4.0 OVERVIEW OF ALL OTHER BUILDINGS

Section 4.0 is a summary of the remaining Pinellas Plant buildings, including operations, processes, and building description.

4.1 Building 200

Processes and Operations

Quality control environmental tests designed to simulate operational environments are performed in Building 200. This building occupies approximately 12,000 square feet of floor space. Some of these tests were performed on neutron generators, which contain detonators. To mitigate the potential for accidental detonation, conductive flooring was used throughout the facility.

During testing of DOE products, the Building 200 radiological stack vented very low quantities of tritium oxide and gas from three boom boxes (firing chambers) and one radiological waste drum. The boom boxes were considered a Pinellas Plant RMMA [Ref. 9]. Neutron generator units were detonated in the firing chambers. The chambers were designed for 100 percent containment of the explosion in the chamber and collection barrel. A High Efficiency Particulate Air (HEPA) filter in the exhaust stack prevented particulates from the explosion from entering the environment. The radiological exhaust duct, HEPA filter, and exhaust stack were removed in September 1995. An area characterization of the west end of Building 100 was conducted in Subareas A through I and L. Environmental Test continues to occupy the east end of the building.

Chemical Usage

A review of Specialty components records indicated the following chemicals may have been used or handled in Building 200 Subareas A through I and L:

- alcohol
- asbestos (pipe insulation)
- explosives (Areas A, B, D, E, & L)
- Fluorinert
- Freon
- Sylgard
- methylene chloride
- radioactive waste
- resin, curing agent
- solder
- sodium hydroxide
- tritium
Exhausts

The radiological exhaust duct, HEPA filter, and exhaust stack were removed in September 1995. All equipment exhausts associated with Subareas A through I and L were removed and capped. The single chemical exhaust for the thermal battery vent test has been removed and capped.

Drains

There are connections to the sanitary drain system.

Status

Subareas 200 A-I and 200 L have been cleaned, characterized, and closed out as part of D&C. The Area Characterization and Final Closeout Report was issued March 22, 1996. Specialty Components continues to occupy the remaining areas of Building 200.

4.2 Building 500

Building 500 is the utility support building servicing the Pinellas Plant and occupies over 17,650 square feet. The building houses heating and air conditioning systems, emergency generators, and a demineralization water system. Building 500 is constructed of a steel frame with moment-resisting trusses. During 1993, 2 of the 900-ton chillers in the building were converted to use Hydrofluorocarbon (HFC) R134A. In 1994, a new chiller was installed, which utilizes Hydrochlorofluorocarbon (HCFC) R123. In 1994, Building 500 underwent modifications due to transition activities, including the installation of communications equipment formerly housed in Building 1200. The Deionized (DI) Water Plant was decommissioned on August 14, 1996 and subsequently dismantled.

4.3 Building 600

Building 600 occupies an area of approximately 7,200 square feet and serves as the Pinellas Plant Chemical Storage Building. Individual storage rooms, called bays, were established in Building 600 for the following materials: flammables, acids, alkalies, oxidizers, and toxics. Production and general stockroom chemicals are stored in rooms segregated by chemical class. Safety systems in Building 600 include automatic high-capacity fire sprinklers, high-capacity portable fire extinguishers, overflow sumps, bonded and grounded storage and pouring systems, explosion proof electrical service, and a lightning protection system.

Concrete floors in each storage room are sloping and graded to contain all spilled material. Most bays contain sumps. Blowout panels (skylights) are in place in all rooms. Telephones and all electrical fixtures in Building 600 are explosion-proof.
Building 600 was redesigned and renovated in 1992, to include storage for all major types of chemicals used at the plant, including those that require storage under a narrow range of temperature conditions. Specialty Components continues to occupy this area.

4.4 Building 700

Building 700 contains approximately 4,900 square feet. This building has a waste paper shredding machine, a painting booth, and houses various maintenance functions. It formerly housed the plant fire brigade. Specialty Components continues to occupy this area.

4.5 Building 800

Building 800 housed a 200-kiloelectron volt (keV) ion accelerator and contains approximately 2,900 square feet. Test cells in the building are constructed of 3,000 psi reinforced concrete. Access to the test cells from the control room is through a 4- by 8-foot opening in the west wall of the test cell with a door constructed of 3,000 psi reinforced concrete that is framed in steel. The ion accelerator has been removed.

The Building 800 stack vented gaseous tritium or tritium oxide emissions from the Building 800 accelerator. The accelerator primarily accelerated deuterium ions to determine the neutron output of various types of tritium targets. Workstation hoods that vent radiological emissions were located in the accelerator facility and control room. The Building 800 accelerator room is considered a Pinellas Plant RMMA [Ref. 9]. Radioactive Waste Packaging operations now occupies the area.

4.6 Building 900

Building 900 is a concrete block tower designed and operated as a training facility to reproduce, as nearly as possible, the conditions that a fire fighter would encounter during a fire emergency. Minor modifications to this facility include installation of a railing on the top of the building and replacement of existing piping. Due to the nature of this facility, alternate plans are not identified.

4.7 Building 1000

Building 1000 is a concrete block structure set on a reinforced concrete foundation approximately 3 inches above the surrounding surface grade. The design elevation of the building prevents stormwater run-in. The overall area of Building 1000 is approximately 3,200 square feet. The building is divided into three bays and stores low-level solid radioactive waste, solidified waste oil, mixed radiological and hazardous waste, and used equipment. Specialty Components continues to occupy this area.
4.8 Building 1010

Building 1010 is constructed of concrete block and is set on a reinforced concrete foundation, which slopes to a collection drain and sump system. The building is divided into two bays that are separated by concrete block fire partitions extending from floor to ceiling. Within the building, Bay Number 1 is normally used for empty noncontaminated container storage and is temporarily being used for radioactive waste storage. Bay Number 2 is used for 90-day temporary storage of hazardous regulated waste prior to disposition. Specialty Components continues to occupy this area.

4.9 Building 1040

Building 1040 is a 2,000-square foot concrete block structure set on a reinforced concrete foundation. The foundation slopes to a collection bay and sump. The interior of the building is divided into three bays. Bay Number 1 contains all liquid drummed wastes. Bay Number 2 is used for reactive waste storage. Bay Number 3 contains miscellaneous laboratory chemicals that are stored in the area until they can be properly identified and classified for packaging, shipping, and disposal. Specialty Components continues to occupy this area.

Associated with Building 1040 was a tank storage area, which had the capacity to store ignitable liquids and halogenated waste solvents, machine shop cutting fluids, and waste lubricating oils. The tanks were located on pads with concrete dikes to contain spills and prevent runoff. The tanks were removed in September 1995, in accordance with clean closure requirements. Building 1040 contains one active chemical emissions source, which is connected to a chemical exhaust hood for storing small volumes of Volatile Organic Compounds (VOCs) before disposal.

4.10 Building 1100

Constructed in 1985, this 400-square foot facility stored water-reactive metals. The floor of Building 1100 is constructed of concrete, the walls are concrete block with vertical reinforcing every 4 feet, and the roof is a metal deck with insulation and built-up roofing. Operations have ceased, and the building is available for D&C.
5.0 UTILITIES

Section 5 is a summary of Pinellas Plant utilities. Utility systems equipment is primarily located in Building 500 and at the Industrial Wastewater Neutralization Facility (IWNF). Utilities consist of electrical systems; air conditioning, heating, and ventilation systems; water supplies; cryogenic and gas systems; fuel distribution systems; and energy management.

5.1 Electrical Power Distribution System

The Pinellas Plant receives its electrical service from a Florida Power Corporation (FPC) owned substation that is located on plant property near the west boundary. Transformers receive their power supply via overhead pole lines from FPC’s Cross Bayou substation, located 1.2 miles to the south. An alternate feed is brought in from FPC’s Largo substation, located 3.2 miles to the north. Emergency electrical power consists of three 844-kilo volt-amps, diesel-driven electrical generators in Building 500, one diesel-driven generator in Building 1200, and a battery-powered emergency lighting system.

5.2 Chilled Water System

The chilled water system provides cooling for air conditioning units (air handling units [AHUs]) and for some process equipment. The chilled water system consists of 6 centrifugal chillers with cooling capacities up to 900 tons each located inside Building 500. During 1993, two 900-ton chillers were converted to use HFC R134A. In 1994, one 900-ton chiller unit was replaced.

