EA-1092; Environmental Assessment and FONSI for Decontamination and Dismantlement June 1995

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF FIGURES

LIST OF TABLES

1.0 PURPOSE AND NEED FOR AGENCY ACTION

1.1 Background

During 1993, the United States Department of Energy (DOE) prepared the Nonnuclear Consolidation Environmental Assessment (EA), which provided analyses of the impacts of a proposed action and alternatives to address downsizing of the Nation's Nuclear Weapons Complex. Downsizing of the Nation's Nuclear Weapons Complex, primarily the Office of Defense Programs, is necessary because of recent limitations placed by the President on the size of the United States nuclear weapons stockpile. The proposed action in the Nonnuclear Consolidation EA was to consolidate and transfer nonnuclear Defense Programs operations, including component production, from the Mound Plant, the Pinellas Plant, and the Rocky Flats Plant to the Kansas City Plant, and Los Alamos, Oak Ridge, and Sandia National Laboratories. On September 14, 1993, the DOE issued a Finding of No Significant Impact (FONSI) for the proposed action in the Nonnuclear Consolidation EA. The FONSI allowed for shutdown of all Defense Programs production operations at the Pinellas Plant. Subsequently, on November 22, 1993, the DOE initiated phase out of production activities at the Pinellas Plant and transition of the plant from the Office of Defense Programs to the Office of Environmental Management, with the goal of releasing the site for commercial use. The Pinellas Plant is located in central Pinellas County between the cities of Clearwater and St. Petersburg (Figure 1-1). The plant site contains 35 percent developed areas, primarily buildings and adjacent parking lots, and 65 percent open space (Figure 1-2).

The DOE also prepared an EA for Commercialization of the Pinellas Plant that analyzed potential commercial site uses that were similar to historical plant activities. On August 15, 1994, the Assistant Secretary of Energy for Environment, Safety, and Health issued a FONSI for the proposed action to allow mixed-use commercialization of the Pinellas Plant. The proposed action also allowed for limited cleanup activities in association with preparing the site for commercial uses. As part of the strategy to promote commercial uses of the site,the DOE sold the Pinellas Plant to the Pinellas County Industry Council (PCIC) on March 17, 1995. The sales contract and the related lease, which provides for continued DOE occupancy at the site, include clauses to ensure continued compliance with Federal, State, and local regulations and cleanup of the site. Commercialization and sale of the Pinellas Plant were approved by separate National Environmental Policy Act (NEPA) actions (i.e., the EA for the Commercialization of Pinellas Plant and a categorical exclusion for the sale of the plant). All decisions made using the analysis presented in this environmental assessment, will be made in concert with PCIC.

The DOE will perform cleanup of the Pinellas Plant in a way that is both cost effective and ensures the safety of plant personnel, potential future tenants, the public, and the environment. The DOE will continue to conduct environmental restoration activities at the site separate from the Decontamination and Dismantlement EA actions. Under the Decontamination and Dismantlement EA, the DOE proposes to clean up facilities, structures, and utilities, and mitigate or eliminate any surrounding environmental impacts as a result of this cleanup and related activities. The proposed action also includes, as necessary, such related activities as dismantlement of specific structures and utilization of specific areas by new tenants prior to full-scale cleanup.

The sale to the PCIC provided impetus for the DOE to accelerate the decontamination and dismantlement at the site. This acceleration would result in reduced costs to the DOE and would benefit future commercial development activities. Accelerated schedule means compressing cleanup activities into a shorter time period. Commercial development activities would occur with less delay and costs would be reduced because the DOE would not have to maintain staff at the site for an extended period of time.

1.2 Purpose and Need for Agency Action

As DOE's stewardship of Pinellas Plant buildings and facilities is transferred, the DOE has the responsibility and obligation to continue addressing the cleanup of the Pinellas Plant due to impacts of past operations. The DOE also has the opportunity to accelerate these cleanup activities, which must meet standards required by Federal, State, and local regulations.

2.0 PROPOSED ACTION AND ALTERNATIVES

This section describes the proposed action and alternatives that could be performed to meet the purpose and need defined in Section 1.0 for the DOE proposed action at the Pinellas Plant. In all cases, the DOE would perform environmental restoration activities at the site until it is determined by the appropriate regulatory agencies that no further action is needed. Modification to the scope of the proposed action or alternatives will require additional evaluation for NEPA applicability. In this EA, the preferred alternative is the Proposed Action described in Section 2.1.

In the context of this document, unless otherwise stated, "cleanup" is defined as decontamination of facilities to make them suitable for unrestricted or industrial use. Characterization will be performed at these facilities to determine the level of decontamination necessary. Those facilities that do not require decontamination, based on the results of characterization, would not require any further action. "Decontamination" is defined here as the washing or electro/mechanical removal of contamination from buildings, equipment, and associated man-made structures (i.e., underground piping) to meet standards required by regulatory agencies. Environmental restoration activities are not included under decontamination. "Dismantlement" is defined here as the removal of equipment and structures to include demolition or removal of surface and subsurface structures and the resulting debris. Standards shall be the most stringent standards defined by the applicable regulatory body, such as, but not limited to, the Florida Department of Environmental Protection (FDEP), the United States Environmental Protection Agency (EPA), the Florida Department of Health and Rehabilitative Services (HRS), and the Nuclear Regulatory Commission (NRC). During its stewardship, the DOE is committed to meeting the requirements of all appropriate regulatory standards including those not yet promulgated.

2.1 Proposed Action - Decontamination and Dismantlement of the Pinellas Plant in Support of Commercialization Activities

The Proposed Action in this EA is to meet the purpose and need for agency action by a combination of activities that include decontamination of specific areas at the plant, dismantlement of certain areas and structures, and utilization of the remaining areas and structures by the PCIC tenants. For the purposes of this discussion, each type of activity is described under a separate heading below. During any type of activity, the DOE would maintain responsibility for conducting environmental restoration activities at the site.

Cleanup of Specific Areas

In the Proposed Action, certain areas at the Pinellas Plant would undergo aggressive cleanup, with the goal of releasing these areas from the DOE stewardship by the end of Fiscal Year 1997. The schedule for completion of cleanup activities would be tied to the availability of appropriated funds. Should funding be reduced, the schedule, or duration of cleanup, would be extended. The specified areas would be cleaned to meet Federal, State, and local standards. The areas would then be made available for use as determined by the PCIC.

A schedule for cleanup is being developed and may include all areas at the site, as necessary. Cleanup would involve removal of contamination due to all of the following contaminant types: radioisotopes, toxic organics, toxic inorganics, and hazardous physical agents. Contaminants that would be addressed include, but would not be limited to, tritium, methylene dianiline, chlorinated solvents, heavy metals, asbestos, and reactive materials (i.e., heat powder). During this accelerated cleanup effort, areas of the plant would be cleaned to the level necessary to facilitate transfer of stewardship to the PCIC. Projects associated with cleanup include characterization of equipment, materials, and wastes, capping of inactive roof openings, flushing, capping, or grouting of drains, removal of unnecessary equipment and systems, decontamination of equipment and structures, and disposal of waste. The Proposed Action would include the necessary maintenance, health physics, industrial hygiene, safety, and environmental monitoring and oversight. All activities with the potential for impact to the environment would be monitored, as necessary, to mitigate or eliminate impacts to the environment. Examples of specific activities that may be performed during the Proposed Action include:

· Characterize plant areas to determine their condition with respect to contamination from both radiological and nonradiological sources.

· Clean area surfaces and equipment, including washing areas with a decontamination solution and removing residue to a level that meets applicable requirements.

· Remove cleaned equipment, contractor equipment, and equipment that cannot be cleaned.

· Remove floor tiles and walls, as necessary.

· Remove ceilings and cement slabs, as necessary.

· Characterize, flush, cap, or grout drain systems.

· Remove holding tanks and associated structures and piping.

· Clean and remove radiological exhaust stacks, including associated duct work and monitoring systems.

· Clean and remove the tritium recovery system, stack emissions control system, and associated piping and equipment.

· Characterize building roof penetrations, decontaminate or remove associated ducting, and cap any deactivated roof penetrations.

· Conduct both radiological and nonradiological monitoring and sampling.

Once cleanup to standards is achieved, the conditions or status of a given area would be documented, and the area would then be released to the responsibility of the PCIC.

Dismantlement of Specific Structures

Under the Proposed Action, there is the potential for some or all of Pinellas Plant structures to be dismantled. There is a provision in the sales contract between the DOE and the PCIC to share the cost of dismantlement of certain buildings (Buildings 100, 200, and 800) if the PCIC decides that dismantlement is appropriate. Total dismantlement of the plant is discussed in this EA only as a worst case scenario for analytical purpose.

The buildings and facilities would first be cleaned to levels suitable for dismantlement as discussed above. Hazardous-, radioactive-, and friable asbestos-contaminated materials would be removed from the facility to the extent required by Federal, State, and local regulations before the structures would be demolished. Hazardous-, radioactive-, and asbestos-contaminated wastes would be transported to and disposed at the appropriate permitted facilities.

All appropriate precautions would be taken to ensure worker health and safety and to prevent releases to the environment. After the controlled removal of equipment and contaminated materials, the structures would be physically broken apart using wrecking equipment and other appropriate techniques allowable under applicable regulations.

Where feasible, building materials that could be recovered may be segregated and transported off site for recycling. The remaining debris would be disposed at an off-site solid waste landfill. Utility connections extending into the subsurface (i.e., drains, electrical conduits) and not needed for future purposes would be removed entirely. The Proposed Action allows for partial or full dismantlement of Buildings 100, 200, and 800 if it is decided by the PCIC in the future that such projects are appropriate.

Utilization of Facilities By Tenants

An additional part of the Proposed Action would be to allow a tenant to assume stewardship of, and continue to use, certain plant facilities prior to cleanup. The PCIC would identify a tenant who would be contractually obligated to share in the responsibilities for plant cleanup to the appropriate cleanup levels as determined by regulatory agencies. Although the DOE would be contractually indemnified against a default by a tenant on its obligation to clean up the area, the responsibility and liability for the cleanup at the Pinellas Plant would continue to reside with the DOE.

As necessary, any such tenant would be required to comply with the terms of any applicable permits and regulations under which this tenant operates. The tenant may introduce production activities into the areas of the plant that are currently contaminated, with the expectation that it would be the tenant's contractual obligation to the PCIC and to the DOE to clean the areas when such activities cease.

2.2 Alternative 1 - Clean Up Pinellas Plant to Federal, State, and Local Standards

In Alternative 1, the DOE would perform all of the initial cleanup activities described above for the Proposed Action. The DOE would perform the cleanup activities for the entire Pinellas Plant, except for areas that are characterized and determined to already be clean, and would perform the cleanup activities under the aggressive schedule as described for the Proposed Action. The level of cleanup conducted for this alternative would be the level appropriate for unrestricted or light industrial use. Dismantlement of structures would not be included in this action nor would there be any attempt by the PCIC to contract with a tenant to occupy plant areas prior to cleanup. As in all cases, the DOE would maintain responsibility for conducting environmental restoration activities at the site.

2.3 Alternative 2 - Clean Up Pinellas Plant to Federal, State, and Local Standards and Dismantlement of Buildings 100, 200, and 800

In Alternative 2, the DOE would perform both the cleanup activities and the dismantlement activities described above for the Proposed Action. The level of cleanup conducted under this alternative would be the level appropriate for dismantlement. Buildings 100, 200, and 800 would be the initial structures targeted for dismantlement, but this alternative allows for dismantlement of some or all of the remaining structures. There would be no attempt to contract with the tenant to occupy plant areas prior to cleanup. As in all cases, the DOE would maintain responsibility for conducting environmental restoration activities at the site. Total dismantlement of the plant is discussed in this EA only as a worst case scenario for analytical purposes.

2.4 Alternative 3 - Contractor Identified to Share in Cleanup

In Alternative 3, tenants maybe identified to continue operations at the Pinellas Plant as described above for the Proposed Action. Initially, the DOE and its agents would perform only the limited level of cleanup allowed in the EA for Commercialization of the Pinellas Plant. The tenants would operate in areas not completely cleaned with the contractor obligation to share the responsibility for cleanup. Final and complete cleanup would only occur after the tenant ceased its activities. No dismantlement of structures would be performed by the DOE or the tenants. The DOE would maintain the responsibility for conducting environmental restoration activities at the site.

2.5 No Action - No Cleanup and Continued DOE Presence for Surveillance and Maintenance

In the No Action Alternative, the DOE would perform only the limited types of cleanup allowed by the EA for Commercialization of the Pinellas Plant. The DOE would continue to use its facility easement indefinitely and would continue to perform surveillance, maintenance, and environmental restoration activities. Other DOE uses of the plant would cease, and extensive cleanup would not be performed. Areas currently leased to businesses by the PCIC, such as Buildings 400 and 1200 (see Figure 1-2), may continue to house small tenant operations, and larger operations may be brought on site. Contaminated areas, however, would not be occupied. The DOE would maintain facilities to support plant surveillance and maintenance. Certain contaminated areas could be isolated from use, while the entire facility would be subject to ongoing surveillance and maintenance to ensure the continued safety of the occupants and surrounding communities and to mitigate or prevent any releases to the environment.

Ultimate removal of all hazardous materials from the Pinellas Plant Site is required under the federal statutes codified in Section 120(h) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, which provides the regulations related to property transferred by federal agencies. Performing the No Action Alternative would result in the violation of the DOE's obligation to comply with Section 120(h) of CERCLA.

2.6 Alternatives Dismissed as Unreasonable

Three additional alternatives were considered, but were dismissed as unreasonable because of various institutional or regulatory reasons. In all cases, the DOE would continue to maintain responsibility for performing environmental restoration activities at the site.

One alternative that was considered was the dismantlement of Buildings 100, 200, and 800 without performing cleanup prior to dismantlement. This option was considered unreasonable because it is not legal under various laws that protect public health. For example, it is not legal under the National Emissions Standard for Hazardous Air Pollutants (NESHAP) to demolish a building without first addressing potential asbestos contamination.

Another alternative that was considered was to clean the facility and then isolate it for an undetermined future use. Once cleanup is completed, as described in the Proposed Action, all facilities and equipment would be brought to safe shutdown (i.e., mothballed). Commercialization of the plant would not be pursued. Finally, all buildings and facilities would be isolated from access. This alternative was considered unreasonable because it is not the DOE's decision how to use the facility once it is cleaned; that decision resides with the property owner, the PCIC. Commercialization and sale of the Pinellas Plant were approved by separate NEPA actions (Ref. 1).

Another alternative that was considered was for the DOE to essentially abandon the structures at the Pinellas Plant. That is, the DOE would cease all operations within the buildings and facilities at the plant. The DOE would not perform surveillance and maintenance as described in the No Action Alternative. The DOE would continue to maintain responsibility for performing environmental restoration activities at the site. This alternative was considered unreasonable because the DOE would not fulfill its responsibility to protect the safety of current and future plant workers and mitigate or prevent releases of contaminants to the environment. This alternative could also result in the violation of the DOE's obligation to comply with Section 120(h) of CERCLA.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION AND ALTERNATIVES

Resources discussed in this chapter are limited to those that may be affected by the Proposed Action and alternatives. The resources listed below were considered, but are not discussed in detail in this EA:

- Wetlands and floodplains
- Prime and unique farmlands
- Archaeological resources

Floodplains and prime and unique farmlands are not located at, or adjacent to, the Pinellas Plant. The East and West Ponds at the Pinellas Plant are classified as wetlands per the National Wetlands Inventory Maps (Ref. 2) and are being managed in compliance with Southwest Florida Water Management District (SWFWMD) requirements. As none of the alternatives in this EA would require rerouting of surface water or use of groundwater resources, there would be no impact to the wetlands now or in the future.

Archaeological and cultural resources are not present in the area of the site, as documented in correspondence from the Florida State Division of Historical Resources (Appendix A).

Description of the Pinellas Plant Site

The Pinellas Plant is owned by the PCIC and is leased by the DOE. It is operated by Lockheed Martin Specialty Components (Specialty Components) as a prime contractor for the DOE. Construction of the Pinellas Plant commenced in 1956, with production operations beginning in 1957. The facility is part of the nuclear weapons production complex administered by the DOE Albuquerque Operations Office. The plant is approximately 750,000 square feet in size (Ref.

3) and was originally built to manufacture neutron generators, a component in nuclear weapons. Production of these devices necessitated the development of several uniquely specialized areas of competence and supporting facilities. These capabilities led to the assignment of other weapons application products. In addition to manufacturing, production development capability was maintained at the Pinellas Plant. Products manufactured by the plant include the following: neutron generators and detectors, vacuum switch tubes, electromagnetic devices, thermal batteries, frequency control devices, quartz digital accelerometers, lightning arrestor connectors, ceramics, foam support pads, and optoelectronics.

