filed a permit application to expand its landfill into areas located immediately north (33 acres) and south (27 acres) of the existing facility. A permit to construct both expansion areas was issued in August 1983, and to op the northern expansion in April 1984. The southern portion of the expansion has not been constructed, although the facil has recently notified the State of their intent to develop this section of the landfill. In March 1989, IPCo. submitted an application for renewal of their existing permit. Processing of this permit was suspended pending resolution of issues rela to groundwater contamination. IPCo. has continued to operate under the conditions of the 1984 permit in accordance wit Section 401.2 of the State Administrative Procedures Act. Presently, surface water runoff and leachate are collected arou the landfill perimeter and conveyed to a collection sump in the northeast landfill corner. Leachate is then pumped to the treatment plant. Material permitted for disposal in the landfill includes primary, secondary, and tertiary treatment sludge, a well as miscellaneous non-hazardous waste associated with operation of the facility.

Extent of Contamination

The table below identifies the constituents analyzed for and detected in the December 1992 groundwater samplin of the landfill and the highest detected level of each constituent in downgradient wells. Iron, magnesium, sodium, sulfate, TDS levels were found to be above New York or Federal standards.

GROUND WATER CONTAMINANTS EXCEEDING NEW YORK OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	NY Class GA GW Standards (mg/l)	MCL (mg/l)	SMCL (mg/l)
Alkalinity	746	--	--	--
Chloride	47.7	250	--	250
Iron	20.4	0.3	--	0.3
Magnesium	1,495	35	--	--
pH	6.7	6.5-8.5	--	6.5-8.5
Sodium	282	20	--	--
Sulfate	5430	250	500	250
TDS	10,800	500	--	500
TOC	12.2	--	--	--

Corrective Actions/Regulatory Actions

In accordance with an Order on Consent with NYSDEC, a draft Remedial Action Plan has been submitted by the facility and is currently under review.

Sources of Information

Summary prepared by New York Department of Environmental Conservation, July 1996.

Environmental Monitoring Plan, May 1996, Rust Environment and Infrastructure, Inc.

Hydrogeologic Assessment of the International Paper Ticonderoga Mill Landfill, January 1994, Eder Associates.

New York Department of Environmental Conservation, Solid Waste Division files, July 1996.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

Facility Overview

The International Paper, Hudson River facility is located in the town of Corinth, Saratoga County, New York. The facility is a paper mill.

Facility Name:	International Paper, Hudson River
Location:	Corinth, New York
Waste Stream:	Paper mill sludge
Media Affected:	Groundwater

Wastes and Waste Management Practices

International Paper owns and operates a solid waste landfill for the disposal of paper mill sludge produced by their paper manufacturing facility. Landfilling activities were initiated in the summer of 1995. Approximately 6,728 tons of paper mill sludge is disposed of in the landfill per year.

Extent of Contamination

The table below identifies the highest level of each constituent detected in downgradient wells. Aluminum, bariur iron, manganese, pH, and turbidity levels were found to be above New York or Federal standards.

GROUNDWATER CONTAMINANTS EXCEEDING NEW YORK OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	NY Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Alkalinity	445	--	--	--
Aluminum	3.3	0.1	--	0.05 to 0.2
Ammonia	0.09	2.0	--	--
Arsenic	0.002	0.025	0.05	--
Barium	0.034	0.001	2.0	--
Bromide	1.74	--	--	--
Cadmium	0.0034	0.01	0.005	--
Calcium	84.3	--	--	--
Chloride	19.2	250	--	250
Chromium	0.0039	0.05	0.1	--
Cobalt	0.0015	--	--	--
Copper	0.007	0.2	1.0*	1.0
Iron	2.64	0.3		0.3
Lead	0.0141	0.025	0.015*	--
Magnesium	25.2	35	--	--
Manganese	20.7	0.3	--	0.05
Nickel	0.0016	--	0.1	--
Nitrate-nitrite	3.2	10	10	--
pH	4.2-11.4	6.5-8.5	--	6.5-8.5
Phenols	0.00012	0.001	--	--
Potassium	2.8	--	--	--
Selenium	0.0076	0.01	0.05	--
Sodium	10.9	20	--	--
Sulfate	110	250	500	250
Turbidity	1050 NTU	5 NTU	--	--
TDS	328	500	--	500
Vanadium	0.0049	0.014	--	--
Zinc	0.109	0.3	--	5.0

*Action level

Corrective Actions/Regulatory Actions

Information was not readily available.

Sources of Information

Annual/Quarterly Report, 1995.

Sampling Data, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

Facility Overview

Facility Name:	Red Hook Paper, Inc.
Location:	Red Hook, New York
Waste Stream:	Paper slurry

The Red Hook Paper, Inc., located in the town of Red Hook, Dutchess County, New York is engaged in the business of paper recycling.

Wastes and Waste Management Practices

Paper slurry, a byproduct of paper recycling, is discharged into a wastewater treatment plant comprised of seven lagoons in a series, a small, and a large pond. The smaller pond has a flow of about 5 gallons per minute, escaping through an earthen dam to a drainage ditch. This flow e a swampy area adjacent to a small stream exiting Spring Lakes. This treatment plant is required to monitor flow, BOD, suspended solids, settleable solids, pH, temperature, toluene, acetone, and zinc. Under normal operations, 300 gallons o process and cooling water are discharged per minute, 24 hours a day, producing a total daily flow of 432,000 gallons.

Extent of Contamination

On March 17, 1992, the New York State Department of Environmental Conservation (DEC) investigated a compla at Red Hook Paper. The investigator noted that a dead swan and dead fish were in the treatment lagoon. On April 15, 19 the Dutchess County Health Department conducted a site visit. The investigator noted that "Many dead fish were observe They appeared to have been dead for a long time." The dead fish were located on the south side of the larger, propeller-shaped lake (indicated as the large pond on the permit). Dead fish were also observed in the very small pond on the sou side of Spring Lake Road. In these areas about one to three dead fish per square foot were observed and there appeare be a mild, musty, paper waste odor around the ponds.

On March 30, 1992, the DEC took a water sample from the treatment lagoon. The results indicated a level of toluene of 0.02 mg/l. Since the lagoons are not lined, DEC has assumed that the toluene has entered the groundwater. State health standard for toluene in groundwater is 0.005 mg/l. No groundwater sampling data were available.

Corrective Actions/Regulatory Actions

The settling lagoons have been dredged. Regular maintenance of the settling lagoons will prevent mats of sludg from collecting in the large pond. A hydrasieve was installed on March 9, 1994. The hydrasieve filters the wastewater th reducing the amount of waste paper fiber entering the lagoons. Efforts have been made to reclaim and recycle paper slu which has been stored on site in the past. Plans to install groundwater monitoring wells are underway.

Sources of Information

Memorandum to New York State Department of Environmental Conservation, "Case Report -- Red Hook Paper, Inc. Wastewater," June 16, 1995.

Letter from New York State Department of Environmental Conservation to Red Hook Paper Inc., June 22, 1993.

Letter from Red Hook Paper to New York State Department of Environmental Conservation, May 11, 1993.
Letter from New York State Department of Environmental Conservation to Red Hook Paper Inc., July 29, 1992.

Letter from Red Hook Paper Inc. to New York State Department of Environmental Conservation, March 19, 1994.

Letter from Red Hook Paper Inc. to New York State Department of Environmental Conservation, April 4, 1995.

State Pollutant Discharge Elimination System Discharge Permit, April 1, 1993.

New York State Department of Environmental Conservation Complaint Investigation Report, March 24, 1992.

Letter from New York Department of Environmental Conservation to Red Hook Paper Inc., May 7, 1993.

New York State Department of Environmental Conservation Complaint Investigation Report, April 21, 1993.

Memorandum from Dutchess County Health Department to New York State Department of Environmental Conservation, 22, 1993.

Facility Overview

Facility Name:	Sherwood Medical Company
Location:	Argyle, New York
Waste Stream:	Cooling water discharge for medical device manufacturing facility
Media Affected:	Groundwater

Sherwood Medical Company owns and operates a PVC medical catheters and devices manufacturing facility located in the town of Argyle, Washington County, New York. The geology at the Sherwood Medical site consists of a thin layer of unconsolidated sand, gravel, silt, and weathered shale fragments which overly the interbedded shale and sandstone bedrock. Groundwater occurs within and its flow is controlled by fractures and joints in the shale/sandstone bedrock. Following an evaluation of the shallow and deep flow aquifers at the site, groundwater divides were identified by topographic ridges which separate surface water drainage basins. Shallow groundwater in the immediate vicinity of the facility appears to be discharged to nearby Hook Brook which crosses the site from east to west through the southwest corner of the property.

Wastes and Waste Management Practices

From 1986 until July 1989, Sherwood Medical discharged cooling water to two septic tanks and leach fields. The cooling water was used to solidify extruded catheters.

Extent of Contamination

Two new groundwater monitoring wells were installed in the downgradient direction from each leachfield. Sample were collected from each of these wells and from the three in-service plant water production wells. In addition, soil sampl were collected at six locations and analyzed for the same parameters as the groundwater samples in order to determine whether any residual soil contamination may be affecting groundwater quality. Phenol levels in the groundwater were fou be consistently above New York standards. Grease and oil contamination also was detected.

GROUNDWATER CONTAMINANTS EXCEEDING NEW YORK OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	NY Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Grease and oil	3	--	--	--
Phenols	0.003	0.001	--	--

Corrective Actions/Regulatory Actions

The New York State Department of Environmental Conservation issued an Order on Consent requesting that discharge of industrial wastewater be ceased for any outfall or point source at the site and that a groundwater monitoring assessment be implemented to determine the impact, if any, on the local groundwater. Groundwater sampling was requi quarterly for one year to identify any observable trends in groundwater quality. In addition to quarterly sampling, monthly level readings were required in all four plant production wells and the two monitoring wells for one year during periods of regular operation. The daily volume of water also was required to be recorded to determine the effects of pumping on wat flow directions in the vicinity of the Sherwood plant. A risk assessment for phenolic compounds was performed to study hypothetical groundwater use by area residents. The assessment concluded a low potential for adverse health effects du phenolic compounds. No additional action was thus deemed warranted at this time.

Sources of Information

Executive Summary, Sherwood Medical Company, undated.

1990 Groundwater Sample Analysis, Sherwood Medical Company.

New York Department of Environmental Conservation, Solid Waste Division files, July 1996.

Facility Overview

Facility Name:	Alamac Knit Fabrics, Inc.
Location:	Hamilton, North Carolina
Waste Stream:	Processing sludge and wastewater
Media Affected:	Groundwater

Alamac Knit Fabrics, Inc. is an apparel fabric manufacturing plant located in Hamilton, North Carolina, in Martin County. The approximate depth to groundwater is greater than 6 feet and the predominant soil texture is sand.

Wastes and Waste Management Practices

Sludge is land applied to a 38 acre area by spray irrigation. Management practices apply solids at agronomic rates, or less, while maintaining a cover crop capable of uptaking all of the plant available nitrogen (PAN), which includes nitrates. An annual report required by permit is prepare each year and tracks closely the PAN and metals loading. In addition, an independent certified soil scientist visits the site each year, collects soil samples, and provides his assessment of the operation. No waste is discharged to surface water.

Extent of Contamination

The table below identifies the constituents detected in groundwater sampling and the highest detected level of ea constituent in downgradient wells. Groundwater is monitored tri-annually at 6 wells, three upgradient and three downgrad Nitrate and total organic carbon were found to be above North Carolina or Federal standards.

GROUNDWATER CONTAMINANTS EXCEEDING NORTH CAROLINA OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	NC Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Cadmium	0.01	0.005	0.005	--
Nitrate	27.4	10	10	--
TOC	5.44	0	--	--

Alamac has not been able to identify the source of nitrates. Elevated cadmium and nitrate levels are found in an upgradient well which monitors groundwater moving onto the site.

Corrective Actions/Regulatory Actions

Information was not readily available.

Sources of Information

North Carolina Department of Environmental Management, Groundwater Section, Permits and Compliance Database Printout, August 18, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

BALL-FOSTER GLASS CONTAINER CO., L.L.C. NORTH CAROLINA

Facility Overview

Facility Name:	Ball-Foster Glass Container Co.
Location:	Henderson, North Carolina
Waste Stream:	Process sludges
Media Affected:	Groundwater

Ball-Foster Glass Container Co. is located in Henderson, North Carolina, in Vance County. The nearest surface water body is Martin Creek which is within 100 feet.

Wastes and Waste Management Practices

Ball-Foster Glass Container Co. operated an industrial wastewater lagoon. According to the facility, wastewater containing vegetable oils and animal fats were discharged into the lagoon. North Carolina Department of Environmental Management suspects that the lagoon also received "direct discharges of hydraulic oils, and other petroleu oils from plant equipment maintenance operations" in the lagoon.

Extent of Contamination

The table below identifies the constituents detected in groundwater sampling and the highest detected level of ea constituent in downgradient wells. Groundwater is monitored semi-annually with a monitoring well network which include upgradient and seven downgradient wells. Benzene, oil and grease, and total petroleum hydrocarbons were found to be above North Carolina standards.

GROUNDWATER CONTAMINANTS EXCEEDING NORTH CAROLINA OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	NC Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Benzene	0.0059	0.001	0.005	--
Oil and grease	1,600	0	--	--
Total petroleum hydrocarbons	540	10	--	--

Corrective Actions/Regulatory Actions

The industrial lagoon was closed in 1994. Sludge and soil from the lagoon were stabilized with lime, excavated, a transported off-site to a sanitary landfill. The lagoon was back-filled with clean material, compacted, and seeded. The lag wastewater was treated with a portable treatment system and discharged to a publicly owned treatment works. Monitorin continue, but removal of the waste source is anticipated to enhance groundwater remediation. Remedial activities will continue during the fall of 1996.

Sources of Information

North Carolina Department of Environmental Management, Groundwater Section, Permits and Compliance Database Printout, August 18, 1995.

Corrective Action Plan, Former Lagoon Area, O'Brien & Gere Engineers, Inc., June 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

Facility Overview

Borden Chemical Inc. is located in Fayetteville, Cumberland County, North Carolina. The facility is situated on predominantly loamy sands. There are no drinking water wells within 1/4 mile of the Borden plant site. There are, however, drinking water wells adjacent to the land application farm sites. For this reason, their permit requires that biomass land application activities be kept at least 400 feet from these homes and their associated drinking water wells.

Facility Name:	Borden Chemical Inc.
Location:	Fayetteville, North Carolina
Waste Stream:	Biomass from biological treatment of thermoset resin wastewater

Wastes and Waste Management Practices

Borden Chemical operates a biological wastewater treatment facility which treats wastewater generated during thermorest resin manufacture. Approximately 79 dry tons/yr. of biomass from wastewater treatment is land applied on farmlands as a nutrient supplement. Biomass is land applied with sufficient buffer zones established to prevent runoff to surface water.

Extent of Contamination

The sludge analysis indicates the presence of several compounds of concern: formaldehyde, several halogenate organics, phenols, and toluene. The concentrations of these compounds do not preclude land application, but the North Carolina Department of Environmental Management issued the permit with contingencies requiring groundwater monitori for related contaminants. Groundwater is monitored tri-annually at 6 wells. The table below identifies the constituents detected in groundwater sampling and the highest detected level of each constituent in downgradient wells. Ammonia-nitrogen, arsenic, chromium, formaldehyde (methanol), lead, nitrate, and total organic carbon were found to be above No Carolina or Federal standards.

GROUNDWATER CONTAMINANTS EXCEEDING NORTH CAROLINA OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	NC Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Ammonia-nitrogen	0.05	0	--	--
Arsenic	0.012	0	0.05	--
Chromium	0.11	0.05	0.1	--
Formaldehyde (Methanol)	0.25	0	--	--
Lead	0.27	0.015	0.015*	--
Nitrate	10.4	10	10	--
TOC	9.9	0	--	--

*Action level

Arsenic, chromium, formaldehyde (methanol), lead, and TOC were determined to be inherent in the soil and artificially elevated by the well purging and sampling procedure which captured high amounts of sediment in the sample. the sampling procedure was changed to allow the sediment to settle, the contaminant values dropped below detectable li The ammonia-nitrogen value is a single result from a single sampling event. All other samples were non detectable, suggesting a temporary aberration or sample contamination. The nitrate value, however, is not inconsistent with subsequ sampling events. However, it must be noted that biomass is land applied on each field once every one to two years. Oth sources of nitrogen (and trace contaminants) are also land applied by the farmer. These include commercial fertilizers ar residuals from clean-out of turkey houses. It should also be noted that septic tanks are contributing to the contaminate le of the wells since coliform bacteria are detected.

Corrective Actions/Regulatory Actions

None pending.

Sources of Information

North Carolina Department of Environmental Management, Groundwater Section, Permits and Compliance Database Printout, August 18, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

Facility Overview

Facility Name:	Carolina Turkeys
Location:	Duplin County, North Carolina
Waste Stream:	Turkey processing and rendering waste
Media Affected:	Groundwater

Carolina Turkeys, a turkey processing facility is located in Duplin County, North Carolina. The nearest surface water body to our location for monitoring procedures is an estuary which feeds the Northeast Cape Fear River and is located approximately 1500 - 2000 feet in distance away. The surficial aquifer is predominantly sands with medium to high infiltration capacities.

Wastes and Waste Management Practices

Carolina Turkeys has two waste water lagoons, one aerated 15 million gallon lagoon and one 41 million gallon holding lagoon. The water which is treated and aerated in the smaller lagoon feeds the larger holding lagoon until ready t applied to the permitted spray fields. Primary and secondary screened effluent comes to a 1-million gallon flow equalizati tank. Through dissolved air flotation units, oil and grease is then removed. This treated wastewater is then sent to the 15 million gallon aerated lagoon. The waste from these lagoons is then applied to approximately 560 (440 for water spray ar 120 for sludge) acres of permitted spray irrigation disposal fields.

Extent of Contamination

The table below identifies the constituents detected in groundwater sampling and the highest detected level of ea constituent in downgradient wells. There are currently 15 monitoring wells, 8 of which are sampled on a quarterly basis. Nitrate and oil and grease were found to be above North Carolina or Federal standards.

GROUNDWATER CONTAMINANTS EXCEEDING NORTH CAROLINA OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	NC Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Copper	0.230	1	1.3*	1
Nitrate	14.2	10	10	--
Nitrite	<0.1	1	1	--
Oil and grease	1.1	0	--	--

*Action level

Corrective Actions/Regulatory Actions

Information was not readily available.

Sources of Information

North Carolina Department of Environmental Management, Groundwater Section, Permits and Compliance Database Printout, August 18, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

FRIT CAR AND EQUIPMENT COMPANY NORTH CAROLINA

Facility Overview

Frit Car and Equipment Company is located in Bridgeton, North Carolina in Craven County.

Facility Name:	Frit Car and Equipment Company
Location:	Bridgeton, North Carolina
Waste Stream:	Process washwater
Media Affected:	Groundwater

Wastes and Waste Management Practices

Frit Car and Equipment Company has two sludge drying beds, a 45,000 gallon aerated storage tank, and a 1.5 acre sprayfield. No wastes are discharged to surface water.

Extent of Contamination

The table below identifies the constituents detected in groundwater sampling and the highest detected level of ea constituent in downgradient wells. Groundwater is monitored tri-annually at four wells. Ammonia, chromium, phenol, phosphorous, and total organic carbon were found to be above North Carolina or Federal standards.

GROUNDWATER CONTAMINANTS EXCEEDING NORTH CAROLINA OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	NC Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Ammonia-nitrogen	0.5	0	--	--
Chromium	1.19	0.05	0.1	--
Phenol	0.018	0	--	--
Phosphorous (total)	2.4	0	--	--
TOC	43.6	0	--	--

Corrective Actions/Regulatory Actions

Information was not readily available.

Sources of Information

North Carolina Department of Environmental Management, Groundwater Section, Permits and Compliance Database Printout, August 18, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

Facility Overview

Facility Name:	Hoechst Celanese Corporation
Location:	Salisbury, North Carolina
Waste Stream:	Chemical process waste
Media Affected:	Groundwater

Hoechst Celanese Corporation (HCC), a chemical manufacturer, owns the closed Needmore Road Landfill in Salisbury, North Carolina, in Rowan County. The nearest surface water body is the South Yadkin River and the depth to groundwater ranges from 5 feet to 40 feet below land surface.

Wastes and Waste Management Practices

Hoechst Celanese Corporation's Needmore Road Landfill received waste from 1966 until 1990 when the Corporation began to send its wastes off-site to a commercial facil

Extent of Contamination

The table below identifies the constituents analyzed for and detected in groundwater sampling and the highest detected level of each constituent in downgradient wells. The groundwater has been monitored since 1980. There are 6 monitoring wells and 27 groundwater extraction wells on the site. Many of the following contaminants listed below were f to exceed North Carolina or Federal standards.