5.3 Condenser Water System

The condenser water system is mainly located outside Building 500, except for the condenser piping that supplies the evaporation-cooled water to the chillers and heat pumps. The system includes provisions for the automatic addition of concentrated sulfuric acid to the cooling tower basin for pH control of the condensate. The sulfuric acid is stored in a 200-gallon horizontal plastic tank with secondary containment that is designed to hold its contents without any pressurization.

5.4 Hot Water Systems

Hot water systems at the Pinellas Plant consist of a process water system and domestic hot water system. The process hot water system provides hot water for plant manufacturing operations and equipment, AHUs, and serves as the heat source for the domestic hot water system. The hot water system is located inside Building 500, except for the heating water expansion tank and various loops of the
distribution piping. The primary source of heat for the hot water heating system is a boiler with a heat pump for backup.

5.5 Domestic Cold Water System

The domestic cold water system supplies water to each building of the plant from either a Pinellas County Water System 48-inch diameter line at Belcher Road, or a 24-inch diameter line at Bryan Dairy Road. Each main water supply enters the property through a metered pit and into a domestic water main that is 6 inches in diameter.

5.6 Compressed Air System

The compressed air system provides shop-quality air (80 to 90 psi) to production areas of the plant and control air (approximately 20 psi) to instrumentation loops in the plant. The compressed air system is located inside and outside Building 500.

5.7 Deionized Water System

The DI water system was decommissioned on August 14, 1996 and has since been dismantled. DI water was historically necessary for providing high-quality water to many production operations at the plant. The DI water system treated the incoming county water supply to provide DI water suitable for plant process operations. The primary users of DI water were quartz crystal resonator production, tube assembly (cleaning), and tube engineering. The DI water system was located in a building adjoining the north side of Building 500. The system had a 6,000-gallon storage tank for hydrochloric acid, a 6,000-gallon storage tank for sodium hydroxide, and a 3,300-gallon storage tank for waste neutralization.

5.8 Fuel Distribution and Storage Batteries

Energy to power various boilers, stationary engines, and vehicles is produced by diesel fuel, liquid propane, gasoline, natural gas, and lead acid batteries.

5.8.1 Diesel Fuel

Diesel fuel is stored outside in two 6,000-gallon vertical, cylindrical, above-ground tanks north of Building 500, a 2,000-gallon tank west of Building 920, and a 500-gallon horizontal, cylindrical, above-ground tank west of Building 200. Inside Building 500, two smaller tanks store diesel fuel to operate the plant's diesel engines and the hot water boiler for a several-month period. The two 6,000-gallon tanks provide fuel directly to two rectangular day tanks for three stationary diesel engines that drive emergency power generators and to the burners of a hot water boiler inside Building 500. The two rectangular day tanks, located inside Building 500,
store a minimum of 1 day's supply of fuel to operate the three emergency power generator diesel engines [Ref. 7].

Inside Building 920, two 100-hp diesel engines are supplied fuel by a 2,000-gallon horizontal cylindrical carbon steel tank with flat ends. A 2-foot high dike is present to contain the entire contents of the tank should it rupture. One 500-gallon fiberglass above-ground storage tank provides diesel fuel for the plant's vehicles through a service station-type pump and hose. This horizontal cylinder is supported 2 feet above grade by two concrete saddles. The tank is designed for atmospheric pressures and has a 12-foot high vent pipe capped by a screen outlet covered tee. The line has a downcomer to provide an overflow into the diked area. The same type of saddle supports two 500-gallon gasoline tanks 3 feet away; one tank is on each side. The area around the tanks is enclosed by a dike to capture any spills from a single tank inside the dike [Ref. 7].

5.8.2 Liquid Propane

Propane gas provides fuel for the pilot burner for an oil-fueled hot water boiler and for industrial, internal-combustion-powered vehicles designed to operate on vapors from Department of Transportation (DOT)-approved transportable containers. Propane is only used in the hot water boiler to ignite the boiler when natural gas is not available, and fuel oil is burned. Liquid propane is stored above ground, outside the north wall of Building 500.

5.8.3 Gasoline

Gasoline for the plant's road vehicles and maintenance equipment is stored in two above-ground tanks that are located west of Building 200. One 549-gallon capacity, above-ground tank contains regular unleaded gasoline, and the other 549-gallon capacity, above-ground tank contains premium unleaded gasoline. An additional 549-gallon capacity, above-ground tank provides diesel fuel for vehicles [Ref. 7]. Each tank is a horizontal cylinder made of fiberglass-reinforced plastic with a 12-foot high vent pipe capped by a tee with outlets screened on each end. Two concrete saddles support each tank 2 feet above the grade elevation. An 8-inch dike surrounds the storage area to contain any possible spills.

5.8.4 Natural Gas

Natural gas is supplied by a local utility through a 4-inch main line from the west side of the plant at Belcher Road; the line surfaces just outside the north wall of Building 500. The natural gas main then divides to reach the areas inside Building 500 and inside the west areas of Building 100.
5.8.5 Battery Power

Nickel-cadmium or lead-acid batteries provide electrical power to operate a 500-pound manlift, a small fire truck, and several four-wheeled, two-seat carts, as well as each of the four emergency electrical power diesel engines.

5.9 Bulk Gas Systems

The Pinellas Plant has bulk gas utilities in the form of argon, hydrogen, nitrogen, and oxygen storage and distribution systems.

5.9.1 Argon Storage and Distribution System

The argon system provides inert atmospheres and purging capabilities to several areas within Building 100. Argon is also used as a pressure test gas. Bulk storage of argon is provided by two vessels (Tanks Number 5 and Number 6) located east of Building 500. Tank Number 5 has a capacity of 1,120,500 cubic feet. Tank Number 6, primarily a backup system, has a capacity of 58,000 cubic feet. Argon gas is distributed to points in Building 100.

5.9.2 Hydrogen Storage and Distribution System

Hydrogen liquid and gas are stored within a fenced area approximately 200 feet northwest of Building 1400. The hydrogen storage area contains a 9,000-gallon vessel (Dewar) for storing liquid hydrogen and an array of 12 cylinders for storing high pressure hydrogen gas. Hydrogen gas is piped to Building 500 and Building 100.

5.9.3 Nitrogen Storage and Distribution System

The nitrogen system provides inert atmospheres, pressure testing, and purging capabilities to several areas within the plant. Bulk storage of nitrogen is provided by two Dewar tanks at two locations. One 1.2 million-cubic foot Dewar (Tank Number 3) is located east of Building 500. A 1.0 million-cubic foot Dewar (Tank Number 2) is located east of Building 200. High-pressure nitrogen gas, at approximately 2000 psi, is provided by two arrays of cylinders. Nitrogen is supplied to Buildings 200 and 1100.

5.9.4 Oxygen Storage and Distribution System

Bulk storage of oxygen is provided by a single 600-gallon vessel (Tank Number 7) that is located east of Building 500. The distributed oxygen system provides oxygen for cutting, brazing, and annealing operations, to several areas within Building 100.
5.10 Pollutant Storage Tanks

All pollutant storage tanks at the Pinellas Plant are above ground, with secondary containment and administrative controls to prevent a release. The tanks include petroleum products (gasoline and diesel fuel), acids, and sodium hydroxide [Ref. 7]. There are no Underground Storage Tanks (USTs) at the Pinellas Plant. The last UST was removed from the plant in September 1991, in accordance with Pinellas County Public Health Unit regulations.
6.0 OVERVIEW OF THE EXISTING AIR, WATER, SOIL, AND HAZARDOUS WASTE ACTIVITIES

Section 6.0 includes an overall summary of Pinellas Plant existing air, water, soil, and hazardous waste activities. This summary is based on 1995 data as presented in the Annual Site Environmental Report for Calendar Year 1995, [Ref. 12].

6.1 Radiological Monitoring

Table 6-1 summarizes radiological air, water, and soil monitoring activities.