The types of hazards identified at the Pinellas Plant include energy sources, such as electrical, explosive, kinetic, lasers, and high pressure, nonradioactive hazardous materials, flammable materials, reactive materials, acids, toxic materials, cryogenic gases, and radioactive materials such as radioactive sources and x-ray equipment. All hazards at the plant are classified by the DOE as low hazards (i.e., presents minor on-site and negligible off-site impacts to people or the environment) or standard industrial hazards, such as hazards routinely encountered in general industry and adequately controlled by Occupational Safety and Health Act (OSHA) regulations. Solid, liquid, and gaseous wastes, both radioactive and nonradioactive, generated at the site are stringently controlled. This is accomplished by a variety of treatment, control, and monitoring systems.

The plant buildings and their historical functions are listed in Table 3-1. Figure 3-1 is a site map of the Pinellas Plant showing the areas leased by the DOE and the common use areas. The site comprises 8 buildings, and each serves a specific function related to the historical site mission. Building 100 is the largest and houses manufacturing, engineering, and administrative support services.

3.1 Environmental Restoration Affected Environment

In compliance with the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste ATablemendments Act (HSWA) of 1984, and the Pinellas Plant Hazardous and Solid Waste Amendments (HSWA) permit issued to the DOE (2/90), the Pinellas Plant has undertaken environmental restoration activities to remove contaminated soils and to treat groundwater at the site.

Table 3-1. Pinellas Plant Building Summary

Building	Function	Sq. Ft.
Building 100 - 1st Floor	Offices/Production/Laboratory	455,000
Building 100 - 2nd Floor	Offices/Utilities	103,600
Building 100 - Mezzanines	Offices	68,000
Building 100 - Total		626,600
Building 200	Environmental Testing	16,200
Building 400	Small Business	14,800
Building 500	Utilities/Deionized Water Facility	18,200
Building 550	Industrial Wastewater Neutralization Facility	2,200
Building 600	Chemical Storage	7,200
Building 700	Vehicle/Fire Maintenance	5,000
Building 710	Maintenance Shed	384

Building 800	Linear Accelerator	3,600
Building 900	Fire Training	700
Building 1010	New Container Storage	2,500
Building 1000/1040	Waste Storage/Management	8,500
Building 1100	Special Storage	400
Building 1200	Security (County Use)	29,300
Building 1400	Remote Receiving (Vacant)	7,200
Building 1500/1600	Partnership School/Child Development Center	12,800
Hydrogen Storage Tank Facility	Bulk Gas Storage	N/A
Site Total		**755,584**

Contamination at the plant is due to industrial solvents in the groundwater and is located only in the surficial aquifer. Environmental restoration activities at the plant are primarily the result of contamination caused by previous waste management practices during the 1960s and 1970s (Ref. 4). Waste Management procedures developed by the plant since this time are effective in significantly limiting further contamination which could occur due to ongoing plant operations. Seventeen RCRA Solid Waste Management Units (SWMUs) are identified at the site (Figure 3-2). All of the SWMUs are contained within the fenced portion of the plant site. Twelve of the SWMUs are identified for No Further Action based on the extremely low levels of contamination or completed cleanup actions. The remaining five SWMUs are undergoing various stages of assessment and corrective actions. These actions include groundwater monitoring and remediation of contaminants. Remediation of SWMUs at the Pinellas Plant is performed under the direction and guidance provided by the EPA, the FDEP and in full compliance with the DOE HSWA Permit.

A groundwater recovery and treatment system is being designed to address the contamination at the Building 100 Area (two SWMUs, PIN06 and PIN12) and one SWMU at the Northeast Site (PIN15). It will be operating in 1996. The West Fenceline SWMU (PIN17) is being cleaned up under an approved interim measure that will treat groundwater in place without the need for removal. Groundwater contamination at the Wastewater Neutralization Area (PIN18) near Building 200 is currently being investigated because preliminary sampling results show that Volatile Organic Compounds (VOCs) at the site may exceed Federal and State standards. It may be necessary to implement corrective measures near Building 200 as well.

An adjacent property known as the 4.5 Acre Site is also being cleaned up under an Interim Remedial Action (see Figure 3-2). At the 4.5 Acre Site, ongoing cleanup has included removal of drums and contaminated soil in 1985. Ongoing groundwater recovery and treatment have reduced the size and concentration of the solvent- contaminated groundwater that contains similar pollutants as the Pinellas Plant SWMUs. The 4.5 Acre Site is voluntarily remediated according to CERCLA requirements under the guidance of the FDEP.

Impacts of the Proposed Action on Environmental Restoration

The cleanup activities included in the Proposed Action, decontamination and dismantlement of Pinellas Plant in support of commercialization activities, would be consistent with and would not impact, or be impacted by, ongoing environmental restoration activities at the Pinellas Plant.

Impacts from the dismantlement activities included in the Proposed Action may include the temporary interruption of use of the groundwater recovery wells planned for installation at Building 100 because the wells will be in very close proximity to the northwest walls of Building 100. The dismantlement of Building 100 may also affect the transfer piping, which is currently planned to be adjacent to the north wall of Building 100. During the dismantlement

activities, the piping may be disturbed or completely removed, and the system would be inoperable until it is deemed appropriate to replace the piping (i.e., after dismantlement activities have been completed or the piping is rerouted away from the impacts of dismantlement). Similar impacts may occur at Building 200 if a groundwater recovery system is implemented at that location.

The dismantlement activities associated with the Proposed Action could be implemented in a phased approach to minimize any impacts to environmental restoration and are expected to result in only a temporary interruption of environmental restoration activities at Buildings 100 or 200. Dismantlement activities would not be expected to disrupt such environmental restoration activities for more than a 1-3 month period. Under the HSWA permit, the DOE would seek the appropriate regulatory approval before the interruption would occur. Natural groundwater flow in the surficial aquifer at the Pinellas Plant is generally less than 1 ft/day (Ref. 5). Therefore, temporary interruption of groundwater recovery systems at either Buildings 100 or 200 would not result in off-site migration of the contaminants being addressed by the recovery systems. Both of the affected areas are greater than 300 feet from the nearest plant boundary. Temporary cessation of the groundwater recovery and treatment activities at the three affected SWMUs (two at Building 100 and one at Building 200) would result in negligible impacts to plant environmental restoration activities.

Bringing a tenant on site to occupy specific plant areas prior to full-scale cleanup would have no impact on environmental restoration activities at the Pinellas Plant.

Impacts of Alternative 1 on Environmental Restoration

The impacts of Alternative 1, cleanup of the Pinellas Plant, on environmental restoration would be the same as the impacts described for the cleanup activities associated with the Proposed Action. Alternative 1 would be consistent with and would not impact, or be impacted by, ongoing environmental restoration activities at the Pinellas Plant. The environmental restoration activities are conducted to achieve site cleanup goals that would not differ based on implementation of any of the alternatives.

Impacts of Alternative 2 on Environmental Restoration

Alternative 2 is the cleanup of the Pinellas Plant and dismantlement of Buildings 100, 200, and 800. The impacts of Alternative 2 on environmental restoration would be the same as the impacts described for the dismantlement activities included in the Proposed Action. These impacts include negligible impacts on environmental restoration activities that involve groundwater recovery and transfer in the vicinity of Buildings 100 and 200.

Impacts of Alternative 3 and the No Action Alternative on Environmental Restoration

Alternative 3, identification of a contractor to complete cleanup at the Pinellas Plant, and the No Action Alternative would be consistent with and would not impact, or be impacted by, ongoing environmental restoration activities at the Pinellas Plant. The environmental restoration activities are conducted to achieve site environmental cleanup goals that would not differ based on implementation of any of the alternatives.

3.2 Air Emissions

3.2.1 Nonradiological Air Emissions Affected Environment

Pinellas Plant air emissions were extensively quantified in the Air Permit Study, Refined Industrial Source Complex Short Term and Carcinogenic Risk Assessment Modeling Report (Ref. 6). On February 4, 1994, the FDEP issued a plantwide air operating permit to the Pinellas Plant (Air Operating Permit AO52-233355). This permit defines chemical air emission limits for the plant. Plant annual emissions are restricted to 41.1 tons of VOCs and Organic Compounds (OCs), and the permit requires ongoing compliance with State of Florida No-Threat-Level (NTL) emission concentrations for pollutants (Ref. 7). NTLs are set for emissions based on 8-hour, 24-hour, and annual averaging times. The NTLs are very conservative limits established to protect the health and safety of the public.

Table 3-2 provides total VOC/OC emissions from the Pinellas Plant for calendar years 1992 through 1994, along with the corresponding predicted percentages of the NTLs achieved by plant operations. Since closeout of the Defense Programs mission in 1994, emissions of VOC/OC from the plant continue to decline.

Table 3-2. Calendar Years 1992, 1993, and 1994 Nonradiological Air Emissions

Constituent	Maximum Percent of State NTL Achieved(Ref. 7)	1992 Emissions Estimates (lbs) (Ref. 4)	1993 Emissions Estimates (lbs) (Ref. 9)	1994 Emissions Estimates (lbs) (Ref. 10)
Acetone	2.5 %	2,735	2,270	1,249
Trichloroethylene	44.6 %	2,898	7,750	3,460
Miscellaneous VOC/OC	79.5 %	13,499	15,260	6,797
Freon®-113	1.12 %	7,400	2,177	2,005
Methylene Chloride	38.8 %	10,026	6,258	3,074
Ethanol	5.5 %	15,500	11,013	6,452
TOTAL	N/A	52,058	44,728	23,037

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Building materials at Pinellas Plant have been found to contain asbestos. Therefore, the Pinellas Plant currently conducts a program to identify, control, and abate asbestos in plant structures. The Pinellas Plant is currently in the process of abating friable asbestos-containing materials such as structural fireproofing and pipe insulation. Materials such as fireproofing and pipe insulation have the highest priority for removal; other asbestos-containing materials that are not friable, including floor tiles, roofing materials, and duct mastic, require removal only during renovation or dismantlement activities.

Conformity and the Alternatives

The EPA designated Pinellas County as attainment for all criteria pollutants except ozone. Since there have been no exceedances in ambient ozone concentrations in Pinellas County for several years, EPA may change Pinellas County's designation as a nonattainment area to an ozone maintenance area in the near future. The Clean Air Act (CAA) requires Federal actions to conform to any State Implementation Plan (SIP) approved or promulgated under Section 110 of the CAA. Pinellas County is presently designated as a nonattainment area for ozone located outside an ozone transport region. Hence the SIP threshold for conducting a formal conformity analysis for any action is 100 Tons Per Year (TPY) of VOC emissions.

Using conservative assumptions on potential employee commutes and local mobile source emissions factors (Appendix B), an estimate of cumulative direct and indirect VOC emissions associated with the ongoing operations was determined to be approximately 77.5 TPY. These emissions comprise 41.1 TPY of maximum stationary source permitted emissions, as presently identified in the Pinellas Plant air operating permit, and 36.4 TPY attributed to cumulative annual employee commutes to and from the Pinellas Plant. Based on this estimate, a formal determination of conformity is not required at this time, since the cumulative emissions were below the SIP threshold of 100 TPY. Pursuant to the general conformity requirements of Title 40 Code of Federal Regulations (CFR) Part 51, Subpart W, a formal determination of conformity may be required at a future date should the cumulative effects of the plant activities change (Ref. 8).

The Proposed Action, Alternative 1, Alternative 2, Alternative 3, and the No Action Alternative would have no effect on conformity with the SIP. VOC emissions would not increase above levels given in Table 3-2. Under the Proposed Action and Alternatives 1, 2, and 3, employee (or cleanup worker) commuting mileage related to the DOE activities would not increase above the mileage given in Appendix B. During dismantlement activities, vehicular activity would increase at the plant site, and large volumes of wastes would require transport to landfills (often distances greater than 20 miles). However, during dismantlement activities, plant employee commuting miles would be decreased substantially from those shown in Appendix B. There would be no net increase in vehicular emissions related to the Pinellas Plant as a result of any of the alternatives. Therefore, a formal determination of conformity would not be required as a result of any of the alternatives. Ozone precursor emissions would remain well below the 100 TPY limit.

Impacts of the Proposed Action on Nonradiological Emissions

The cleanup activities, structure dismantlement, and utilization of remaining areas by tenants, associated with the Proposed Action are may to result in a short-term increase reduction in VOC air emissions generated by the Pinellas Plant (i.e., those identified in Table 3-2). As a result of the decontamination activities, indoor air quality may be affected by the minor release of VOCs from the use of cleaning solutions in areas contaminated by organic solvents. However, the VOCs would be in very low concentrations within the cleaning effluents, and such effluents would be containerized and disposal would be as lab-pack waste. The decontamination and removal of nonradiological roof penetrations and ducting may result in a similar minor increase in the nonradiological air emissions from the plant. Volatilization of organics from cleaning effluents would result in negligible airborne concentrations of VOCs.

The abatement of asbestos, primarily friable asbestos and asbestos affected by renovation, may impact indoor air quality. Continuous monitoring for airborne contaminants would occur during abatement projects to protect the health of the abatement workers and other plant personnel. If OSHA regulations for indoor air quality were exceeded, the abatement activities would be halted until mitigative measures are in place and it is deemed safe to resume work.

Dismantlement activities would result in additional nonradiological emissions impacts. Dusts and other fugitive emissions would be generated during the dismantlement of the buildings and the movement of heavy equipment around the site. The additional heavy equipment at the site required for the dismantlement would increase the amount of diesel exhaust in the immediate area. Due to the dense urbanization of the area surrounding the plant, the additional impacts associated with the diesel exhaust would be minimal. This minimal increase would be offset by the reduction in employee vehicles travelling to and from the plant.

During dismantlement activities, dusts would be controlled by periodically spraying the buildings and debris piles with water. The amount of water that is used would be controlled so that the materials being sprayed are wetted but are not saturated. In this manner, generation of dusts would be controlled and the impact of dust minimized to negligible effects. However, water spraying does affect water usage at the plant.

Asbestos contamination would be addressed before and during dismantlement activities. Friable asbestos-containing materials, such as fireproofing and piping insulation, must, by law (NESHAPS), be removed from the facility prior to dismantlement. Nonfriable asbestos, such as floor tiles, may also be removed from the facility in an effort to control disposal costs (i.e., if left intact, disposition of the floor tiles would require that the entire building slab be treated as asbestos-contaminated waste, which is much more expensive to dispose of than regular solid waste). Piles of debris would be sprayed down with water to control both dust and any remaining asbestos contamination. These mitigative measures would minimize the impact of asbestos releases to negligible levels. However, waste generation and plant water usage are affected by these mitigative measures (see Section 3.5.1, Water Demand).

As a precautionary measure, monitoring for airborne contaminants would be conducted during dismantlement activities. If monitoring reflects that OSHA standards, NESHAPS, or the CAA were exceeded, the activity would be halted until mitigative measures are implemented.

Long-term emissions produced as a result of the Proposed Action would depend on the types of operations performed by the tenant. These operations would be documented and regulated under the air permit. The tenant would conduct any necessary permitting activities that may be required by the FDEP to demonstrate compliance of plant operations with air emissions requirements, and to ensure compliance with National Ambient Air Quality Standards (NAAQS)

and the Florida SIP.

Processes that are proposed to be brought on site would be reviewed by the PCIC, the DOE, and Specialty Components (co-permittees) with respect to their impacts on air emissions. Cumulative air impacts from tenant emissions would not exceed emissions evaluated by the Pinellas Plant Alternative in the Nonnuclear Consolidation EA (Table C-2 in Appendix C). Additionally, air emission impacts are bounded by the air permit, which is more restrictive than the emission rate evaluated by the Nonnuclear Consolidation EA. No adverse human health effects from the implementation of the Proposed Action would be anticipated because the emissions from the Pinellas Plant would be within Florida NTL standards. It is possible that emissions due to specific chemicals brought in to support new processes would be increased beyond current emissions levels for those chemicals, but these increases would not be allowed to exceed applicable State regulatory standards or permitted limits.

Impacts of Alternative 1 on Nonradiological Emissions

The activities associated with Alternative 1, cleanup of the Pinellas Plant, are expected to result in an overall short-term reduction in air emissions generated by the Pinellas Plant (i.e., those identified in Table 3-2). Emissions of process-generated VOCs would be reduced as the processes that involve these chemicals are eliminated. Decontamination activities would have the same effect on indoor air quality as the cleanup activities included in the Proposed Action.

Since Alternative 1 does not involve dismantlement, negligible additional dust would be generated, and dust is not a concern for this alternative. Alternative 1 would result in an overall reduction in long-term nonradiological emissions from the facility by eliminating processes that generate nonradiological emissions.