GROUNDWATER CONTAMINANTS EXCEEDING NORTH CAROLINA OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	NC Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
1,1-Biphenyl	0.2	0	--	--
1,1-Dichloroethane	0.54	0.7	--	--
1,1-Dichloroethylene	0.296	0.007	0.007	--
1,1,1-Trichloroethane	0.056	0.2	0.2	--
1,1,2,2-Tetrachloroethane	0.001	0	--	--
1,2-Dichlorobenzene	0.002	0	--	--
1,2-Dichloroethene	0.046	0	--	--
1,4-Dioxane	45	0.007	--	--
2,4-Dimethylphenol	0.731	0	--	--
2-Butanone	1.57	0.17	--	--
2-Methylphenol	0.15	0	--	--
4-Methyl-2-pentanone	0.056	0	--	--
4-Methylphenol	0.434	0	--	--
Acetone	10.6	0.7	--	--
Barium	2.55	1	2	--
Benzene	0.006	0.001	0.005	--
Benzoic acid	11.3	0	--	--
Benzyl alcohol	1.204	0	--	--
Biochemical oxygen demand	13,400	0	--	--
Biphenyl ether	10	0	--	--
Bis(2-ethylhexyl)phthalate	2.608	0.003	--	--
Cadmium	0.0125	0.005	0.005	--
Chemical oxygen demand	15,500	0	--	--
Chloride	118	250	--	250
Chlorobenzene	0.042	0.05	--	--
Chloroethane	0.023	0	--	--
Chromium	0.062	0	0.1	--
Copper	0.772	1	1.3	1

Contaminant	Highest Detected Level (mg/l)	NC Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Di-n-butylphthalate	1.16	0.7	--	--
Diethylphthalate	0.388	5.0	--	--
Ethylene glycol	3700	7.0	--	--
Fluoride	0.4	2	4	2
Iron	333	0.3	--	0.3
Lead	3.21	0	0.015	--
Manganese	96.8	0.05	--	0.05
Methylene chloride	0.068	0.005	0.005	--
Nitrate	4.36	10	10	--
pH	5.6	6.5-8.5	--	6.5-8.5
Phenol	15.8	0.3	--	--
Specific conductance (umhos/cm)	2,990	--	--	--
Sulfate	88	250	500	250
Toluene	0.038	1.0	1.0	--
Total dissolved solids	7,040	1,000	--	500
TOC	5,500	0	--	--
TOX	2.5	0	--	--
Trichloroethene	0.14	0.0028	0.005	--
Zinc	262	5	--	5

Corrective Actions/Regulatory Actions

Hoechst Celanese Corporation has completed the Phase VI investigation to evaluate the nature and extent of groundwater degradation, and is currently implementing corrective measures to contain and treat affected groundwater. A UV/peroxide system is operating at the site to remove 1,4-dioxane from extracted groundwater, and an additional biologic treatment system will be installed to treat high-COD effluent streams from source area wells. In addition, the facility completed the installation of a RCRA-type composite cap over each of the fill areas during the first quarter of 1996.

Sources of Information

North Carolina Department of Environmental Management, Solid Waste Division, files, undated.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

Facility Overview

Facility Name:	Appleton Papers Inc.
Location:	Roaring Springs, Pennsylvania
Waste Stream:	Paper mill manufacturing wastewater
Media Affected:	Groundwater

Appleton Papers Inc. operates an integrated fine paper mill at its Spring Mill in Roaring Spring, Blair Co., Pennsylvania. They manufacture coated paper for conversion into NCR Paper brand of carbonless paper, utilizing the Kraft pulping process. The nearest surface water body is Halter Creek.

Wastes and Waste Management Practices

Waste products of bark and wood fines from wood operations are burned in a power boiler. Wash-up water, overflows at the recausticizing plant, bleach plant materials, and stock and coating preparations are processed through the waste treatment plant. Power boilers burn coal and natural gas some of these wastes are processed through the waste treatment plant. The waste treatment plant treats all of the mill's waste streams by primary sedimentation and secondary activated sludge. Liquid waste streams include bleach plant filtrates and washes, as well as washes from the boiler house machine room, and No. 2 paper machine coater. Solid waste materials include green liquor dregs and slake grit which are impurities from chemical recovery. These, as well as washed and dewatered lime sludge and dust, are disposed of in an on-site landfill. Residual wastes generated at the mill are disposed in a lined surface impoundment, the No. 1 Lagoon, which has a State solid waste permit.

Extent of Contamination

Groundwater has been contaminated at the site of the No. 1 Lagoon because the lagoon is leaking. Monitoring was conducted with upgradient and downgradient wells. Results of the monitoring show excess levels of chlorides and sulfates.

GROUNDWATER CONTAMINANTS COMPARED TO FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	MCL (mg/l)	SMCL (mg/l)
TDS	1,933	--	500
Sulfate	595	--	500-250
Chloride	630	--	250

Corrective Actions/Regulatory Actions

In February 1987, the Department of Environmental Resources in Pennsylvania modified Appleton's solid waste permit covering the No. 1 Lagoon. Condition 3 of the permit modification stated that the company must submit a Phase II application for a new site due to groundwater contamination at the existing site. In response to the permit modification, Appleton filed an appeal to the Environmental Hearing Board (EHB Docket No. 87-085-W). The Department informed Appleton that continued use of the No. 1 Lagoon was unacceptable, so the company filed another appeal (EHB Docket No. 88-074-W). The appeals were solved in March 1990 when the Department removed the permit condition. No additional information on the remediation of the contaminated groundwater was available.

Sources of Information

Proposal to Appleton Papers, Inc. from the Harrisburg Regional Office of the Department of Environmental Resources, October 1987.

Appleton Papers, Inc. PPC Plan, undated.

Consent Adjudication between the Commonwealth of Pennsylvania, Department of Environmental Resources, and Appleton Papers, Inc. March 1990.

Facility Overview

Facility Name:	Allied-Signal, Inc.
Location:	Cleveland, Tennessee
Waste Stream:	Manufacturing scrap and pelletized waste
Media Affected:	Groundwater

Since 1964, automotive brake friction materials have been manufactured at Allied-Signal Inc.'s Friction Materials Division in Cleveland, Tennessee. This 285,000 square foot plant facility, situated on 22 acres, employs approximately 550 personnel. The facility uses a permitted 24-acre landfill near the plant operation for disposal of process wastes from the facility. This landfill has been operated by Allied-Signal and the former Bendix Corporation since 1964. The landfill is divided into four phases. Phase I, consisting of 1.3 acres, was constructed in 1964 and closed in 1981. Phases II and III, consisting of 4.1 acres, were constructed in 1980 and closed in 1994. Phase IV, consisting of acres, was constructed in August, 1993 and is currently in use. As noted, the only portion of this landfill currently in use is Phase IV 4 acre portion. In August , 1992 the facility was permitted to construct this final 4-acre phase of the active landf according to the sub-title D requirements for a leachate collection system and waste area liner system, which consists of t feet of recompacted clay to meet the rule design specifications. In August of 1993, construction of the first section (IV-A) completed. In April of 1994 a variance from the rule requirements to upgrade class II landfills from clay liners to composit fabric and clay liners was received for the unconstructed IV-B section due to the need for design compatibility with the IV- section. The construction of the final section, IV-B, is scheduled for 1997. The remaining life of this landfill is approximat 10 years at present fill rates. The landfill is characterized by bedrock-controlled, northeast to southeast trending ridges an valleys.

Wastes and Waste Management Practices

Approximately 7,000 tons of manufacturing scrap and pelletized waste are disposed of annually at the landfill. So waste includes friction materials, dust from process operations, floor sweepings, off-specification batches, and reject prod Dust collected from process operations are pelletized with a mixture of cement and water prior to disposal at the landfill. Generally, pelletized friction material wastes and baghouse dust collector contents comprise 80% of the waste stream an reject materials and floor sweepings make up the remaining 20%.

The landfill consists of a trench fill operation in which each trench is filled with individual cells of waste that are covered with soil. Phases II and III are being filled in five foot lifts that consist of four feet of waste and one foot of intermediate earthen cover. Both the waste and cover are compacted prior to the placement of additional waste. The wa covered each day following filling activities to minimize erosion and airborne transport of the waste. Grading of the waste performed after placement to enhance surface water runoff and to prevent ponding. The landfill was permitted in 1983, p to the promulgation of the Tennessee Solid Waste Processing and Disposal Amendments of 1990 and therefore, the land not equipped with a subterranean leachate collection system. The portions of the landfill that were in use during the 1991 time period have been capped and closed. A new state-of-the-art landfill has been installed that contains both a leachate collection system and waste area liner system which complies with the federal standards for the management and siting o land-based units set forth at 40 CFR Part 257. The leachate is collected and discharged to the local Cleveland POTW.

Extent of Contamination

Nine groundwater wells are monitored quarterly. Five piezometers characterize groundwater flow. High concentrations of BEHP, total dissolved solids, and total phenols have been detected in the groundwater samples. Health may be present when phenolic compound concentrations are above 21.0 mg/l for adults and 9.6 mg/l for children. The ta below identifies the constituents analyzed and detected in the 1990-1991 groundwater sampling (the only years for which were readily available) and the highest detected level of each constituent in downgradient wells.

GROUNDWATER CONTAMINANTS COMPARED TO TENNESSEE OR FEDERAL DRINKING WATER STANDARDS					
Contaminant	**Highest Detected Level (mg/l)**	**TN Standard (mg/l)**	**MCL (mg/l)**	**SMCL (mg/l)**	**U.S. EPA Health-Based Criteria**

					(mg/l)
Barium	<0.05	2.0	2.0	--	--
BEHP	0.039	--	--	--	0.0042
Chloride	31	--	--	250	--
Hardness	150	--	--	--	--
Nitrogen, nitrate	1.8	10	10	--	--
pH	3.9-10.6	6.0-9.0	--	6.5-8.5	--
Phenols	22.0	--	--	--	21.0
Specific conduct-ance (umhos/cm)	305	--	--	--	--
TDS	29,000	500	--	500	--
TOC	130	--	--	--	--
Turbidity	41,500 NTU	--	--	--	--

Some of the reported data may be from a monitoring well suspected to be improperly installed. However, the fac continues to sample that well and monitoring data is provided to the State of Tennessee.

Since September of 1993, solid waste from the plant facility has been disposed of in Phase IV-A of the landfill. Since the new landfill was placed into use and Phases II and III were capped and closed, levels of phenol and BEHP hav continued to steadily decline

Corrective Actions/Regulatory Actions

Phases II and III were capped and closed in 1994. Phase IV-A, a new state-of-the-art landfill, with a leachate collection and liner system has been in operation since September if 1993. The leachate from this phase of the landfill is collected and discharged to the local Cleveland POTW. In 1994, three additional monitoring wells were constructed due the expansion of the active waste area into Phase IV-A. Presently, twelve groundwater monitoring wells and four piezom wells are located at the landfill. These wells are currently sampled semi-annually in compliance with Tennessee Solid Wa regulations and analyzed for selected volatile and semi-volatile organic compounds, and for applicable inorganics. Analy results are submitted to the State of Tennessee following each monitoring event.

Sources of Information

RMT Laboratories Report, Allied Signal, INC./ Bendix, April 1991.

RMT Laboratories Report, Allied Signal, INC./ Bendix, July 1991.

RMT Laboratories Report, Allied Signal, INC./ Bendix, June 1992.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996

CYTEC INDUSTRIES INC. TENNESSEE

Facility Overview

Facility Name:	Cytec Industries Inc.
Location:	Chattanooga, Tennessee
Waste Stream:	Processed silica
Media Affected:	Groundwater

Cytec Industries Inc. (Cytec) is a vertically integrated, specialty chemicals company that serves a wide range of industries. Cytec manufactures liquid alum, which is an aqueous solution of hydrated aluminum sulfate. It is used primarily in paper making and as a precipitating agent in sewage treatment and water purification. The facility owner is Cytec Industries Inc. The Tennessee River runs adjacent to the western facility boundary. Although this area is termed floodplain, it is at an elevation of 660 feet which is above the 100-year flood level of 653.7 feet. Local groundwater moves towards the Tennessee River. There are no potable wells downgradient of the site prior to the Tenne River. The nearest potable well is reported to be over two miles from the site.

Wastes and Waste Management Practices

Cytec Industries Inc. operates a 10 acre permitted class II disposal facility. Processed silica is the byproduct of liquid alum manufacturing process. Processed silica slurry is pumped from the manufacturing process to one of two perm sand bed filters. While one sand bed is being filled, the other sand bed provides final dewatering and drying so that the processed silica can be excavated from the sand bed and transported to the landfill located on the same property. The processed silica is then placed, spread, compacted, graded, covered and stabilized. Water, including rainwater, is reclair from both sand bed filters continuously and is returned to the manufacturing process. Each sand bed has 4,000 cubic ya of capacity and is normally cleaned out once every six to eight months at the design rate of 15,000 cubic yards per year. landfill was constructed over a former processed silica impound and is now characterized by 12 feet of processed silica underlain by silty, sandy clay.

Extent of Contamination

The table below identifies the constituents analyzed in 1995 sampling and the highest detected level of each constituent in downgradient wells. Aluminum, lead, pH, and sulfate all exceeded regulatory groundwater standards. Groundwater sampling occurs quarterly.

GROUNDWATER CONTAMINANTS COMPARED TO TENNESSEE OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	TN Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Aluminum	0.75	--	--	0.05-0.2
Arsenic	0.012	0.05	0.05	--
Chromium	0.039	0.1	0.1	--
Lead	0.043	0.05	0.015*	--
pH	4.1	6.0-9.0	--	6.5-8.5
Sulfate	4000	--	500	250
TDS	396	500	--	500

*Action level

Corrective Actions/Regulatory Actions

Information was not readily available.

Sources of Information

American Cyanamid Company Operation Manual, undated.

Final Hydrogeologic Evaluation, Tennessee Department of Public Health, Office of Solid Waste Management, undated.

Application for State Operation Permit, Department of Environment and Conservation, Division of Water Pollution Control 1995.

Davies Engineering Company, Inc. Sampling Data. 1995.

Closure Plan for American Cyanamid Company, undated.

Public Notice of proposed alum mud disposal site, undated.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

ASSOCIATED COMMODITIES CORPORATION TENNESSEE

Facility Overview

Facility Name:	Associated Commodities Corp
Location:	Maury, Tennessee
Waste Stream:	Aluminum slag and salt compound
Media Affected:	Groundwater

Associated Commodities Corporation's facility in Maury, Tennessee, processes aluminum smelting drosses/residues. The regional topography is typified by rolling hills which extend down to the flood plain of the Duck River. The rate of slope of the ground surface varies from virtually flat-lying to 25% with the average slope estimated to be 5%. The slope of the ground surface within the development is generally flat with surface water runoff flowing to the northwest and southeast. The property is crossed by five principal and several secondary eroded valleys.

Wastes and Waste Management Practices

The 732 acre Associated Commodities landfill is situated along a ridge top, at an approximate average elevation 980 feet. Five active surface streams are present. The landfill accepted aluminum slag and salt compound. The landfill stopped receiving waste in September of 1993. Landfill closure was completed in 1994. Wastes are presently shipped o site.

Extent of Contamination

The table below identifies the constituents analyzed in 1995 groundwater sampling and the highest detected leve each constituent in downgradient wells. Iron, nickel, and TDS all were found to exceed Tennessee or Federal standards. Groundwater sampling occurs quarterly.

GROUNDWATER CONTAMINANTS EXCEEDING TENNESSEE OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	TN Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Aluminum	7.6	--	--	0.05-0.2
Antimony	<0.005	0.006	--	--
Arsenic	0.003	0.05	0.05	--
Barium	1.7	2.0	2.0	--
Beryllium	0.0006	0.004	0.004	--
Cadmium	0.0032	0.005	0.005	--
Chromium	0.006	0.1	0.1	--
Cobalt	0.15	--	--	--
Copper	0.12	--	1.3*	1.0
Iron	9.9	--	--	0.3
Lead	0.007	0.05	0.015*	--
Magnesium	153	--	--	--
Mercury	<0.0002	0.002	0.002	--
Nickel	0.18	0.1	0.1	--
Selenium	<0.01	0.05	0.05	--
Silver	<0.001	0.01	--	0.1
Sodium	5040	--	--	--
Thallium	<0.005	0.002	0.002	--
Vanadium	0.012	--	--	--
Zinc	0.06	--	--	5.0
Chloride	10	--	--	250

Contaminant	Highest Detected Level (mg/l)	TN Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Specific conductance (umhos/cm)	908	--	--	--
Fluoride	0.13	4.0	4.0	2.0
Nitrogen	<0.1	--	--	--
TDS	595	500	--	500
Turbidity	47.3 NTU	--	--	--
Ethylene dibromide	<0.0002	0.00005	0.00005	--
pH	6.2	6.0-9.0	--	6.5-8.5

*Action level

Corrective Actions/Regulatory Actions

Closure activities included placement of a compacted clay cap over the fill area, construction of the cap of the for fill area, grading activities in the area downgradient of the fill area, seeding of grass of the landfill, and quarterly groundwa sampling.

Sources of Information

Memorandum from Tennessee Department of Environment and Conservation, September 12, 1994.

Letter from Resource Consultants Inc. to Tennessee Department of Environment and Conservation, August 19, 1994.

Letter from Associated Commodities Corp. Tennessee Department of Environment and Conservation, January 12, 1994.

Subsurface Investigation for Proposed Recyclable Slag Storage Facility, Resource Consultants Inc., undated.

Corrective Action Activities, Resource Consultants, Inc., February 1993.

1995 Groundwater Sampling Data, Resource Consultants, Inc.

Personal communication with the Tennessee Department of Environment and Conservation, August 1996.

HOLSTON ARMY AMMUNITION PLANT TENNESSEE

Facility Overview

Facility Name:	Holston Army Ammunition Plant
Location:	Kingsport, Tennessee
Waste Stream:	Mixture of ammunition processing wastes
Media Affected:	Groundwater

Holston Army Ammunition Plant (HAAP) was constructed in 1942 to manufacture the high explosive RDX and formulations based on RDX. Holston AAP currently manufactures RDX and HMX (another high explosive) and formulations based on these two explosives. Holston AAP is located near Kingsport, in northeast Tennessee. The facility is underlain by two major rock units, the Mascot Dolomite and the Sevier Shale. The Mascot formation is highly fractured and jointed, and contains many solution channels. These solution channels often develop vertically and form sinkholes. Groundwater is found in the abundant fractures of the Sevier Shale. However, deeper fractures are usually se by calcium carbonate, and significant quantities of groundwater are generally not found below 300 feet. The facility is bis by the Holston Rivr, which flows generally from northeast to southwest. Holston AAP operates an Active Sanitary Landfil a Tar Pit.

Wastes and Waste Management Practices

The wastes disposed of at HAAP consist of a mixture of materials from the manufacture of explosives (ammunitio used by the Army. The Active Sanitary Landfill has seven associated sampling wells. The Tar Pit has four associated sampling wells.

Extent of Contamination

Manganese was found to be above Federal standards in third quarter 1995 sampling results for the active sanitar landfill. Groundwater sampling occurs quarterly.

Active Sanitary Landfill

GROUNDWATER CONTAMINANTS EXCEEDING TENNESSEE OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	TN Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Manganese	0.160	--	--	0.05

Manganese concentrations are naturally high in native soils in northeast Tennessee.

The table below identifies the constituents analyzed for in the third quarter 1995 sampling and the highest detecte level of each constituent in downgradient wells for the tar pit. The pH was found to be above Tennessee or Federal standards. Groundwater sampling occurs quarterly.

Tar Pit

GROUNDWATER CONTAMINANTS EXCEEDING TENNESSEE OR FEDERAL DRINKING WATER STANDARDS				
Contaminant	**Highest Detected Level (mg/l)**	**TN Standard (mg/l)**	**MCL (mg/l)**	**SMCL (mg/l)**
COD	20	--	--	--
pH	9.8	6.0-9.0	--	6.5-8.5
Phenol	0.78	--	--	--
TDS	378	500	--	500

Corrective Actions/Regulatory Actions

The tar pit consists of two Solid Waste Management Units, SWMUs 14 and 15. A RCRA Facility Investigation (R has been performed on the two SWMUs. A removal action has been funded for SWMU 15, and a Corrective Measure St has been funded for SWMU 14. Both actions are expected to be performed in 1997. The Sanitary Landfill will be closed late 1996/early 1997.