<table>
<thead>
<tr>
<th>Media</th>
<th>Type of Sample</th>
<th>No. of Sample Locations</th>
<th>Frequency of Samples</th>
<th>Type of Emission Analyzed</th>
<th>Location of Sample</th>
<th>Figure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air</td>
<td>Rad Exhaust Stacks</td>
<td>2</td>
<td>Continuous</td>
<td>Tritium</td>
<td>On site</td>
<td>6-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>Once annually</td>
<td>Tritium</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Air Monitoring Stations</td>
<td>11</td>
<td>Continuous</td>
<td>Tritium</td>
<td>On site</td>
<td>6-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>Continuous</td>
<td>Plutonium</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Air Monitoring Stations</td>
<td>6</td>
<td>Continuous</td>
<td>Tritium</td>
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<td>6-2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>Continuous</td>
<td>Plutonium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soil</td>
<td>Top Soil and Subsoil</td>
<td>2</td>
<td>Annually</td>
<td>Plutonium</td>
<td>On site</td>
<td>6-4</td>
</tr>
<tr>
<td></td>
<td>Top Soil and Subsoil</td>
<td>4</td>
<td>Annually</td>
<td>Plutonium</td>
<td>Off site</td>
<td>6-5</td>
</tr>
<tr>
<td>Water</td>
<td>Wastewater (IWNF)</td>
<td>1</td>
<td>Continuous</td>
<td>Tritium</td>
<td>On site</td>
<td>6-6</td>
</tr>
<tr>
<td></td>
<td>Surface Water (ponds)</td>
<td>3</td>
<td>Weekly</td>
<td>Tritium</td>
<td>On site</td>
<td>1-1</td>
</tr>
<tr>
<td></td>
<td>Surface Water</td>
<td>26</td>
<td>Quarterly</td>
<td>Tritium</td>
<td>Off site</td>
<td>6-3</td>
</tr>
<tr>
<td></td>
<td>Groundwater</td>
<td>24</td>
<td>Quarterly</td>
<td>Tritium</td>
<td>On site</td>
<td></td>
</tr>
</tbody>
</table>

*Split among the 185 groundwater monitoring wells.*
Figure 6-2. Off-Site Air Sampling Station Locations
(Note: Southwest Florida Water Management District (SWFWMD) Station not shown)
Figure 6-5. Off-Site Soil Sampling Locations
Figure 6-6. Radiological and Non-radiological Liquid Effluent Sampling Locations
6.1.1 Air

Sampling

During cleanup activities, small quantities of radioactive tritium and krypton-85 are discharged from radiological exhaust stacks. The plant's primary sampling stations quantify the amount of tritium that is discharged. Primary sampling stations collect samples directly from the stacks. Ambient air is collected from secondary sampling stations located around the perimeter of the plant and from tertiary sampling stations located throughout the county in a circular pattern around the plant (see Table 6-1). Krypton-85 releases are estimated from mass balance calculations and reported in the Pinellas Plant Annual Site Environmental Report [Ref. 12]. No plutonium release has ever been detected from past manufacturing. All plutonium-related manufacturing operations ceased in 1991 [Ref. 12]. Tritium and krypton-85 releases continue to be well below standards set by the DOE and the EPA [Ref. 12]. Based on the plant's low emissions and efficient recovery of these emissions, the EPA designated the Pinellas Plant as a minor source of radionuclide emissions. An EPA inspection verified the plant's compliance with 40 CFR Part 61 Subpart H, the National Emission Standards for Emissions of Radionuclides other than Radon from DOE Facilities.

Clean Air Act Title V

A Clean Air Act Title V Permit Application was developed and submitted to the FDEP and the EPA in June 1996. The permit application identified the following emissions sources as being regulated under Title V of the Clean Air Act:

Chromium anodizing

Halogenated solvent vapor degreasing

Nonhalogenated solvent cleaners

Spray paint booths

Atmospheric radionuclide emissions

Acid/caustic scrubbers

Remediation site air strippers
Facilitywide nonmanufacturing sources of VOC, Hazardous Air Pollutant (HAP), and Particulate Matter (PM) emissions

Facilitywide manufacturing sources of VOC, HAP, and PM emissions.

6.1.2 Water

Wastewater

Small quantities of radioactive tritium are present in the plant's sanitary sewage, radiological, and industrial wastestreams; however, as previously stated, tritium releases continue to be well below standards set by the DOE and the EPA. Very small quantities of naturally occurring uranium were previously discharged in rinse water from glass cutting operations, but this process was terminated in 1994. Just before leaving the IWNF, the sanitary sewage, radiological, and industrial wastestreams are combined and discharged to the PCU’s Publicly Owned Treatment Works (POTW). As specified in the Pinellas Plant Environmental Monitoring Plan [Ref. 4], a 24-hour composite sample is collected each day of the year from the sanitary, industrial, and combined wastestreams and analyzed for tritium. In addition, a grab sample from the Health Physics (radiological) storage tanks is analyzed for tritium prior to the tank being released to the POTW. The PCU routinely inspects the plant and oversees the discharge self-monitoring efforts. To date, the Pinellas Plant has never exceeded Federal, State, or local discharge standards for radioisotopes. The total tritium discharge for 1995 was less than the permissible discharge [Ref. 12]. Refer to Appendix D for the Pinellas Plant Industrial Wastewater Discharge Permit.

Surface Water

With the right meteorological conditions, airborne tritium can be deposited into surface waters. The Pinellas Plant samples both on-site and off-site surface waters on a regular basis. Plant chemists analyze the samples for tritium to determine the extent of potential deposition. The 1995 analyses show nondetectable concentrations of tritium in the on-site and off-site ponds. Refer to Reference 12 for more details.

Groundwater

Tritium has been detected in the Pinellas Plant groundwater. The plant samples and analyzes groundwater for tritium on a quarterly basis from selected wells in both the surficial and Floridan aquifers. The highest concentration of tritium detected in samples from the surficial aquifer in
1995 was 3.14 pCi/ml, which is significantly below the Safe Drinking Water Act (SDWA) Maximum Contaminant Level (MCL) of 20 pCi/ml. Therefore, tritium is not a contaminant of concern in the site’s ER program. Samples in the Floridan aquifer were below detectable limits. Refer to Reference 12 for more details.

6.1.3 Soil

All plutonium, except small sealed check sources, was removed from the plant in February 1991. In accordance with an Agreement-In-Principle with the HRS and as specified in the Pinellas Plant Environmental Monitoring Plan [Ref. 4], the plant continues to collect and analyze soil samples for plutonium annually from on- and off-site locations. Plutonium from plant operations has never been detected in soil samples [Ref. 12].

6.2 Nonradiological Monitoring

Table 6-2 summarizes the existing nonradiological water monitoring activities.

<table>
<thead>
<tr>
<th>Table 6-2. Environmental Nonradiological Monitoring Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>Water</td>
</tr>
<tr>
<td>Surface Water</td>
</tr>
<tr>
<td>Stormwater</td>
</tr>
<tr>
<td>Groundwater</td>
</tr>
</tbody>
</table>

*Split among the 185 groundwater monitoring wells.
6.2.1 Air

Sources of nonradiological emissions at the Pinellas Plant include: boilers, acid scrubbers, fume hoods, and other process and testing-related exhausts from production and utility areas located throughout the plant site. The majority (approximately 80 percent) of air emission point sources on the site are associated with manufacturing and engineering operations in Building 100. An operating permit was issued by the FDEP in February 1994. The Pinellas Plant Air Emissions Operating Permit (Appendix E) regulates the quantities of various VOCs, Organic Compounds (OCs), and HAPs that the plant may release to the environment and limits the total VOC/OC emissions to 41.1 tons per year. Total emissions for 1995 were approximately 4.85 tons [Ref. 12]. Compliance oversight is conducted through routine annual inspections by the FDEP. These annual inspections establish that the plant is operated in full compliance with the provisions of the permit and State regulations.

6.2.2 Water

Wastewater

The Pinellas Plant discharges liquid effluent consisting of sanitary sewage and pH-neutralized industrial process wastewaters to the POTW. Samples are automatically collected and analyzed for the parameters specified in the plant's Industrial Wastewater Discharge Permit (Appendix D). The plant maintains charts to show when permit limits are being approached and proactively implements corrective actions to prevent permit limit excursions. During the past 3 consecutive years, there were no instances in which the plant exceeded permitted levels.