Impacts of Alternative 2 on Nonradiological Emissions

Alternative 2 is the cleanup of Pinellas Plant and dismantlement of Buildings 100, 200, and 800. During cleanup activities, the impacts of Alternative 2 on nonradiological emissions would be the same as the Proposed Action. Similarly, building dismantlement activities would result in the same impacts as the dismantlement activities included in the Proposed Action. Long-term nonradiological emissions would be reduced due to the elimination of processes that would generate emissions.

Impacts of Alternative 3 on Nonradiological Emissions

Under Alternative 3, identification of a contractor to complete cleanup at the Pinellas Plant, the impacts on nonradiological emissions would be the same as the tenant activities included in the Proposed Action; emissions would depend on the type of operations performed in the facility. Overall long-term impacts on nonradiological emissions would be the same as the Proposed Action because cleanup would be required after completion of any operations conducted by the tenant.

After shutdown of its operations, the tenant would have contractual commitments to decontaminate the areas that were used to the appropriate cleanup levels as determined by regulatory agencies. In the event that the tenant defaults on its obligation to clean the relevant areas, the DOE will be legally responsible to perform decontamination activities. The DOE would conduct the cleanup activities, and the associated impacts would be the same as described for Alternative 1.

Impacts of the No Action Alternative on Nonradiological Emissions

The No Action Alternative would result in an overall reduction in the nonradiological emissions from the facility by eliminating the processes that generate nonradiological emissions. Surveillance and maintenance would be conducted to monitor and mitigate any inadvertent nonradiological air emissions that may result from gradual deterioration of the facility. Any future decisions regarding the final disposition of the facility would require further NEPA review.

3.2.2 Radiological Air Emissions Affected Environment

Pinellas Plant policy (DOE 5400.5) is to maintain radioactivity concentrations below the levels required by the Nuclear Regulatory Commission (NRC), and to work to keep emission levels that are As Low As Reasonably Achievable (ALARA).

Prior to closeout of the Defense Programs mission, radiological air emissions from the Pinellas Plant consisted of small quantities of krypton-85 and tritium in the form of approximately 60 percent tritium oxide and 40 percent elemental tritium. There are a total of five potential radiological emissions point sources. Building 100 contains three emissions points, and Buildings 200 and 800 contain one emission point source each. Total radiological emissions from the Pinellas Plant in 1992, 1993, and 1994 equalled 49.7, 11.62, and 37.86 curies, respectively. During 1994, krypton-85 accounted for 12.9 curies of the total emissions, the remainder being tritium. Nearly all of these emissions were generated at the Building 100 main stack. No emissions above detection levels occurred from Buildings 200 or 800 during 1993 or 1994 (Refs. 9 and 10).

The 1994 Annual Radionuclide Emissions Minor Source Compliance modeling run was conducted in March 1995. It utilized the EPA-approved COMPLY computer code using a worst-case emissions scenario of 822 curies of tritium and 100 curies of krypton-85 released from the main radiological exhaust stack. The worst-case scenario assumed the tritium recovery system, an emission control device, was not operational resulting in the uncontrolled release of all the tritium processed in 1994. The tritium recovery system normally removes 99.9 percent of all tritium prior to discharge through the Building 100 main stack. The report documented that even under this worst-case simulation, the dose would be 0.051 mrem/yr, which is below the 0.1 mrem/yr minor source standard (Ref. 10) for effective dose equivalent to the most exposed individual. This confirms EPA's designation of the plant as a minor source for radiological emissions.

Using the model and worst case scenario assumptions, the effective dose equivalent to the most exposed individual of the public from actual emissions CAP88-PC (Ref. 11), would be 5.65 X 10-3 mrem/yr, which is well below both EPA and the DOE standards of 10 mrem/yr, (Ref. 10). Based on this modeling, the corresponding lifetime fatal cancer risk to the maximally exposed individual is estimated at 1.53 X 10-7.

In 1990, the estimated number of latent cancer fatalities to several target populations due to an accident was calculated. An accident involving a 10,000 curie release up the main stack would result in an estimated 4.80 X 10-3 and 1.92 X 10-4 latent cancer fatalities to the general population and the population at the Pinellas Child Development Center/Partnership School, respectively (Refs. 3 and 12). The nature of this accident would be the overheating of a tritium bed during a loading operation caused by a loader malfunction. The probability of this accident is estimated at 2.6 x 10-3 events per year (Ref. 13). This indicates that no fatalities would be expected to occur during the lifetime of the facility (which would be 50 years from the final improvement), as a result of accidental radiation exposure to occupants of the school from radiological airborne effluents from the Pinellas Plant.

Impacts of the Proposed Action on Radiological Air Emission

The Proposed Action includes cleanup activities, structure dismantlement, and utilization of remaining Pinellas Plant areas by tenants. During cleanup activities, very minor radiological air emissions may be generated through decontamination activities associated with cleaning up to approximately 25,000 cubic feet of contaminated building material and consolidation of 9,440 cubic feet of contaminated equipment (Ref. 14). Continuous monitoring for airborne contaminants would occur during cleanup activities to protect the health of the cleanup workers and other plant personnel. If the DOE protective standards (i.e., ALARA) were exceeded for radiological airborne contaminants, the activities would be halted until mitigative measures (e.g., controlled ventilation, upgrading personal protective equipment, etc.) are in place and it is deemed safe to resume work (Ref. 15).

In the Proposed Action, if the tenant does not require the use of the radiological stack(s) for radiological emissions control, the equipment would be decontaminated. Decontamination and removal of the radiological exhaust systems, specifically the radiological stacks, tritium recovery system, and stack emissions control system, would be a potential source of a short-term increase in radiological air emissions from the plant. If these activities generate radiological air emissions, they would be manifest as a very minor, direct, short-term increase in radiological air emissions (see the discussion under Accident Analysis, Section 3.13).

Additional radiological air emissions or contaminated dust may be inadvertently produced during the dismantlement of the radiological areas in Buildings 100, 200, and 800. An integral part of the Proposed Action is the decontamination of the buildings prior to dismantlement. Therefore, any radiological emissions, such as tritium- or krypton-85-contaminated dusts from the dismantlement of these buildings, would be minimal and would not be expected to exceed the DOE, Federal, or State standards for protection of human health.

Best engineering practices would be implemented to reduce the amount of radiological emissions during the cleanup and dismantlement activities. For example, the contaminated piping, exhaust ducts, and equipment would be sealed off prior to being cut into discrete pieces to minimize the potential for the release of the tritium. The pieces of the material would then be sealed in containers for disposal as low-level radioactive waste.

An accelerated level of cleanup activities has the potential to increase radiological emissions on a temporary basis. The plant is currently considered a minor source for radiological emissions. The plant could be considered a major source and would be required to perform continuous monitoring. Since the plant currently performs continuous monitoring of tritium emissions and krypton-85 emissions from the stacks, this requirement is already being met. The existing monitoring equipment will be removed after the plant is no longer considered a major source for radiological emissions.

If a tenant intends to use radionuclides, State of Florida 10D-91 licensing and compliance with HRS regulations will be required. The tenant would conduct the necessary permit modifications or additional permitting activities that may be required by the FDEP to demonstrate compliance of plant operations with air emissions requirements as contained in the CAA proposed amendments of Title V. An increase in radiological air emissions over existing emissions would be anticipated in the next two years due to the Proposed Action. The processes that can cause radiological air emissions, primarily the production and testing of neutron generators, may continue at the Pinellas Plant to produce commercial components. If emissions would result in off-site dose levels above 0.1 mrem/year, the tenant would be expected to implement continuous monitoring. Emissions would not be permitted to exceed the 10 mrem/year EPA dose standard (Ref. 16). Periodic confirmatory measures would continue to be implemented to ensure compliance with designation as a minor source.

Impacts of Alternative 1 on Radiological Air Emissions

The impacts of Alternative 1, cleanup of the Pinellas Plant, would be an overall long-term reduction in radiological air emissions. Radiological air emissions would be reduced as the operations that generate radiological emissions are eliminated.

The accelerated level of cleanup activities associated with Alternative 1 has the potential to increase radiological emissions on a temporary basis. As described for the cleanup actions included in the Proposed Action, best engineering practices would be implemented to reduce the amount of radiological emissions during the cleanup activities and the removal of the radiological stacks.

Impacts of Alternative 2 on Radiological Air Emissions

Alternative 2 includes cleanup of the Pinellas Plant and dismantlement of Buildings 100, 200, and 800. The impacts of Alternative 2 on radiological air emissions are the same as the impacts of cleanup and dismantlement activities described for the Proposed Action.

Routine monitoring for airborne contamination would be performed during the cleanup and dismantlement activities, as described for the Proposed Action.

Impacts of Alternative 3 on Radiological Air Emissions

In Alternative 3, the PCIC would identify a tenant(s) to share in the responsibility for cleanup of the Plant that may include the radiological areas. An aggressive decontamination schedule for the entire facility would not be pursued in Alternative 3. Therefore, the possible controlled release of radiological emissions from ongoing operational activities would be expected to continue in a manner similar to the emissions that occurred prior to closeout of Defense

Programs production activities.

If the tenant(s) intends to use radionuclides, Florida Administrative Code (FAC) 10D-91 licensing and compliance with HRS regulations would be required, as described for the Proposed Action.

If the tenant(s) does not require the use of the radiological stack(s) for radiological emissions control, then there would not be any expected releases of radiological emissions (other than those that may occur during future decontamination activities). However, at the end of the functional life of the radiological exhaust system and the facility, the radiological contamination may remain and require decontamination or disposal. The radiological air impacts associated with this decontamination effort are the same as the decontamination activities included in the Proposed Action.

Impacts of the No Action Alternative on Radiological Emissions

The No Action Alternative would reduce the short-term release of radiological emissions by eliminating processes that generate radiological emissions. The DOE would continue surveillance and maintenance of the facility to ensure that no uncontrolled releases occur. Due to gradual deterioration, eventually the structural integrity of the facility would become unsafe, and control of radiologically contaminated fugitive emissions and dust would become difficult. The risk of injury to a surveillance and maintenance worker and the potential for releases to the environment would both increase under this alternative.

A worst-case estimate of tritium contamination existing in all exhaust systems, piping, and equipment is 10 grams (100,000 curies). The half-life of tritium is 12.3 years and it would take an expected 7 half-lives for the tritium to reach essentially nondetectable levels. The tritium in the radiological areas will remain above detectable levels for at least 84 years and the estimated operational life of the Pinellas Plant is approximately 100 years (the Pinellas Plant was constructed in 1956). If the radiological exhaust system is not decontaminated or removed, then it is expected that the tritium would remain in the radiological control systems and ducts past the expected operational life of the facility. The PCIC and the DOE would, at that time, review any new and innovative technologies that are applicable to safe disposition of the radiological equipment, ducts, exhaust systems, and stacks. Any future decision on the fate of the facility would be subject to NEPA review; NEPA review would only occur due to a default by the tenant on its commitments to the PCIC and the DOE.

3.3 Effluent Discharges

3.3.1 Nonradiological Discharges Affected Environment

Wastewaters consisting of sanitary sewage and pH-neutralized industrial wastewater are discharged from the Pinellas Plant Industrial Wastewater Neutralization Facility (IWNF) to the Pinellas County Sewer System (PCSS). Pinellas Plant wastewater is continuously sampled and analyzed for the parameters specified in the plant's Industrial Wastewater Permit, 153-IE (Ref. 17). The limits in the permit are conservative limits developed by the Pinellas County Water Quality Division for the protection of public health and safety. Table 3-3 lists the parameters, their sampling frequency, and applicable standards. The samples for oil and grease, metals, Biochemical Oxygen Demand (BOD), and Total Suspended Solids (TSS) are collected by PCSS-approved automatic samplers located in Building 550 at the IWNF. The pH is monitored continuously. Samples for cyanide, Total Toxic Organics (TTO), and oil and grease are grab samples collected directly from the industrial and combined waste streams at the IWNF.

The plant reviews analytical results immediately to determine if they are within applicable permit limits. The plant proactively implements corrective actions to prevent exceeding permit limits. Any value exceeding permit limits is reported to the DOE and the industrial program manager at the PCSS. During 1993 and 1994, the plant never exceeded permitted levels. The DOE provides routine monitoring results monthly to the DOE and the PCSS Industrial Program Manager. Table 3-3 illustrates discharge concentrations from the combined wastewater discharge at the site from 1992 to 1994.

Table 3-3. Discharge Standards and Average Concentrations for the Pinellas Plant Liquid Effluent

Parameter	Sampling Frequency	Daily Maximum Discharge Standards (Ref. 17)	Adjusted Categorical3 Monthly Average Discharge Standards (Ref. 18)	Av. Conc. 1992 (Ref. 4)	Av. Conc. 1993 (Ref. 9)	Av. Conc. 1994 (Ref. 10)
Cadmium (mg/l)	weekly	0.281	0.10	<0.01	<0.01	<0.01
Total Chromium (mg/l)	weekly	1.101	0.68	<0.02	<0.02	<0.02
Copper (mg/l)	weekly	1.351	0.83	0.25	0.38	0.31
Total Cyanide (mg/l)	monthly	0.481	0.26	<0.02	<0.02	<0.1
Lead (mg/l)	weekly	0.281	0.17	<0.05	<0.05	<0.05
Nickel (mg/l)	weekly	1.591	0.95	<0.05	<0.05	<0.03
Silver (mg/l)	weekly	0.171	0.10	<0.01	<0.01	<0.01
Zinc (mg/l)	weekly	1.041	0.59	0.07	0.06	0.04
Total Toxic Organics (mg/l)	twice per year	0.851	NA	0.038	0.019	<0.016
Mercury (mg/l)	weekly	0.12	NA	<0.002	0.00012	0.0002
TSS (mg/l)	monthly	2502	NA	46.2	52.0	46.93
BOD (mg/l)	monthly	2502	NA	25.0	32.3	28.2
pH	daily	5.5-9.52	NA	7.5	7.5	7.5

1-These standards are adjusted using the Combined Waste Stream Formula and listed in Attachment A of the wastewater permit, 2-These standards are local daily discharge standards as given in Pinellas County Sewer Use Ordinance #91-26, 3 - Categorical standards are specific standards that apply to a particular category of industrial point source, as defined by EPA. The point source category for Pinellas Plant is "Metal Finishing."

The PCSS maintains a secured sampling station on the Pinellas Plant Site. Samples of the plant's combined effluent from this station are collected on a random, unannounced basis and analyzed by the PCSS to verify compliance with the permit. After samples are collected, the plant obtains split samples from county personnel to compare results.

Under all of the alternatives discussed below, effluent from the groundwater treatment operations would continue to discharge to the plant's IWNF and then to the PCSS.

Impacts of the Proposed Action on Nonradiological Effluen

The cleanup activities included in the Proposed Action, decontamination and dismantlement of the Pinellas Plant in support of commercialization activities, would result in a short-term increase in the volume of nonradiological liquid effluent released from the Pinellas Plant. A relatively small increase in the concentration of contaminants may occur due to the cleanup of specific contaminated areas. As a conservative approximation, an additional 1/2 gallon of water per square foot of plant space would be used for general cleanup purposes in addition to normal usage. This water would be used in uncontaminated areas and would result in 133,716 gallons of relatively clean effluent. Flushing of drains would also result in an additional undetermined amount of effluent. These effluents would be discharged to the industrial wastewater system and would meet permitted limits.

A small number of areas at the plant would generate effluent due to cleanup of hazardous substances (i.e., volatile organics, methylene dianilene, cyanide solutions, etc). The quantity of volatile organics is not large enough to warrant large scale cleanup because most of the initial contamination of this type has volatilized and has long since been released to the atmosphere as permitted under the plant's air permit. The remaining areas that contain hazardous contaminants comprise an approximate area less than 5,000 square feet. Assuming that these areas require 1 gallon of water (or other liquid) for every square foot of space to be cleaned, the resulting additional effluent would be 5,000 gallons. The DOE and its agents containerize and store nonradiological decontamination effluent until sample analyses and characterization are completed. If the results reflect nondetectable levels or contamination levels that are within the parameters specified in the plant's Industrial Wastewater Permit, then the DOE and its agents transfers the effluent to the IWNF for eventual release to the PCSS. If the effluent exceeds the permitted discharge levels, then the DOE and its agents treat or dispose of the effluent at an existing, off-site, approved facility. Workers performing tasks associated with the hazardous effluent also perform the monitoring, and they wear the appropriate protective clothing in compliance with OSHA standards for worker protection. Containment and disposal of waste effluents by the DOE is in compliance with the Clean Water Act (CWA) and RCRA requirements for protection of the health and safety of the public.

The increased nonhazardous effluent would result in increased costs to the plant for wastewater disposal to the PCSS. Any substantial changes in the volume of effluent (>10 percent) would require notification to the PCSS prior to such changes. The increase in hazardous effluent would also result in increased disposal costs associated with transportation, treatment, and disposal at a permitted facility.