Sources of Information

Groundwater Data and Summary, Third Quarter, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

MONSANTO CHEMICAL COMPANY TENNESSEE

Facility Overview

Facility Name:	Monsanto Chemical Company
Location:	Columbia, Tennessee
Waste Stream:	Variety of solid industrial wastes
Media Affected:	Groundwater

The Monsanto Chemical Company's Columbia Tennessee plant processed phosphate ore to extract elemental phosphorous for sale to customers and for use in other Monsanto operations external to the Columbia plant. The manufacturing facility operated almost 50 years prior to its shutdown in October 1986. Subsequently, elemental phosphorous produced at a sister plant was received in railroad tank cars, unloaded and repackaged into 55-gallon drums for sale. A local vendor crushed, sized, and shipped previously stockpiled furnace slag for sale. No solid waste streams were generated from the phosphorous repackaging or slag processing operations. In December 1995, the elem phosphorous repackaging operation was permanently shut down and the repackaging facility dismantled. Three addition plant facilities remain operational. They were installed in 1986/87 in preparation for plant closure and include a phosphor recovery distillation still, a phosphorous contaminated water treatment plant, and an on-site landfill.

Wastes and Waste Management Practices

The plant presently operates a solid industrial waste landfill. The wastes currently being accepted by the landfill a

- Phosphorus contaminated equipment components;
- Office waste;
- Building demolition waste;
- Industrial demolition waste from process equipment operation and equipment repair; including scrap metal, rubber, plastic, glass, paper, and cardboard that may contain trace amounts of elemental phosphorus but are non-RCRA hazardous wastes;
- Scrap metal, rubber, plastic, glass, paper, and cardboard from the on-site plant vehicle repair shop; and
- Scrap shipping materials including wooden pallets, cardboard, plastic, and metal strapping.

Extent of Contamination

The table below identifies all of the constituents analyzed in the 1994-1995 groundwater sampling of the landfill a and the highest detected level of each constituent in downgradient wells. Lead was found to be above State standards.

GROUNDWATER CONTAMINANTS EXCEEDING TENNESSEE OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	TN Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Acetone	<0.02	--	--	--
Acrylonitrile	<0.02	--	--	--
Antimony	<0.005	0.006	0.006	--
Arsenic	<0.05	0.05	0.05	--
Barium	<0.1	2.0	2.0	--
Benzene	<0.005	0.005	0.005	--
Beryllium	<0.001	0.004	0.004	--
Bromochloromethane	<0.005	--	--	--
Bromodichloromethane	<0.005	--	--	--
Bromoform	<0.005	--	0.1	--
Cadmium	<0.005	0.005	0.005	--
Carbon disulfide	<0.005	--	--	--
Carbon tetrachloride	<0.005	--	0.005	--

Contaminant	Highest Detected Level (mg/l)	TN Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Chromium	<0.01	0.1	0.1	--
Cobalt	<0.05	--	--	--
Copper	<0.01	--	1.3*	1.0
Fluoride	0.36	4.0	4.0	2.0
Lead	0.014	0.05	0.015*	--
Mercury	<0.0002	0.002	0.002	--
Nickel	0.01	0.1	0.1	--
Selenium	<0.01	0.05	0.05	--
Silver	<0.01	0.01	0.01	0.1
Thallium	<0.01	0.002	0.002	--
Vanadium	0.017	--	--	--
Zinc	0.07	--	--	5

*Action levels

Corrective Actions/Regulatory Actions

Information was not readily available.

Sources of Information

Letter from Monsanto Chemical Company to Division of Solid Waste Management, Tennessee Department of Environme and Conservation, September 20, 1994.

Letter from Tennessee Department of Environment and Conservation to Monsanto Chemical Company, October 18, 199

Groundwater Monitoring Analysis for Monsanto Chemical Company, 1994-1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

OCCIDENTAL CHEMICAL CORPORATION TENNESSEE

Facility Overview

Facility Name:	Occidental Chemical Corp.
Location:	Columbia, Tennessee
Waste Stream:	Solid waste from phosphate production

The Occidental Chemical Corporation is presently using an area known as the Gaskill Farm for the disposal of solid non-hazardous waste generated at the Columbia facility. Phosphates are produced at the facility.

Wastes and Waste Management Practices

The existing landfill covers approximately 19 acres in the northwest quadrant of the 724 acre plant site. Of the 19 acres, 15 are currently inactive. The landfill is used for the disposal of industrial waste. A current waste profile include coke fines, scrap metal and wood, empty crushed drums, and sludge from emission control scrubbers. No hazardous wa is disposed of in the landfill. The landfill operates 5 days per week, 12 months a year. As scrubber sludge and coke fines compose the largest portion of the waste, they are brought to the landfill three to four days per week. Sludge is deposited dump truck into the diked cell area. Nodule and slag fines are then used as cover as the cells are completed during the weekly operation.

Extent of Contamination

The table below identifies the constituents analyzed in 1994 groundwater sampling and the highest detected leve each constituent in downgradient wells. Benzene was found to be above Tennessee or Federal standards. Groundwater sampling occurs quarterly.

GROUNDWATER CONTAMINANTS EXCEEDING TENNESSEE OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	TN Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
2-Butanone	0.370	--	--	--
2-Hexanone	0.028	--	--	--
Acetone	1.300	--	--	--
Antimony	0.00018	0.006	0.006	--
Arsenic	0.000003	0.05	0.05	--
Barium	0.000091	2.0	2.0	--
Benzene	0.009	0.005	0.005	--
Cadmium	0.0000012	0.005	0.005	--
Carbon disulfide	0.023	--	--	--
Chloride	0.200	--	--	250
Chromium	0.00003	0.1	0.1	--
Copper	0.000086	--	1.3*	1.0
Ethylbenzene	0.002	0.7	0.7	--
Fluoride	0.0034	4.0	4.0	2.0
Iron	0.0256	--	--	0.3
Lead	0.000674	0.05	0.015*	--
Manganese	0.0011	--	--	0.05
Nickel	0.00002	0.1	0.1	--
Nitrate	0.0023	10	10	--
Specific conductivity (umhos/cm)	3.560	--	--	--
TOC	0.032	--	--	--
Toluene	0.008	1.0	1.0	--
Vanadium	0.00001	--	--	--

Contaminant	Highest Detected Level (mg/l)	TN Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Zinc	0.00008	0.001	--	5.0

*Action levels

Some of the reported data may be from a monitoring well initially installed at the request of the Tennessee Solid Waste division to be a downgradient test well, but was later determined to not be downgradient of the landfill. Monitoring this well did continue however.

Corrective Actions/Regulatory Actions

Information was not readily available.

Sources of Information

Occidental Chemical Corp., 1994 Groundwater Sampling Results, undated.

Consulting Engineers, Inc., Description of Operation, undated.

Personal communication with the Tennessee Department of Environment and Conservation, August 1996.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

SCEPTER, INC. TENNESSEE

Facility Overview

Scepter, Inc. operates a commercial industrial non-hazardous waste landfill near New Johnsonville, Humphreys County, Tennessee. Slag from an aluminum smelter is disposed of at the landfill.

Facility Name: Scepter, Inc.
Location: New Johnsonville, Tennessee
Waste Stream: Slag
Media Affected: Groundwater

Wastes and Waste Management Practices

The landfill covers approximately 134 acres, and varies in elevation from approximately 400 feet to 620 feet.

Extent of Contamination

The table below identifies the constituents analyzed in 1992 sampling and the highest detected level of each constituent in downgradient wells. Iron and pH were found to be above Tennessee or Federal standards. Groundwater sampling occurs quarterly.

GROUNDWATER CONTAMINANTS EXCEEDING TENNESSEE OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	TN Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Ammonia (as N)	<0.1	--	--	--
Arsenic	0.002	0.05	0.05	--
Barium	<0.1	2.0	2.0	--
Cadmium	<0.0002	0.005	0.005	--
Calcium	9.36	--	--	--
Chloride	6.0	--	--	250
Chromium	0.036	0.1	0.1	--
COD	310	--	--	--
Cyanide	<0.01	--	0.2	--
Iron	15.7	--	--	0.3
Lead	0.026	0.05	0.015*	--
Magnesium	3.98	--	--	--
Mercury	<0.0002	0.002	0.002	--
Nitrate (as N)	3.40	10	10	--
pH	4.4	6.0-9.0	--	6.5-8.5
Potassium	2.9	--	--	--
Selenium	<0.01	0.05	0.05	--
Silver	<0.01	0.01	--	0.1
Sodium	5.9	--	--	--
Specific conductivity (umhos/cm)	85	--	--	--
Sulfate	12	--	500	250
TDS	304	500	--	500
TOC	6.0	--	--	--

*Action level

Corrective Actions/Regulatory Actions

Information was not readily available.

Sources of Information

Scepter, Inc. 1992 Quarterly Groundwater Monitoring Results.

Operating Manual, Industrial Landfill, Scepter, Inc., New Johnsonville, TN.

TENNESSEE ALUMINUM PROCESSORS, INC. TENNESSEE

Facility Overview

Facility Name:	Tennessee Aluminum Processors, Inc.
Location:	Mount Pleasant, Tennessee
Waste Stream:	Aluminum dross furnace cake waste

Tennessee Aluminum Processors, Inc. is a secondary smelter of aluminum scrap and dross.

Wastes and Waste Management Practices

Tennessee Aluminum Processors stockpiles aluminum dross at its processing facility. The material is soluble in water and as a result has contaminated run-off from the property. This contaminated run-off has percolated down to underground waters and also has traveled overland into surface waters, specifically Quality Creek, which runs adjacent to the site. The groundwater at the site is classified fo domestic and industrial water supply, livestock watering and wildlife, surface water discharge, and irrigation uses. The wa of Quality Creek are classified for domestic and industrial water supply, fish and aquatic life, recreation, irrigation and live watering, and wildlife uses.

Extent of Contamination

Surface water - The table below identifies the constituents analyzed in 1990-1993 surface water sampling and the highest detected level of each constituent in downgradient samples. Aluminum, chloride, and lead were found to be abov Tennessee or Federal standards.

SURFACE WATER CONTAMINANTS EXCEEDING TENNESSEE OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	TN Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Aluminum	1.34	--	--	0.05 to 0.2
Chloride	697	--	--	250
Lead	0.05	0.05	0.015*	--
Manganese	1.01	--	--	0.05
Specific conductance (umhos/cm)	2,300	--	--	--

*Action level

Groundwater - The table below identifies the constituents analyzed in 1990-1993 groundwater sampling and the highest detected level of each constituent in downgradient wells. Aluminum, chloride, lead, and manganese were found t above Tennessee or Federal standards.

GROUNDWATER CONTAMINANTS EXCEEDING TENNESSEE OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	TN Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Aluminum	108.0	--	--	0.05-0.2
Chloride	37,200	--	--	250
Lead	0.16	0.05	0.015*	--
Manganese	8.03	--	--	0.05
Specific conductance (umhos/cm)	67,500	--	--	--

*Action level

The reported lead results may result in part from the natural presence of lead in the Bigby Cannon limestone formation.

Corrective Actions/Regulatory Actions

Crushing and screening processes have been added to aid in the reduction of the stockpile mass and allow more confined storage of material. Additionally, the stockpile area has been reduced in size and waste from the crusher has be stockpiled in a more contained, readily controlled area. Further, concrete walls have been constructed to assist in containment and maintenance. Planning is underway for the implementation of a total recovery process to recycle, sell, and/or permanently dispose of all materials generated by Tennessee Aluminum Processors.

Sources of Information

Letter from Tennessee Department of Health and Environment to Tennessee Aluminum Processors, Inc., May 27, 1987.

Letter from Caldwell and Associates to Tennessee Department of Health and Environment, June 29, 1988.

1990-1993 Sampling Data, Caldwell and Associates.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

UCAR CARBON COMPANY INC. TENNESSEE

Facility Overview

UCAR Carbon Company's facility in Lawrenceburg, Tennessee manufacturers carbon bricks.

Facility Name:	UCAR Carbon Company Inc.
Location:	Lawrenceburg, Tennessee
Waste Stream:	Process waste from carbon brick manufacturing
Media Affected:	Groundwater

Wastes and Waste Management Practices

UCAR Carbon Company Inc., operates one Class II industrial non-hazardous waste disposal unit at the Lawrenceburg, Tennessee facility to serve its carbon brick manufacturing process. The industrial landfill is designed to accept carbon and graphite, scrap metal, construction/demolition type material and other carbonaceous wastes.

Extent of Contamination

The table below identifies the highest detected level of constituents from June 1994 in downgradient wells. Cadmium, chromium, iron, lead, and nickel were found to be above Tennessee or Federal standards.

GROUNDWATER CONTAMINANTS EXCEEDING TENNESSEE OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	TN Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Ammonia nitrogen	<0.1	--	--	--
Arsenic	0.02	0.05	0.05	--
Barium	0.451	2.0	2.0	--
Beryllium	<0.005	0.004	0.004	--
Cadmium	0.005	0.005	0.005	--
Calcium	99.4	--	--	--
Carbon disulfide	0.18	--	--	--
Chloride	4.6	--	--	250
Chromium	0.176	0.1	0.1	--
Cobalt	0.163	--	--	--
Copper	0.099	--	1.3*	1.0
Cyanide	<0.01	--	0.2	--
Dissolved manganese	1.11	--	--	--
Iron	72.8	--	--	0.3
Lead	0.091	0.05	0.015*	--
Magnesium	29.2	--	--	--
Mercury	0.00052	0.002	0.002	--
Nickel	0.519	0.1	0.1	--
Nitrate-N	0.5	10	10	--
pH	6.1	6.0-9.0	--	6.5-8.5
Selenium	<0.005	0.05	--	--
Silver	<0.005	0.01	--	0.1
Sodium	4.78	--	--	--
Specific conductance (umhos/cm)	578	--	--	--
Sulfate	175	500	500	250
Thallium	<0.002	0.002	0.002	--
TOC	4.5	--	--	--
Vanadium	0.161	--	--	--

Contaminant	Highest Detected Level (mg/l)	TN Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Zinc	0.743	--	--	5.0

*Action level

The concentrations for chromium, lead, nickel, and pH were detected at high concentrations in the facility background/upgradient well.

Measured sulfate, dissolved manganese and iron levels in the June 1994 sampling event exceeded only the Secondary Maximum Contaminant Levels (SMCL). It is important to note that the national secondary drinking water regulations (40 CFR 123) control contaminants in drinking water that primarily affect the aesthetic qualities relating to pub acceptance. Health implications may also exist at considerably higher concentrations of these contaminants. These regulations are only guidelines for States and are not federally enforceable.

It should be noted that during the analytical testing of the June 1994 event, antimony, beryllium, and thallium were tested with a Limit of Quantification (LOQ) greater than the Maximum Contaminant Level (MCL). These discrepancies we corrected in later sampling events.

No turbidity readings were taken during the June 1994 sampling event. Therefore no correlation between sedime laden wells and relatively turbidity free wells within the groundwater monitoring network at the Lawrenceburg, Tennessee facility can be made. Turbidity measurments have been implemented in later sampling events.

Corrective Actions/Regulatory Actions

UCAR Carbon Company has adjusted sampling activities to address possible airborne contamination. In addition UCAR Carbon Company has initiated a correlation of the metals analysis in response tot he sedimentation loading within monitoring well network.

The Tennessee Division of Solid Waste Management, which regularly reviews the groundwater quality data, has presented regulatory concerns with the groundwater monitoring analytical results at the Lawrenceburg, Tennessee facility

Sources of Information

Regional Geohydrologic System, Law Engineering Testing Company, February 12, 1982.

Registration Authorizing Solid Waste Disposal Activities in Tennessee, 1985.

Summary of Laboratory Analysis of Groundwater Samples, 1994.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996

ANZON AMERICA, INC. TEXAS

Facility Overview

Facility Name:	Anzon America, Inc.
Location:	Laredo, Texas
Waste Stream:	Antimony smelting slag
Media Affected:	Groundwater and surface water

The Anzon America, Inc. facility in Laredo, Texas is currently owned and operated by Anzon Inc. and has been the site of metals refining operations since the Texas Mining and Smelting Company began operations in 1928. The property was sold to the United States government in 1947, who, in the same year sold it to National Lead Industries. National Lead operated the site until 1977, when it shut down for approximately 18 months. Anzon Inc. acquired the facility in 1978 and resumed operations. Las Manadas Creek is located approximately 100 to 200 feet from the site. According to the site groundwater investigation re the groundwater table ranges from two to 18.5 feet below the surface, and the upper water-bearing zone is highly saline.

Wastes and Waste Management Practices

Anzon is a large quantity generator of hazardous waste according to the Waste Registration Summary Report. T Phase II groundwater report indicates that the site used to store antimony ores on concrete surface pads, and allow stormwater run-off on the ground. Since the blast furnaces were removed from service in 1992, these outdoor storage practices have ceased. There are 17 water wells within one mile of the Anzon property, either upgradient or cross-gradie The Las Manadas Creek acts as a shallow groundwater divide.

Extent of Contamination

The following information, regarding the extent of contamination at the site, was extracted from the Phase II groundwater report. Groundwater monitoring wells sampled for the Phase II investigation in 1993 showed antimony level from 0.004 mg/l to 0.8 mg/l in the upper water-bearing zone. In the lower water-bearing zone, antimony levels ranged fro 0.003 mg/l to 0.008 mg/l in downgradient wells. The highest detected level of antimony (2.5 mg/l) in groundwater along th western plant boundary appears to be related to the temporary historic storage of ores at a former blast furnace operation upgradient of the impacted area. The site stopped accepting ores in 1991. Low levels of antimony were also detected in upgradient wells. The facility's Phase II groundwater report to the Texas Water Commission (TWC) states that it expects concentrations of antimony to decrease with time. Due to naturally elevated levels of total dissolved solids, the shallow, limited aquifer under the facility is not usable as a source of drinking water. Additionally, deep aquifers underlying the fac have been investigated and have not been impacted by antimony.

As shown in the table below, antimony exceeded Federal drinking water standards. However, Anzon Inc. mainta that the insoluble forms of antimony found at the facility are approximately an order of magnitude less soluble than the compound used to derive the federal drinking water standard, and thus the bioavailability and toxicity of antimony found a facility is significantly lower. Due to these differences, Anzon feels that the risk to human health and the environment usi the MCL as a basis of comparison at the facility is significantly overstated.

GROUNDWATER CONTAMINANTS COMPARED TO FEDERAL DRINKING WATER STANDARDS			
Contaminant	**Highest Detected Level (mg/l)**	**MCL (mg/l)**	**SMCL (mg/l)**
Antimony	2.5	0.006	--

Corrective Actions/Regulatory Actions

Anzon Inc. has been very active in investigating the facility and working with the TNRCC to ensure protection of human health and the environment. Anzon has been performing environmental investigations of all media at the site, beginning in 1991 and continuing into 1996. A Phase II groundwater investigation was conducted at Anzon in May 1993. investigation followed the Phase I investigation conducted in October and November 1991, and was designed to define a characterize groundwater quality at the Anzon facility. According to the Phase II groundwater report, ores or finished prod are no longer stored outdoors. Feedstock materials are currently shipped in supersaks and are stored and processed ind There have been two additional rounds of well installation and groundwater sampling following the Phase II Groundwater Investigation concluded in 1993. These continued groundwater investigations have defined the horizontal and vertical ex of groundwater impact from historical operations, and the impact is found to be limited to a very small area along the wes boundary of the facility.

Anzon has also conducted a human health and environment risk assessment in accordance with the Risk Reduct Rules promulgated by the TNRCC. Pursuant to these assessments, it has been determined that the antimony present in environment at the Anzon facility does not pose an unreasonable risk to human health or the environment. Anzon has received approval to close a substantial portion of its property in accordance with the Risk Reduction Standards with the understanding that no future action is necessary. While TNRCC has considered taking regulatory action at the facility, An has demonstrated that current management practices with regards to raw and other materials at the site are protective of human health and the environment. These management practices include the indoor storage of all raw materials with potential impact to the environment, control of stormwater runoff from the manufacturing area of the facility, reduction of a emissions, control of fugitive emissions, along with other best management practices and engineering controls which minimize the potential for release of contaminants to the environment. Anzon believes that the site is taking adequate precautions under existing regulatory programs to ensure that historical contamination from past practices is remedied an that human health and the environment are being protected from current operations at the facility.

Sources of Information

Texas Natural Resource Conservation Commission Risk Reduction Rules, Chapter 335.

Phone conversation with Texas Natural Resource Conservation Commission, Enforcement Coordination and Litigation Division. September 14, 1995.

Texas Natural Resource Conservation Commission, Information Resources Division, Waste Registration Summary Repo database query. September 6, 1995.