The PCU maintains a secured sampling station on the Pinellas Plant site. Samples of the plant's combined effluent from this station are collected on an irregular, unannounced basis and analyzed by the county to verify compliance with the permit. In all cases, the amounts were measured independently and were below the permitted levels during 1995. The PCU also performs routine site inspections of the IWNF operations, the self-monitoring data and analysis records, and the permit conditions. An excellent compliance history exists due to diligent engineering and administrative controls over all wastewater discharges and pH treatment processes.
Surface Water

The plant samples the three on-site ponds quarterly for VOCs and metal compounds. Analytical results for 1995 showed VOCs and metals below regulatory levels.

Stormwater

The Pinellas Plant sampled and analyzed stormwater discharges from two outfalls, and in September 1992, the plant submitted an individual permit application for stormwater discharges associated with industrial activity to the EPA, as required by 40 CFR Part 122 Subpart A. In 1993, an additional outfall was discovered, sampled, and analyzed. The plant revised and resubmitted the application, but has not yet received a permit.

Groundwater

The plant monitors groundwater and provides evaluations of implemented interim measures and surveillance of potential groundwater contamination sites. These sites include the 4.5 Acre Site and other sites identified in the plant’s Hazardous and Solid Waste Amendment (HSWA) Permit. Of the 246 groundwater monitoring wells at the plant, approximately 170 are sampled quarterly and all are sampled annually for VOC analysis. About 140 monitoring wells are sampled and analyzed for metals twice per year. The primary constituents of concern at the plant are solvent compounds and their decomposition products.

6.3 Waste Management

Waste Management activities are conducted in strict compliance with Title 40 CFR, Parts 260-268, as administered by the EPA and the FDEP under Chapter 403.722, Florida Statutes, and Florida Administrative Code (FAC) Rules under Chapter 62; applicable DOE Orders; and the Pinellas Plant Hazardous Waste Operating Permit (see Appendix G).

Types of Waste

The types of waste generated at the Pinellas Plant include the following:

- Radioactive wastes, including material contaminated with tritium.

- Hazardous wastes, including containerized liquid waste, laboratory chemicals, and spent hazardous articles, such as batteries.
• Nonhazardous wastes, including general trash, waste oils, and spent material associated with testing.

• Fluorescent light bulbs, printed circuit boards, scrap metal, and cardboard; all these wastes are recycled.

• Mixed wastes, two drums of HEPA filters included in the Site Treatment Plan (STP).

• Water treatment sludge.

• Demolition debris.

6.3.1 Resource Conservation and Recovery Act (RCRA)


The Pinellas Plant stores hazardous wastes, but no hazardous wastes are disposed of on the plant site. All hazardous wastes are shipped off site for disposal at a RCRA-approved disposal site. Hazardous waste storage at the Pinellas Plant falls under 2 categories, 90-day accumulation for hazardous waste, or permitted storage of hazardous waste not to exceed 1 year. Permitted storage for hazardous waste is identified in the Hazardous Waste Facility Permit. Treatment operations formerly included thermal treatment of small charge explosives and chemical treatment of water reactive compounds, such as calcium metal, calcium bimetals, and solid wastes contaminated with lithium metal. These treatment operations were discontinued in 1995 and are being formally closed in 1996.

The FDEP and/or the EPA inspect the plant’s hazardous waste operations at least annually to assure compliance with governing regulations.

6.3.1.a RCRA Permit

The Pinellas Plant currently possesses a dual RCRA Part B Permit, with the FDEP administering the hazardous waste treatment and storage requirements and the EPA administering the HSWA portion for the assessment and remediation of Solid Waste Management Units (SWMUs). A dual permit was issued because the FDEP does not have the EPA’s authorization to administer the HSWA provisions of RCRA.
The plant's HSWA Permit, FL6 890-090-008, issued by the EPA, Region IV, on February 9, 1990, requires the permittee to investigate any releases or potential releases of hazardous waste or hazardous constituents from any SWMU at the plant regardless of the time the waste was placed in the unit (Appendix E). The permit requires appropriate corrective actions for any releases.

6.3.1.b Hazardous Waste Functions

Hazardous Waste

Hazardous waste responsibility is mandated by DOE Orders, operating procedures, and Federal regulations, which delineate generator responsibility in compliance with the EPA’s Hazardous Waste Management System. Waste Management is responsible for the removal, transport, and transfer of hazardous waste to the Hazardous Waste Management and Storage Facility and for the storage, treatment, and shipping of mixed, radioactive, hazardous, and nonhazardous waste.

Waste reactive metals and lithium-contaminated solids, generated from laboratory and battery production areas, were transferred under oil by WM to the reactive metals treatment area. Explosive materials (i.e., heat powder, heat paper, and primer squibs) were treated at the thermal treatment facility.

Waste Treatment Methods

Chemical and thermal treatment of reactive and division 1.3 and 1.4 explosive materials, in accordance with the plant’s Hazardous Waste Operating Permit (Appendix G), were performed in on-site treatment facilities. Reactive metals and lithium-contaminated solids were treated in the reactive metals treatment facility, located north of Building 700. The facility consisted of a concrete basin with 55-gallon steel drum reaction vessels.

The thermal treatment area was located next to the reactive metals facility. The thermal treatment area consisted of a metal reaction pan, 2 feet long and 6 inches deep, used as an open burning area, where explosive materials were burned. The heat paper combustion residue was placed in drums for disposal as a toxic hazardous waste.
Spent machine shop coolant was treated at the point of generation in Building 100. The heavy metals were flocculated and filtered out of the coolant, allowing the liquid filtrate waste to be discharged to the sewer. The filtered solids were not hazardous and were disposed of with the nonhazardous wastes.

Treatment operations were discontinued in 1995 and will be formally closed in 1996. The hazardous materials described above will be shipped off site to RCRA-approved disposal facilities.

**Waste Minimization**

In 1990, the Pinellas Plant formalized a waste minimization program. This program is coordinated by WM and initiates or improves waste minimization technologies and efforts, including, but not limited to, the following:

- Employee training.
- Sale or exchange of reusable excess materials/scrap.
- Process changes and material substitution, including replacement of halogenated and flammable cleaners with aqueous-based cleaners, to reduce and/or eliminate employee exposure to hazardous materials.
- Recycling.
- Decontamination of tools and equipment contaminated with low-level radiation.
- Reuse/recycling of excess office supplies and laboratory equipment that result from cleanup/transition activities.

**6.3.2 Low-level Radioactive Waste**

Low-level radioactive waste material, such as scrapped equipment and by-products of decontamination procedures, is packaged into 55-gallon steel drums or B-25 boxes and stored in the WM facility before shipment to another DOE site for permanent storage/disposal. Waste oil contaminated with tritium is generated from routine maintenance of equipment in areas contaminated with tritium. This oil is treated with an absorbent and stored in the WM radiologically controlled storage facility prior to off-site shipment for disposal.
6.3.3 Mixed Wastes

Two drums of HEPA filters, which contain lead above regulatory levels, have been identified and reported to the FDEP. An STP was submitted and approved for the disposal of the wastestream after treatment. The drums were sent to a commercial facility for macroencapsulation and disposal in July 1996.

Additional streams of mixed waste could be generated during plant closing. The waste will be reported to the FDEP on a case-by-case basis in accordance with the existing contingency plan.
7.0 OVERVIEW OF BUILDING CLEANUP AND CHARACTERIZATION ACTIVITY

Section 7.0 describes the current status and future plans of Pinellas Plant contamination cleanup and characterization activities. The section is divided into two subsections, hazardous contamination cleanup and characterization and radiological contamination cleanup and characterization.