Dismantlement of Buildings 100, 200, and 800 would involve removal of the drain systems and would eliminate some sources of liquid effluents. Water would be used to control dust emissions from the piles of dismantlement debris. However, the water use would be controlled so that the piles would be wetted, not saturated. Therefore, runoff from the debris piles would be negligible. The impacts of runoff due to a rainfall event are discussed under the impacts of the Proposed Action on Groundwater (see Section 3.5.2).

Long-term impacts of the Proposed Action on nonradiological effluents would depend on the future use of the site as determined by the PCIC. The tenant or the PCIC, would obtain a wastewater permit from the PCSS. Historical concentrations for the Pinellas Plant nonradiological effluents are provided in Table 3-3. The PCSS would require potential tenants to demonstrate that any proposed operations would meet Pinellas County discharge standards (Ref. 17). The PCIC or tenant would provide information to the PCSS prior to bringing additional processes on site. In any case, impacts from effluent discharges would be no greater than the impacts stated in the Nonnuclear Consolidation EA for the Pinellas Plant Alternative (Ref. 19). These stated impacts are increased stormwater runoff due to construction of parking lots and generation of up to 153 million gallons per year of additional wastewater. There would be no impacts on surface water quality.

Impacts of Alternative 1 on Nonradiological Effluent

The initial impacts of Alternative 1, cleanup of the Pinellas Plant, on the nonradiological liquid effluent would be the same as cleanup activities included in the Proposed Action. These impacts are a minor increase in nonradiological effluents (about 139,000 gallons) The long-term impacts of Alternative 1 on nonradiological effluents would be a decrease in the volume of effluent and the concentration of industrial constituents as plant operations are eliminated.

Impacts of Alternative 2 on Nonradiological Effluents

Alternative 2 includes cleanup of the Pinellas Plant and dismantlement of Buildings 100, 200, and 800. The initial impacts of Alternative 2 would be the same as for the decontamination and dismantlement activities included in the Proposed Action. These impacts include minor increases in nonradiological effluents (about 139,000 gallons). Long-term impacts of Alternative 2 on nonradiological effluents would be the same as those for Alternative 1.

Impacts of Alternative 3 on Nonradiological Effluents

The impacts of Alternative 3, identification of a contractor to complete cleanup activities at the Pinellas Plant, on nonradiological effluents would depend on the types of operations brought to the site by the tenant. As described for the Proposed Action, the PCSS would require potential tenants to demonstrate that any proposed operations would meet Pinellas County discharge standards (Ref. 17).

The long-term impacts of Alternative 3 on nonradiological effluents would be the same as the impacts of the Proposed Action. The tenant would eventually perform cleanup at the site after operations had ceased.

Impacts of the No Action Alternative on Nonradiological Effluents

The impacts of the No Action Alternative on nonradiological effluents would be an overall, both short-term and long-term, decrease in the volume of effluent and the concentration of industrial constituents, such as metals and toxic organics, as the plant's operations are terminated. Sanitary wastewater would be decreased with the reduction in the work force. Any modifications to the wastewater permit due to these decreased effluents would be coordinated with the PCSS. The DOE would conduct additional NEPA review if impacts beyond those described above would occur. As the age of the facility increases, leakage from drain systems would be expected to become more common. Surveillance and maintenance efforts would be increased in response to gradual deterioration of the facility and the increased potential for an inadvertent release of effluents.

3.3.2 Radiological Liquid Effluent Affected Environment

Tritium oxide is the only radioisotope in the Pinellas Plant liquid effluent. The radiological liquid effluent is collected by a separate Health Physics drain system and transferred to holding tanks. The capacity of each of the holding tanks is approximately 10,000 gallons. Effluent discharges containing low levels of tritium oxide, following analysis at the holding tanks, are pH-adjusted, combined with other plant wastewaters and directed to the PCSS. Releases from the holding tanks are analyzed to ensure that the effluent from the holding tanks contains less than the plant's ALARA limit of 3.0 microcuries per liter. This analysis ensures compliance with DOE 5400.5, Radiation Protection of the Public and the Environment. Daily tritium analyses are performed on 24-hour composite samples collected by flow proportional sampling of releases to the PCSS.

Tritium concentrations are determined by liquid scintillation counting, and are routinely below the applicable standard given in FAC 10D-91 (Ref. 20). The total tritium concentrations and associated effluent volumes released to the PCSS for 1991, 1992, 1993, and 1994 are shown in Table 3-4 and are well below the FAC 10D-91 standard of 5 curies total annual quantity released. During 1994, the average daily activity was 1.00 pCi/ml, which is well below the FAC 10D-91 daily average concentration limit of 1.0 X 105 pCi/ml. The limits given in FAC 10D-91 are conservative limits developed to protect public health and safety.

Table 3-4. Tritium Released To PCSS In 1991, 1992, 1993, and 1994

Parameter	1991	1992	1993	1994
Effluent Volume (l)	297,000,000	249,545,000	288,944,570	279,889,395
Total Tritium Released to POTW (Ci)	0.56	0.67	0.44	0.277
Total Annual Release Standard (Ci) (Ref. 20)	5.0	5.0	5.0	5.0

Although no radioactive discharges are directed to the ponds located on the plant site, these ponds are sampled on a weekly basis for tritium (Ref. 21). Additionally, 26 off-site surface water locations are sampled quarterly. Measurements of tritium in all of the surface water samples for 1994 were at or below detection limits.

The Pinellas Plant's processing of radiological effluents is conducted in compliance with DOE 5400.5 through implementation of the ALARA Program. The objective of the ALARA Program is to limit release of radiological effluent and limit potential worker exposure to radioactive materials through conservative use of these materials, containment of radiological materials and equipment, and use of personal protective equipment.

Impacts of the Proposed Action on Radiological Effluents

The Proposed Action includes cleanup activities, structure dismantlement, and utilization of remaining Pinellas Plant areas by tenants. The short-term impacts of the Proposed Action on radiological effluents would be an increase in the volume and, potentially, the concentration of the effluents. An estimated 17,000 gallons of water could be used for decontamination activities associated with cleanup of approximately 30,000 square feet of space in the plant's radiological areas. Cleanup of contaminated equipment would result in generation of an additional undetermined (probably less than 10,000 gallons) volume of effluent.

In the Proposed Action, the DOE would capture and transfer radiological decontamination effluent to the Health Physics holding tanks for sampling. If the sample analyses reflect that the concentrations are below the more stringent DOE ALARA levels, then the effluent may be transferred to the IWNF and released to the PCSS. If the effluent meets permitted standards but exceeds the DOE ALARA levels, the effluent is transferred to the IWNF and released to the PCSS; however, mitigative measures are evaluated and implemented to reduce concentrations to below ALARA levels. If the effluent does not meet permitted standards, then the DOE would containerize and dispose of it as low-level radioactive waste at an approved facility. Under no circumstances would permit standards be exceeded. Cleanup workers would use the appropriate precautions (i.e., personal protective equipment), as mandated by DOE 5400.5, when handling radiological effluents.

Dismantlement activities as part of the Proposed Action would include removal of the Health Physics and industrial/sanitary drain systems of the associated structures. As a result, radiological effluents would be reduced.

In the Proposed Action, the plant site would be used for purposes determined by the PCIC. The PCIC may introduce on the site new operations that would involve the release of radiological effluents. Regulatory agencies would require the PCIC to comply with Federal and State regulations regarding radiological effluents.

Impacts of Alternative 1 on Radiological Effluents

The short-term impacts of Alternative 1, cleanup of the Pinellas Plant, are the same as the cleanup impacts of the Proposed Action. These impacts include the generation of an additional 27,000 gallons of radiological effluents.

Impacts of Alternative 2 on Radiological Effluents

Alternative 2, cleanup of Pinellas Plant and dismantlement of Buildings 100, 200, and 800, would result in an initial increase in effluent volumes associated with cleanup and dismantlement activities; these impacts would be the same as the Proposed Action (i.e., 27,000 gallons of additional radiological effluents). After decontamination and dismantlement are completed, the long-term impacts of Alternative 2 on radiological effluents would be a substantial reduction in radiological effluents.

Impacts of Alternative 3 on Radiological Effluents

As a result of Alternative 3, identification of a contractor to share in cleanup at the Pinellas Plant, releases of radiological effluents may remain at or below the current levels identified in Table 3-4, depending on the type of operations conducted at the site by the tenant. These levels would comply with FAC 10D-91 limits. Any processes that result in release of radiological liquid effluent would be controlled through discharge to the Health Physics drains and

sampling of the holding tanks. Releases from the holding tanks may then be subject to the same discharge limits that currently apply. These limits would be specified in the conditions of any agreement between the tenant and the PCIC. Any modifications of the Industrial Wastewater Permit obtained by the PCIC, or the tenant relating to radiological effluents would be coordinated with the PCSS.

The long-term impacts of Alternative 3 on radiological effluents would be essentially the same as the initial impacts of the cleanup activities included in the Proposed Action. The tenant would eventually perform cleanup at the site after operations had ceased. The long-term impacts would be the eventual reduction of radiological effluents to essentially zero.

Impacts of the No Action Alternative on Radiological Effluents

The impacts of the No Action Alternative on radiological effluents released from the Pinellas Plant would be a short-term and long-term decrease in effluent quantity and concentration. This would result from the shutdown of processes that generate the radiological effluents. Releases from the Health Physics drain systems to the IWNF and PCSS would discontinue. However, there would be an increased risk of accidental discharge of radiological effluents as the facility ages. Monitoring and surveillance of the Health Physics drain systems would be performed by DOE or its agents to ensure that no leaks occur or to mitigate their impacts.

3.4 Waste Management Capacity Affected Environment

The Pinellas Plant currently disposes of three primary types of containerized wastes: solid and liquid (nonhazardous) waste, hazardous waste, and low-level radioactive waste. In addition, there is the potential that low-level radioactive and hazardous mixed waste may be generated as a result of safe shutdown and cleanup activities.

The Pinellas Plant's Waste Minimization Program strategy incorporates waste minimization concepts in operating policies and procedures and establishes goals for waste reduction. Waste reduction activities include reuse, source reduction, material and process substitution, and recycling.

Solid Waste

Nonhazardous, nonradioactive waste (i.e., solid waste) comprises the bulk of the waste generated at the Pinellas Plant. The plant generates approximately 660,000 to 1,100,000 pounds of solid waste per year. Based on 1992 solid waste generation rates, the Pinellas Plant contributed less than 1 percent of the approximately 8.36 x 107 pounds of solid (nonhazardous) waste disposed of at Pinellas County landfills. Plastics, aluminum, scrap metal, wood, paper, and other recyclables in Pinellas Plant solid wastes are removed for recycling by a solid waste subcontractor.

Hazardous Waste

Hazardous waste streams associated with historical production activities at the plant include calcium chromate, lithium silicon, flammable liquids, halogenated hydrocarbons, waste epoxy resin, methylene chloride resin, laboratory wastes, waste cyanide, and thermal treatment materials. These waste streams have generally decreased in volume in the past several years due to waste minimization efforts and due to a slowdown in production activities. The volume of waste epoxy resin, methylene chloride resin, calcium chromate, and thermal treatment materials has been reduced substantially. Other hazardous wastes, such as flammable liquids, halogenated hydrocarbons, lithium silicon, and laboratory wastes, have maintained historical volumes or decreased slightly in volume. However, certain waste streams associated with other plant activities have increased, primarily regulated waste from the environmental restoration groundwater treatment system and asbestos from plant renovation activities.

Waste from the environmental restoration groundwater recovery and treatment system filter press was 85,706 pounds in 1994. The plant is currently experiencing a trend of decreasing volume of drummed wastes (especially liquids) and an increasing volume of roll-off boxed wastes (i.e., filter press solids).

Prior to disposal at permitted hazardous waste disposal facilities, the DOE and agents are allowed to store hazardous

wastes, as indicated in Table 3-5, under the conditions of its Hazardous Waste Operating Permit, HO52-228925, issued by the FDEP. In addition to the storage locations identified in Table 3-5, the Pinellas Plant operated five hazardous waste storage tanks at Building 1040, which are capable of storing flammable liquids or halogenated hydrocarbons. Total combined capacity of all tanks is approximately 17,500 gallons. These tanks provide surplus capacity and are currently planned for closure under an approved closure plan.

Table 3-5. Waste Management Storage Capabilities (Hazardous Waste Operating Permit No. HO52-228925) (Hazardous Waste Operating Permit No. HO52-228925)

Facility	Capacity	Waste Volume Allowed	Waste Characteristics
Bay 1, Building 1040	64 55-gallon drums, 28 of which may contain liquids.	3,520 gallons total, of which 1,540 gallons may be liquid.	Solid and liquid hazardous wastes and lab pack wastes. May contain free liquids.
Bay 2, Building 1040	32 55-gallon drums, all of which may be lab packs.	1,760 gallons; no more than 15 gallons of liquid in any lab pack drum.	Non-liquid reactive wastes and lab pack wastes. Liquids must be in lab pack drums.
Bay 3, Building 1040	12 55-gallon drums	660 gallons	Miscellaneous laboratory wastes and small quantities of known miscellaneous liquid materials.
Bay 2, Building 1000	6 B-25 boxes or 48 55-gallon drums, or combination not to exceed allowed volume.	4,038 gallons	Wastes do not contain free liquids. Low-level radioactive mixed waste. May be hazardous for any of the following waste codes: D004, D005, D006, D007, D008, D009, D010, and D011, or combination thereof (Ref. 22).

The plant is also permitted for treatment of small quantities of explosive wastes. The explosive wastes consist of small explosive charges, primarily heat powder and heat paper, which are Class 1.4 explosives. Thermal treatment of explosives consists of burning these small charges in an open burn pan with proper disposal of the ash. Also permitted is the chemical treatment of reactive wastes, which involves the reaction of lithium or calcium waste with water in modified 55-gallon drums within a concrete basin. This is done to neutralize the reactive characteristics of the material.

Low-level Radioactive Waste

Low-level radioactive waste is generated in various areas, primarily Area 108, but also other areas of Buildings 100, 200, and 800. Radioisotopes contained in these wastes are primarily tritium but may include krypton-85 from scrapped products, none are transuranic. Tritium-contaminated wastes consist primarily of small quantities of weapons components and compatible solid debris, such as lab coats, finger cots, shoe covers, tools, and construction debris.

Low-level radioactive wastes are managed in accordance with the requirements of DOE 5820.2, Radioactive Waste Management. The low-level radioactive wastes are stored in Building 1000 prior to transport offsite and disposal at a DOE disposal facility. The Pinellas Plant utilizes approved 17C 55-gallon drums and B-25-90-4 boxes for transport of low-level waste. During periods representative of full-scale neutron generator production (1988 to 1991), the average annual quantity of low-level radioactive waste transported offsite was 279,650 pounds, with a peak of approximately 463,232 pounds.

The Pinellas Plant does not currently generate mixed waste (i.e., waste that is both hazardous and radioactive). However, future activities may generate waste that is tritium-contaminated and hazardous and would therefore be

considered mixed waste. The plant has a proactive policy to identify any mixed waste during transition activities and has a contingency plan to manage mixed waste if any is found.

Impacts of the Proposed Action on Waste Management

The Proposed Action includes cleanup activities, structure dismantlement, and utilization of remaining Pinellas Plant areas by a tenant. Cleanup activities at the Pinellas Plant included in the Proposed Action would result in an initial increase in generation of waste. Cleanup would involve the identification and removal of hazardous, low-level radioactive, and asbestos-contaminated wastes from the facility.

A maximum of approximately 1,210,000 pounds of hazardous waste could be generated during cleanup. An estimated 85 percent of this waste would be solid materials disposed in roll-off boxes and would include contaminated equipment and sludge from the wastewater neutralization tank. Fifteen percent would be drummed liquid wastes and would include flammable liquids, solvents, and lab packs. The waste would be transported to an approved hazardous waste landfill or treatment facility.

A maximum of approximately 1,764,000 pounds of low-level radioactive waste could be generated during cleanup. These wastes would include primarily scrapped products, scrapped equipment, ion pumps and pump elements, ducting and piping, the tritium recovery system, the stack emissions control system, and personal protective equipment. In addition, approximately 380,000 pounds of low-level radioactive asbestos waste, primarily contaminated transite ducting, would result from removal of radiological exhaust systems. Low-level radioactive wastes would be placed in boxes and drums for off-site transport and disposal at an approved radioactive waste disposal facility.

An estimated maximum of 300,000 pounds of nonradioactive asbestos waste could be generated during cleanup. This waste would be bagged and containerized for disposal at an appropriately permitted disposal site.

In addition, the Pinellas Plant would generate a maximum of approximately 3.3 billion pounds of solid (nonhazardous) waste during the dismantlement of plant buildings, structures, and paved areas. The solid waste would be transported to a nearby landfill, such as the Pinellas County landfill. However, much of this solid (nonhazardous) waste could be recycled. For example, exterior concrete walls, some interior concrete walls, and steel building materials could be segregated and recycled. Materials such as tectum, gypsum board, and drywall would be less likely to be recycled, but these materials may represent only 25 - 40 percent of the weight of waste material. Therefore, it is estimated that 60 percent of the building materials could be recycled, thereby reducing the volume of solid waste disposal by approximately 60 percent.