Texas Natural Resource Conservation Commission, Industrial and Hazardous Waste Division, facility files. Retrieved September 18, 1995.

Phase II Groundwater Investigation Report, Anzon Incorporated, Laredo, Texas. September 17, 1993.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

Facility Overview

Facility Name: Elf Atochem

Location: Bryan, Texas

Waste Stream: Process wastewater

Media Affected: Groundwater and surface water

Elf Atochem, a French chemical company, bought this facility in 1989; the site has manufactured pesticides and insecticides for 50 years. A municipal lake and several streams are located near the site (exact distance unknown).

Wastes and Waste Management Practices

The facility is a large quantity generator of hazardous waste according to the Waste Registration Summary Report. This report also indicates that in addition to the sprinkler water collection lagoon, the facility had a was pile of arsenic-contaminated soil used for temporary storage before treatment. This waste pile was removed and closed i 1992. There are also two other surface impoundments, one closed in 1994 and the other remains active, but plans to clo a landfill.

There are 46 monitoring wells across the facility. The facility monitors quarterly or annually depending on the location of the wells.

Extent of Contamination

The following information regarding the extent of contamination at the site was extracted from the Status Report o the Groundwater Extraction System. As shown in the table below, arsenic, benzene, gamma-BHC, bis(2-ethylhexyl)phtha ethyl benzene, heptachlor, heptachlor epoxide, pentachlorophenol, and 1,1,2-trichloroethane exceeded Federal water standards.

GROUNDWATER CONTAMINANTS COMPARED TO FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	MCL (mg/l)	SMCL (mg/l)
Arsenic	0.14	0.05	--
Benzene	0.012	0.005	--
alpha-BHC	0.00114	--	--
beta-BHC	0.00005	--	--
gamma-BHC	1.24	0.0002	--
Bis(2-ethylhexyl)phthalate	0.032	0.006	--
Chlorobenzene	0.0312	--	--
Chloroform	0.426	0.1	--
Diazinon	0.000426	--	--
1,2-Dichlorobenzene	0.0316	0.6	--
1,4-Dichlorobenzene	0.0346	0.075	--
Ethyl benzene	0.931	0.7	--
Ethyl parathion	0.00018	--	--
Heptachlor	0.0022	0.0004	--
Heptachlor epoxide	0.00096	0.0002	--
Methyl parathion	0.000142	--	--
4-Nitrophenol	36.8	--	--
n-Nitrosodimethylamine	1.97	--	--
Pentachlorophenol	0.063	0.001	--
1,2,4-Trichlorobenzene	0.0352	0.07	--
1,1,2-Trichloroethane	0.021	0.005	--
o,o,o-Triethylphosphorthioate	0.000125	--	--

Contaminant	Highest Detected Level (mg/l)	MCL (mg/l)	SMCL (mg/l)
Xylenes	4.78	10	--

Corrective Actions/Regulatory Actions

Information was not readily available.

Sources of Information

Texas Natural Resource Conservation Commission Risk Reduction Rules, Chapter 335.

Phone conversation with Texas Natural Resource Conservation Commission, Enforcement Coordination and Litigation Division. September 14, 1995.

Texas Natural Resource Conservation Commission, Information Resources Division, Waste Registration Summary Repo database query. September 6, 1995.

Texas Natural Resource Conservation Commission, Industrial and Hazardous Waste Division, facility files. Retrieved September 18, 1995.

Status Report on the Groundwater Extraction System, Elf Atochem North America, Inc., Bryan, Texas. Supplement to the Semi-Annual Report for July, 1994. Volume 1. Prepared by Geraghty & Miller, Inc.

ROBROY INDUSTRIES - TEXAS, INC. TEXAS

Facility Overview

Facility Name: Robroy Industries - Texas, Inc.
Location: Gilmer, Texas
Since
Waste Stream: Neutralized spent acid sludge
Media Affected: Groundwater

The Robroy Industries site is a corrosion resistant electrical conduit and fitting manufacturer located near Gilmer, Texas. Prior to 1983, the facility employed zinc plating and galvanizing in its manufaturing process. 1983, the facility's manufacturing process has been primarily a coating operation, utilizing PVC and polyurethanes.

Wastes and Waste Management Practices

The facility is a large quantity generator of hazardous waste according to the Waste Registration Summary Repor The following information regarding the waste management practices at the facility was extracted from the Phase III/IV progress report. The facility, constructed in 1962, operated two landfills to dispose of neutralized spent acid sludge from former zinc plating and galvanizing operations. Both landfills are now closed. Immediately adjacent to the main landfill (S A) is a closed process water holding pond. In the 1960s the site disposed of spent acid in an evaporation/holding pond a with its rinse water and cooling water. In 1976 the site began neutralizing the acid then disposing of the resultant sludge i clay-lined landfill at Site B. In 1977, the acid holding pond was lined with clay and converted to the Site A landfill. Electroplating operations ceased in 1978, and galvanizing operations ceased in 1983. Both landfills remained open for fu use. In 1985, EPA sued Robroy for inadequate closure plans and RCRA violations at the landfills. The suit was dropped when Robroy demonstrated that the sludge in the Site A and Site B landfills is non-hazardous. A full groundwater investigation and closure plan was initiated.

Extent of Contamination

Data presented in the table below, were extracted from a 1989 groundwater monitoring data report. In addition to the parameters listed below, Site A has high specific conductance.

As shown in the table below, chloride, iron, manganese, pH, and sulfate exceeded Federal drinking water standards.

GROUNDWATER CONTAMINANTS COMPARED TO FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	MCL (mg/l)	SMCL (mg/l)
Chloride	1,907	--	250
Iron	4,400	--	0.3
Manganese	22	--	0.05
pH	3.0	--	6.5-8.5
Phenolics	26	--	--
Sodium	2,400	--	--
Sulfate	19,800	500	250
TOC	120	--	--
Total organic halogens	1.18	--	--

Corrective Actions/Regulatory Actions

According to the Phase III/IV progress report, as part of the site's closure plan, eight new monitoring wells have b installed in addition to the twelve existing wells. In addition, engineering controls, primary waste stabilization, and impermeable caps were implemented at the closed landfills and holding pond. The facility completed a two year post-clo monitoring period in December 1995. Based on the results of the data collected, Robroy currently is requesting that the S landfill be closed under the Texas Risk Reduction Rules. By agreement with the TNRCC, the facility started an additiona

year groundwater monitoring period to gather the data to finally close the Site A landfill. The additional data will be submi to the TNRCC to support the facility's desire for final closure under the Texas Risk Reduction Rules.

Sources of Information

Texas Natural Resource Conservation Commission Risk Reduction Rules, Chapter 335.

Texas Natural Resource Conservation Commission, Information Resources Division, Waste Registration Summary Repo database query. September 6, 1995.

Texas Natural Resource Conservation Commission, Industrial and Hazardous Waste Division, facility files. Retrieved September 18, 1995.

Phase III/IV Progress Report Ground Water Investigation, Robroy Industries - Texas, Inc. Prepared by ERM-Southwest, September 17, 1992.

Written correspondence submitted by facility and/or State on draft verions of release descriptions, October 1996.

SOUTHWESTERN BARGE FLEET SERVICE, INC. TEXAS

Facility Overview

Facility Name: Southwestern Barge Fleet Service, Inc.

Location: Highlands, Texas

Waste Stream: Washwaters, oil sludge, waste paper, and debris

Media Affected: Groundwater

The Southwestern Barge Fleet Service facility is a chemical and petroleum barge cleaning and repair facility located in Highlands, Texas. The San Jacinto River is located near the site (exact distance unknown).

Wastes and Waste Management Practices

The facility is a large quantity hazardous waste generator according to the Waste Registration Summary Report. The following information regarding the waste management practices at the facility was extracted from the Site Assessment Plan. A storage impoundment was used to hold washwaters, crude oil, and No. 6 fuel oil recovered dur the cleaning of barges. This unit was backfilled with waste paper and construction debris from the site. In 1979 the impoundment was covered with one to two feet of cement kiln flue dust and capped with two to four feet of clayey soil; the the unit was covered with topsoil and vegetative cover.

Extent of Contamination

The following information regarding the extent of contamination at the facility was extracted from the Site Assessment Report. Subsequent to closure, oily liquids were found discharging at several locations adjacent to the impoundment. The chromium exceedances may be indicative of naturally occurring poor groundwater quality, and do no reflect contamination from the former impoundment.

As shown in the table below, aluminum, chromium, trans-1,2-dichloroethene, iron, manganese, selenium, and vin chloride exceeded Federal water standards.

GROUNDWATER CONTAMINANTS COMPARED TO FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	MCL (mg/l)	SMCL (mg/l)
Aluminum	9.17	--	0.05-0.2
Antimony	<0.01	0.006	--
Arsenic	<0.01	0.05	--
Barium	0.626	2.0	--
Benzene	14.9	0.005	--
Beryllium	<0.005	0.004	--
Cadmium	<0.01	0.005	--
Calcium	597	--	--
Chromium	0.088	0.1	--
Cobalt	<0.05	--	--
Copper	<0.06	1.3	1.0
Cyanide	0.081	0.2	--
1,1-Dichloroethane	0.608	--	--
trans-1,2-Dichloroethene	1.56	0.005	--
2,4-Dimethylphenol	16.1	--	--
Iron	25.5	--	0.3
Magnesium	213	--	--
Manganese	5.58	--	0.05
Mercury	<0.0008	0.002	--
Naphthalene	2.24	--	--

Contaminant	Highest Detected Level (mg/l)	MCL (mg/l)	SMCL (mg/l)
Nickel	<0.06	0.1	--
Phenol	5.5	--	--
Potassium	49.7	--	--
Selenium	0.051	0.05	--
Silver	<0.008	--	0.1
Sodium	3,620	--	--
Thallium	<0.002	0.002	--
Vanadium	<0.06	--	--
Vinyl chloride	8.6	0.002	--
Zinc	0.126	--	5

Corrective Actions/Regulatory Actions

According to the Site Assessment Plan, three oil/water recovery sumps were installed within the limits of the form impoundment in order to prevent further discharges.

Sources of Information

Texas Natural Resource Conservation Commission Risk Reduction Rules, Chapter 335.

Phone conversation with Texas Natural Resource Conservation Commission, Enforcement Coordination and Litigation Division. September 14, 1995.

Texas Natural Resource Conservation Commission, Information Resources Division, Waste Registration Summary Repo database query. September 6, 1995.

Texas Natural Resource Conservation Commission, Industrial and Hazardous Waste Division, facility files. Retrieved September 18, 1995.

Site Assessment Plan, Southwestern Barge Fleet Service, Inc., Highlands, Texas. Prepared by Southwestern Laboratori Inc. October 19, 1992.

STAUFFER CHEMICAL TEXAS

Facility Overview

Facility Name: Stauffer Chemical

Location: Stauffer, Texas

Waste Stream: Wastewater

Media Affected: Groundwater

Stauffer Chemical manufactured pesticides at its Stauffer, Texas facility. Buffalo Bayou is within one mile of the site.

Wastes and Waste Management Practices

The Stauffer Chemical plant is not a hazardous waste generator according to the Waste Registration Summary Report. The site monitors groundwater semi-annually and submits a comprehensive annual report. The following information regarding the waste management practi at the facility was extracted from the Barrier Well System Performance Report. As part of a compliance directive issued b State of Texas, Stauffer initiated closure activities at the site in 1980. The impoundment was capped and a barrier well system was installed to remove groundwater contaminants and prevent migration beyond the property boundaries.

Extent of Contamination

The following information regarding the extent of contamination at the facility was extracted from the Barrier Well Performance Report. As shown in the table below, atrazine, benzene, gamma-BHC, iron, manganese, and total dissolve solids exceeded Federal water standards. The data presented in the table below were from sampling events in 1993 and 1994 from four barrier wells and one cleanup well located within the property boundaries.

GROUNDWATER CONTAMINANTS COMPARED TO FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	MCL (mg/l)	SMCL (mg/l)
Atrazine	0.024	0.003	--
Benzene	0.038	0.005	--
alpha-BHC	0.087	--	--
gamma-BHC	0.077	0.0002	--
Bicarbonate	528	--	--
Calcium	149	--	--
Calcium carbonate	464.3	--	--
Chloride	92.5	--	250
PP'-DDT	0.005	--	--
EPTC	0.096	--	--
Fluoride	0.43	4	2
Iron	0.67	--	0.3
Magnesium	24.45	--	--
Manganese	0.39	--	0.05
Methyl parathion	0.18	--	--
Molinate	0.36	--	--
Nitrate	4.27	10	--
Potassium	1.32	--	--
Sodium	56.2	--	--
Sulfate	42.4	*500**	250
TOC	540	--	500
Toluene	0.19	1	--
Total organic carbon	5.7	--	--
Total suspended solids	213	--	--

Contaminant	Highest Detected Level (mg/l)	MCL (mg/l)	SMCL (mg/l)
o-Xylene	3.8	10	--
m,p-Xylenes	6.7	10	--

* Sulfate MCL is under consideration by the Agency.

Corrective Actions/Regulatory Actions

Information was not readily available.

Sources of Information

Texas Natural Resource Conservation Commission Risk Reduction Rules, Chapter 335.

Phone conversation with Texas Natural Resource Conservation Commission, Enforcement Coordination and Litigation Division. September 14, 1995.

Texas Natural Resource Conservation Commission, Information Resources Division, Waste Registration Summary Repo database query. September 6, 1995.

Texas Natural Resource Conservation Commission, Industrial and Hazardous Waste Division, facility files. Retrieved September 18, 1995.

Barrier Well System Performance, August 1992 through June 1994, Stauffer Management Company Hempstead Road S Harris County, Texas. Prepared by Geraghty & Miller, Inc. August 11, 1994.

TEXAS INSTRUMENTS, INC. TEXAS

Facility Overview

Facility Name: Texas Instruments, Inc.
Location: Dallas, Texas
Waste Stream: Wastewater
Media Affected: Groundwater

Texas Instruments in Dallas, Texas is currently a metal fabrication facility. Manufacturing operations at the plant include metal grinding, polishing, drilling, cutting, painting, and plating. No known surface water body exists on or near the site.

Wastes and Waste Management Practices

The facility is a large quantity generator of hazardous waste according to the Waste Registration Summary Report. The following information regarding the waste management practices at the facility was extracted from the Radio Tower Closure Plan. The machine shop adjacent to th Radio Tower Site at the facility had collection trenches used to collect metal shavings and to reprocess the cutting oil. Th trenches were located along the perimeter of the building and are now filled with concrete. The facility stopped using the trenches in the early 1980s. Now the plant has a cutting oil/fluid recycling system.

Extent of Contamination

The following information regarding the extent of contamination at the facility was extracted from the Radio Towe Closure Plan. The Radio Tower Site at the Texas Instruments facility is the primary area of contamination. Free floating petroleum product was found in some monitoring wells. The former trenches are a primary source of groundwater contamination near the Radio Tower. The cutting oil recycling system now being used is not believed to impact groundwa

From the 1960s to the early 1970s the site used carbon tetrachloride in its semi-conductor production and metals finishing processes.

The following contaminants were detected in groundwater sampling events: carbon tetrachloride, chloroform, tetrachloroethene, trichloroethene. All of these contaminants were used in the metals fabrication processes at some poin time. In addition, the following chemicals were also detected: 1,1-dichloroethane, methylene chloride, toluene. Specific levels were not readily obtainable in the facility files.

Corrective Actions/Regulatory Actions

Information was not readily available.

Sources of Information

Texas Natural Resource Conservation Commission Risk Reduction Rules, Chapter 335.

Phone conversation with Texas Natural Resource Conservation Commission, Enforcement Coordination and Litigation Division. September 14, 1995.

Texas Natural Resource Conservation Commission, Information Resources Division, Waste Registration Summary Repo database query. September 6, 1995.

Texas Natural Resource Conservation Commission, Industrial and Hazardous Waste Division, facility files. Retrieved September 18, 1995.

TI Lemmon Ave. Radio Tower Site, Closure Plan Amendment Report, Texas Instruments Incorporated, Dallas, Texas, Ap 1993. Prepared by Caldwell Engineering.

Texas Instruments Incorporated Lemmon Ave. Facility Radio Tower Site Closure Plan, Dallas, Texas, December 1992. Prepared by Caldwell Engineering.

CHESAPEAKE PAPER PRODUCT COMPANY VIRGINIA

Facility Overview

Facility Name:	Chesapeake Paper Product Company
Location:	King William, Virginia
Waste Stream:	Industrial non-hazardous solid waste

Chesapeake Paper Products Company (CPPC) owns and operates a captive industrial solid waste facility located in rural King William County, Virginia. The facility is located within a 275 acre site that is approximately 5 miles northwest of the Town of West Point on the west side of SR30. It is bounded by SR30 to the north, the Norfolk Southern Railroad to the south, land owned by the Pamunkey Game Club to the west, and other lands of CPPC and private owners to the east. The land between the Norfolk Southern Railroad right-of-way and the Pamunkey River is also owned by CPPC. Adjacent lands are either forested or used for agricultural purposes.

The facility consists of two permitted landfills identified as Mann #2 (permit #255) and Mann #3 (permit #543). Ma #2 is an active landfill that covers 11 acres and began operation on or about September 25, 1978. It reached its capacity June 1993 and is currently in post-closure care. The nearest surface body of water is the Pamunkey River which is 1400 to the south. Mann #3 is an active three phase landfill with a design capacity of approximately 50 years. Phase 1 covers acres and began operation in May 1993 and is expected to reach its capacity in about 17 years. Phases 2 and 3 will cove 35.4 acres when constructed. The nearest surface body of water is the Pamunkey River which is 700 feet to the south.

Wastes and Waste Management Practices

All waste received at the facility is non-hazardous industrial waste generated by CPPC. Waste streams include a from coal and wood-fired boilers, construction debris, secondary fiber and paper waste, occasional dewatered sludge fro wastewater treatment operations, and other non-hazardous industrial wastes. Mann #2 groundwater is monitored by one upgradient and four downgradient wells. Mann #3 is monitored by four upgradient and six downgradient wells.

Extent of Contamination

Groundwater is monitored at one upgradient and three downgradient wells. The table below identifies the highes level of each constituent detected in downgradient wells. Iron and zinc were found to be above Virginia or Federal standa

GROUNDWATER CONTAMINANTS EXCEEDING VIRGINIA OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	VA Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Arsenic	0.0063	0.05	--	--
Barium	0.046	2	--	--
Iron	1.6	--	--	0.3
Magnesium	0.6	--	--	--
Sulfates	16.9	--	--	--
TDS	190	--	--	500
TOC	1.7	--	--	--
Zinc	0.057	0.05	--	5

Corrective Actions/Regulatory Actions

Mann #2 entered Virginia's Phase 2 monitoring program on February 19, 1993 and has continued with an approv modified Phase 2 monitoring program to date as the result of one Phase 3 monitoring event in September 1994.

Sources of Information

Groundwater Monitoring Plan for the Chesapeake Corp. Mann # 2 Industrial Waste Landfill, May 1992.

Chesapeake Paper Products Company, Phase 2 Background Data, Mann # 2 Landfill, June 1994.

Chesapeake Paper Products Company, Phase 2 Background Data, Mann # 2 Landfill, September, 1994.

Virginia Solid Waste Management Facilities List - Industrial Waste Landfills in Phase 2 Monitoring Program, August 22, 1

Drinking Water Regulations and Health Advisories, US EPA, Office of Water, February 1996.

Virginia Solid Waste Management Facilities List - Industrial Waste Landfills, June 17, 1996.

Virginia Solid Waste Management Facilities List - Industrial Waste Landfills in Phase 2 GW Monitoring, June 17, 1996.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

GEORGIA-PACIFIC VIRGINIA

Facility Overview

Georgia-Pacific is located in Bedford, Virginia.

Facility Name:	Georgia-Pacific
Location:	Bedford, Virginia
Waste Stream:	Industrial non-hazardous solid waste
Media Affected:	Groundwater

Wastes and Waste Management Practices

Georgia-Pacific operates an unlined, on-site, industrial waste landfill which began receiving waste in approximately 1976, ceased receiving waste by October 9, 1993, and was closed permanently by October 31, 1994. Only non-hazardous wastes (bark, fly ash, bottom ash, process wastewater sludge, papermill trash and garbage and asbestos containing material) were landfilled at the facility.

Extent of Contamination

Groundwater is monitored at one upgradient and three downgradient wells. The table below identifies the highes level of each constituent detected in downgradient wells. Beryllium, iron, and lead were found to be above Virginia or Fed standards.