7.1 Hazardous Contamination Cleanup and Characterization

7.1.1 Asbestos Abatement

Table 7-1. Asbestos Abatement Projects Completed Since 1992

<table>
<thead>
<tr>
<th>Area</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>103 (Building 100)</td>
<td>Asbestos-containing floor tile was removed from two-thirds of the floor in Area 103B. Non-friable asbestos-containing duct mastic and insulation on water piping in the ceiling was removed from Area 103MA.</td>
</tr>
<tr>
<td>132 (Building 100)</td>
<td>Removed asbestos containing pipe insulation from restroom service chase.</td>
</tr>
<tr>
<td>153 &amp; 154 (Building 100)</td>
<td>Removed sprayed on fireproofing from ceiling beam.</td>
</tr>
<tr>
<td>159,160, 161 (Building 100)</td>
<td>Friable asbestos-containing thermal systems insulation has been removed.</td>
</tr>
<tr>
<td>171 &amp; 188 (Building 100)</td>
<td>Removed sprayed on fireproofing from building columns, roof trusses, and roof deck.</td>
</tr>
<tr>
<td>184, 185 (Building 100)</td>
<td>Friable asbestos has been removed.</td>
</tr>
<tr>
<td>192 (Building 100)</td>
<td>Friable asbestos-containing thermal system insulation has been removed.</td>
</tr>
<tr>
<td>352 (Building 100)</td>
<td>Removed desiccant wheel, which contained asbestos, from dry room air handler.</td>
</tr>
<tr>
<td>Building 100 Roof</td>
<td>Removed approximately 4,500 lineal feet of pipe insulation.</td>
</tr>
<tr>
<td>117 &amp; 336 (Building 100)</td>
<td>Removed pipe insulation above ceiling.</td>
</tr>
<tr>
<td>West Stack (Building 100)</td>
<td>Transite pipe removed. See West Stack Removal Project, Subsection 7.2.1 for more information.</td>
</tr>
<tr>
<td>Building 100</td>
<td>Multiple floor tile removal projects, as needed.</td>
</tr>
<tr>
<td>Building 200</td>
<td>Removed Transite soundproofing wallboard.</td>
</tr>
<tr>
<td>Building 400</td>
<td>Removed pipe insulation and floor tile that contained asbestos.</td>
</tr>
<tr>
<td>Building 500</td>
<td>Removed Chiller Number 3 that had insulation containing asbestos.</td>
</tr>
</tbody>
</table>
The Industrial Hygiene Internal Asbestos Survey began in April 1995. The purpose of this survey is to comprehensively locate friable Asbestos Containing Materials (ACMs) found at the Pinellas Plant.

To date, over 60 percent of the Building 100 (west end) areas have been assessed by Specialty Components State certified asbestos inspectors, utilizing the Asbestos Hazard Emergency Response Act (AHERA) sampling protocol as a guidance. The AHERA sampling protocol is outlined in the 40 CFR part 763. Small amounts of friable asbestos have been discovered and are being abated. It is expected that all significant quantities of friable asbestos have already been identified. Assessments are progressing from west to east and are expected to be completed by the end of 1996. Friable asbestos in the overhead has been abated from all areas in Sectors A through E on the D&C schedule. Asbestos abatement is expected to be completed by the end of 1997.

7.1.2 Chemical Drain Decontamination

A project to flush the underground chemical drain system that serves the west end of Building 100 is complete. The drain connections have been temporarily capped and labeled (ABANDONED CHEMICAL DRAIN - DO NOT USE). The drains will not be available for use by PCIC tenants. The areas affected include: 123, 124, 151, 154, 160, 161, 162, 163, 164, 175, 176, 183, 184, 185, 191, 192, 193, 194, and 195.

Another project is planned to install an above-ground chemical drain system to serve Building 100. New above-ground sumps and liftstations will pump wastewater through a main drain line on the roof to the neutralization facility. When this project is complete, the remainder of the Building 100 underground chemical drains will be flushed and abandoned.

7.1.3 West Fire Tank Cleanup

A project is planned for 1996 to clean the West Fire Tank. This project encompasses draining water from the tank, sampling and analyzing the interior grease and paint coatings for lead, removing and disposing of all grease and paint coating from the tank interior, preparing and resurfacing the interior with epoxy/polyamide base coating, and rebuilding/upgrading the cathodic protection systems for both tanks.

7.1.4 Area Closeout Program

A building characterization team has been assembled to assess the Pinellas Plant for hazardous chemical and radiological (see Subsection 7.2.7 for discussion on the radiological closeout program) contamination. The
Facilities Transition Planning Department is responsible for the program; the team also consists of representatives from Waste Management and Industrial Hygiene. Areas are selected for characterization on a priority basis, with a general trend in Building 100 from west to east. The program will cover all areas of Building 100 and all out buildings, including areas previously cleaned by other projects.

The Area Closeout Program consists of equipment disposition/removal, area cleanup, and area characterization. The work is performed in accordance with the Generic Area Cleanup Activities (Appendix L), General Operating Procedure G.7.45, Area Closeout (Appendix M), and Standard Operating Procedure G.7.45-1 (Appendix N). After an area has been cleaned and characterized, Facilities Characterization and Closeout issues an Area Characterization and Final Closeout Report to Transitions Programs and PAO. Facilities Characterization and Closeout then schedules a final walkthrough with PAO. The Closeout Reports include the following:

- Introduction (including a list of subareas with square footage)
- Description (historical use of space)
- Chemicals used (list of chemicals used in the area)
- Personal property (including a drawing of remaining equipment)
- Facility drawing list
- Industrial Hygiene sampling results
- List of corrective actions performed per characterization walkthrough
- Certificate of Conformance

7.2 Radiological Contamination Cleanup and Characterization

7.2.1 Radiological Drain Decontamination

The east leg of the underground radiological (Health Physics) drain system has been flushed, permanently sealed (grouted and capped), and labeled. The above-ground vents have been removed. The areas affected are: 107, 108, 109, 127, and 130.

Samples taken during and after flushing indicate that tritium activity levels are well below wastewater discharge permit limits and Pinellas Plant
ALARA objectives. Analysis for metals initially indicated that several samples had copper, zinc, and mercury concentrations slightly above POTW permit limits. However, samples taken after additional flushing indicated that results were below permit limits for all criteria.

The west leg of the underground radiological drain system is in the process of being flushed, permanently sealed, and labeled. To date, the following areas are complete: 154, 155, 157, 158, 160, 163, 176, 180, 181, 183, and 185. Area 182 is undergoing flushing and sealing.

7.2.2 West Stack Removal

The west radiological exhaust stack and all associated ducting and equipment were removed on August 12, 1995. The West Stack served Areas 155, 157, 158, 159, 160, 161, 162, 163, 182, and 191. Figure 7-1 shows the previous location of the stack and its connecting ducting.

In addition, Areas 157, 158, 159, 160, and 161 have been characterized for radiological contamination and cleaned as part of the Area Closeout Program. Area 182 is still undergoing cleaning and characterization. This work is being performed in accordance with the Pinellas Plant Radiological Area Disposition Program Plan (Appendix C) and the Survey Plan for Determining Final Radiological Status of the Pinellas Plant (Appendix H).

7.2.3 Building 200 Radiological Exhaust System Cleanup

The Building 200 Radiological Exhaust System Cleanup Project characterized, decontaminated, and removed the radiological exhaust stack and associated ducting that served Building 200. The system consisted of approximately 200 linear feet of small diameter ducting, one HEPA filter, one fan, three sets of roughing and prefilters, and an exhaust stack. The affected areas have been characterized and cleaned for radiological contamination as part of the Area Closeout Program. See Section 4.1.
Figure 7-1. Location of the West Stack and its Connecting Ducting
7.2.4 Building 800 Radiological Exhaust System Cleanup

The Building 800 Radiological Exhaust System Cleanup Project will characterize, decontaminate, and remove the radiological exhaust stack and associated ducting and fan that serves Building 800.

7.2.5 Area 108 Cleanup Project

The Area 108 Radiological Cleanup Project will consist primarily of the decontamination and/or removal of contaminated materials from areas within Building 100, which were formerly used to process radioactive components. The project started in 1996 and will continue into 1997. The following areas will be included in the project:

- Area 132J, K, L & O (TRS Rooms)
- Area 132N (East Stack Fan Room)
- Area 107B (Pure Zone)
- Area 108
- Area 112
- Area 109
- Area 350

The first phase of work, equipment removal was be completed in 1996. Subsequent work will include the removal of contaminated materials, removal of nonessential service piping, removal of the radioactive exhaust ducting, and restoration of systems and structures. In addition, the main exhaust stack, stack fans, and above-ground radiological drain system will be removed. For more information, see the Pinellas Plant Area 108 Radiological Cleanup Project; Volume I - Technical Plan; Volume II - Cost and Schedule (Ref. 13).