The impact of the tenant activities included in the Proposed Action on waste generation would be generation of waste that would be dependent on the types of tenant operations. All hazardous waste management operations would be performed in accordance with permit(s) obtained by the tenant(s) from the FDEP.

Although initially an effort would be made to bring in processes with waste streams that could utilize existing waste storage and treatment facilities, regulatory authorities do not presently allow DOE-permitted units to accept hazardous wastes from other tenants. Individual permits, if desired by the tenant or when required by the FDEP, would be obtained by tenants prior to operations, and permit requirements would likely be stipulated in the leases between the PCIC and the tenants.

It is expected that the Proposed Action would result in changes in specific types of hazardous wastes. The exact generation rates of each new waste type are not known at this time. However, tenant operations are not expected to exceed the total volumes described for the Pinellas Plant Alternative in the Nonnuclear Consolidation EA (Ref. 19). Low-level radioactive waste would be managed in accordance with standards developed by the NRC or other appropriate regulatory control. Florida is an NRC-agreement state; as such, facilities in Florida that generate radioactive wastes must dispose of these wastes at NRC-licensed disposal facilities. Processes that result in the generation of solid radioactive wastes, such as neutron tube production, would be controlled by NRC radioactive waste handling procedures. All waste handling activities, whether low-level radioactive or hazardous waste, would be conducted in compliance with applicable Federal, State, and local requirements.

Impacts of Alternative 1 on Waste Management

The impacts of Alternative 1, cleanup of the Pinellas Plant, on waste management would include all of the impacts discussed under the cleanup activities included in the Proposed Action. These impacts include generation of 1,210,000 pounds of hazardous waste, 1,764,000 pounds of low-level radioactive waste, 380,000 pounds of low-level radioactive asbestos waste, and 300,000 pounds of nonradioactive asbestos waste. Long-term impacts would be a reduction in waste volumes to existing levels.

Impacts of Alternative 2 on Waste Management

The impacts of Alternative 2, cleanup of the Pinellas Plant and dismantlement of Buildings 100, 200, and 800, on waste management would include all of the impacts described for the decontamination and dismantlement activities included in the Proposed Action.

These impacts include generation of the waste volumes listed above for Alternative 1. In addition, 3.3 billion pounds of solid waste would be generated.

After dismantlement is completed, the impacts of Alternative 2 on waste management would be a reduction in the volume of wastes to levels associated with waste generation by the PCIC tenants.

Impacts of Alternative 3 on Waste Management

The impact of Alternative 3, identification of contractors to share in cleanup activities at the Pinellas Plant, on waste generation would be the same as for the tenant activities included in the Proposed Action. Generation of waste at the Pinellas Plant would be dependent on the types of tenant operations. All hazardous waste management operations would be performed in accordance with permit(s) obtained by the tenant(s) from the FDEP.

After the tenant operations have ceased, the plant would be cleaned as discussed under the Proposed Action. The long-term effects of Alternative 3 on waste management would therefore be the same as the initial impacts of the Proposed Action, except for changes imposed by tenant activities.

Impacts of the No Action Alternative on Waste Management

The impacts from the No Action Alternative on waste management would be an immediate reduction in the volume of solid, hazardous, and radioactive wastes to very low levels. The volume of solid wastes would be reduced to those nominal levels necessary to support surveillance, maintenance, security, and environmental restoration activities. Hazardous and radioactive wastes would only be produced as a result of mitigation of leaks or spills encountered during surveillance and maintenance activities.

3.5 Water

3.5.1 Water Demand Affected Environment

Water management and distribution for the Southwest Florida area is controlled by SWFWMD. During the 1970s, the Florida Legislature passed several laws to improve water management and comprehensive planning efforts. One of these acts, the Water Management Districts and Regional Water Supply Authorities Act, which became effective October 1, 1974, provided enabling legislation for the formation of regional water supply authorities.

The counties of Hillsborough, Pasco, and Pinellas, along with the cities of St. Petersburg and Tampa, formed the West Coast Regional Water Supply Authority. This group, together with SWFWMD, is working toward alleviating water supply problems associated with the expanding Tampa Bay area population by developing well fields, expanding supply and distribution systems, and purchasing recharge areas.

During 1994, the Pinellas Plant utilized 68,833,000 gallons of water, provided by two inflow sources from Pinellas

County. This represents a 4,620,000-gallon reduction in demand from 1993 (73,453,000 gallons).

Impacts of the Proposed Action on Water Demand

The Proposed Action is decontamination and dismantlement of the Pinellas Plant in support of commercialization activities. The impacts of the Proposed Action on water demand would be a short-term increase in demand followed by long-term water usage comparable to current plant usage. During cleanup activities, water demand would be expected to exceed the water demand associated with routine plant operations.

As discussed under Effluent Discharges (Section 3.3), additional water would be required for cleaning uncontaminated areas (greater than 133,716 gallons), decontaminating areas with hazardous materials (5,000 gallons), and decontaminating radiological areas and equipment (approximately 27,000 gallons). Water may also be used to clean exterior building walls and for general-purpose cleaning, but such water usage would not be unique to the Proposed Action and is therefore not considered an additional impact. Additional water usage is estimated to total greater than 165,000 gallons. However, this represents only 0.3 percent of recent Pinellas Plant annual demand.

Additional water would also be used during dismantlement activities associated with the Proposed Action. Cleanup to standards appropriate for dismantlement may involve slightly less water than cleanup to standards appropriate for unrestricted or industrial use. However, during dismantlement there would be a greater demand for water due to the need to spray the debris piles to control dusts. The exact quantity of water needed for spraying is related to such factors as the size of the debris piles, temperature, humidity, absorption by debris, and duration of the dismantlement effort.

Based on a comparison with current water demand for lawn maintenance (approximately 1,000 gallons per day), it is expected that spraying of debris piles would utilize at least 3,000 gallons per day. If the duration of the dismantlement effort is 6 months, the additional water demand related to spraying of debris would be 547,500 gallons, which is approximately 0.9 percent of historical Pinellas Plant annual water demand. Water would be used only to wet the debris, so wastage of this water would be minimal, and runoff would only result from rainfall events.

If dismantlement activities were performed for each structure at the plant, the DOE would not require water at the site for plant operations except for a limited amount of water necessary for environmental restoration activities.

Initial water demand for the tenant activities included in the Proposed Action would be dependent on the type of operations performed by the tenant. Based on the substantial existing demand at the site, the water demands resulting from tenant operations would be expected to be comparable to those associated with ongoing activities at the plant. However, the PCIC and the tenants would not be limited to maintaining historical water usage volumes, and there is the potential that water usage could be greater than that due to ongoing activities. In any event, water usage would be well below the 357,700,000 gallons per year that would be required to support the operations discussed in the Pinellas Plant Alternative in the Nonnuclear Consolidation EA (Ref. 19).

The additional demand required for the Proposed Action would result in a negligible impact on Pinellas County water resources. Additional water usage would result in a short-term cost increase to the plant associated with the purchase of water from Pinellas County.

Impacts of Alternative 1 on Water Demand

The impacts of Alternative 1, cleanup of the Pinellas Plant, on water demand would be the same as those associated with the cleanup activities included in the Proposed Action. These impacts would be a short-term increase in demand (165,000 gallons) followed by long-term water usage comparable to current plant usage. During cleanup activities, water demand would be expected to exceed the water demand associated with routine plant operations.

After cleanup activities are completed and the DOE relinquishes stewardship of the plant to the PCIC, the DOE would not require water at the site for plant operations except for a limited amount of water necessary for environmental restoration activities.

The long-term impacts of the Alternative 1 on future water usage at the site are dependent upon the types of operations allowed by the PCIC. From a water use perspective, such impacts are not expected to be substantially different than those associated with operations currently being conducted at the Pinellas Plant.

Impacts of Alternative 2 on Water Demand

Alternative 2 is cleanup of the Pinellas Plant and dismantlement of Buildings 100, 200, and 800. Under Alternative 2, the short-term impacts on water demand due to cleanup activities would be the same as, or slightly less than, those impacts associated with the dismantlement activities included in the Proposed Action (i.e., 165,000 gallons). Cleanup to standards appropriate for dismantlement may involve slightly less water than cleanup to standards appropriate for unrestricted or industrial use. However, during dismantlement there would be a greater demand for water (an additional 547,500 gallons) due to the need to spray the debris piles to control dusts, as discussed above.

As a result of Alternative 2, the DOE would not require water at the site for plant operations except for a limited amount of water necessary for environmental restoration activities.

Long-term, post-dismantlement, water demand would be dependent on the type of operations of the tenants. These demands would not be expected to exceed the current demand, but the PCIC would not be prohibited by regulatory agencies from introducing more water-intensive operations at the site than currently exist.

Impacts of Alternative 3 on Water Demand

Alternative 3 is identification of contractors to share in cleanup. Initial water demand for Alternative 3 would be dependent on the type of operations performed by the tenants. These impacts are described above for the Proposed Action activities that involve a tenant. In any event, water usage would be well below the 357,700,000 gallons per year that would be required to support the operations discussed in the Pinellas Plant Alternative in the Nonnuclear Consolidation EA (Ref. 19).

The long-term impacts of Alternative 3 on water demand would be essentially the same as the short-term impacts of the Proposed Action. During cleanup, performed either by the tenant or the DOE, there would be additional water usage as described above. After cleanup, water usage would depend on the types of operations that the PCIC would allow to use the site.

Impacts of the No Action Alternative on Water Demand

The impact from the No Action Alternative on water usage would be a substantial reduction of water utilization at the Pinellas Plant as operations are eliminated. Long-term water usage would stabilize at very low levels. Water utilization by the DOE would be limited to those uses associated with maintenance, surveillance, security, and environmental restoration activities.

3.5.2 Groundwater Affected Environment

The groundwater system underlying the Pinellas Plant is composed of three primary water-bearing units. The upper unit, designated as the surficial aquifer, is associated with the upper 25 to 35 feet of undifferentiated sands dating from the Pleistocene Age. The middle unit corresponds to sediments of the Hawthorn Group which, because of the formation's relatively low permeability, functions as a confining unit. The lower unit, which is of primary economic importance to Pinellas County, is the Floridan aquifer. Based on information gained as a result of past environmental studies conducted at the site, the basic hydrogeologic characteristics of the surficial aquifer are known; however, site-specific characteristics of the Hawthorn Group or Floridan aquifer are not as well defined. For this reason, the following discussion on the Floridan aquifer is based on regional as well as site- specific information. The Hawthorn Group acts as a continuous confining unit throughout the Pinellas Plant property. Travel times for the migration of liquids through the 60- to 80-feet thick Hawthorn Group are calculated in excess of 600 years.

The Floridan aquifer is an extensive carbonate water-bearing unit that is of primary economic importance as a water

resource throughout Florida, Southeastern Georgia, and Southern Alabama. The Floridan aquifer includes all or parts of the Avon Park and Lake City Limestone, Ocala Limestone, Suwannee Limestone, and Tampa Limestone. Throughout West-Central Florida, the Floridan aquifer is divided into upper and lower units, which are separated by a tight intergranular evaporate bed associated with the undifferentiated Avon Park and Lake City Limestone. The lower unit generally contains saltwater, while the upper unit serves as the primary potable and agricultural water supply to the area. In Pinellas and Hillsborough Counties, the thickness of the Floridan aquifer is approximately 1,200 feet. The water supply for the Pinellas Plant is furnished by the Pinellas County Water System. There are no drinking water wells located on the site.

Impacts of the Proposed Action on Groundwater

The Proposed Action is decontamination and dismantlement of the Pinellas Plant in support of commercialization activities. The cleanup activities included in the Proposed Action are not expected to have any impact on groundwater at the Pinellas Plant. Cleanup activities, which would be conducted in the developed portions of the plant, would produce effluents that would be contained within piping, holding tanks, and lift stations, or they would be containerized as lab-packs for disposal as hazardous waste. There is no reasonable expectation that such effluents would be released and would enter the groundwater system underlying the plant. Environmental restoration activities, which are consistent through implementation of all alternatives, would have effects on groundwater systems as discussed under the Environmental Restoration section of this EA. The impact, therefore, of cleanup activities on site groundwater would be negligible.

The impacts of the dismantlement activities included in the Proposed Action on site groundwater resources are expected to be negligible. Prior to dismantlement, all hazardous, radioactive, and friable asbestos-contaminated materials would be removed or cleaned to below detection levels or standards. The remaining solid waste would be staged in debris piles that may be located on plant parking lots or on the building slab. The debris piles would be periodically sprayed with water to control dust emissions. Runoff from this spraying would be very limited because procedures for spraying do not call for saturation of debris, only wetting it. However, it is possible that runoff from the debris piles may be released into the soil during a severe rainfall event, and may then contact the groundwater underlying the plant. Prior to dismantlement, a spill control plan would be developed to characterize and/or mitigate any such releases associated with a rainfall event.

Because all contamination would be removed and runoff would occur only during a rainstorm, debris piles would not be expected to produce more than negligible quantities of leachate. Any suspected releases of leachate would be investigated as part of the Pinellas Plant's Environmental Restoration Program and would be addressed under Federal, State, and local standards relating to groundwater protection. Such releases would not be expected to result in groundwater contamination in excess of FDEP limits developed for protection of human health and the environment and therefore would be considered negligible impacts on the environment.

The tenant activities associated with the Proposed Action would have no impacts on site groundwater.

Impacts of Alternative 1 on Groundwater

The impacts of Alternative 1, cleanup of the Pinellas Plant, on groundwater would be the same as the impacts described for the cleanup activities included in the Proposed Action. The impacts of this alternative on site groundwater would be negligible.

Impacts of Alternative 2 on Groundwater

Alternative 2 is cleanup of the Pinellas Plant and dismantlement of Buildings 100, 200, and 800. The impacts of Alternative 2 on groundwater at the Pinellas Plant would be the same as the impacts of the dismantlement activities included in the Proposed Action. These impacts would be the potential for minor runoff of leachate; such impacts would be negligible.

Impacts of Alternative 3 on Groundwater

Alternative 3 is identification of contractors to share in cleanup at the Pinellas Plant. This alternative would eventually result in cleaning plant structures as discussed under the Proposed Action. Cleanup activities in the developed portions of the plant would produce effluents that would be contained within piping, holding tanks, and lift stations or containerized for off-site disposal. There is no reasonable expectation that such effluents would be released and would enter the groundwater system underlying the plant. Environmental restoration activities, which are consistent through implementation of all alternatives, would have effects on groundwater systems as discussed under the Environmental Restoration section of this EA. The impact of this alternative on site groundwater would therefore be negligible.

Impacts of the No Action Alternative on Groundwater

The No Action Alternative is not expected to have any impact on groundwater at the Pinellas Plant. Only environmental restoration activities, which are consistent throughout all of the alternatives, would have any effect on groundwater systems.

3.6 Threatened and Endangered Species Affected Environment

The U.S. Fish and Wildlife Service (USFWS - U.S. Fish and Wildlife ServiceUSFWS - U.S. Fish and Wildlife ServiceUSFWS), in correspondence dated July 25, 1991, identifies the Federally listed species which may be present on the Pinellas Plant site and includes the endangered Florida golden aster (*Chrysopsis floridana*) and threatened eastern indigo snake (*Drymarchon corais cooperii*) (Appendix D). USFWS cites the endangered southern bald eagle *(Haliaetus l. leucocephalus*) and endangered wood stork (*Mycteria americana*)*Mycteria americana*) as potentially feeding in retention ponds on the property. The potential presence of other threatened or endangered species, or species of special concern on this site, is not likely due to commercial and residential development at or near the site boundary.

A survey of the Pinellas Plant Site and 4.5 Acre Site was performed during March of 1992 to ascertain the presence or absence of threatened or endangered species or species of special concern on the site. Based on this review, in addition to the Federally listed species mentioned above, the following species were identified as a potential for occurrence: gopher tortoise (*Gopherus polyphemus*); tri-colored heron (*Egretta tricolor*); little blue heron (*Egretta caerulea*); snowy egret (*Egretta thula*); burrowing owl (*Athene cunicularia*); Sanibel lovegrass (*Eragrostis tracyi)*; Tampa vervain (*Glandularia tampensis*); and scrub palmetto (*Sabal etonia*). No state or federally listed threatened or endangered species were observed on the site (Ref. 9). Since the Pinellas Plant Site is located in a highly developed urban area, dependence on this site by protected species is low.