GROUNDWATER CONTAMINANTS EXCEEDING VIRGINIA OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	VA Standard* (mg/l)	MCL (mg/l)	SMCL (mg/l)
Arsenic	0.024	0.05	--	--
Barium	1.010	2.0	2	--
Beryllium	0.005	0.004	0.004	--
Cadmium	0.003	0.005	--	--
Chloride	184	--	--	250
Chromium	0.047	0.1	0.1	--
Copper	0.05	1.3	1.3**	1.0
Cyanide	<0.02	0.2	0.2	--
Iron	37.1	--	--	0.3
Lead	0.19	0.015	0.015**	--
Selenium	0.006	0.05	0.05	--
Sodium	40.2	--	--	--
Zinc	0.5	4.7	--	5

*These Groundwater Protection Standards (GWPS) were developed with the Virginia Department of Environmental Quali and will become effective upon issuance of the Post Closure Permit for the facility in 1996 or 1997. The GWPS are base background levels, Federal MCL's, or risk-based alternate concentration limits. Since their establishment in 1995, no exceedances of these GWPS have occurred at the site. Likewise, no exceedances of Federal Drinking Water Standards have occurred in that time either.

**Action level

Many of the "high" data values were directly impacted by the relatively high level of turbidity in the groundwater w (one downgradient and one side gradient well). Additionally, the water samples were unfiltered.

Corrective Actions/Regulatory Actions

Georgia-Pacific installed a closure cap consisting of soil combined with a 30 mil. VLDPE synthetic geomembrane minimize stormwater infiltration into the waste and thereby minimize the potential for leachate generation. The facility has completed Phase II groundwater monitoring program requirements in 1995. In April 1996 a request was made to the VA

to modify the landfill permit for the post closure period. A Phase III groundwater monitoring plan, as required by the VSW has been proposed in the permit modification.

Sources of Information

Georgia-Pacific Groundwater Sampling, June 24, 1992.

Georgia-Pacific Groundwater Sampling, October 28, 1992.

Phase 2 Monitoring, January 17, 1994.

Georgia-Pacific Corp. Industrial Waste Disposal Facility, Annual Groundwater Monitoring Report, February 28, 1994.

Georgia-Pacific Groundwater Sampling, September 28, 1994.

Georgia-Pacific Groundwater Sampling, January 23, 1995.

Virginia Solid Waste Management Facilities List - Industrial Waste Landfills in Phase 2 Monitoring Program, August 22, 1

Georgia-Pacific Groundwater Sampling, February 1996.

Drinking Water Regulations and Health Advisories, US EPA, Office of Water, February 1996.

Virginia Solid Waste Management Facilities List - Industrial Waste Landfills, June 17, 1996.

Virginia Solid Waste Management Facilities List - Industrial Waste Landfills in Phase 2 GW Monitoring, June 17, 1996.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

HERCULES INCORPORATED VIRGINIA

Facility Overview

Facility Name:	Hercules Inc.
Location:	Allegheny, Virginia
Waste Stream:	Waste propylene and latex

Hercules Inc. is located in Allegheny, Virginia. The soils at the site are alluvial sediments consisting primarily of silts and fine sands which coarsen downwards into silty and clayey gravel and silty sand with gravel at the base above bedrock. The bedrock below these alluvial soils is a black shale of the Millboro Formation of the Devonian age. The shale is encountered at depths of 8.5 to 20 feet below grade.

Wastes and Waste Management Practices

Hercules Inc. has an on-site industrial landfill which began operating in 1965 and has been inactive since 1993. T facility was permitted in 1973 as a sanitary landfill, but was later designated as an industrial waste landfill in 1993. The la contains waste polypropylene and latex. The facility contains three distinct waste disposal areas: the mound, trench, and areas. The mound area received baled saran-coated polypropylene film; the trench area received saran latex solids; and pit area received baled, saran-coated polypropylene film.

Extent of Contamination

Groundwater is monitored at 4 wells. The table below identifies the highest level of each constituent detected in downgradient wells. Cadmium, iron, lead, and zinc were found to be above Virginia or Federal standards.

GROUNDWATER CONTAMINANTS EXCEEDING VIRGINIA OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	VA Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Cadmium	0.0099	--	0.005	--
Chloride	77	--	--	250
Chromium	0.014	--	--	--
Iron	788	--	--	0.3
Lead	0.376	0.050	0.015*	--
Selenium	0.002	--	0.05	--
Sodium	11.8	--	--	--
TOC	1.8	--	--	--
Zinc	0.385	0.05	--	5

*Action level.

Corrective Actions/Regulatory Actions

The facility entered into Virginia's Phase 2 monitoring program on July 16, 1992. Additional information was not readily available.

Sources of Information

Annual Summary Report on Phase I Groundwater Monitoring at the Hercules Forster Plant Landfill, February 1992.

Hercules Incorporated Industrial Waste Landfill, Covington, Virginia, 1993 Groundwater Annual Report, February 28, 199

Virginia Solid Waste Management Facilities List - Industrial Waste Landfills in Phase 2 Monitoring Program, August 22, 1

Hercules Incorporated, Statistics Report, Comparison of Indicator Parameters Detected in Groundwater During Phase I Monitoring, September 27, 1995.

Drinking Water Regulations and Health Advisories, US EPA, Office of Water, February 1996.

Virginia Solid Waste Management Facilities List - Industrial Waste Landfills, June 17, 1996.

Virginia Solid Waste Management Facilities List - Industrial Waste Landfills in Phase 2 GW Monitoring, June 17, 1996.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

APPLETON PAPERS LOCK MILLS WISCONSIN

Facility Overview

Facility Name:	Appleton Papers Lock Mills
Location:	Combined Locks, Wisconsin
Waste Stream:	Paper mill sludge
Media Affected:	Groundwater

Appleton Papers Lock Mills is a paper mill located in Combined Locks, Wisconsin. The Fox River is located 400 feet from the site.

Wastes and Waste Management Practices

The 11-acre unlined landfill closed in 1992. The site was previously an old gravel pit, and in the 1970s the mill began disposing of its sludge in the pit. The site placed a cover on the landfill in the late 1980s. Groundwater is monitored quarterly. There are residential areas near the facility.

Extent of Contamination

The Wisconsin Department of Natural Resources (DNR) is unsure of the source of contamination. The Fox River raised and lowered often, which affects sampling. There is no apparent trend to the exceedances.

As shown in the table below, chloride, iron, pH, sulfate, and total dissolved solids exceeded Wisconsin or Federa water standards.

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	WI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Boron	2.8	--	--	--
Calcium	810	--	--	--
Calcium carbonate	3,228	--	--	--
Chloride	446	125	--	250
Iron	0.68	0.15	--	0.3
Magnesium	325	--	--	--
pH	5.4	6.5-8.5	--	6.5-8.5
Potassium	382	--	--	--
Sodium	274	--	--	--
Sulfate	1,685	125	500	250
Total dissolved solids	1,120	--	--	500
Total suspended solids	675	--	--	--

Corrective Actions/Regulatory Actions

In 1993, the site placed another cover on the landfill. There are no further remedial actions planned.

Sources of Information

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage Section, Solid and Hazardous Waste Inventory Management System database printout, August 15, 1995.
Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage Section, Groundwater and Environmental Monitoring System database printout, August 15, 1995.

Meeting with Wisconsin DNR hydrogeologist, August 21, 1995.

Facility Overview

Facility Name:	Badger Paper Mill
Location:	Peshtigo, Wisconsin
Waste Stream:	Paper mill sludge
Media Affected:	Groundwater

Badger Paper Mill is located in Peshtigo, Wisconsin. The Peshtigo River is located 300 feet from the site.

Wastes and Waste Management Practices

The 5-acre landfill is unlined and disposes of 9,000 tons/year of waste. Groundwater is monitored quarterly. The nearest drinking water well is located 3,000 feet from the site.

Extent of Contamination

As shown in the table below, chloride, iron, and manganese exceeded Wisconsin or Federal water standards.

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	WI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Calcium	220	--	--	--
Calcium carbonate	759	--	--	--
Chloride	130	125	--	250
Iron	44	0.15	--	0.3
Manganese	1.75	0.025	--	0.05
pH	6.4	--	--	6.5-8.5
Sulfate	84	125	500	250

Corrective Actions/Regulatory Actions

There is no groundwater remedial action being taken. The Wisconsin Department of Natural Resources (DNR) h requested that the site propose a remedial plan.

Sources of Information

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage Section, Solid and Hazardous Waste Inventory Management System database query, August 21, 1995.

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage Section, Groundwater and Environmental Monitoring System database printout, August 15, 1995.

Meeting with Wisconsin DNR hydrogeologist, August 21, 1995.

CONSOLIDATED PAPERS KRAFT DIVISION WISCONSIN

Facility Overview

Consolidated Papers Kraft Division is a paper mill located in Wisconsin Rapids, Wisconsin. The Wisconsin River is 50 feet from the site.

Facility Name:	Consolidated Papers Kraft Division
Location:	Wisconsin Rapids, Wisconsin
Waste Stream:	Pulp mill wastes
Media Affected:	Groundwater

Wastes and Waste Management Practices

The 37-acre landfill is unlined, with several phases closed and capped. The open cells are receiving waste at a slow rate. The site is near closure according to the Wisconsin Department of Natural Resources (DNR). The landfill receives related waste such as boiler ash, wood wastes, knots, lime dregs, asbestos, sand, clean fill, and rubble.

Groundwater is monitored quarterly but is expected to switch to semiannually. The nearest drinking water well is located 2,000 feet from the site.

Extent of Contamination

Most monitoring wells indicate exceedances of some Wisconsin standard. As shown in the table below, chloride, iron, and pH exceeded Wisconsin or Federal water standards.

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	WI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Aluminum	0.08	--	--	0.05-0.2
Calcium	568	--	--	--
Calcium carbonate	1860	--	--	--
Chloride	1200	125	--	250
Iron	710	0.15	--	0.3
Magnesium	20	--	--	--
pH	4.3	6.5-8.5	--	6.5-8.5
Phenols	0.047	--	--	--
Sodium	12060	--	--	--
Sulfate	17	125	500	250
Total suspended solids	1135	--	--	--

Corrective Actions/Regulatory Actions

The site installed a groundwater collection trench; no further action is anticipated.

Sources of Information

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manager Section, Groundwater and Environmental Monitoring System database printout, August 15, 1995.

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manager Section, Solid and Hazardous Waste Inventory Management System database query, August 21, 1995.

Meeting with Wisconsin DNR hydrogeologist, August 21, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

CONSOLIDATED PAPERS WATER RENEWAL WISCONSIN

Facility Overview

Facility Name:	Consolidated Papers Water Renewal
Location:	Linwood, Wisconsin
Waste Stream:	Paper mill sludge

Consolidated Papers Water Renewal is a paper mill located in Linwood, Wisconsin. The Wisconsin River is 300 feet from the site.

Wastes and Waste Management Practices

The nine-acre landfill began receiving waste in 1971. Area 1 is unlined, and now closed and capped. Areas 2 and 3 still receive waste and both have liners and leachate collection systems. Groundwater is monitored semi-annually. The nearest drinking water well is located two miles from the site.

Extent of Contamination

It appears that the impact to groundwater is from waste disposed in the older, unlined portion of the landfill (Area Most of the wells with impacted groundwater are installed through waste in Area 1.

As shown in the table below, chloride, chloroform, dichloromethane, iron, manganese, nitrate/nitrite, pH, phenol, sulfate, toluene, total dissolved solids, trichloroethylene, and zinc exceeded Wisconsin or Federal water standards.

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	WI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Boron	44	--	--	--
Calcium	780	--	--	--
Calcium carbonate	3,600	--	--	--
Chloride	580	125	--	250
Chloroform	0.01	0.0006	0.1	--
Dichloromethane	0.018	0.015	0.005	--
Ethylbenzene	0.0013	0.14	0.7	--
Iron	860	0.15	--	0.3
Magnesium	350	--	--	--
Manganese	37	0.025	--	0.05
Nitrate/nitrite as N	64	2	10	--
pH	4.4	6.5-8.5	--	6.5-8.5
Phenol	60	1.2	--	--
Phosphorous	14	--	--	--
Silica	170	--	--	--
Sodium	11	--	--	--
Sulfate	2,200	125	500	250
Toluene	1.3	0.069	1	--
Total dissolved solids	2,880	--	--	500
Total suspended solids	4,100	--	--	--
Trichloroethylene	0.0085	0.0005	0.005	--
Xylene	0.002	--	10	--
Zinc	110	2.5	--	5

Corrective Actions/Regulatory Actions

There is a groundwater gradient control system in place for all four landfill areas. Groundwater from Area 1 wells extracted and treated at a wastewater treatment plant adjacent to the landfill. A clay cutoff was installed around Area 1.

Sources of Information

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage Section, Groundwater and Environmental Monitoring System database printout, August 15, 1995.

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage Section, Solid and Hazardous Waste Inventory Management System database printout, August 22, 1995.

Meeting with Wisconsin DNR hydrogeologist, August 21, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

CONSOLIDATED PAPERS WATER QUALITY CENTER WISCONSIN

Facility Overview

Facility Name:	Consolidated Papers Water Quality Center
Location:	Wisconsin Rapids, Wisconsin
Waste Stream:	Paper mill sludge
Media Affected:	Groundwater

Consolidated Papers Water Quality Center (WQC) is a paper mill located in Wisconsin Rapids, Wisconsin. Cranberry Creek runs adjacent to the site, and the Wisconsin River is 2,600 feet away.

Wastes and Waste Management Practices

The 32-acre landfill began receiving waste in 1975. Area 1, the oldest portion, is unlined. Areas 2 through 5 have three-foot clay liners and leachate collection systems. Groundwater is monitored semi-annually. The nearest drinking water well is located 1,200 feet from the site.

Extent of Contamination

Groundwater is impacted from waste disposed in Area 1. In the early 1980's, the facility installed a clay cut-off wa down to the bedrock and a sand and dewatering trench upgradient of the cut-off wall. The bedrock fractured and contaminants went under the cut-off wall.

As shown in the table below, barium (dissolved), benzene, chloride, chromium (hexavalent), dichloromethane, iro (total), lead, mercury, nitrate as N, pH, sulfate, toluene, and total dissolved solids exceeded Wisconsin or Federal water standards.

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	WI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Ammonia as N	200	--	--	--
Barium (dissolved)	2.6	0.4	2	--
Benzene	0.0032	0.0005	0.005	--
Calcium	540	--	--	--
Calcium carbonate	1,880	--	--	--
Chloride	1,360	125	--	250
Chromium (hexavalent)	23	0.010	0.1	--
Copper	0.064	0.13	1.3*	1
Dichloromethane	0.012	0.015	0.005	--
Ethylbenzene	0.022	0.14	0.7	--
Iron (total)	230	0.15	--	0.3
Lead	0.12	0.0015	0.015*	--
Magnesium	150	--	--	--
Mercury	0.002	0.0002	0.002	--
Nitrate	13.36	--	10	--
pH	4.4	6.5-8.5	--	6.5-8.5
Phenols	1.2	--	--	--
Silica	27	--	--	--
Sodium	390	--	--	--
Sulfate	490	125	500	250
Toluene	0.92	0.0686	1	--
Total dissolved solids	4,500	--	--	500
Total suspended solids	6,100	--	--	--
Zinc	0.1	2.5	--	5

* Action level

Corrective Actions/Regulatory Actions

The site has installed extraction wells downgradient, which seem to be effective in reversing the groundwater flow The groundwater is removed to a wastewater treatment plant adjacent to the site.

Sources of Information

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manager Section, Groundwater and Environmental Monitoring System database printout, August 15, 1995.

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manager Section, Solid and Hazardous Waste Inventory Management System database printout, August 21, 1995.

Meeting with Wisconsin DNR hydrogeologist, August 21, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

DEROSSO LANDFILL WISCONSIN

Facility Overview

Facility Name:	Derosso Landfill
Location:	Oak Creek, Wisconsin
Waste Stream:	Foundry sand
Media Affected:	Groundwater

Derosso Landfill is a foundry sand mining landfill located in Oak Creek, Wisconsin. Across the street from the landfill is a pond which was created when clay was removed pursuant to a DNR closure order for use as capping on the closed landfill.

Wastes and Waste Management Practices

The 45-acre landfill began receiving foundry sand in 1972 and was closed under the terms and conditions of a DNR closure plan and order in 1989. The landfill is lined with naturally occurring clay, and does not have a leachate colle system. Groundwater is currently monitored quarterly. The nearest drinking water well is located two miles from the site.

Extent of Contamination

This landfill has only received foundry sand during the life of its operation. During 1982 or 1983, the landfill enter into a contract with the Wisconsin Department of Transportation to remove some foundry sand for use as road base mate During the process of removing some of this road base material two to three empty open topped barrels were discovered the landfill. There is no evidence that drummed waste was ever disposed of at this landfill. Regardless of this fact, the Department of Natural Resources (DNR) believes that some of the volatile organics exceedances a result from waste oth than foundry sand waste. The phenol exceedances are most likely resulting from the foundry sand waste.

As shown in the table below, arsenic, benzene, cadmium, chloride, chromium, cyanide, ethylbenzene, fluoride, iro lead, manganese, pH, phenol, sulfate, toluene, and xylenes have at times exceeded Wisconsin or Federal water standard There is no evidence of any off-site impact caused by these exceedances. Some of the constituents listed below, includi calcium carbonate, potassium and sodium have no State or Federal standards, and in many cases the highest detected l does not exceed either the State or Federal standard.

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	WI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Arsenic	0.018	0.005	0.05	--
Benzene	0.82	0.0005	0.005	--
Cadmium	0.025	0.005	0.005	--
Calcium carbonate	1,400	--	--	--
Chloride	570	125	--	250
Chromium	0.5	0.01	0.1	--
Copper	0.02	0.13	1.3*	1
Cyanide	0.4	0.04	0.2	--
Ethylbenzene	0.66	0.14	0.7	--
Fluoride	10	0.44*	4	2
Iron	9	0.15	--	0.3
Lead	0.4	0.005	0.015*	--
Manganese	0.41	0.025	--	0.05
Nickel	0.02	--	0.1	--
Nitrate/nitrite	0.3	2.0	10	--
pH	10.2	6.5-8.5	--	6.5-8.5
Phenol	1.7	1.2	--	--
Potassium	26	--	--	--
Sodium	960	--	--	--

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS				
Sulfate	11,000	124	500	250
Toluene	1.7	0.068	1	2
Total suspended solids	380	--	--	--
Xylenes	3	0.124	10	--
Zinc	0.09	0.25	--	5

* Action level

Corrective Actions/Regulatory Actions

EPA considered listing the site as a Superfund site, but determined the damage did not merit a listing. The landfi now capped as part of the closure requirements. No further remedial action is planned.

Sources of Information

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage Section, Groundwater and Environmental Monitoring System database printout, August 15, 1995.

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage Section, Solid and Hazardous Waste Inventory Management System database printout, August 22, 1995.

Phone conversation with Wisconsin DNR engineer, September 10, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996

FALK FOUNDRY WISCONSIN

Facility Overview

Falk Foundry is an industrial sand mining landfill located in Franklin, Wisconsin. Root River is 200 feet from the site.

Facility Name:	Falk Foundry
Location:	Franklin, Wisconsin
Waste Stream:	Foundry sand, wastewater from foundry
Media Affected:	Groundwater, potentially surface water

Wastes and Waste Management Practices

The disposal site is a 17-acre unlined landfill. Groundwater is monitored quarterly.

Extent of Contamination

The discharge region is downgradient of a large industrial area. Thus, the Wisconsin Department of Natural Resources (DNR) believes that the source of the contamination may extend beyond the landfill.

As shown in the table below, aluminum, arsenic, barium, cadmium, chloride, chromium, fluoride, iron, lead, manganese, mercury, pH, and sulfate exceeded Wisconsin or Federal water standards.

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	WI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Aluminum	2.2	--	--	0.05-0.2
Arsenic	0.28	0.005	0.05	--
Barium	0.086	0	2	--
Cadmium	0.001	0.0005	0.005	--
Calcium	170	--	--	--
Calcium carbonate	280	--	--	--
Chloride	1,700	125	--	250
Chromium	0.04	0.01	0.1	--
Copper	0.03	0.13	1.3*	1.0
Fluoride	26	0.44*	4	2
Iron	1,300	0.15	--	0.3
Lead	0.06	0.005	0.015*	--
Magnesium	72	--	--	--
Manganese	0.86	0.025	--	0.05
Mercury	0.0044	0.0002	0.002	--
Nickel	0.02	--	0.1	--
pH	10.4	--	--	6.5-8.5
Phenols	0.01	6	--	--
Potassium	3.7	--	--	--
Selenium	0.002	0.010	0.05	--
Sodium	640	--	--	--
Sulfate	1,350	125	500	250
Zinc	0.08	2.5	--	5

* Action level

Corrective Actions/Regulatory Actions

There is no remediation currently being taken. The DNR recently asked Falk Foundry to analyze leachate to gain more meaningful data.