7.2.6 Radiological Waste Repacking Project

Waste Management has completed repacking radiological waste that was packed prior to the Pinellas Plant’s receiving approval to ship waste to the Savannah River Site. Container contents were checked to verify compliance with the Savannah River Waste Acceptance Criteria.
7.2.7 Area Closeout Program

In parallel with the building characterization team (Subsection 7.1.4), the Radiological Operations Department performs radiological characterization of areas as they become available for closeout. They work in accordance with the Health Physics Desk Procedure Final Area Surveys (Appendix J), the Pinellas Plant Radiological Area Disposition Program Plan (Appendix C) and the Survey Plan for Determining Final Radiological Status of the Pinellas Plant (Appendix H). At the conclusion of the characterization, Radiological Operations issues the Final Radiological Status Report to Facilities Transition Planning for transmittal to PAO.
8.0 OVERVIEW OF EXISTING SITE ENVIRONMENTAL RESTORATION PROGRAM

Section 8.0 is an overall summary of the ER activities at the Pinellas Plant. Section 8.0 outlines the pre-cleanup activities, discusses plant sites that are deemed “no further action” by the EPA, and summarizes the ongoing cleanup initiatives.

8.1 Assessment Activities

The HSWA portion of the Pinellas Plant RCRA permit identifies the corrective action process that must be performed at permitted SWMUs (Refer to Appendix E). The RCRA corrective action process was initiated at the plant in 1988, with the performance of a RCRA Facility Assessment (RFA). Data collected as part of the RFA identified 14 SWMUs that required further assessment and characterization at the site [Ref. 14]. These SWMUs were identified as locations where past handling and disposal of wastes from manufacturing at the Pinellas Plant may have resulted in releases of hazardous waste or hazardous constituents to the environment.

Based on the RFA, a RCRA Facility Investigation (RFI) was performed by the Pinellas Plant from 1990 to 1992, to further characterize conditions at each of the SWMUs [Ref. 15]. During performance of the RFI, a 15th SWMU was added. Table 8-1 provides details from the RFI on the 15 original SWMUs.

**Table 8-1. Pinellas Plant SWMUs Investigated During the RFI**

<table>
<thead>
<tr>
<th>SWMU Number</th>
<th>SWMU Site</th>
<th>Description and Operational History</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIN02</td>
<td>West Pond</td>
<td>This SWMU is a 2.6-million-gallon, man-made pond (DOE 1983) that was constructed as a borrow pit in 1956 and enlarged in 1966 to its current surface area of 1.63 acres. Between 1972 and 1982, the pond received tertiary-treated sanitary sewage and pH-neutralized industrial waste. In addition to liquid wastes, lumber contaminated with tritium and sulfuric acid was discarded in the southern third of the pond in 1974 or 1975. Currently, the West Pond is not receiving effluent or waste, but does receive limited storm runoff during heavy rainfall events.</td>
</tr>
<tr>
<td>SWMU Number</td>
<td>SWMU Site</td>
<td>Description and Operational History</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>PIN03</td>
<td>Spray Irrigation Site</td>
<td>This site is a 10-acre tract of land with an underground drainage system. It was a land treatment site for pH-neutralized industrial effluent and tertiary-treated sanitary sewage from 1972 to 1982. The underground drainage system remains intact.</td>
</tr>
<tr>
<td>PIN04</td>
<td>Metallic Anomaly</td>
<td>Metallic anomaly is an area, north of Building 600, at the southwest edge of the Spray Irrigation Site. A metallic anomaly was identified during an electromagnetic survey conducted by the U.S. Geological Survey (USGS) in 1985. The anomaly was found to correspond to the location of a utility pipe discovered during the RFI.</td>
</tr>
<tr>
<td>PIN05</td>
<td>Trenches</td>
<td>This SWMU consists of several trenches thought to have received slurry waste from water softeners in the late 1950s. The trenches are believed to have been excavated west of the West Pond. The depth and other features of the trenches are unknown.</td>
</tr>
<tr>
<td>PIN06</td>
<td>Old Drum Storage Site</td>
<td>This SWMU was a storage pad (since removed) for empty drums containing waste solvents. The 18-by-18-ft pad was located near the northwest corner of Building 100 and was present for an unknown period of time. The pad was steam cleaned and removed in October 1983, in accordance with an FDEP closure permit.</td>
</tr>
<tr>
<td>PIN07</td>
<td>Pistol Range</td>
<td>This Pistol Range was a former small-arms firing range for plant security guards. The Pistol Range Site was located west of the West Pond and operated from 1972 to 1987. This site consisted of a covered firing area with an earthen backstop behind the large area. Most of the backstop was removed in 1987, and the remaining structures were demolished and removed in 1988.</td>
</tr>
<tr>
<td>SWMU Number</td>
<td>SWMU Site</td>
<td>Description and Operational History</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------</td>
<td>-----------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>PIN08</td>
<td>Closed Fire Department</td>
<td>This SWMU was a former location of a fire department training tank used by the Pinellas Plant Fire</td>
</tr>
<tr>
<td></td>
<td>Training Tank</td>
<td>Department. From the early 1960s to 1973, the Pinellas Plant Fire Department practiced firefighting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>techniques near Building 400 by extinguishing burning flammable liquids and oil in a 12-ft-diameter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tank. There is no documented cleanup of the site.</td>
</tr>
<tr>
<td>PIN09</td>
<td>Incineration Site</td>
<td>This site consists of locations associated with incinerators formerly located at the Pinellas Plant.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>From 1956 to 1982, paper, dried sewage sludge, and flammable liquids were burned in three incinerators.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Two of the incinerators were used to burn solid material, while the third was used to burn</td>
</tr>
<tr>
<td></td>
<td></td>
<td>flammable liquids. The liquids incinerator and the second solids incinerator operated from 1973</td>
</tr>
<tr>
<td></td>
<td></td>
<td>to 1982. The incinerator site was closed in accordance with an approved FDEP permit.</td>
</tr>
<tr>
<td>PIN10</td>
<td>Incinerator Ditch</td>
<td>The Incinerator Ditch is a northeast-southwest trending ditch located north of Building 700 and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>west of PIN09 that formerly received incinerator scrubber water. This site is also a suspected</td>
</tr>
<tr>
<td></td>
<td></td>
<td>disposal location of small quantities of waste solvents. The site’s primary function was to serve</td>
</tr>
<tr>
<td></td>
<td></td>
<td>as a channel for stormwater runoff. From 1965 to 1970, the ditch received effluent from the solids</td>
</tr>
<tr>
<td></td>
<td></td>
<td>incinerator scrubber. In the early 1960s, for a 2- to-3 year period, small quantities of acids and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>solvents were emptied into the ditch. The incinerator ditch was closed in accordance with an</td>
</tr>
<tr>
<td></td>
<td></td>
<td>approved FDEP permit.</td>
</tr>
<tr>
<td>PIN11</td>
<td>Diesel Fuel Spill</td>
<td>The Diesel Fuel Spill Site is where between 10,000 and 12,000 gallons of No. 2 diesel fuel leaked</td>
</tr>
<tr>
<td></td>
<td></td>
<td>from a broken pipe on January 21, 1983, near the northwest corner of the north parking lot.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fuel impregnated soil was excavated; the contaminated area was backfilled.</td>
</tr>
<tr>
<td>SWMU Number</td>
<td>SWMU Site</td>
<td>Description and Operational History</td>
</tr>
<tr>
<td>-------------</td>
<td>----------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>PIN12</td>
<td>Industrial Drain Leaks Building 100</td>
<td>This SWMU includes areas beneath Building 100, where potential leaks occurred from the industrial and health physics drain system. The potential leaks occurred due to possible pipe corrosion. The health physics system was originally composed of two piping systems: standard and chemical. The chemical system handled fluids that might potentially come in contact with either tritium or hazardous wastes. The industrial system disposes of approved liquids, such as acids, caustics, and rinses.</td>
</tr>
<tr>
<td>PIN13</td>
<td>Southwest Ditch</td>
<td>This SWMU is the locations of former industrial and sanitary effluent outfalls from the Pinellas Plant. From 1957 to 1968, pH-neutralized industrial wastewater, tertiary-treated sewage effluent, low-level tritiated wastewater, and surface runoff flowed into the ditch. The ditch also received runoff from PIN10.</td>
</tr>
<tr>
<td>PIN14</td>
<td>Current Fire Department Training Tank</td>
<td>The Current Fire Department Training Tank used by the plant’s fire department was located east of the West Pond. From 1972 to 1988, this area was used for fire training exercises involving diesel fuel, used crankcase oil, and other flammable liquids or solvents. From 1975 to 1983, the area was also used for the thermal treatment of explosives.</td>
</tr>
<tr>
<td>PIN15</td>
<td>Northeast Site, including the East Pond</td>
<td>The Northeast Site is associated with the location of a former waste solvent staging and storage area. The East Pond received pH-neutralized industrial waste and tertiary-treated sanitary waste from 1968 to 1972. Currently, the East Pond has a 3.25-million gallon capacity and receives only stormwater runoff from the north and east Pinellas Plant parking lots.</td>
</tr>
</tbody>
</table>
Environmental investigations and completed cleanups during the RFI indicate that 12 of these SWMUs do not pose a current or future threat to the public or the environment. Based on these findings, the Pinellas Plant recommended the 12 SWMUs for no further action. These 12 SWMUs are listed below:

- West Pond
- Spray Irrigation Site
- Metallic Anomaly
- Trenches
- Pistol Range
- Closed Fire Department Training Tank
- Incineration Site
- Incinerator Ditch
- Diesel Fuel Spill
- Southwest Ditch
- Current Fire Department Training Tank
- Building 500 Spill Site

At the remaining SWMUs, VOCs in the shallow groundwater aquifer are the primary contaminants.

The Production Components Scrap Area is located immediately west of the West Pond. In January 1993, during an unrelated activity, several discarded epoxy and epoxy-encased electronic parts, which contained some solder, were identified in the soil. A geophysical survey identified the extent of the area containing components. An analysis for lead and other hazardous wastes determined that contaminants in the soil in this area were below applicable regulatory standards. The DOE recommended no further action for this site, and the EPA concurred that no RFI was required at this time. This area was never added to the plant's HSWA permit as a SWMU.
In October 1991 and January 1992, during routine monitoring of perimeter wells at the west-central boundary of the Pinellas Plant, vinyl chloride contamination was detected in the groundwater. An RFA was subsequently performed, which identified a material storage area that was used until 1986; however, it is not known whether the storage activities contributed to the identified contamination. In July 1992, the Pinellas Plant characterized the extent of groundwater contamination at the West Fenceline Area. The surficial aquifer groundwater contained vinyl chloride levels above drinking water standards, and further action was required by the EPA. The area was subsequently added to the HSWA permit list of SWMUs.

Groundwater sampling conducted at the Pinellas Plant in 1992 indicated the presence of trichloroethene and arsenic near Building 200 and the IWNF. Further investigation revealed specific areas of contamination. Because this contamination was not determined to be associated with any other Pinellas Plant SWMU, the plant reported these results to the EPA and an RFA was performed. Analytical results from groundwater samples indicated that elevated levels of arsenic, 1,2-dichloroethene, vinyl chloride, dichloromethane, and trichloroethene are present in the area and exceed regulatory levels [Ref. 16]. The Wastewater Neutralization/Building 200 Area has been added to the HSWA Permit via memoranda. The EPA has not modified the HSWA Permit. The RFI confirmed the findings of the RFA and a Corrective Measures Study (CMS) is in process.

8.2 Remediation Activities

As a result of the RFI process, currently five sites (West Fenceline, Northeast, Old Drum Storage, Industrial Drain Leaks - Building 100, and Wastewater Neutralization/Building 200 Area) were identified for further action. The following information summarizes each of these areas:

West Fenceline Area

Given the proximity of the West Fenceline Area to the Pinellas Plant property boundary, the plant prepared an interim measures plan that recommended an air sparging and soil vapor extraction system as the appropriate interim cleanup measure [Ref. 17]. Construction of this system was initiated in March 1995 and completed in August 1995. If the air sparging technology is successful, it is anticipated that cleanup activities at the West Fenceline Area will be completed by the end of 1996.

Northeast Site (Including the East Pond)

The Northeast Site, which is in the northeast section of the Pinellas Plant property, has elevated levels of solvent contamination in the surficial aquifer groundwater [Ref. 15]. Drums of production related materials were historically stored and
disposed there. From 1968 to 1972, the East Pond received stormwater runoff and pH-neutralized industrial wastewater (currently, the East Pond receives only stormwater runoff from the north and east Pinellas Plant building roofs and parking lots). Before construction of the East Pond, all drums were supposedly removed; however, in 1984, three drums were discovered buried near the pond; two were empty, and one contained construction debris. Based on these discoveries, further investigations were performed. Groundwater analyses from the site showed VOC concentrations greatly exceeding drinking water standards.

In 1991, based on concerns that the contamination was spreading and could migrate off site, the plant installed groundwater recovery wells as an interim measure. The extracted contaminated groundwater is routed from the Northeast Site to an existing on-site treatment system near the northwest corner of the property. This existing groundwater treatment system is primarily for DOE’s remediation of an adjacent piece of property known as the 4.5-Acre Site. A new groundwater treatment system is planned for the Northeast Site. The system will contain holding tanks and an air stripper. A construction permit application for the air stripper was submitted to the FDEP in July 1996.

In January 1994, additional drums and debris were discovered at the Northeast Site during the installation of recovery well piping. An interim measures addendum was prepared to address the location and methods for removing the drums and debris at the site. This addendum was submitted to the EPA and the FDEP for review and approval. The debris removal activities were completed in October 1995 and were performed concurrent with the ongoing interim measures. Final site cleanup will be completed based on the EPA-approved CMS, the Corrective Measures Implementation Plan (CMIP), and the HSWA permit. Construction of the approved corrective measure system was initiated in 1995, including installation of a slurry wall, which acts as a hydraulic barrier along the northern boundary of the Northeast Site. This slurry wall was completed in November 1995. Concurrently, a number of innovative technology studies and pilot tests are conducted at this site under a nationally recognized DOE/EPA/Industry program. Results of these studies will enhance, expedite, and reduce costs of cleanup actions at this site and at similar VOC-contaminated sites. A solvent extraction and recovery pilot alternative to air stripping of recovered groundwater was completed in early 1996. Two other pilot programs involving in situ steam stripping and enhanced anaerobic biodegradation are planned for 1996.

Old Drum Storage Site/Industrial Drain Leaks - Building 100

The Old Drum Storage Site, an 18-by-18-ft concrete storage pad with a drain and containment system, was located near the northwest corner of Building 100. Hazardous waste, including dichloromethane, arsenic, ignitable liquids, calcium chromate solids, and resins were stored on this pad. The pad was steam cleaned and removed in October 1983 [Ref. 15].
During the RFI, a soil contaminant (dieldrin) and surficial aquifer groundwater contaminants (vinyl chloride, trichloroethene, 1,1-dichloroethane, 1,1-dichloroethene, 1,1,1-trichloroethane, and tetrachloroethene) around the Old Drum Storage Site were detected above their respective regulatory limits.

The Industrial Drain Leaks Site is an area beneath Building 100 where possible leaks in the Pinellas Plant drain system exist [Ref. 18]. As part of the RFI, a network of 12 groundwater monitoring wells was installed around the perimeter of Building 100 for monitoring potential transport of contaminants from beneath the building. Sampling of these wells revealed benzene and vinyl chloride exceeding their regulatory limits.

The Old Drum Storage and Industrial Drain Leaks - Building 100 SWMUs were combined due to their proximity and similar contaminants. A CMS of the two areas recommended that two pumping wells be installed along the northwest corner of the building and that the monitoring well network be expanded. The EPA approved this CMS, and the wells were installed during 1995. Additionally, during 1995, an extensive soil and groundwater sampling program was implemented for Building 100. As safe shutdown of the plant areas was completed, selected areas were sampled by coring through the building foundation. Samples of soil and groundwater were collected, and the foundation was repaired. Also, included in this project was the installation of eight permanent monitoring wells within Building 100. Data from this study, completed in 1995, identified the extent of soil and groundwater contamination beneath the building. Final site cleanup will be completed in accordance with the CMS, CMIP, and HSWA permit.