Impacts of the Proposed Action, Alternative 1, Alternative 2, Alternative 3, and the No Action Alternative on Threatened and Endangered Species

The Proposed Action, Alternative 1, Alternative 2, Alternative 3, and the No Action Alternative are not expected to have any effect on threatened or endangered species in the area of the Pinellas Plant. The listed threatened and endangered species are not likely to be dependent on the site for food and habitat due to the commercial and residential development surrounding the plant. The East Pond, West Pond, and their adjacent open space, which are potential feeding areas for the southern bald eagle and the wood stork, would not be impacted by the Proposed Action or other alternatives.

3.7 Noise Affected Environment

The Pinellas Plant does not contribute any substantive negative impacts on the acoustic environment in its vicinity. The primary contributors to noise in the area are traffic on local roadways and nearby industrial operations. Even if the activities at the Pinellas Plant increase due to cleanup projects, the resulting traffic noise levels are not expected to increase more than 1 decibel (dBA). Noise increases below 5 dBA are not expected to cause discernible change in the community (Ref. 19). When necessary, noise abatement measures are implemented at the plant to assure compliance with the Pinellas County Noise Ordinance (Ref. 23).

Impacts of the Proposed Action on Noise

The Proposed Action is decontamination and dismantlement of the Pinellas Plant in support of commercialization activities. The cleanup activities included in the Proposed Action may increase the noise emissions due to the increased vehicular activity and projects such as the removal of the radiological exhaust stacks. Plant personnel and construction workers would be exposed to varying levels of equipment noise. Noise levels would be measured in worker areas, and an effective hearing protection program would be implemented. Hearing protection requirements would comply with OSHA standards. The cleanup activities would be conducted simultaneously with closeout of some of the ongoing operations (which would reduce traffic into and out of the plant). Therefore the overall effect on noise from the cleanup activities included in the Proposed Action would be negligible.

The heavy equipment, increased truck traffic for waste transportation, and possible use of explosives, if necessary, for the dismantlement of buildings at the Pinellas Plant may result in an increase in noise. Dismantlement may involve very brief (less than 15 minutes) duration activities that would increase noise levels greater than 5 dBA. However, the overall average noise levels are not expected to exceed 1 dBA above current levels. Although no overall change in the community is expected from the dismantlement and removal activities, measures would be necessary to protect workers' hearing. As for cleanup activities, the noise levels in work areas would be monitored, and an effective hearing protection program would be implemented. These measures include the use of standard silencing packages on heavy equipment and providing workers in noisy environments with the appropriate hearing protection devices meeting OSHA standards. To ensure that no undue disturbances to the surrounding community would occur, similar noise abatement measures would be implemented, as necessary.

The impacts on noise from tenant activities associated with the Proposed Action would depend on types of operations performed by the tenant(s). Due to the heavy development and traffic in the immediate vicinity of the plant, it is not expected that the tenant(s) would create any additional impact on noise emissions in the area. The tenant(s) would be required to comply with the Pinellas County Noise Ordinance (Ref. 22), and noise levels would be expected to be similar to noise levels produced currently at the plant.

The impact of implementing the Proposed Action would result in no substantial long-term change from current noise emissions due to ongoing DOE operations. No perceptible noise-related effects would be expected to human health and the environment as a result of the Proposed Action.

Impacts of Alternative 1 on Noise

The impacts of Alternative 1, cleanup of the Pinellas Plant, on noise would be the same as the impacts of cleanup activities included in the Proposed Action. These impacts would be minor increases in noise emissions; such impacts are negligible.

Impacts of Alternative 2 on Noise

Alternative 2 is cleanup of the Pinellas Plant and dismantlement of Buildings 100, 200, and 800. The impacts of Alternative 2 on noise would be the same as the impacts of the dismantlement activities included in the Proposed Action. These impacts include possible use of explosives and increased noise emissions due to truck traffic for waste transportation. Such impacts involve the potential for brief increases in noise that would raise noise levels 5 dBA above current levels. This is considered a negligible impact on the community. Workers would be protected through safety programs that would be conducted in compliance with OSHA.

Impacts of Alternative 3 on Noise

Alternative 3 is identification of contractors to share in cleanup at the Pinellas Plant. The impacts of Alternative 3 are the same as those described for the tenant activities included in the Proposed Action. These impacts are negligible. During eventual cleanup activities, the impacts on noise would be similar to those discussed for the cleanup activities included in the Proposed Action.

Impacts of the No Action Alternative on Noise

The impacts of the implementation of the No Action Alternative would be overall reduction in noise generated by the facility as the plant processes are eliminated. No new activities would be brought to the plant in their place and no cleanup would occur. Therefore, no direct, indirect, or cumulative effects to human health or the environment due to noise would be expected.

3.8 Transportation Affected Environment

This section addresses the impacts on local traffic associated with transportation of materials or persons off site (traffic-related noise is addressed in Section 3.7). The Pinellas Plant is served only by road transportation networks. The CSX Railroad line, located adjacent to the western boundary of the site, is not used to transport goods to or from the Pinellas Plant. On-site transportation is not a significant issue since on-site transportation is primarily limited to access to parking for plant employees and plant suppliers. The plant does not contain an extensive roadway system.

The Pinellas Plant is serviced by two primary Pinellas County arterial roads, Belcher Road and Bryan Dairy Road. Belcher Road is a six-lane, divided arterial road with a design capacity of 42,700 vehicles per day. Bryan Dairy Road is a four-lane, divided arterial with a design capacity of 27,900 vehicles per day. Recent construction of the Lake Seminole Bridge and the continuation of Bryan Dairy Road into 102nd Avenue North upgraded the importance of Bryan Dairy Road as a main arterial road. Pinellas County plans to improve Bryan Dairy Road in the near future.

Table 3-6 shows the baseline traffic data projected for Bryan Dairy Road and Belcher Road for the years 1995 and 2000 (Ref. 19). It is expected that Bryan Dairy Road will exceed design capacity in 1995, as will portions of Belcher Road by the year 2000. The level of service of "F" in Table 3-6 indicates forced flow. Forced flow occurs at the point where vehicles arrive at a rate greater than which they are discharged, or at the point where demand begins to exceed design capacity. While traffic at such points and in immediate downstream sections is at capacity or less than capacity, lines of traffic will form behind flow breakdowns. Vehicle activity within the lines of traffic does not promote consistent traffic flow, with vehicles experiencing short spurts of movement, followed by stoppages. Average vehicle speed within the lines of traffic is generally less than 30 mph.

Impact on local traffic by Pinellas Plant employees is minimal, with approximately 625 vehicles arriving at the plant during the first shift. Approximately 50 vehicles arrive for the second shift, and 40 vehicles arrive for the third shift. Arrival and departure of the first shift is staggered over the periods of 6:30 am to 7:00 am and 3:30 pm to 4:30 pm each week day. Therefore, traffic due to employee arrival and departure represents only 10 percent of peak hour volume for the 1995 traffic estimates, as shown on Table 3-6, for those road sections that include the Pinellas Plant entrances. This impact assumes that peak hour volume coincides with the employee arrival or departure periods.

With respect to off-site transportation of materials, Pinellas Plant does not differ in any substantial way from a comparably-sized industrial facility with the exception of the need for transportation of radioactive wastes/sources and hazardous wastes. Safe secure trailers are occasionally utilized to transport classified waste to appropriate disposal facilities. Licensed radioactive waste transporters are utilized several times per year for transport of low level radioactive wastes to an approve radioactive waste disposal facility.

Table 3-6. Baseline Traffic by Link at Pinellas Plant

Route	From	To	1995			2000		
			ADT	PHV	LOS	ADT	PHV	LOS
Belcher Road	Ulmerton Road	Bryan Dairy Road	39,271b	3,927b	F	47,263b	4,726b	F
Belcher Road	Bryan Dairy Road				F			F
Bryan Dairy Road		Park Blvd.	34,825b	3,483b	F	41,912b	4,191b	F
	Starkey Road	Belcher Road			F			F
Bryan Dairy Road	Belcher Road	66th Street	35,566c	3,557c		42,804c	4,280c	
			35,751b	3,575b		43,027b	4,303b	

a Truck traffic is estimated to comprise 15.7 percent of the total baseline traffic composition.

b Derived from 1991 data.

c Derived from 1989 data.

ADT: Average Daily Traffic - The total volume of traffic during a given time period, in whole days greater than one day and less than one year, divided by the number of days in that time period.

PHV: Peak Hour Volume - The maximum volume of vehicles in an hour-long period passing a point during a given day, often estimated to be 10 percent of total ADT.

LOS: Level of Service - A qualitative measure describing operating conditions within a traffic stream as perceived by motorists and/or passengers.

F: Forced Flow - Condition which occurs when vehicles arrive at a rate greater than they are discharged; lines of traffic form in these circumstances.

Design Capacity: Belcher Road - 42,700 ADT; Bryan Dairy Road - 27,900 ADT

The Pinellas Plant utilizes the services of several waste transport firms for transport and disposal of its hazardous waste. During 1993, nine off-site installations or transporter services were used. The plant transports hazardous waste off site approximately 10 to 20 times per year. On-site and off-site transportation of wastes and materials routinely occurs without incident at the Pinellas Plant (see Section 3.12, Accident Analysis).

Impacts of the Proposed Action on Transportation

The Proposed Action is decontamination and dismantlement of the Pinellas Plant in support of commercialization activities. The impacts of the cleanup activities included in the Proposed Action on transportation from the Pinellas Plant would result in a minimal increase in local traffic due to the transportation of materials off site. Additional materials that may be transported off site for disposal during cleanup would include: hazardous waste, low-level radioactive waste, low-level radioactive asbestos, and nonradioactive asbestos. The increase in traffic activity from the Pinellas Plant due to this activity would be approximately one truck (i.e., one truckload of waste) per day (assuming a six-day work week), for all of the above-mentioned waste types, for a period of one year. However, the current estimated routine truck traffic into the Pinellas Plant for delivery of supplies and removal of waste is approximately 30 trips per day (Ref. 19). The impact of one additional truck to the overall traffic at the plant would be minimal.

Approximately 1 truck per week would be required for off-site transport of low-level radioactive waste. These wastes would be transported outside the State of Florida to an approved radioactive waste disposal facility. An additional 1 truck per week would have negligible impact on the region's roadways.

The impacts of the dismantlement activities associated with the Proposed Action include a substantial increase in local traffic due to the transportation of waste dismantlement materials off site. The additional traffic activity resulting from the dismantlement of Buildings 100, 200, and 800 would conservatively be 198 trucks per day (assuming a six-day work week) for a 6-month period. The number of truckloads is estimated based on 3.3 million cubic yards (equivalent to 3.3 billion pounds) of solid waste and 12 cubic yards per truck. The increased traffic activity of this alternative represents 0.5 percent and 0.7 percent of the design capacity for Belcher Road or Bryan Dairy Road, respectively.

The most pronounced impacts of dismantlement activities on transportation would be additional traffic disruption near the entrances to the plant site. Projected conditions along the segments of Belcher Road and Bryan Dairy Road near the plant would deteriorate from congested flow conditions, with serious deterioration of service from disruptions, to heavy congestion and severe deterioration of service from disruptions due to dismantlement activities. An increase in vehicular accidents in the vicinity of the site would likely occur as a result of these traffic conditions. However, the effects of the Proposed Action represent a negligible impact to Pinellas County as a whole.

The short-term impacts of the tenant activities included in the Proposed Action would not result in any additional effects on transportation. Traffic would be similar to existing conditions. Long-term impacts of tenant activities would include the impacts associated with cleanup activities as discussed above.

Impacts of Alternative 1 on Transportation

The impacts of Alternative 1, cleanup of the Pinellas Plant, on transportation would be the same as the impacts of the cleanup activities included in the Proposed Action. Therefore, Alternative 1 would have a negligible effect on traffic on either Belcher Road or Bryan Dairy Road. In any event, these impacts would be less than those associated with the construction activities for the Pinellas Plant Alternative in the Nonnuclear Consolidation EA (Ref. 19). These stated impacts are an increase by approximately 13 truck trips per day relative to historical levels. After cleanup is completed, the long-term impacts of Alternative 1 would be dependent on the operations and number of employees of the new business brought on the site by the PCIC.

Impacts of Alternative 2 on Transportation

Alternative 2 is cleanup of the Pinellas Plant and dismantlement of Buildings 100, 200, and 800. The impacts of Alternative 2 on transportation would be the same as the impacts described for dismantlement activities associated with the Proposed Action. These impacts include increases in traffic congestion near the plant and the potential for more frequent accidents in the vicinity of the plant. Impacts to Pinellas County as a whole would be negligible.

Impacts of Alternative 3 on Transportation

Alternative 3 is identification of contractors to share in cleanup at the Pinellas Plant. There are no short-term impacts from Alternative 3 on transportation because this alternative would maintain traffic levels comparable to the current traffic levels at Pinellas Plant. The exact nature and impact of vehicular activity related to the Pinellas Plant would be dependent on the types of operations and numbers of employees of the tenants.

The long-term impacts of Alternative 3 on transportation from the Pinellas Plant would be similar to the initial impact of the Proposed Action (i.e., cleanup impacts) and would have a similar effect on local traffic. However, the daily traffic impact due to cleanup activities for this alternative would be reduced relative to the Proposed Action because the duration of the cleanup effort could be longer than one or two years (as in the Proposed Action), depending upon the cleanup schedule of the tenant (or the DOE if the tenant defaults on the obligation to clean the site). As a result, the number of additional truckloads of waste transported off site may be reduced to less than one per day.

Impacts of the No Action Alternative on Transportation

The impact of the No Action Alternative on transportation from the Pinellas Plant would be an immediate reduction in traffic to very low levels. There would be minimal waste and therefore minimal off-site waste transport. Vehicle traffic would be limited to that associated with maintenance, surveillance, security, and environmental restoration personnel.

3.9 Environmental Justice Affected Environment

The Pinellas Plant conducts operations in compliance with requirements for environmental justice and is committed to promoting nondiscrimination regarding its programs that impact the environmental and human health conditions in minority communities and low-income communities (Ref. 24). The Pinellas Plant is not located in a minority community or low-income community. Therefore, plant activities that involve environmental releases do not impact such communities (see Human Health Effects, Section 3.11) There are no indications that activities at the Pinellas Plant disturb Native American resources or intrude on sacred locations (Ref. 19).

Impacts of the Proposed Action, Alternative 1, Alternative 2, Alternative 3, and the No Action Alternative on Environmental Justice

The Proposed Action, Alternative 1, Alternative 2, Alternative 3, and the No Action Alternative would have no impact on environmental justice. In any of the alternatives, proposed activities would not occur within minority communities,

low-income communities, or in the vicinity of Native American resources or cultural centers. Therefore, there would be no impacts on these resources.

3.10 Socioeconomics Affected Environment

Pinellas County and the Tampa Bay Area have experienced dramatic increases in population over the last 30 years. When the Pinellas Plant was originally built in 1956, the central area of Pinellas County was a lightly populated farming area. Today, light industry, office complexes, warehousing operations, and residential areas are located near the site. Based on the 1990 census, Pinellas County is the most densely populated county in the State of Florida; it has approximately 3,042 residents per square mile and an estimated population of 860,736. Surrounding counties, within a 50-mile radius of the plant, include Hernando, Hillsborough, Manatee, Pasco, and Sarasota. Pinellas County contains 33 percent of the entire Tampa Bay Area population. Population estimates for the major cities surrounding the site are as follows: St. Petersburg - 243,000; Clearwater - 100,943; Largo - 69,535; and Pinellas Park - 45,148 (Ref. 25). Area population projections to the year 2040 are provided in Table C-7 in Appendix C.

The majority of Pinellas Plant employees reside in Pinellas County (91 percent); approximately 4 percent live in Hillsborough County and 4 percent live in Pasco County, based on 1992 statistics. The remaining 1 percent live primarily in Manatee County. Within Pinellas County, 23 percent of plant employees live in Clearwater, 18 percent live in Largo, 10 percent live in Pinellas Park, 11 percent live in Seminole, and 30 percent live in St. Petersburg.

Currently, the Pinellas Plant employs approximately 715 Specialty Components employees and approximately 30 DOE employees. The average salary is $40,946.00 per year at the Pinellas Plant. Direct payroll from the plant is approximately $46,068,125.68, and the total annual regional impact from the plant is approximately $107.5 million. Changes in plant mission requirements have historically led to fluctuations in employment levels since the beginning of operations (the maximum employment was 1,946 in 1985).

The following discussion of impacts on socioeconomics assumes that these impacts correlate directly with loss or gain of jobs at the plant site. That is, increased employment would result in increased use of goods and services in the community. Decrease in employment would result in a corresponding decline in use of goods and services. Certain types of operations may require more goods and services from the community than others, but the basic assumption is that socioeconomic impacts relate primarily to employment. Although all job categories (i.e., service sector, manufacturing, managerial) do not have equal economic impact, it is currently not possible to estimate the numbers of these various types of jobs that may exist at the plant in the future. Impacts of the alternatives on Pinellas Plant property values are also described.