Sources of Information

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage
Section, Groundwater and Environmental Monitoring System database printout, August 15, 1995.

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage
Section, Solid and Hazardous Waste Inventory Management System database printout, August 22, 1995.

Meeting with Wisconsin DNR hydrogeologist, August 22, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

FLAMBEAU PAPER CORPORATION WISCONSIN

Facility Overview

Facility Name:	Flambeau Paper Corporation
Location:	Eisenstein, Wisconsin
Waste Stream:	Paper mill sludge

Flambeau Paper Corporation is a paper mill located in Eisenstein, Wisconsin. Flambeau River is 1,200 feet from the site.

Wastes and Waste Management Practices

The disposal site is an 18-acre landfill that is currently closed. Groundwater is monitored quarterly. The nearest drinking water well is located 1,400 feet from the site.

Extent of Contamination

The facility is in a highly contaminated area. Adjacent areas formerly contained sulfide liquor lagoons, which are thought to be the source of sulfate contamination.

As shown in the table below, chloride, iron, pH, and sulfate exceeded Wisconsin or Federal water standards.

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	WI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Calcium carbonate	8,500	--	--	--
Chloride	610	125	--	250
Iron	642	0.15	--	0.3
pH	4.4	--	--	6.5-8.5
Sodium	29	--	--	--
Sulfate	2,800	125	500	250
Total dissolved solids	37,507	--	--	500

Corrective Actions/Regulatory Actions

There is no remediation at the landfill; however, the sulfide liquor lagoons are under remediation.

Sources of Information

Wisconsin Department of Natural Resources (DNR), Bureau of Solid and Hazardous Waste Management, Solid Waste Management Section, Groundwater and Environmental Monitoring System database printout, August 15, 1995.

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage Section, Solid and Hazardous Waste Inventory Management System database printout, August 21, 1995.

Meeting with Wisconsin DNR hydrogeologist, August 22, 1995.

Facility Overview

Facility Name:	Georgia-Pacific - Tomahawk Mill
Location:	Tomahawk, Wisconsin
Waste Stream:	Mixed Paper Mill Waste
Media Affected:	Groundwater

The Tomahawk Mill is a paper mill located in Tomahawk, Wisconsin. Located on a peninsula, the site is 500 feet from the Wisconsin River and 1600 feet from the Spirit River flowage.

Wastes and Waste Management Practices

The disposal site is a 30-acre unlined landfill, which is now closed. Portions of the landfill are covered with silty clay, bentonite amended soil, or geomembrane. There is also a lined landfill adjacent to the unlined disposal site, which is not believed to be causing contamination. Groundwater is monitored quarterly. The nearest drinking water is about 700 feet from the site.

Extent of Contamination

As shown in the table below, cadmium, chloride, iron, manganese, nitrite as N, pH, sulfate, and zinc exceeded Wisconsin or Federal water standards.

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	WI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Ammonia as N	410	--	--	--
Boron	31.2	--	--	--
Cadmium	0.001	0.0005	0.005	--
Calcium carbonate	540	--	--	--
Chloride	3,625	125	--	250
Fluoride	0.17	0.8	4	2
Iron	320	0.15	--	0.3
Manganese	1.18	0.025	--	0.05
Nitrite as N	2.32	1	10	--
pH	5.6	--	--	6.5-8.5
Potassium	670	--	--	--
Sodium	359	--	--	--
Sulfate	5,000	125	500	250
Zinc	100	2500	--	5

Corrective Actions/Regulatory Actions

There is no further corrective action required. The cover is in place and the site no longer receives waste. The facility is preparing a groundwater investigation report.

Sources of Information

Wisconsin Department of Natural Resources (DNR), Bureau of Solid and Hazardous Waste Management, Solid Waste Management Section, Groundwater and Environmental Monitoring System database printout, August 15, 1995.

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manager Section, Solid and Hazardous Waste Inventory Management System database printout, August 22, 1995.

Meeting with Wisconsin DNR hydrogeologist, August 22, 1995.

GEORGIA-PACIFIC - SARATOGA WISCONSIN

Facility Overview

Facility Name:	Georgia-Pacific Waste Water Treatment Site/Landfill Number 3
Location:	Saratoga, Wisconsin
Waste Stream:	Paper mill sludge
Media Affected:	Groundwater

The Georgia Pacific facility in Saratoga, Wisconsin is a paper mill. The Wisconsin River is 300 feet from the site.

Wastes and Waste Management Practices

The disposal site is a 20-acre three-phase landfill. Phase I is an un-engineered landfill. Phase II is an engineered and lined landfill. Phase III is a lined landfill. Groundwater is monitored quarterly. The nearest drinking water well is 1,000 feet from the site.

Extent of Contamination

Phase I of the landfill is the source of the groundwater contamination.

As shown in the table below, barium, chloride, chromium, copper, iron, manganese, mercury, pH, and sulfate exceeded Wisconsin or Federal water standards.

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	WI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Barium	3.3	0.2	2	--
Chloride	669	125	--	250
Chromium	0.042	0.01	0.1	--
Copper	0.9	0.13	1.3*	1
Iron	493	0.15	--	0.3
Manganese	72	0.025	--	0.05
Mercury	0.007	0.0002	0.002	--
pH	4.4	--	--	6.5-8.5
Sulfate	680	125	500	250

* Action level

Corrective Actions/Regulatory Actions

A cut-off wall and collection system were installed in the mid 1980s. This system has been very effective in reduc contaminant concentrations in the groundwater and is still active.

Sources of Information

Wisconsin Department of Natural Resources (DNR), Bureau of Solid and Hazardous Waste Management, Solid Waste Management Section, Groundwater and Environmental Monitoring System database printout, August 15, 1995.

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage Section, Solid and Hazardous Waste Inventory Management System database printout, August 22, 1995.

Meeting with Wisconsin DNR hydrogeologist, August 22, 1995.

Facility Overview

The Kohler Company site is an industrial waste landfill. The Sheboygan River is 150 feet from the site.

Facility Name:	Kohler Co.
Location:	Sheboygan County, Wisconsin
Waste Stream:	Waste foundry sand cores, pottery cull and molds and other non-hazardous industrial wastes.
Media Affected:	Groundwater and surface water

Wastes and Waste Management Practices

The 53-acre landfill, located on a 82-acre parcel is unlined. Groundwater is monitored quarterly. The nearest drinking water well is located one-half mile from the site. From the 1950's through 1975, the site received solvents, oil, and plating wastes.

Extent of Contamination

Pre-RCRA, dike failures occurred and the Sheboygan River was contaminated. The extent of contamination of th Sheboygan River is difficult to measure. The impact to groundwater is a result of releases from the landfill waste mass. Liquids disposed in the landfill and leachate from the site have entered the groundwater system. The impact to groundwa results from a phenolic resin used as a binder for foundry sand molds, as well as other industrial waste received at the lan

As shown in the table below, aluminum, arsenic, barium, cadmium, chloride, chromium (total), iron, lead, manganese, nickel, phenol, sulfate, and total dissolved solids exceeded Wisconsin or Federal water standards.

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	WI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Aluminum	1.36	--	--	0.05-0.2
Antimony	0.32	--	--	--
Arsenic	0.008	0.005	0.05	--
Barium	10.7	0.2	2	--
Beryllium	0.010	--	0.004	--
Boron	82	--	--	--
Cadmium	0.07	0.0005	0.005	--
Calcium	386	--	--	--
Chloride	148	125	--	250
Chromium (total)	0.048	0.01	0.1	--
Copper	0.12	0.13	1.3*	1
Iron	0.39	0.15	--	0.3
Lead	0.006	0.0015	0.015*	--
Magnesium	127	--	--	--
Manganese	0.37	0.025	--	0.05
Mercury	0.0002	0.0002	0.002	--
Molybdenum	0.0006	--	--	--
Nickel	0.31	--	0.1	--
pH	7.7	6.5-8.5	--	6.5-8.5
Phenol	6	1.2	--	--
Phosphorous	0.41	--	--	--
Potassium	16	--	--	--
Silver	0.0091	0.1	--	0.1
Sodium	546	--	--	--
Strontium	6.5	--	--	--
Sulfate	778	125	500	250
Tin	0.03	--	--	--
Titanium	0.03	--	--	--

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS				
Total dissolved solids	2,700	--	--	500
Vanadium	0.442	--	--	--
Zinc	0.15	2.5	--	5

* Action level

Corrective Actions/Regulatory Actions

The Wisconsin Department of Natural Resources (DNR) and USEPA have issued both a Source Control and Groundwater Record of Decision (March 1992 and April 1996, respectively). The selected remedy specifies closure, placement of a clay cap, installation of a groundwater interceptor drain and groundwater monitoring. Remedial action is scheduled to begin in 1997.

Sources of Information

Data from table 5-1 "Constituents of Concern" Environmental Contamination Assessment and Groundwater Remedial Act
Alternatives Report Addendum, Kohler Co. Landfill, November 1995.

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manager
Section, Groundwater and Environmental Monitoring System database printout, August 15, 1995.

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manager
Section, Solid and Hazardous Waste Inventory Management System database printout, August 21, 1995.

Meeting with Wisconsin DNR hydrogeologist, August 21, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

Facility Overview

Facility Name:	Mosinee Paper
Location:	Mosinee, Wisconsin
Waste Stream:	Paper mill sludge primarily, but also ash and bark

The Mosinee Paper Mill is located in Mosinee, Wisconsin. The Wisconsin River is 550 feet from the site.

Wastes and Waste Management Practices

The 10.7-acre landfill has been licensed by the Wisconsin Department of Natural Resources (DNR), since 1978. Of this 10.7 acres, 3.8 acres were closed during 1995 using approved cover procedures. Originally the site was a wastewater lagoon that was converted to an unlined landfill. Groundwater is monitored quarterly. The nearest drinking water well is located 1,300 feet from the site and has n been impacted.

Extent of Contamination

As shown in the table below, chromium, iron, manganese, mercury, pH, and sulfate exceeded Wisconsin or Fede water standards. Background levels of iron are also high in background wells.

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	WI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Chloride	51	125	--	250
Chromium	0.05	0.01	0.1	--
Iron	988	0.15	--	0.3
Manganese	38.6	0.025	--	0.05
Mercury	0.002	0.0002	0.002	--
Nitrate as N	0.65	--	10	--
pH	5.4	6.5-8.5	--	6.5-8.5
Phosphorous	1.03	--	--	--
Sodium	420	--	--	--
Sulfate	174	125	500	250
Total dissolved solids	1,268	--	--	500

* Action level

Corrective Actions/Regulatory Actions

A downgradient groundwater collection trench was installed by Mosinee in 1987 in response to a negotiated remediation plan with the Wisconsin DNR, but no cut-off walls were required or installed. The groundwater collection tren collects downgradient groundwater and returns it for treatment through a WPDES wastewater facility along with leachate collected from the site. There is no further remedial action planned.

Sources of Information

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage Section, Groundwater and Environmental Monitoring System database printout, August 15, 1995.

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage Section, Solid and Hazardous Waste Inventory Management System database printout, August 22, 1995.

Meeting with Wisconsin DNR hydrogeologist, August 22, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

Facility Overview

The Neenah Parkside-Bergstrom site is a paper mill located in Neenah, Wisconsin. Lake Butte is 25 feet from the site.

Facility Name:	Neenah Parkside - Bergstrom
Location:	Neenah, Wisconsin
Waste Stream:	Paper mill sludge
Media Affected:	Groundwater

Wastes and Waste Management Practices

The disposal site is a 23-acre unlined landfill. The facility is located within the floodplain of Lake Butte. Sludge is used to fill this area of the floodplain. Groundwater is monitored quarterly.

Extent of Contamination

As shown in the table below, chloride, iron, pH, and sulfate exceeded Wisconsin or Federal water standards.

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	WI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Calcium carbonate	1,880	--	--	--
Chloride	854	125	--	250
Iron	80	0.15	--	0.3
pH	5.7	--	--	6.5-8.5
Sulfate	764	125	500	250

Corrective Actions/Regulatory Actions

A partial non-engineered cap exists on the landfill. There are no further plans to upgrade the design of the dispos site.

Sources of Information

Wisconsin Department of Natural Resources (DNR), Bureau of Solid and Hazardous Waste Management, Solid Waste Management Section, Groundwater and Environmental Monitoring System database printout, August 15, 1995.

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage Section, Solid and Hazardous Waste Inventory Management System database printout, August 21, 1995.

Meeting with Wisconsin DNR hydrogeologist, August 22, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

NEKOOSA PAPERS INC. WISCONSIN

Facility Overview

Facility Name:	Nekoosa Papers Inc.
Location:	Nekoosa, Wisconsin
Waste Stream:	Ash and bark
Media Affected:	Groundwater

The Nekoosa Paper Mill is located in Port Edwards, Wisconsin. The Wisconsin River is 1,500 feet from the site.

Wastes and Waste Management Practices

The disposal site, licensed in 1976, is a 35-acre unlined landfill. A clay cut-off wall and gradient system were installed in 1980. The cut-off wall was constructed on three sides of the original landfill and an expansion site, on the west, north, and east side of the combined sites. The cut-off wall was keyed into the decomposed rock to a depth of approximately 16 to 24 feet below grade. the cut-off wall was designed to take advantage of the groundwater mound configuration at the site and the fact that there is no tendency for water to flow to the south from the landfill area. To ensu that positive gradients are maintained towards the landfill and that contaminants leached from the sludge do not migrate t south, a groundwater gradient control system was incorporated into the design. Groundwater is monitored quarterly.

Extent of Contamination

As shown in the table below, chloride, iron, pH, sulfate, and total dissolved solids exceeded Wisconsin or Federa water standards. In the case of iron, the area groundwater is known to have high iron content. The data in the table does reflect present conditions. Most data are prior to additional remediation efforts taken in 1983.

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	WI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Calcium	244	--	--	--
Calcium carbonate	981	--	--	--
Chloride	150	125	--	250
Iron	382	0.15	--	0.3
pH	5.2	--	--	6.5-8.5
Sodium	623	--	--	--
Sulfate	1,800	125	500	250
Total dissolved solids	2,170	--	--	500

Corrective Actions/Regulatory Actions

The site was modified in 1977 to include a clay cut-off wall keyed into the weathered bedrock zone, where it exist and rested on solid bedrock over the remainder of the perimeter. The cut-off wall was constructed around the full perime the landfill. An interior leachate collection system and french drain system were installed and operated in late 1977. The efforts were undertaken under the direction of the State of Wisconsin and were completed with the cooperation and participation between the Wisconsin Department of Natural Resources and Nekoosa Papers Inc. Gradual groundwater degradation in wells 19 and 20 was noticed beginning in 1981 after showing improvement after the modification. An addi french drain was installed on the south side and partially on the east and west sides in late 1982. A new, higher capacity leachate pump was started up in 1983, which lowered the water level within the cut-off wall under the landfill and assured in-gradient flow of groundwater from outside the periphery. The groundwater quality in the vicinity of the landfill has impro since reconstruction of the landfill.

Sources of Information

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage Section, Groundwater and Environmental Monitoring System database printout, August 15, 1995.

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage
Section, Solid and Hazardous Waste Inventory Management System database printout, August 22, 1995.

Meeting with Wisconsin DNR hydrogeologist, August 22, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

NIAGARA OF WISCONSIN PAPER CORP. WISCONSIN

Facility Overview

Facility Name:	Niagara of Wisconsin Paper Corp.
Location:	Marinette County, Wisconsin
Waste Stream:	Paper mill sludge
Media Affected:	Groundwater

The Niagara Paper Mill is located in Marinette County, Wisconsin. Monitoring wells are located within 50 feet of the Menominee River. The facility is located along the side of the river.

Wastes and Waste Management Practices

The landfill is closed, with no other industry in the immediate vicinity. The landfill was completely capped in the last two years. Groundwater is monitored quarterly.

Extent of Contamination

As shown in the table below, boron, cadmium, iron, pH, selenium, and sulfate exceeded Wisconsin or Federal wa standards.

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	WI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Boron	80.3	2.9	--	--
Cadmium	3	0.0005	0.005	--
Calcium carbonate	2,820	--	--	--
Iron	0.5	0.15	--	0.3
pH	6.2		--	6.5-8.5
Potassium	495	--	--	--
Selenium	26.6	0.01	0.05	--
Sulfate	4,404	125	500	250
Zinc	0.1	2.5	--	5

Corrective Actions/Regulatory Actions

Wisconsin Department of Natural Resources (DNR) received an Environmental Contamination Assessment (ECA report from the site in August 1995. An upgraded cap and additional wells were installed. The agency has not recomme further action.

Sources of Information

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage Section, Groundwater and Environmental Monitoring System database printout, August 15, 1995.

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage Section, Solid and Hazardous Waste Inventory Management System database printout, August 22, 1995.

Phone conversation with Wisconsin DNR hydrogeologist, September 14, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

POPE & TALBOT WISCONSIN INC. LANDFILL WISCONSIN

Facility Overview

Facility Name:	Pope & Talbot Wisconsin Inc. Landfill
Location:	Eau Claire County, Wisconsin
Waste Stream:	Paper mill sludges
Media Affected:	Groundwater

The Pope & Talbot landfill is located in Eau Claire County, Wisconsin. Six Mile Creek is 200 feet from the site.

Wastes and Waste Management Practices

The 19-acre landfill began receiving waste in 1978. Currently, the site has a three-foot clay liner and leachate collection system (Phase 3 area). Previously, the site dewatered the sludge, compacted it, and used it as a liner (Phases 1 and 2 areas). The sludge liner is suspected to have developed fractures and leachate permeated the compacted waste liner.

Groundwater is monitored quarterly. The nearest drinking water well is located 1,350 feet from the site.

Extent of Contamination

A breach in the compacted sludge liner in Phases 1 and 2 and leachate handling practices resulted in an impact t groundwater. The paper mill manufactures recycled paper, and therefore, must use solvents to de-ink the recycled paper Many of the contaminants found in the groundwater are process solvents used in the de-inking phase. Private drinking w wells, located approximately 1,000 feet from the facility, were contaminated with volatile organic compounds (VOCs) and There is no evidence that organisms in the surface water have been impacted.

As shown in the table below, benzene, cadmium, chloride, chromium, 1,1-dichlorethylene, trans-1,2-dichloroethylene, iron (dissolved), manganese, naphthalene, nitrate/nitrite as N, pH, sodium, toluene, trichloroethylene, a vinyl chloride exceeded Wisconsin or Federal water standards.

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	WI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Ammonia as N	19	--	--	--
Benzene	0.0015	0.0005	0.005	--
Bromodichloromethane	0.0001	0.036	0.1	--
n-Butylbenzene	0.00078	--	--	--
sec-Butylbenzene	0.00042	--	--	--
Cadmium	0.001	0.0005	0.005	--
Calcium	32	--	--	--
Calcium carbonate	5,300	--	--	--
Carbon tetrachloride	0.0001	0.0005	0.005	--
Chloride	210	125	--	250
Chlorobenzene	0.0017	--	--	--
Chloroethane	0.003	0.08	--	--
Chloroform	0.0001	0.0006	0.1	--
Chloromethane	0.00033	--	--	--
o-Chlorotoluene	0.016	--	--	--
p-Chlorotoluene	0.00027	--	--	--
Chromium	0.082	0.01	0.1	--
Dibromochloromethane	0.0001	0.043	--	--
m-Dichlorobenzene	0.0001	0.125	0.6	--

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS				
o-Dichlorobenzene	0.0001	0.06	0.6	--
p-Dichlorobenzene	0.0001	0.015	0.075	--
1,1-Dichloroethane	0.016	0.085	--	--
1,1-Dichlorethylene	0.005	0.0007	0.007	--
cis-1,2-Dichloroethylene	0.0016	0.01	0.07	--
trans-1,2-Dichloroethylene	0.052	0.02	0.1	--
Dichloromethane	0.004	0.015	0.005	--
1,2-Dichloropropane	0.0001	0.0005	0.005	--
trans-1,3-Dichloropropylene	0.0001	--	--	--
Ethylbenzene	0.0012	0.14	0.7	--
Freon	0.0025	0.698	--	--
Iron (dissolved)	230	0.15	--	0.3
Isopropylbenzene	0.0024	--	--	--
Isopropyl toluene	0.00058	--	--	--
Manganese	1.34	0.025	--	0.05
Naphthalene	0.019	0.008	--	--
Nickel	0.057	--	0.1	--
Nitrate/nitrite as N	11	2	10	--
pH	4.8	6.5-8.5	--	6.5-8.5
n-Propylbenzene	0.0051	--	--	--
Sodium	64	15	--	--
Sulfate	10	125	500	250
Toluene	0.79	0.069	1.0	--
Tribromomethane	0.0001	--	--	--
Trichloroethylene	0.006	0.0005	0.005	--
1,1,1-Trichloroethylene	0.0001	0.04	0.005	--
1,2,4-Trimethylbenzene	0.028	--	--	--
1,3,5-Trimethylbenzene	0.0098	--	--	--
Vinyl chloride	0.016	0.00002	0.002	--
Xylene	0.0045	0.124	10	--
Zinc	0.285	2.5	--	5

Corrective Actions/Regulatory Actions

The facility altered its de-inking process. The site placed a composite cap over Phase 1 and 2 areas of the landfi
The site attempted to install leachate extraction wells through the sludge, but the wells have had limited success in remov
leachate. The site was required to replace impacted private wells with a sidegradient shared well.