Wastewater Neutralization/Building 200 Area

This site consists of widespread, low concentrations of solvent compounds and a small, shallow area contaminated with arsenic. The CMS is in process for this area and is expected to be completed in 1996.

8.3 4.5-Acre Site

In addition to the SWMUs previously discussed, the Pinellas Plant is implementing a voluntary CERCLA type corrective action on an adjacent parcel of land located along the northwestern portion of the plant site. During the 1960s, the 4.5 Acre Site was a part of the plant site and was used for subsurface disposal of drummed solvent and resinous materials waste. In 1972, the DOE sold the 4.5 Acre Site to a private individual.

In 1985, during site clearing for a geophysical survey, a drum of methylene chloride was discovered [Ref. 19]. In response to this discovery, GEND, the Pinellas Plant's Management and Operating (M&O) contractor at the time, contracted the excavation and removal of the drums and contaminated soils.
A contamination assessment report [Ref. 20] was completed, which identified the presence of surficial aquifer groundwater contamination (primarily composed of vinyl chloride, toluene, trichloroethene, and 1,2-trans-dichloroethene) above regulatory levels [Ref. 21]. Lead, mercury, selenium, and silver were also detected above their regulatory levels [Ref. 22]. Lead and selenium have high naturally occurring concentrations in Pinellas County; therefore, they are not considered contaminants of concern.

In December 1988, based on the concern that the contamination would migrate off site, the interim groundwater recovery treatment system began operating at the 4.5 Acre Site. The treatment system for this site is located on the northwest corner of the Pinellas Plant property and discharges to the Plant's IWNF. The discharge from this treatment system is in compliance with PCU discharge requirements [Ref. 23].

Cleanup goals for the site are consistent with Federal and State standards. A Remedial Action Plan (RAP) was prepared during 1995 that evaluated, screened, and proposed a selected final remedial technology for the site. The DOE is negotiating a consent agreement with the FDEP and property owner, which addresses agency review and approval of the RAP and establishes site cleanup levels and completion criteria.
9.0 LIST OF HAZARDOUS SUBSTANCES AND EXTREMELY HAZARDOUS SUBSTANCES

Section 9.0 is a summary, which explains the List of Hazardous Substances and Extremely Hazardous Substances that is included in this EBR as Appendix K.

Appendix K is a list of the following: 1) known hazardous substances and radioisotopes as identified in 40 CFR Part 302.4 and Appendix B to Part 302.4, and 2) extremely hazardous substances as identified by Appendix A to 40 CFR Part 355, which, to the best of Specialty Components knowledge, are currently or were historically used at the Pinellas Plant. Appendix K identifies the chemicals, synonyms, Chemical Abstract Services (CAS) registry number, the hazardous waste number, if applicable, whether the chemical is a hazardous or extremely hazardous substance, and whether the material was stored or processed in excess of 1000 kilograms (kg) for hazardous substances, the curie regulatory reporting limit for radioisotopes, and/or one kilogram for the extremely hazardous substances.

Information in Appendix K was developed from the SARA Title III and the Emergency Planning and Community Right to Know Act (EPCRA) reports, the Pinellas Plant Chemical Material Tracking System (CMTS), the air emissions construction and operation permit applications, the hazardous waste operations records, and the epidemiology feasibility study [Ref. 24].

Because no computerized tracking systems existed prior to 1986, and material purchase records were not routinely maintained in files or archives, this list of chemical substances is not complete for the full 39 years of plant operations. In addition, many commercial chemical products consist of proprietary mixtures, which may contain one or more hazardous or extremely hazardous substance(s). A list of over 7000 of these products used at the plant is available, but has not been included. Finally, since many chemicals are purchased in box, drum, can, gallon, kit, or other unit lots, whether the substance exceeded the 1000 kilograms or 1 kilogram limit cannot always be readily determined. The list of radioisotopes is considered complete since careful records of the management of these substances are available from 1957 to the present.


5. UNC Geotech. Letter to Adam Weaver from Mark K. Pearson, dated 4/12/90, re: radon measurements made at the Pinellas Plant.


10.1 Additional Documents


United States. Department of Energy. Pinellas Area Office letter to the State Emergency Response Commission, Florida Department of
Community Affairs from Mr. David Ingle, dated 6/28/94, re: SARA Section 313 report for the Pinellas Plant.


APPENDIX A

Letter Dated July 25, 1991 - United States Department of the Interior
Fish and Wildlife Services
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Mr. Paul J. Behrens  
Senior Environmental Scientist  
Systematic Management Services, Inc.  
11701 Belcher Road  
Suite 103  
Largo, FL 34643  

Dear Mr. Behrens:

This responds to your letter, dated July 17, 1991, regarding threatened or endangered species that may be present on the U.S. Department of Energy's Pinellas Plant in Largo, Pinellas County, Florida.

The property is within the historic range of the endangered Florida golden aster (Chrysopsis floridana). The species was recorded historically from St. Petersburg Beach and from Seminole, but urban development has apparently extirpated the species from those two sites. If a remnant of pine scrub vegetation is present on the property, it should be thoroughly searched for the species. If sand pine scrub is not present on the property, it is unlikely that the species is present there.

The nearest bald eagle nest (designated PI-19 by the Florida Game and Fresh Water Fish Commission) is located about 2 miles southwest of the property, near Cross Bayou. Although the eagles could feed as far north as the retention ponds on the property, their feeding is most likely concentrated in Cross Bayou. If contaminants from the plant are entering the Cross Bayou Watershed, some adverse effect on the eagles may occur. Otherwise, activities within the property are not likely to have a direct effect on the nesting pair.

The threatened Eastern indigo snake may inhabit the property. Detailed study of the site would be required to determine its presence or absence.

The endangered wood stork may feed seasonally in the retention ponds on the property.

No other Federally listed species are likely to occur near the property. You should contact the Florida Game and Fresh Water Fish Commission regarding species listed by the State.
If the Department of Energy determines that an action is likely to adversely affect a Federally listed species, they should notify this office in writing to request consultation under Section 7 of the Endangered Species Act.

Thank you for the opportunity to comment.

Sincerely yours,

Joseph D. Carroll
Acting Field Supervisor

cc:
FG&FWFC, Tallahassee, FL
FWS, Jacksonville, FL
APPENDIX B

Letter Dated September 12, 1991 -
Florida Department of State
Division of Historical Resources
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September 12, 1991

Mr. Paul J. Behrens  
Systematic Management Services, Inc.  
11701 Belcher Road, Suite 103  
Largo, Florida 34643

In Reply Refer To:  
Denise M. Breit  
Historic Sites  
Specialist  
(904) 487-2333  
Project File No. 912413

RE: Cultural Resource Assessment Request  
Site-Wide Environmental Documentation for the Department of  
Energy’s Pinellas Plant  
Largo, Pinellas County, Florida

Dear Mr. Behrens:

In accordance with the procedures contained in 36 C.F.R., Part 800 ("Protection of Historic Properties"), we have reviewed the above referenced project(s) for possible impact to archaeological and historical sites or properties listed, or eligible for listing, in the National Register of Historic Places. The authority for this procedure is the National Historic Preservation Act of 1966 (Public Law 89-665), as amended.

A review of the Florida Master Site File indicates that no significant archaeological or historical sites are recorded for or considered likely to be present within the project area. Furthermore, it is the opinion of this agency that because of the project location and/or nature it is considered unlikely that any such sites will be affected. Therefore, it is the opinion of this office that the proposed project will have no effect on any sites listed, or eligible for listing, in the National Register. The project is consistent with the historic preservation aspects of Florida’s coastal zone program, and may proceed without further involvement with this agency.
If you have any questions concerning our comments, please do not hesitate to contact us. Your interest in protecting Florida's archaeological and historic resources is appreciated.

Sincerely,

[Signature]

George W. Percy, Director
Division of Historical Resources
and
State Historic Preservation Officer

GWF/BdB