Impacts of the Proposed Action on Socioeconomics

The Proposed Action is decontamination and dismantlement of the Pinellas Plant in support of commercialization activities. The impacts of the Proposed Action on socioeconomics would occur in three phases: 1) a slight decrease in employment during cleanup activities, 2) a more substantial decrease in employment during dismantlement, depending on which structures are dismantled, and 3) a gradual increase in employment to levels comparable to historical use due occupancy of the site by the PCIC tenants. Accelerated cleanup at the Pinellas Plant would require that nearly all existing operations conducted by the DOE be terminated (except for environmental restoration). The primary focus of the DOE effort would be on cleanup. This shift in operations would likely result in the loss of up to 265 jobs. During cleanup activities, employment at the plant would likely stabilize in the range of 350-450 employees.

During dismantlement activities, employment would not be expected to exceed 100-200 workers. This is a conservative estimate of job losses based on dismantlement of all buildings at the plant. All, or nearly all, of the Pinellas Plant work space would be eliminated or rendered unusable. Cleanup and dismantlement may require up to two years.

The impact of tenant activities included in the Proposed Action would depend on the number of employees needed to perform tenant operations. This number would not be expected to exceed 2,000 employees (the estimated existing plant capacity).

The long-term impacts of the Proposed Action on socioeconomics would depend on the ability of the PCIC to locate tenants at the site. It is currently not possible to estimate the number of employees at the site due to post-cleanup, new tenant operations. In any case, the impacts of job growth would probably not exceed those associated with the Pinellas Plant Alternative in the Nonnuclear Consolidation EA (Ref. 19). The primary socioeconomic impact at the Pinellas Plant described in that EA was creation of 3,500 jobs. The impact to the Proposed Action is the increase in property value due to property improvements.

Impacts of Alternative 1 on Socioeconomics

The impacts of Alternative 1, cleanup of the Pinellas Plant, on socioeconomics are the same as the impacts of the cleanup activities included in the Proposed Action. These impacts are stabilization of employment at the Pinellas Plant at 350-450 employees. As cleanup activities (and the associated jobs) begin to phase out, the jobs would likely be replaced when tenants would begin to occupy the cleaned areas.

After stewardship of the plant is transferred to the PCIC, there would be a gradual increase in employment at the Pinellas Plant as new tenants, their operations, and their employees are located at the site. Assuming that only existing structures are utilized, the plant capacity for employment is approximately 2,000 employees. Therefore, the long-term effects of the Proposed Action would be the potential for an increase of over 1,250 jobs from current levels. The Alternative 1 would have no impact on the value of plant property.

Impacts of Alternative 2 on Socioeconomics

Alternative 2 is cleanup of the Pinellas Plant and dismantlement of Buildings 100, 200, and 800. The impacts of Alternative 2 on socioeconomics would occur in two phases. These impacts would include an initial loss of jobs followed by gradual job growth. However, the initial job losses would be more severe and would be longer lasting than in Alternative 1. Cleanup would occur prior to dismantlement, and would require 350-450 employees. During dismantlement, employment would not be expected to exceed 100-200 workers.

Once the Pinellas Plant buildings are eliminated, the PCIC would decide the future use of the property. The property value would increase due to improvement from the removal of Buildings 100, 200, and 800. It is expected that it would continue to be zoned for commercial or industrial use. The impacts of construction and job growth would not exceed those associated with the Pinellas Plant Alternative in the Nonnuclear Consolidation EA (Ref. 19). These stated impacts are the creation of 3,500 jobs and utilization of 2,887,000 square feet of building space.

Impacts of Alternative 3 on Socioeconomics

The initial socioeconomic impacts of Alternative 3 would be similar to the Proposed Action and Alternative 1 because there would be some initial limited job losses. Closeout of the DOE activities at the plant, with no cleanup, would result in the loss of up to 265 jobs. However, many of these jobs would be replaced when the DOE and the PCIC bring a new tenant to the site.

The long-term impacts of this alternative would be comparable to the impacts of the Proposed Action in the EA for Commercialization of the Pinellas Plant (Ref. 21). These stated impacts would be the potential to retain up to 1,100 jobs at the plant. The corresponding benefit to the community would be $107.5 million in salary and related economic impact. Alternative 3 would have no impact on the value of plant property.

Impacts of the No Action Alternative on Socioeconomics

The impacts from the No Action Alternative would be the potential for retaining only 50-100 jobs at the Pinellas Plant. These jobs would be associated with surveillance, maintenance, and environmental restoration activities. There would be no opportunity for the PCIC to develop the plant for other potential employers, and there would be no resulting growth of jobs. The No Action Alternative would result in the immediate, and considerable, displacement of Pinellas Plant-related households, businesses, and support contractors. In addition, it would have the effect of stifling the potential for the economic growth of the community that would result from productive use of Pinellas Plant facilities. Implementation of this alternative would result in a decline in plant property value.

3.11 Human Health Effects Affected Environment

Pathways for potential exposure of workers or the public to toxic or carcinogenic substances due to operations at Pinellas Plant have been reviewed and evaluated. Two primary pathways for exposure due to routine operations exist: 1) dermal (skin) exposure to hazardous or radiological wastes and process materials (both liquid and solid) and 2) inhalation exposure to nonradiological and radiological airborne emissions. The sources and effects of airborne emissions and effluent discharges from the Pinellas Plant are discussed in Sections 3.2 and 3.3, respectfully, of this EA.

Protective industrial hygiene and materials management programs are in place at the plant to prevent dermal exposure to workers or the public due to contaminated materials. Water from processes containing hazardous chemicals is not discharged into surface water or groundwater. Prior to discharge, wastewater releases are sampled and analyzed to ensure that they are below PCSS permit limits. Programs involving protective equipment and controlled ventilation are also in place to substantially reduce the concentrations of indoor air emissions due to solvents and other toxic materials.

An active ALARA program for both indoor and environmental releases of radioactive materials is maintained at the Pinellas Plant. This program sets emission goals significantly lower than the amounts permitted by regulations. In 1994, the plant remained below all ALARA goals for radiological releases (Ref. 10). Due to health and safety programs and engineering controls, the dermal exposure pathway is not considered a realistic exposure pathway for either workers or the public. Therefore, the primary pathway to be considered for possible exposure to workers or the public is the air pathway (Ref. 19).

During preparation of the Nonnuclear Consolidation EA (Ref. 19), all possible nonradiological air pollutants at the Pinellas Plant were examined. The following chemicals were identified for further analysis based on their toxicity, concentration, and frequency of use: acetone, ammonia, methylene chloride, nickel chloride, trichloroethane, toluene, trichloroethene, methyl ethyl ketone, nitric acid, and isopropyl alcohol. The hazard index, a summation of the hazard quotients for all chemicals, was calculated for operations involving these chemicals. A hazard index value of 1.0 or less on an annualized basis means that no adverse human health effects are expected to occur. The existing hazard indices for the Pinellas Plant were 0.272 on site (effect on workers) and 0.02 at the site boundary (effect on the public) on an annualized basis (Ref. 19). These hazard indices indicate that the effects of the chemicals on workers and the public could not be distinguished from normal (i.e., not plant-related) exposure risks to individual workers or members of the public.

DOE 5400.5, Radiation Protection of the Public and the Environment, promulgates the DOE requirements for radiation protection of the public and the environment at the Pinellas Plant. The order sets a cumulative public dose limit for all DOE sources of radiation for all exposure pathways at 100 mrem/yr effective dose equivalent. The EPA 10 mrem/yr limit for atmospheric pathways (airborne emissions) is incorporated in the DOE requirements.

The CAP88-PC computer code is used to verify that actual annual emissions do not result in a dose to the public greater than the 10 mrem/yr standard. The potential dose to the most exposed individual of the public was determined using the CAP88-PC computer code and the actual 1994 emissions of tritium and krypton-85. The computer code assumes that the member of the public remains at the residential location closest to the plant continuously throughout the year and ingests locally grown foodstuffs. These assumptions are very conservative since Pinellas County is very urban and most foodstuffs are imported from outside the county. The results of the modeling are presented in Table 3-7 and show that plant emissions result in an estimated dose to the public that is less than 1 percent of the EPA and the DOE dose limits (Ref. 10).

Table 3-7. 1994 CAP88-PC Dose Calculations

Description	Location	Effective Dose Equivalent, (mrem/yr)	EPA and DOE Dose Limits (mrem/yr)

Apartment Bldg.	620 meters WSW of site	4.8 x 10-3	10.0
Apartment Bldg.	730 meters NNE of site	3.9 x 10-3	10.0
House with Pool	1,040 meters NW of site	3.9 x 10-3	10.0
Partnership School	130 meters E of site	3.3 x 10-3	10.0
Most Exposed Individual	450 meters W of site	5.6 x 10-3	10.0

As determined by the model, the theoretical most exposed individual is located 450 meters west of the Building 100 main stack; however, there are no full-time residents at this location (Ref. 10). Exposure to members of the public associated with radiological releases are well below applicable permit, regulatory, and the DOE operational requirements.

Based on the above modeling, the corresponding maximum individual effect is an estimated latent cancer fatalities probability of 1.53 x 10-7, which is approximately 10 percent of the EPA and the FDEP 1 x 10-6 acceptable risk threshold. This regulatory threshold was established as an acceptable probability threshold because the incidence of cancers cannot be distinguished from the normal cancer risk to an individual member of the general public (Ref. 26). The corresponding estimated number of fatal cancers to the collective population is 5.55 x 10-5 latent cancer fatalities per year. The estimated number of cancer fatalities to several target populations due to an accident is provided in Section 3.2.2 of this EA.

The community surrounding the Pinellas Plant is not classified as a minority community nor is the plant located near Native American communities or their lands. Regardless of the type of community adjacent to the plant, the Pinellas Plant does not produce adverse health effects to the surrounding community (as discussed above). Therefore, the Pinellas Plant also produces no adverse human health effects to a minority community or to Native Americans.

Impacts on Human Health Effects from the Proposed Action, Alternative 1, Alternative 2, Alternative 3, and the No Action Alternative

The Proposed Action, Alternative 1, Alternative 2, Alternative 3, and the No Action Alternative would have the same, or less, impact on human health effects as those impacts described above under Affected Environment. In any of the alternatives, the direct impacts of the DOE actions on human health would not be greater than those described above. The impacts of tenant activities cannot be estimated, but would be controlled to negligible levels through compliance with air emissions permits and appropriate regulatory limits.

The impacts described above have no adverse effects on human health. The potential for adverse health effects from all of the alternatives may actually be reduced in the long term from existing levels because all alternatives involve either an eventual decrease in operations that involve airborne emissions or they result in a reduction of air emission sources (i.e., radiological stacks and roof penetrations would be closed or removed). Under any of the alternatives, protective industrial hygiene operational practices, management, and engineering controls would be conducted at the plant in compliance with applicable DOE, Federal, State, and local regulations for protection of human health (i.e., OSHA, RCRA, etc.).

The Pinellas Plant is not located near minority communities or Native American lands or cultural centers. Regardless of the type of community adjacent to the plant, the Proposed Action or the alternatives would not produce adverse human health effects to the surrounding community. Therefore, no adverse human health effects to a minority community or Native Americans would occur under any of the alternatives described in this document.

3.12 Accident Analysis Affected Environment

Incidents that may occur at the Pinellas Plant include two primary types: 1) incidents that could reasonably occur at similar industrial facilities (i.e., occupational incidents) that are addressed by OSHA requirements, and 2) relatively low-probability accident scenarios that are addressed by DOE Orders.

The Pinellas Plant proactively implements all of its work programs in compliance with the Occupational Safety and

Health Act of 1970. For all nonroutine projects, the existing operating contractor, Specialty Components, reviews the potential for OSHA-type accidents through preparation of Preliminary Change Decision Forms (PCDFs). Input to PCDFs is received from various organizations at the plant with expertise in the relevant fields. For example, the required safety procedures, personnel training, and subcontractor work plans necessary for the safe transition of various areas of the plant have been documented in PCDFs. For each project, a preliminary change matrix is completed that identifies hazards, problems, and inherent risk involved in performing the project. Contingency and preventive actions are incorporated into the preliminary change matrix. The preliminary change matrix includes evaluation of and assignment of a numerical grade to the risks associated with specific project activities. The grades assigned to most risks for the safe transition projects are low. However, certain activities, such as the task of moving heavy equipment (weighing several thousand pounds), are rated as higher risks. The preliminary change matrix contains recommendations for additional levels of safety oversight for such tasks, as necessary.

Operational readiness checks are performed for major projects. The operational readiness checks incorporate preventive change analyses, which are similar to a preliminary change matrix but incorporate more detailed analysis and evaluation.

In compliance with DOE 5500.1, Emergency Management System, and 5500.3, Planning and Preparedness for Operational Emergencies, the Pinellas Plant prepared emergency plans for plant facilities, including the Pinellas Plant Child Development/Partnership School and Deionized Water Facility, where accidents may impact nearby facilities. The emergency plans described in the site Emergency Management Program define the plant's emergency response capabilities and integrate the response plans for specific types of accidents, such as fire, medical, security, etc.

Two low-probability bounding accident scenarios have been analyzed that adequately characterize the risks associated with operations currently conducted at the Pinellas Plant. Risks associated with historical activities, such as use of the tritium loaders in Area 108, are no longer relevant because use of the loaders has been discontinued. The two accident scenarios are as follows: (1) a hydrochloric acid spill from a tanker truck at the Deionized Water Facility, and (2) a massive rupture of the liquid hydrogen tank. These accidents are representative of the spectrum of low-probability accidents that could occur at the Pinellas Plant. They are representative of the most severe accidents that involve transportation and explosive/flammable materials. The probability and consequence severity codes are obtained from DOE/AL 5481.1, Safety Analysis and Review System.

Hydrochloric Acid Spill at Deionized Water Facility

Several times a year, a 4,500 gallon tanker delivers a 20 percent solution of hydrochloric acid to the Deionized Water Facility. A large spill during the acid transfer process could lead to acid burns to workers outside plant buildings and in the immediate vicinity of the spill and generate vapor emissions in the immediate area.

The probability of this accident is low (less than 1 X 10-4 events/year), with a critical consequence (severe occupational illness or severe injury to personnel) (Ref. 27). The consequences of this event to the environment would be negligible because the spill would occur on an impervious surface (i.e., pavement) and would not be released into the environment. The impacts of this event at the Pinellas Plant Child Development Center/Partnership School would be negligible, with a most conservative estimated concentration of hydrochloric acid at the school at 4.5 ppm, which is below the National Institute of Safety and Health (NIOSH) threshold limit value of 5.0 ppm and therefore would not exceed accepted regulatory standards (Ref. 27). There would be no adverse impacts to human health at the school.

Rupture of Liquid Hydrogen Tank

A 9,000-gallon liquid hydrogen tank is located in the north section of the Pinellas Plant Site. Structural failure of the tank could result from an overpressure condition, ignition of a combustible mixture within the tank, or a structural flaw within the tank itself. An accident involving the tank contents, due to structural failure, could produce an explosion and/or pressure wave that could injure or cause death to personnel in the vicinity of the tank. The effects of the rupture would diminish at the site boundary such that off-site consequences would be negligible. A rupture is extremely unlikely because the tank is new (installed in 1993) and has all the necessary safety features, such as relief valves and rupture disks, to prevent overpressurization.

Due to the location of the hydrogen tank system (801 feet from the school fence line) and the radius of effects of the accident characterized at 693 feet, the impact on the Pinellas Plant Child Development Center/Partnership School due to a tank rupture would be negligible (Ref. 21). The probability of this accident is low (less than 1 x 10-4 events/year).

Impacts of the Proposed Action on Accident Analysis

The Proposed Action is decontamination and dismantlement of the Pinellas Plant in support of commercialization activities. Impacts of the Proposed Action on accident analysis at the Pinellas Plant would be an initial increase in the potential for OSHA-type industrial hazards and accidents and a long-term decrease in the potential for low-probability accident scenarios. Cleanup activities included in the Proposed Action, such as decontamination, equipment removal, and stack removal, would result in a slight increase in the potential for occupational incidents. Most types of accidents associated with cleanup would be assigned a low risk. Such accidents may include the following: potential minor exposure to tritium or low-level radioactive waste, explosions associated with capping hydrogen or natural gas lines, contact of employees with liquid nitrogen, exposure to asbestos, exposure to waste chemicals, and injury related to high pressure equipment. Accidents that may be assigned higher risks include the following: personnel injury due to lifting or moving heavy equipment, injury due to contact with high voltage, and injury due to improper handling of equipment such as vacuum systems.