Sources of Information

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage
Section, Groundwater and Environmental Monitoring System database printout. August 15, 1995.

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage
Section, Solid and Hazardous Waste Inventory Management System database printout, August 21, 1995.

Meeting with Wisconsin DNR hydrogeologist, August 21, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

Facility Overview

Facility Name:	Richland Center Foundry
Location:	Richland Center, Wisconsin
Waste Stream:	Foundry sand
Media Affected:	Groundwater

The Richland Center Foundry is an industrial spent sand landfill in Richland Center, Wisconsin. The Pine River is an average of 350 feet away from the mouth foot of the landfill.

Wastes and Waste Management Practices

The 3.7 acre landfill received foundry sand waste from 1975 until its closure in 1990. Phases I, II, and III of the landfill are unlined but are clay capped according to applicable regulations; phase IV is both lined and capped. Eleven groundwater monitoring wells are tested biannually an leachate wells are checked monthly to verify their dry condition. There are no drinking wells near the site.

Extent of Contamination

The groundwater has exceedances of Wisconsin groundwater standards for iron and chloride, as well as high conductivity and chemical oxygen demand. No specific data were available. It is possible that the high iron levels are du natural causes and that the high chloride levels are due to the practice of "salting" Highway 14 during the winter months.

Corrective Actions/Regulatory Actions

As part of its closure plan, the site installed a multi-layered cap of clay and cover soils. No further action is anticipated.

Sources of Information

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage Section, Solid and Hazardous Waste Inventory Management System database query, August 21, 1995.

Meeting with Wisconsin DNR hydrogeologist, August 21, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

TOMAHAWK TISSUE CORPORATION WISCONSIN

Facility Overview

Facility Name:	Tomahawk Tissue Corporation
Location:	Tomahawk, Wisconsin
Waste Stream:	Paper mill sludge
Media Affected:	Groundwater

The Tomahawk Paper Mill is located in Tomahawk, Wisconsin. Wetlands exist 1,360 feet from the site. The facility is currently bankrupt.

Wastes and Waste Management Practices

The disposal facility is a 20-acre unlined landfill. Groundwater was monitored quarterly from 1976 to 1989. The nearest drinking water well is two miles from the site.

Extent of Contamination

As shown in the table below, iron, manganese, and pH exceeded Wisconsin or Federal water standards.

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	WI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Calcium	88	--	--	--
Chloride	28.4	125	--	250
Chlorobenzene	0.0067	--	--	--
p-Dichlorobenzene	0.0029	0.015	0.075	--
Iron	40.5	0.15	--	0.3
Magnesium	26.4	--		--
Manganese	4.8	0.025	--	0.05
pH	5.9	--	--	6.5-8.5
Sulfate	23	125	500	250
Total dissolved solids	370	--	--	500
Total suspended solids	37,860	--	--	--
Xylene	0.0042	0.124	10	--

Corrective Actions/Regulatory Actions

In 1991 the facility's license was revoked. No other information about the facility was readily available.

Sources of Information

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manager Section, Groundwater and Environmental Monitoring System database printout, August 15, 1995.

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manager Section, Solid and Hazardous Waste Inventory Management System database printout, August 22, 1995.

Meeting with Wisconsin DNR hydrogeologist, August 22, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

Facility Overview

Facility Name:	Tork Alum Landfill
Location:	Wisconsin Rapids, Wisconsin
Waste Stream:	Alum sludge
Media Affected:	Groundwater

The Tork Alum Landfill is located in Wisconsin Rapids, Wisconsin. Cranberry Creek is located 300 feet from the landfill.

Wastes and Waste Management Practices

The disposal site is a 10-acre unlined landfill. The landfill is licensed by the Wisconsin Department of Natural Resources and was owned and operated between the mid 1950's and 1983 by Tork Landfill Corporation. While in operation, the landfill accepted low-pH waste clay residue generated during the production of aluminum sulfate (alum) by the former Allied Chemical Corporation (now Allie Signal Inc.) at a facility in Wisconsin Rapids, WI. Groundwater and surface water monitoring at the site has continued on routine basis since the site closed, with the analytical results submitted to the WDNR on a quarterly basis.

Extent of Contamination

The site has been closed for many years; however, it is still impacting groundwater. Wisconsin Department of Natural Resources also believes that surface water may be affected, but does not have surface water data.

As shown in the table below, cadmium, chloride, chromium, iron, lead, pH, and sulfate exceeded Wisconsin or Federal water standards.

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	WI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Aluminum	99	--	--	0.05-0.2
Cadmium	0.7	0.0005	0.005	--
Calcium	103	--	--	--
Chloride	1,065	125	--	250
Chromium	58	0.01	0.1	--
Iron	600	0.15	--	0.3
Lead	28	0.0015	0.015*	--
Magnesium	475	--	--	--
pH	3.2	--	--	6.5-8.5
Sulfate	26,000	125	500	250
Total dissolved solids	1730	--	--	500
Zinc	1.19	2.5	--	5

* Action level

The highest concentrations detected for cadmium, chromium, and lead are not from the routine monitoring progra and represent a one-time monitoring event in August of 1979. It is doubtful the sampling techniques utilized at the time r current standards. It is also unlikely the samples were field filtered. The 1992 DNR SSI and 1996 ACE sampling results not support the data collected in 1979. It should also be noted that the reported highest concentrations are above the lev reported in the pore water of the alum residue.

The highest chloride level noted in the draft table is from February 1978 in well AC-6B. This is one of the two questionable chloride results that exceeded 1,000 mg/L during that time period. Also, the alum residue pore water had a low chloride concentration, 17 mg/L.

Corrective Actions/Regulatory Actions

A soil cap was placed over the site upon closure and construction documentation of the closure was approved by the State on March 15, 1984. The State completed a Potential Hazardous Waste Site-Preliminary Assessment of the lan in June 1984 and ranked the landfill as a low priority. As part of a cooperative agreement between the USEPA and the S a Site Screening Inspection (SSI) was conducted at the landfill by the State on April 2, 1991. In December, 1995, the Sta issued a Plan Modification Approval to address exceedances of state standards for sulfates in groundwater at the site. Th Plan Modification required an Environmental Contamination Assessment be prepared and conducted at the site, which is currently underway.

Sources of Information

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage Section, Groundwater and Environmental Monitoring System database printout, August 15, 1995.

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage Section, Solid and Hazardous Waste Inventory Management System database printout, August 22, 1995.

Meeting with Wisconsin DNR hydrogeologist, August 22, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

Facility Overview

Facility Name:	Ward Paper
Location:	Merrill, Wisconsin
Waste Stream:	Paper mill sludge
Media Affected:	Groundwater

The Ward Paper Mill is located in Merrill, Wisconsin. The facility ceased operations in late 1994 and the landfill ceased receiving paper mill sludge at that time. No known surface water bodies exist on or near the site.

Wastes and Waste Management Practices

The 9-acre site began receiving waste in 1983. The landfill is divided into five cells. Cells I-IV are unlined. Cell V has a liner composed of recompacted native soil (silty sand) overlain by a geomembrane. The final cover is soil and geomembrane. Groundwater is monitored quarterly.

Extent of Contamination

The site is fairly isolated. Wisconsin's hydrogeologists believe that the landfill waste is the sole source of the groundwater contamination.

As shown in the table below, cadmium, iron, lead, mercury, nitrate/nitrite, and pH exceeded Wisconsin or Federal water standards.

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	WI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Arsenic	0.0039	0.005	--	--
Boron	2.1	--		--
Cadmium	0.02	0.0005	0.005	--
Calcium carbonate	317	--	--	--
Chloride	80	125	--	250
Chromium	0.0014	0.010	--	--
Iron	17.6	0.15	--	0.3
Lead	0.008	0.005	0.015*	--
Magnesium	75	--	--	--
Mercury	0.004	0.0002	0.002	--
Nitrate/nitrite as N	3.8	2	10	--
pH	6	--	--	6.5-8.5
Selenium	0.0045	0.01	0.05	--
Sodium	4	--	--	--
Sulfate	52.3	125	500	250
Zinc	0.1	2.5	--	5

* Action level

Corrective Actions/Regulatory Actions

The facility performed an Environmental Contamination Assessment and determined that a composite liner shoul be installed in Cell V if the facility is to remain active. The landfill has been closed and the final closure documentation is being developed. Under the new Wisconsin solid waste regulations promulgated in July 1996, the Wisconsin Departmen Natural Resources is considering relaxing the monitoring requirements from quarterly to semi-annually.

Sources of Information

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage Section, Groundwater and Environmental Monitoring System database printout, August 15, 1995.

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage
Section, Solid and Hazardous Waste Inventory Management System database printout, August 21, 1995.

Meeting with Wisconsin DNR hydrogeologist, August 22, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

Facility Overview

Facility Name:	Wausau Paper Mills
Location:	Brokaw, Wisconsin
Waste Stream:	Paper mill sludge
Media Affected:	Groundwater

The Wausau Paper Mill is located in Brokaw, Wisconsin. The Wisconsin River is 1,000 feet from the site.

Wastes and Waste Management Practices

The disposal site is a 6-acre landfill. The landfill is divided into three cells. Cell I is unlined and has no leachate collection system. Cell II is lined and has a leachate collection system. Cell III has a five-foot clay liner and a leachate collection system. Groundwater is currently monitored quarterly but may be changed in part to semi-annually. The nearest drinking water well is 2,650 feet side gradient from the site.

Extent of Contamination

The contamination is thought to be caused by Cell I of the landfill. According to the Wisconsin Department of Natural Resources (DNR) hydrogeologist, there are exceedances of Wisconsin groundwater quality standards for the following parameters: alkalinity, chemical oxygen demand, iron, manganese, and hardness.

As shown in the table below, chloride and iron exceeded Wisconsin or Federal water standards. The standard fo iron has also been exceeded at several upgradient (background) wells.

GROUNDWATER CONTAMINANTS COMPARED TO WISCONSIN OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (mg/l)	WI Standard (mg/l)	MCL (mg/l)	SMCL (mg/l)
Calcium carbonate	5,160	--	--	--
Chloride	310	125	--	250
Iron	11.1	0.15	--	0.3
pH	6.06	--	--	6.5-8.5
Sulfate	20.5	125	500	250

Corrective Actions/Regulatory Actions

Cell I and Cell II are currently closed. The Wisconsin DNR has required Cell I to be recapped with a composite ca of clay, bentonite mat, and geomembrane, which was subsequently completed by July 1996. If the problem continues, th other cells will be considered for additional corrective action.

Sources of Information

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage Section, Groundwater and Environmental Monitoring System database printout, August 15, 1995.

Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Solid Waste Manage Section, Solid and Hazardous Waste Inventory Management System database printout, August 22, 1995.

Meeting with Wisconsin DNR hydrogeologist, August 22, 1995.

Written correspondence submitted by facility and/or State on draft version of release descriptions, October 1996.

SECTION A.2:

CONSTRUCTION AND

DEMOLITION LANDFILL

RELEASE DESCRIPTIONS

Media Affected: Groundwater

Overview of Site/Site History

The Garofalo C&D landfill was operated illegally by the Garofalo Carting Company (the Company) on land owned Pilgrim State Psychiatric Center (PSPC) in Islip, New York. In 1978, the Company was confronted by the New York State Department of Environmental Conservation (NYSDEC) concerning illegal dumping and excavating on land owned by the PSPC. The Company has been fined and repeatedly ordered to clean up the site, but has not complied with the sanction

The Garofalo site is located in a densely populated section of Long Island. Approximately 10,000 people reside within three miles of the landfill, including 1,200 people at the PSPC located immediately south of the site. Several schoo are located within one mile of the site.

Facility Operations

The Garofalo C&D landfill was cited for violations under the New York State Environmental Conservation Law, Article 27, in 1986. Testing found the landfill material to be comprised of 10 to 60 percent sandy soil with lesser amounts silt, and mechanically crushed wood, metal, plastic, bricks, concrete, whole trees and brush, large timbers, pilings, railroa ties, chain link fencing, rugs, plastic, and fiberglass sheeting. In 1989, approximately 100 syringes with needles and som intravenous tubing were found on PSPC property, near the landfill site.

Facility Design

Five test pits excavated at the site revealed no engineered cover material. We assume that there is no liner or leachate collection system, but the Preliminary Site Assessment (PSA) did not specifically discuss these features.

Site Environment and Hydrogeology

The landfill is located in the Upper Glacial geologic unit, which extends to at least 90 feet below the land surface. The unit is comprised of coarse to fine sand and medium to fine gravel, with less than five percent silt. The soils are high permeable, with hydraulic conductivities ranging from 1.46×10^{-1} to 6.55×10^{-1} centimeters per second (cm/sec). Average annual precipitation for the region is 43.4 inches per year, 21 inches of which is available for infiltration.

The landfill is located in a primary recharge area to the Upper Glacial aquifer, which is hydraulically connected to other aquifers (the Magothy Formation and the Lloyd sand of the Raritan Formation). Both the Upper Glacial and the Mag aquifers are pumped for domestic and industrial uses in the vicinity of the site. Two municipal well fields are located abou 1.25 miles and 3 miles from the site. The aquifer system has been designated a “Sole Source Aquifer” by the U.S. EPA u the provisions of the Federal State Drinking Water Act.

Although wetlands are located near the site, they are isolated from the landfill by road systems. It is not likely tha surface water run-off will reach any rivers or creeks due to topographic and human-built borders.

Summary of Environmental Damages

Groundwater monitoring at the perimeter of the landfill detected seven inorganic contaminants at elevations that exceed the New York State Class GA standards for groundwater. The levels of these contaminants, as well as the level o total dissolved solids (TDS) are compared to Class GA standards and EPA drinking water standards (MCLs and SMCLs) Table 1.

TABLE 1
GROUNDWATER CONTAMINANTS EXCEEDING
NEW YORK AND/OR FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (µg/l)	Class GA Standard (µg/l)	MCL (µg/l)	SMCL (µg/l)
Chromium	134	50	100	--
Iron	130,000	300	--	300

Lead	90	25	15*	--
Magnesium	94,900	35,000	--	--
Manganese	33,200	300	--	50
Sodium	178,000	20,000	--	--
TDS	1,630,000	500,000	--	500,000
Zinc	391	300	--	5000

*Value is action level for lead at the tap

Discussion

Ground water at the perimeter of the landfill was found to contain several contaminants at levels above their drink water standards.

Municipal well fields are located about 1.25 to 3 miles from the site. Off-site groundwater monitoring was not conducted as part of this study. According to the investigators, data from this one round of sampling do not conclusively determine whether or not the C&D landfill is affecting groundwater quality near the site.

No disposal of hazardous waste (as defined in 6NYCRR Part 371) was documented during the PSA. The PSA recommended closing the Garofalo C&D site, and capping it to reduce infiltration and provide surface water control.

Source

Final Preliminary Site Assessment: Garofalo C&D Site; New York State Department of Environmental Conservation (NYSDEC); November 1991.

Media Affected: Groundwater

Overview of Site/Site History

The 100-acre site is located in Henrico County, Virginia, adjacent to a road and two miles from the Richmond International Airport runway. According to an engineering company working for the landfill, the shallow aquifer in the area the landfill receives only limited use. Although the exact opening date of the landfill is unknown, the landfill received a pe on June 20, 1989 for its third parcel (a 34-acre area) to accept wastes; the other two parcels had already been receiving demolition wastes. According to the source documents, the landfill has accepted only construction, demolition, and debri wastes.

Facility Operations

The site is permitted to accept only construction, demolition, and debris wastes, including construction debris, demolition debris, broken brick, block, concrete rubble, brush, tree trimmings, stumps, and leaves. Excluded are municip solid waste (any putrescible waste), industrial waste, liquid waste, and hazardous waste. According to the 1989 site investigation, the site apparently also accepted tires.

Facility Design

The design of the landfill required a one-foot liner of on-site soil with a permeability of less than 1×10^{-6} centimeters/second, a leachate collection system of PVC pipe for each cell, a collection manhole for each cell, and a pum and haul process to a treatment facility. A 1988 memo from the Wiley and Wilson engineering firm noted that where exis sand pits were located, the pits would be filled with non-organic waste material consisting of broken concrete, bricks, brok pavement, and soil up to an elevation of one foot below the bottom of the landfill and then covered with a one-foot liner la The design included a 100-foot wide buffer strip around the perimeter of the entire landfill with a 50-foot buffer strip on the inside boundaries of the adjoining sections of the landfill. Groundwater monitoring is conducted at one upgradient and th downgradient wells.

Site Environment and Hydrogeology

The shallow aquifer lies 1 to 14 feet below the ground surface in the area of the landfill, but the landfilll design required at least 3 feet between the seasonal high groundwater elevation and the bottom of the landfill, including a one-fo liner. It is unclear whether the landfill design is in violation of this requirement. A nearly impermeable marl layer serves a confining layer to the deeper aquifer. The site apparently has gently sloping topography.

In the shallow aquifer, the dominant groundwater flow direction at the site is northward. The groundwater velocity ranges from 5.6×10^{-6} cm/sec at the eastern portion of the site to 8.8×10^{-6} cm/sec at the western portion of the site. The hydraulic gradient ranges from 0.012-0.019 ft/ft at the site. Little is known about the deeper aquifer except that it is virtua confined by an overlaying marl.

Summary of Environmental Damages

A 1989 site inspection revealed waste slopes exposed due to lack of sufficient cover, a breach of the 50-foot buff zone between wastes and the edge of the property, and leachate seeps that did not leave the site.

1993 monitoring results indicated statistically significant increases in specific conductance and total organic carbo (TOC) in downgradient on-site wells when compared to an upgradient well. In addition, pH was found to be unusually low during the 1991 monitoring.

TABLE 1
GROUNDWATER PARAMETERS EXCEEDING BACKGROUND LEVELS AND FEDERAL DRINKING WATER STANDARDS

Parameter	Highest Detected Level	Background Level	MCL	SMCL
TOC (µg/l)	57,000	21,200	--	--
Conductance (umhos/cm)	2,758	170	--	--

Parameter	Lowest	Background	MCL	SMCL
pH	5.98	6.6	--	6.5-8.5

Discussion

According to the 1993 Annual Report, data gathered from groundwater monitoring indicate that contamination ma be occurring in the groundwater at Cox's Darbytown Road Landfill. The facility was moved into the Phase II monitoring program because specific conductance and TOC were significantly higher in downgradient wells than in the upgradient/background well. The source documents do not address whether or not the contamination extends off-site.

Sources

1993 Annual Report, Cox's Darbytown Road Landfill, Inc. Prepared by Joyce Engineering, Inc., June 1994.

1st Quarter Phase I Sampling Event Results, Cox's Darbytown Road Landfill, Inc. Prepared by Joyce Engineering, Inc., M 1994.

2nd Quarter Water Monitoring Analyses, Cox's Darbytown Road Landfill, Inc. Prepared by Joyce Engineering, Inc., July 1

Chemical Analytical Report, Central Virginia Laboratories and Consultants, May 1994.

Commonwealth of Virginia, Solid Waste Disposal Site Inspection Report of Darbytown Landfill, September 5, 1989.

Commonwealth of Virginia, Department of Health Permit to M&M Wrecking Company, Inc., for a Sanitary Landfill, July 3, 1975.

Memorandum from Linda K. Lightfoot to Berry F. Wright, Virginia Department of Waste Management, November 20, 198

Memorandum from Wiley & Wilson to Berry F. Wright, Jr., Virginia Department of Waste Management, January 13, 1988.

Memorandum from Wiley & Wilson to Berry F. Wright, Jr., Virginia Department of Waste Management, January 20, 1988.

Memorandum from John F. Deal to Dr. W. Gulevich, Virginia Department of Waste Management, August 19, 1987.

Memorandum from S.B. Cox, Inc. to Hassan Vakili, Virginia Department of Waste Management, January 8, 1993.

Memorandum from Edward Hollos, Joyce Engineering, Inc. to Howard Freeland, Virginia Department of Environmental Quality, June 30, 1994.

Memorandum from Harry Gregori, Virginia Department of Waste Management to S.B. Cox, Inc., June 21, 1991.

Solid Waste Facility Permit, June 20, 1989.

Solid Waste Facility Permit, July 26, 1988.

Media Affected: Groundwater, Surface Water

Overview of Site/Site History

The Qualla Road Landfill is an active 33-acre C&D landfill located in a mainly agricultural area in Chesterfield County, Virginia. The landfill opened in 1983 with an 11-acre area, and 22 acres were added in 1988. To date, 16 of tho acres have received waste. The facility is owned by a private farmer and leased to Sanifill, Inc. The landfill capacity is estimated to be 1.523 million cubic yards over a design life of 12 years.

Two fires have been reported at the landfill, one in 1990 and one in 1993. Both were quickly extinguished.

Facility Operations

The Qualla Road Landfill accepts C&D waste, brick, concrete rubble, brush, tree trimmings, and stumps. Approximately 40 percent of the waste at the site is land-clearing debris, which is currently disposed on approximately ten unlined acres. The remaining 60 percent is building material and demolition waste and is disposed on approximately six acres. Prohibited wastes include hazardous waste, liquids, garbage, refuse, agricultural waste, industrial waste, paper products, asbestos, fly ash, bottom ash, sludge, tires, white goods, leaves, and metal scrap. According to the permit, six inches of daily cover must be applied.

Facility Design

The Qualla Road Landfill has been permitted in sections, and the facility design varies depending on when a sect was permitted. The original 11 acres probably were unlined. As of 1987, at least five feet between the cell bottoms and t seasonal high groundwater table were required. Of the 22 acres added in 1988, 10 acres are unlined, 6 acres are equipp with a compacted soil bottom liner (permeability of 1×10^{-6} cm/sec) and a leachate collection system, and the remaining 6 acres have not yet been put to use. As of 1994, leachate must be discharged to an underground storage tank to be ultim pumped and hauled to a waste treatment plant. Run-on and run-off controls, and a groundwater interceptor were also described for portions of the landfill in the 1994 design.

Site Environment and Hydrogeology

Soils under the landfill consist of a 2- to 4-foot upper layer of lean to fat clays and elastic silt, underlain by silty sa and sandy silt soils to depths of 20 to 50 feet. Groundwater in the area is found 10 to 38 feet below the ground surface. T general movement of groundwater is to the west (toward Reedy Branch), with a gradient of 0.03 to 0.08 feet/feet. Lateral is about 3.5×10^{-5} to 3.8×10^{-4} centimeters per second (cm/sec) and vertical flow is about 9.7×10^{-5} cm/sec. Rainfall is estimated at 42 inches a year.

The landfill drains into Swift Creek (to the north) and Reedy Branch (to the west), a tributary to Swift Creek. The original 11 acres were located within the 100-year flood plain of Swift Creek. A flowing stream, possibly fed by discharge through the groundwater from a pond at the southern edge of the site, was located on the site prior to the 1987 proposed expansion.

Summary of Environmental Damages

In 1987, debris was protruding from the original landfill adjacent to Swift Creek, and the relief was too steep to ret soil covering. The source documents attested that the presence of a stream within the boundaries of the proposed landfil expansion was “unacceptable” and could present “erosion and sediment control problems.” A 1987 Request Analysis an Recommendation also noted that “unless actions are taken to stabilize the existing fill area, siltation of Swift Creek itself m occur” and that “due to the significant topographic relief of the proposed landfill area, the potential for siltation of the adjac property and streams, including Swift Creek, appears to be even greater than that of the existing landfill.” A 1993 inspect found leachate emanating from the landfill that “had the potential for discharging off-site.” The leachate break was immediately repaired.

Surface water samples have been taken from two sampling sites, but it is unclear whether the sampling was conducted on or off site. Surface water monitoring found iron, lead, and acidity levels exceeding freshwater chronic AWQ protective of aquatic life (Table 1).

TABLE 1 SURFACE WATER CONTAMINANTS EXCEEDING FEDERAL AWQC		
Contaminant/Parameter	**Highest Detected Level (µg/l)**	**Fresh Chronic AWQC (µg/l)**
Iron	252,000	1,000
Lead	113	7*
Parameter	**Lowest**	**AWQC**
pH	5.6	6.5-9

*EPA calculated the AWQC value using a reported measured hardness value of 196 ppm.

Groundwater monitoring has been conducted on-site at one upgradient and three downgradient wells. For each well, samples are compared to background data for that well (i.e., based on samples taken earlier). In addition, samples downgradient wells are compared to the background data from the upgradient well. In 1992, groundwater monitoring fou elevated levels of lead, manganese, and total organic carbon (TOC) in a downgradient well compared to the upgradient background level. In addition, the lead, manganese, total dissolved solids (TDS), and specific conductance exceeded the background mean for that downgradient well.

Groundwater monitoring has also shown iron and manganese levels to exceed Federal drinking water standards (secondary MCLs) (Table 2).

TABLE 2 GROUNDWATER CONTAMINANTS EXCEEDING VIRGINIA PROTECTION LEVELS AND FEDERAL DRINKING WATER STANDARDS			
Contaminant	**Highest Detected Level (µg/l)**	**MCL (µg/l)**	**SMCL (µg/l)**
Iron	103,000	--	300
Manganese	4,600	--	50

Discussion

Schnabel Environmental Services, the company that performs groundwater monitoring at Qualla Road Landfill, concluded in 1993 that the data do not indicate that the landfill poses a "substantial threat to human health or the environment." However, monitoring has indicated exceedances of AWQC in surface water (whether on or off site is unkn and on-site exceedances of Federal drinking water standards in groundwater.

Sources

General Testing Corporation, Laboratory Reports, dated November 25, 1992, February 12, 1993, April 13, 1993, July 21, 1993, and March 17, 1994.

Letter from Kenton Chestnut, Jr., Division of Regulation, Department of Waste Management, Commonwealth of Virginia, Lane Ramsey, County Administrator, Chesterfield County, Virginia, February 5, 1990.

Letter from William Gilley, Division of Regulation, Department of Waste Management, Commonwealth of Virginia, to Paul Robins, Qualla Road Landfill, January 12, 1990.

Letter from Carl Benson, Schnabel Environmental Services, to Jim Leiper, Sanifill, October 5, 1993.

Letter from Schnabel Environmental Services to Chuck Hurt, J.K. Timmons & Associates, February 27, 1992.

Letter from Schnabel Environmental Services to Jim Leiper, Sanifill, April 8, 1992.

Letter from Stephen Werner, Hatcher-Sayer, Inc. to Paul Robins, Qualla Road Landfill, December 11, 1990.

Letter from A.M. Tope, Hydrogeologist, State Water Control Board, Commonwealth of Virginia, to Berry Wright, Departme Waste Management, Commonwealth of Virginia, May 15, 1987.

Letter from Scott Bullock, Department of Environmental Quality, Commonwealth of Virginia to Gregory Cekander, Sanifill, February 2, 1994.

Memorandum from Scott Bullock, Department of Environmental Quality, Commonwealth of Virginia, to Timothy Torrez, Q Road Landfill, January 12, 1994.

Memorandum from Charles Plott, Landfill Manager, Qualla Road Landfill, to Robert Timmons, Department of Environmen Quality, Commonwealth of Virginia, April 28, 1993.

Memorandum to the file from Berry Wright, Department of Waste Management, Commonwealth of Virginia, August 25, 19

Memorandum from Charles Plott, Landfill Manager, Qualla Road Landfill, to Robert Timmons, Department of Environmen Quality, Commonwealth of Virginia, May 10, 1993.

Memorandum from J.A. Adams to Berry Wright, Department of Waste Management, Commonwealth of Virginia, July 23, 1987.

Qualla Road Landfill Design Report, March 31, 1994.

Request Analysis and Recommendation, Linwood Belcher, Matoaca Magisterial District, January 20, 1987.

Sanifill, Groundwater Monitoring Data, for Robert Timmons, Department of Waste Management, Commonwealth of Virgin November 11, 1993.

Solid Waste Facility Permit, Permit Amendment Number 516, February 1, 1988.

Solid Waste Management Permit, Department of Waste Management, Commonwealth of Virginia, January 14, 1988.

SCHUYLKILL DEBRIS LANDFILL PRINCE GEORGE COUNTY, VIRGINIA

Media Affected: Groundwater

Overview of Site/Site History

The Schuylkill Debris Landfill comprises approximately seven acres near the western edge of the Appomattox Riv in Prince George County. The landfill received its permit to accept C&D wastes in November 1984 and closed in 1988. It owned and operated by the U.S. Army Quartermaster Center and Fort Lee. A few leachate seeps were discovered in 199 but they led to no obvious visual signs of contamination.

Facility Operations

The landfill is a permitted debris facility. An October 1989 questionnaire revealed that the facility has accepted wood, stumps, brick, concrete, and other inert construction and demolition debris material.

Facility Design

The source document provides no information on facility design.

Site Environment and Hydrogeology

The source document provides no information on site environment or hydrogeology.

Summary of Environmental Damages

A Response Record from August 6, 1992 indicated that the local water supply smelled and tasted badly. Howeve during the same investigation, the almost adjacent Appomattox River showed no signs of contamination from the landfill.

Various groundwater monitoring records over 1991 and 1992 indicate levels of beryllium, iron, lead, sulfate, and t dissolved solids (TDS) above Federal drinking water standards (primary or secondary MCLs) at least several times over t course of the monitoring (Table 1). Also, pH was consistently low in the series of groundwater results, often below 5. The location of the monitoring wells (i.e., whether they are on-site or off-site) was not reported in the available source docume Monitoring wells at Virginia landfills that reported the well locations generally were located within the landfill owner's prope boundaries.

TABLE 1
GROUNDWATER CONTAMINANTS EXCEEDING FEDERAL DRINKING WATER STANDARDS

Contaminant/ Parameter	Highest Detected Level (µg/l)	MCL (µg/l)	SMCL (µg/l)
Beryllium	6	4	--
Iron	33,500	--	300
Lead	56	15*	--
Sulfate	465,000	--	250,000
TDS	670,000	--	500,000
Parameter	**Lowest**	**MCL**	**SMCL**
pH	4.22	--	6.5-8.5

*MCL is action level for lead at the tap

Discussion

Groundwater contamination has occurred at the landfill, but the source documents do not specifically state wheth the landfill is the cause of the contamination. Because no information is readily available on site geology or facility design location, it is not possible to further evaluate the cause of damages at the Schuylkill Debris Landfill. It is also unknown whether off-site contamination has been documented, because the location of the monitoring wells was not presented in t source document.

Sources

Laboratory Report, Schuylkill, Montgomery Laboratories, December 16, 1992.

Memorandum from Thomas L. Kowalski, Environmental Inspector, to Department of Waste Management File, December 1992.

Memorandum from Jonathan P. Adams, Lieutenant, U.S. Army, to Richard Burton, Department of Environmental Quality, 7, 1994.

Memorandum from William M. Munson, Lieutenant Colonel, U.S. Army, to Linda Lightfoot, Department of Waste Management, October 11, 1989.

Solid Waste Management Permit, Commonwealth of Virginia, Department of Health, December 11, 1984.

1st Quarter Groundwater Analysis, Environmental Laboratories, Inc., April 30, 1992.

2nd Quarter Groundwater Analysis, Environmental Laboratories, Inc., July 23, 1992.

JANESVILLE DEMOLITION WASTE LANDFILL JANESVILLE, WISCONSIN

Media Affected: Groundwater

Overview of Site/Site History

The Janesville Demolition Landfill is a six-acre site located in Janesville, Wisconsin, just east of the Rock River. The site was never licensed and began to accept demolition waste in 1981 until its closure in 1992. The site was open to residents of Janesville and Rock County.

Facility Operations

The landfill received demolition waste from 1981 to 1992. A sign at the site identified concrete, broken pavement untreated/unpainted wood, and brush as acceptable materials, but a wide variety of waste may have been accepted. An attendant inspected all incoming loads to the landfill.

Facility Design

After the site was closed, two feet of compacted clay was placed on the site to mitigate infiltration of surface wate and precipitation. Groundwater monitoring is conducted using one upgradient and four downgradient wells. The source document does not mention any other engineering controls, such as liners, leachate collection systems, or run-on/run-off controls.

Site Environment and Hydrogeology

The landfill is located in the drainage basin of the Rock River, which flows south. The landfill lies in a large sand and gravel quarry, which is still partly active. Logs from monitoring well installation indicate that the soils are comprised m of sand and gravel, with some clay and rock fragments as well. Samples from the bottom of the deepest well were predominantly silt.

The underlying bedrock is St. Peter Sandstone, which is underlain by other sandstone layers. These sandstones make up the principal aquifer in this area and provide residents with potable water. The groundwater flow is generally fro the northeast to the southwest with a strong westward component due to the influence of the Rock River, which is about 1 feet west of the site. The depth to groundwater in the wells varies from 37 to 75 feet. The large component of sand and gravel in the area suggests that groundwater could be moving rapidly.

The total annual precipitation is about 32 inches.

Summary of Environmental Damages

Groundwater samples were taken periodically over a two-year period at one upgradient, one sidegradient, and tw downgradient wells. The source document is unclear as to whether the wells are inside or outside of the property line, bu both downgradient wells appear to be within the property line. Several parameters were significantly higher in the two downgradient wells compared to the upgradient well. Constituents that were found in downgradient wells at levels higher their Federal drinking water standard (primary or secondary MCL) are shown in Table 1. According to the source docume levels of sulfate, chloride, and manganese were above the Wisconsin Public Welfare Standards. The high sulfate levels attributed to gypsum, a common component of wallboard. Phenolic, a common constituent of tree and vegetative decay products, was detected once in one of the downgradient wells slightly above reporting limits.

TABLE 1
GROUNDWATER CONTAMINANTS EXCEEDING FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (µg/l)	MCL (µg/l)	SMCL (µg/l)
Chloride	430,000	--	250,000

Manganese	710	--	50
Sulfate	1,900,000	--	250,000
Total dissolved solids (TDS)	3,780,000	--	500,000

Discussion

Adverse on-site groundwater quality impacts from demolition waste disposal were documented at this landfill. Of site groundwater monitoring was not conducted.

Source

Investigation of Groundwater Impacts at Demolition Waste Landfills, Wisconsin Department of Natural Resources, June 1

TERRA ENGINEERING DEMOLITION WASTE LANDFILL — DANE COUNTY, WISCONSIN

Media Affected: Groundwater

Overview of Site/Site History

The Terra Engineering Demolition Landfill is about 4.1 acres in size. It is located in a drained marshy area in Dan County near the city of Madison, Wisconsin. This site was licensed in 1971 for demolition waste only, and one owner has operated the site since 1972. The company expects to be able to fill at the present rate for at least 10 more years.

Facility Operations

Since 1972, the site has been filled only with waste materials from the company's construction and demolition projects. The main fill materials have been reinforced and unreinforced concrete, wood, masonry, brick, asphalt paveme glass, steel and metal pieces, and brush. Some asphalt and scrap metal has been sorted out for the company to sell or reuse.

Facility Design

No information is presented in the source document about the design of the landfill.

Site Environment and Hydrogeology

The landfill is in a drained marshy area bounded on the north and east by drainage ditches. Surface water is rout around the fill on the southern end of the site. The land slopes towards the southeast.

The glacial material underlying the site is undifferentiated glacial deposits consisting of ground moraine. The unconsolidated material below the surface includes layers of brown sand, silt, and clay along with some sand seams and and gravel lenses. About 100 feet below these unconsolidated deposits lies Trempealeau and Franconia sandstone bedr which is underlain by Cambrian sandstone down to Precambrian crystalline bedrock. The Cambrian sandstone acts as th principal aquifer for most Dane County residents.

Groundwater is close to the surface at the site; the measured depth to ground water is between 2.5 and 10 feet. Regional movement of groundwater deep in the sandstone aquifer is southwest towards the Yahara River, which is three miles away. Locally, there is a definite eastward gradient. The groundwater flow is very complex due to the heterogeneo nature of the glacial deposits.

Summary of Environmental Damages

Five groundwater monitoring wells were installed at the site, one within the demolition debris and the others sidegradient to the fill. All wells were sampled periodically for two years. One of the sidegradient wells had elevated leve manganese, sulfate, and total dissolved solids (TDS); the other three sidegradient wells were generally unaffected. The w installed within the demolition debris had elevated levels of many inorganics; five were detected at levels above Federal drinking water standards (primary or secondary MCLs). These are shown in Table 1.

TABLE 1
GROUNDWATER CONTAMINANTS EXCEEDING FEDERAL DRINKING WATER STANDARDS

Contaminant	Highest Detected Level (µg/l)	MCL (µg/l)	SMCL (µg/l)
Chloride	380,000	--	250,000
Iron	6,400	--	300
Manganese	1,400	--	50
Sulfate	600,000	--	250,000

TDS	3,340,000	--	500,00

Discussion

Adverse on-site groundwater quality impacts from demolition waste disposal were documented at this landfill. Of site groundwater monitoring was not conducted.

Source

Investigation of Groundwater Impacts at Demolition Waste Landfills; Wisconsin Department of Natural Resources, June 1

SECTION A.3:

CALIFORNIA SOLID

WASTE ASSESSMENT TEST

RELEASE DESCRIPTIONS

Facility ID	Facility Name	SIC Code	Management Unit Type	Media		
				Groundwater	Surface Water	Vadose Zone
CA2 071042002	WDR-SHELL LAND DISPOSAL	2911	Surface Impoundment	Y	Y	Y
CA3 270300008	JOLON ROAD SOLID WASTE SITE	4952	Landfill	Y		
CA3 270303001	MARINA DISPOSAL SITE	4953	Landfill	Y	Y	
CA4B190309001	STOUGH PK, VERDUGO	4953	Landfill	Y	Y	Y
CA5A170300001	EASTLAKE LANDFILL	4953	Landfill	Y		
CA5B050302001	RED HILLS SWDS	4953	Landfill	Y	Y	
CA5D150303014	SHAFTER-WASCO SANITARY LANDFILL	4953	Landfill	Y		
CA5D162008001	KETTLEMAN HILLS FACILITY	4953	Surface Impoundment	Y	Y	Y
CA6B150303017	TEHACHAPI CLASS III LANDFILL	4953	Landfill	Y		
CA6B360304013	LENWOOD/HINKLEY-LANDFILL	4953	Landfill	Y	Y	Y
CA6B360304025	VICTOR VILLE CLASS III LANDFILL	4953	Landfill	Y		
CA7A360304121	LANDERS CLASS III WMF 91-028	4953	Landfill	Y	Y	Y
CA7B330305021	BLYTHE CLASS III WMF 91-005	4953	Landfill	Y		
CA1B900110NSO	SCPW AIRPORT ROAD BURN DUMP	4953	Landfill	Y	Y	Y
CA1B900020NSO	SO CO ROBLAR SWDS	4953	Landfill	Y	Y	Y
CA2 071059002	WDR-USS-POSCO	3462	Waste Pile	Y		
CA2 218049N01	TIMBER COVE MOBILE HOME CO	4953	Landfill	Y		
CA2 438262N01	SAN JOSE CITY-STORY ROAD LANDFILL	4953	Landfill	Y	Y	Y
CA2 438332N01	ROBERTS ROAD LANDFILL	4953	Landfill	Y	Y	Y
CA3 420000N13	TRANSFER STATION	4952	Landfill	Y	Y	Y
CA5D543001N01	BIXBY RANCH DISPOSAL SITE	4953	Landfill	Y		
CA5D100326N01	KEPCO-PINEDALE LANDFILL	4953	Landfill	Y	Y	Y
CA5D100325N01	FOWLER CITY LANDFILL (OLD)	4953	Landfill	Y	Y	Y
CA5A340301N01	WHITE ROCK ROAD LANDFILL-NORTH	4953	Landfill	Y	Y	Y
CA5A340300N01	WHITE ROCK ROAD LANDFILL-SOUTH	4953	Landfill	Y	Y	Y
CA7A330008NUR	CATHEDRAL CITY #19 LANDFILL	4953	Landfill	Y		
CA5C220300001	MARIPOSA CO LANDFILL FACILITY	4953	Landfill	Y	Y	
CA8 362039002	SEPTAGE DISPOSAL	4959	Surface Impoundment	Y	Y	Y
CA8 362277001	LANDFILL, WATERMAN	4953	Landfill	Y	Y	Y