Proactive industrial hygiene and operational safety programs would be conducted at the plant throughout the cleanup period and after. A PCDF would be completed for all nonroutine projects. The PCDFs would include recommendations, such as additional oversight and training, to prevent or mitigate any accidents. For major projects, such as stack removal, preliminary change analyses would be performed to develop detailed accident prevention and mitigation strategies. Cleanup projects would be developed with safety as a major component. For example, ducting would be separated into pieces, characterized, and crushed for disposal. Likewise, the tritium recovery system and stack emissions control system would be purged to the sieve beds (designed for safe tritium storage) and the piping would be isolated and cut into pieces for disposal.

The dismantlement activities associated with the Proposed Action would involve increased risks of accidents. Because of the increased activity due to building dismantlement operations, and the inherent increased risk associated with these operations, an initial period increased risks would occur. Accidents involving heavy equipment and falling debris would be associated with higher risks, relative to the cleanup activities. However, the duration of dismantlement activities would only be approximately 6 months. Concerns about this increased risk would be addressed by additional safety oversight of these operations. Dismantlement would be managed by PCIC who is required to comply with OSHA regulations.

Risks associated with the operations performed by a tenant would depend on the nature of those operations. Such operations would be conducted in compliance with OSHA. After the aggressive cleanup and dismantlement period, the potential for occupational incidents would then decrease to current levels. Long-term occupational risks would depend on the types of activities conducted by tenants.

The likelihood of low-probability accident scenarios may decrease due to the Proposed Action. Specifically, the Deionized Water Facility is not planned for use after cleanup, and shipments of hydrochloric acid would probably cease. As a result, the risk associated with this operation would decrease to near zero. The estimated maximum of 10 grams of tritium held within the equipment and exhaust systems at the plant would never be at a high enough temperature to release quantities of tritium that would be of concern. Therefore, tritium exposures would not pose a credible risk to plant workers or the public. The potential for tritium exposure would only remain at current levels if a tenant were to occupy the radiological areas and use these areas prior to complete cleanup. Hydrogen may be used at the plant in the future, and the risk associated with the hydrogen tank would be comparable to the existing risk.

During all of the activities included in the Proposed Action (or the other alternatives), there would be no adverse impacts to the Child Development Center/Partnership School because the school is separated from the remainder of the plant. The school would not be involved in any planned cleanup or dismantlement activities. Accidents associated with the Proposed Action or alternatives would not occur at the school or on school grounds.

Impacts of Alternative 1 on Accident Analysis

Impacts of Alternative 1, cleanup of the Pinellas Plant, on accident analysis at the Pinellas Plant would include all of the impacts of the cleanup activities included in the Proposed Action. These impacts are minor increases in the potential for occupational incidents at the plant relative to current plant activities. The increased impacts would cease when the cleanup is completed. In this alternative, the potential for low-probability accident scenarios would decrease relative to historical plant activities.

Impacts of Alternative 2 on Accident Analysis

Alternative 2 is cleanup of the Pinellas Plant and dismantlement of Buildings 100, 200, and 800. The impacts of Alternative 2 on accident analysis would be the same as the impacts of the dismantlement activities included in the Proposed Action. These impacts include increases in the potential for occupational incidents, especially those associated with unstable structures and falling debris. These incidents would be prevented or mitigated by implementation of safety oversight, as necessary. The increased impacts would cease when the dismantlement activities are completed. In this alternative, the potential for low-probability accident scenarios would decrease relative to historical plant activities.

Impacts of Alternative 3 on Accident Analysis

Alternative 3 is identification of contractors to share in cleanup at the Pinellas Plant. Risks associated with the operations performed by the tenants would depend on the nature of those operations. The tenant would be required by law to perform its operations in compliance with OSHA. There is the potential that hydrogen operations and tritium operations could continue as ongoing operations performed by one or more tenants. In any case, the impacts of Alternative 2 on accident analysis would be less than those described for the Pinellas Plant Alternative in the Nonnuclear Consolidation EA (Ref. 19). These stated impacts would be no change in the accident profile at the Pinellas Plant resulting from consolidation of certain nonnuclear operations from other sites.

Long-term impacts of Alternative 3 on accidents at the Pinellas Plant would result in the same overall impacts as those due to the cleanup activities included in the Proposed Action. However, the initial period of increased risk of operational incidents may be longer in duration for Alternative 3 because the duration of time for completion of the cleanup activities could be longer.

Impacts of the No Action Alternative on Accident Analysis

Impacts of the No Action Alternative on accident analysis at the Pinellas Plant would result in a decrease in the potential for both occupational incidents and low-probability accident scenarios. The decrease would be due to shutdown of nearly all plant activities associated with occupational and low-probability accident risks. A long-term gradual increase in risks due to operational incidents would occur as the facility ages. As the facility deteriorates, the likelihood of mechanical failures, and their potential to cause accidents, would increase to levels greater than the existing risk.

3.13 Cumulative Impacts of the Proposed Action and the Alternatives

The cumulative impacts of the Proposed Action and alternatives described in this EA have been reviewed and evaluated. The interrelated actions being performed by the agency (i.e., the DOE) in the area of the Pinellas Plant have been described in this EA. Future direct or indirect DOE actions at the plant involve the three following types of actions: 1) decontamination and dismantlement activities as evaluated in this EA, 2) environmental restoration activities, and 3) operations conducted by tenants brought on site by the PCIC. For the most part, these types of activities are performed independently and do not result in impacts to common resources. Therefore, the cumulative impacts (i.e., those impacts resulting from interrelated DOE actions) of the Proposed Action and alternatives would be negligible. Examples of these negligible impacts to shared resources are described below.

Decontamination and dismantlement activities, environmental restoration activities, and tenant activities at the Pinellas Plant would all have impacts on air emissions, liquid effluents, waste generation, and traffic. Tenant activities at the

Pinellas Plant, such as those activities currently conducted in Buildings 400 and 1200, contribute a very minor relative percentage of the total plant impacts on these resources. Environmental restoration activities annually produce approximately 86,000 pounds of hazardous and solid waste, 9,000,000 gallons of liquid effluent (discharged to the IWNF), and 880 pounds of airborne emissions of methylene chloride, dichloroethene and other VOC/OC. These impacts of Pinellas Plant environmental restoration activities are described in the Affected Environment sections of this EA. Therefore, this EA considers the cumulative impacts of other DOE actions in its evaluation of the Proposed Action and the alternatives. The primary impacts on the environment as a result of the Proposed Action and alternatives are summarized below.

Cleanup activities associated with Proposed Action would result in temporary increases in water usage, liquid effluents, air emissions generation and disposal of waste, and traffic associated with waste disposal. Dismantlement activities included in the Proposed Action would result in temporary additional increases in water usage, (air emissions) generation and disposal of waste, production of recyclable materials, and traffic associated with waste disposal. Tenant activities associated with Proposed Action would result in additional increases in employee vehicular traffic into and out of the plant, but are dependent on the specific types of tenant operations brought to the site. However, these cumulative impacts of the environment would remain within the constraints of the plants Air Emissions Operating Permit, the Industrial Users Wastewater Discharge Permit, the Hazardous and Solid Waste Amendment Permit as well as all applicable Federal, State and local regulations, as these requirements pertain to the DOE and its contractors.

The impacts of Alternative 1 on the environment are essentially the same as the impacts of the cleanup activities included in Proposed Action. The impacts of Alternative 2 on the environment are the same as the impacts of the dismantlement activities included in Proposed Action. The impacts of Alternative 3 on the environment are the same as the impacts of the tenant activities included in Proposed Action. The No Action Alternative would have less impact on the environment than existing operations.

4.0 AGENCIES, ORGANIZATIONS, AND PERSONS CONSULTED

The Federal, State, and local agencies and other private organizations that were contacted during the preparation of this EA, or documents referenced in this EA, are listed below:

Jerry Greeby
Asbestos Consultant
Law Engineering
Tampa, Florida
Regarding: Handling and disposal of asbestos during demolition activities.

Mike Stewart
Southern Waste Services, Inc.
Pinellas Park, Florida
Regarding: Transportation and disposal costs for hazardous waste.

Receptionist (not identified)
Pinellas County Landfill
St. Petersburg, Florida
Regarding: Disposal costs for solid waste.

5.0 REFERENCES

1. United States. Department of Energy. Letter from Sarah Hartson to Charles Biedermann of Martin Marietta Specialty Components, Inc. January 5, 1995.
2. United States Fish and Wildlife Service. National Wetland Inventory Maps for Clearwater, Safety Harbor, Saint Petersburg, and Seminole, Florida. 7.5 Minute quadrangles, based on aerial photographs taken in December 1982.

3. United States. Department of Energy. Environmental Assessment for the Operation of the Pinellas Plant Child Development Center/Partnership School. DOE/EA-0642. Pinellas Area Office, Largo, Florida: 1990.
4. Martin Marietta Specialty Components. Annual Site Environmental Report for CY1992. MMSC-ESH-93035. Pinellas Plant, Largo, Florida: 1993.
5. United States. Department of Energy. RCRA Facility Investigation Report Pinellas Plant. Vol. 1 - Text. Environmental Restoration, Albuquerque Operations Office. Albuquerque, New Mexico: 1991.
6. United States. Department of Energy. Air Permit Study: Refined Industrial Source Complex Short Term (ISCST) and Carcinogenic Risk Assessment Modeling Report. Pinellas Plant, Largo, Florida: 1992.
7. Florida Department of Environmental Protection. Florida Air Toxics Permitting Strategy. Draft: 1993.
8. Telephone conversation with Mr. Alain Watson, Pinellas County Air Quality Division, February 28, 1994 and April 5, 1994. Emissions estimates calculations were made using the 1990 Pinellas County Mobile Source Emissions Inventory and Mobile 5A emissions factors. Rule citation: Title 40, Code of Federal Regulations, Part 51, Subpart W, Determining Conformity of General Federal Actions to State or Federal Implementation Plans, November 30, 1993.
9. Martin Marietta Specialty Components. Annual Site Environmental Report for CY1993. MMSC-EM-94146. Pinellas Plant, Largo, Florida: 1994.
10. Lockheed Martin Specialty Components. Annual Site Environmental Report for CY1994. MMSC-EM-95011. Pinellas Plant, Largo, Florida: 1995.
11. United States. Environmental Protection Agency. User's Guide for CAP88-PC, Version 1.1. 402-B-92-001. 1992.
12. General Electric Neutron Devices. Department, Environmental Health and Safety. Safety Assessment, Pinellas Plant Child Development Center/Partnership School. GEPP-EV-1092. UC-707. Pinellas Plant, Largo, Florida: 1990.
13. Martin Marietta Specialty Components, Inc. Department, Environmental, Safety and Health. Safety Assessment of Area 108, Tube Exhaust. MMSC-SA-93076. Pinellas Plant, Largo, Florida: 1994.
14. Martin Marietta Specialty Components, Inc. Pinellas Plant Decontamination and Decommissioning (D&D) Summary Site Plan MMSC-EM-94105 (DRAFT), Pinellas Plant, Largo, Florida, March: 1994.
15. United States. Department of Energy. Radiation Protection of the Public and the Environment. DOE Order 5400.5.
16. Lockheed Martin Specialty Components. Radionuclide Air Emissions Annual Report for Calendar Year 1994. MMSC-EM-95040. Pinellas Plant, Largo, Florida: 1995.
17. Pinellas County Sewer System. Pinellas County Florida. Industrial Wastewater Discharge Permit (#153-IE) (U.S. Department of Energy Pinellas Plant. Pinellas Plant, Largo, Florida: 1994.
18. United Sates. Environmental Protection Agency. "Metal Finishing Point Source Category." Title 40 Code of Federal Regulations, Part 433.
19. United States. Department of Energy. Office of Defense Programs. Nonnuclear Consolidation Environmental Assessment. Volumes I and II. DOE/EA-0792. 1993.
20. Florida Administrative Code 10D-91.418, "Control of Radiation Hazard Regulations."
21. United States. Department of Energy. Environmental Assessment for Commercialization of the Pinellas Plant. DOE/EA-0950. Pinellas Area Office, Largo, Florida: 1994.
22. United States. Environmental Protection Agency. "Environmental Protection Agency Regulations for Identifying Hazardous Waste." Title 40, Code of Federal Regulations, Part 261.
23. Pinellas County Department of Environmental Management. Pinellas County Noise Ordinance No. 74-11. 1974.
24. United States. Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations. Title 3 - The President. Executive Order 12898 of February 11, 1994.
25. United States. Department of Energy. Pinellas Plant Community Reuse Organization. Economic Development Partnership Program Plan. Pinellas Plant, Largo, Florida: 1994.
26. Florida Department of Environmental Regulation. Personal Communication with Mr. Chris Teaf, Hazardous Substance and Waste Management Research, Inc. (HSWMR), Inc., regarding allowable cancer risk levels. 1992.
27. Martin Marietta Specialty Components, Inc. Safety Assessment - Deionized Water Facility. MMSC-EV-1260. Pinellas Plant, Largo, Florida: 1993.

6.0 LIST OF ACRONYMS AND ABBREVIATION

ADVMT: Average Daily Vehicle Miles Traveled

ALARA: As Low As Reasonably Achievable

BOD: Biochemical Oxygen Demand

CAA: Clean Air Act

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act

CFR: Code of Federal Regulations

CWA: Clean Water Act

DOE: United States Department of Energy

EA: Environmental Assessment

EPA: United States Environmental Protection Agency

FAC: Florida Administrative Code

FDEP: Florida Department of Environmental Protection

FONSI: Finding of No Significant Impact

HRS: Florida Department of Health and Rehabilitative Services

HSWA: Hazardous and Solid Waste Amendments of 1984

ID: Identification

IWNF: Industrial Wastewater Neutralization Facility

LLW: Low Level Radioactive Waste

NAAQS: National Ambient Air Quality Standards

NEPA: National Environmental Policy Act

NESHAPS: National Emissions Standards for Hazardous Air Pollutants

NIOSH: National Institute for Safety and Health

NRC: Nuclear Regulatory Commission

NTL: No-Threat-Level

OC: Organic Compound

OSHA: Occupational Safety and Health Act

PCDF: Preliminary Change Decision Forms

PCIC: Pinellas County Industry Council

PCSS: Pinellas County Sewer System

RCRA: Resource Conservation and Recovery Act

SIP: State Implementation Plan

SWFWMD: Southwest Florida Water Management District

SWMU: Solid Waste Management Unit

TSS: Total Suspended Solids

TTO: Total Toxic Organics

TPY: Tons Per Year

USFWS: U.S. Fish and Wildlife Service

VOC: Volatile Organic Compound

7.0 GLOSSARY

Aquifer: A saturated geologic unit through which significant quantities of water can migrate under natural hydraulic gradients.

Attainment Area: An area considered to have air quality as good as, or better than, the national ambient air quality standards as defined in the CAA. An area may be an attainment area for one pollutant and a nonattainment area for others.

Average Daily Traffic: The total volume of traffic during a given time period, in a whole days greater than one day and less than one year, divided by the number of days in that time period.

Biochemical Oxygen Demand: The quantity of oxygen utilized in the biochemical oxidation of organic matter.

Categorical Discharge Standard: A list of limits for a particular constituent in wastewater that is associated with a specific type (category) of industrial process or activity. The EPA defines these limits. The limits are associated with compliance with 40 CFR Part 403, General Pretreatment Regulations for Existing and New Sources of Pollution.

Clean Air Act: Federal law mandating and enforcing air pollutant emissions standards for stationary sources and motor vehicles.

Code of Federal Regulations: All federal regulations in force are published in codified form in the Code of Federal Regulations.

Comprehensive Environmental Response, Compensation, and Liability Act: A statutory framework for remediation of past contamination from hazardous waste.

Curie: The official unit of radioactivity, defined as exactly 3.70 x 1010 disintegrating atoms per second. This decay rate is nearly equivalent to that exhibited by one gram of radium in equilibrium with its disintegration products.

Decontamination: The removal of radioactive or chemical contamination from facilities, equipment, or soils by washing, heating, chemical or electrochemical action, mechanical cleaning, or other techniques.

Engineering Controls: Designed systems or modifications that are made to equipment, utilities, or ergonomic features within a workplace that promote the safe use of such equipment, or reduce the possibility that an accident will occur

involving the equipment.

Environmental Assessment: A written environmental analysis which is prepared pursuant to the National Environmental Policy Act (NEPA) to determine whether a federal action would significantly affect the environment and thus require preparation of a more detailed Environmental Impact Statement (EIS). If the action does not significantly affect the environment, then a finding of no significant impact (FONSI) is prepared.

Finding of No Significant Impact: A document by a federal agency briefly presenting the reasons why an action, not otherwise excluded, will not have a significant effect on the human environment and will not require an EIS.

Hazardous Material: A substance or material, including a hazardous substance, which poses a risk to health, safety, and property when transported or handled.

Hazardous/toxic waste: Any solid waste (can also be semisolid or liquid, or contain gaseous material) having the characteristics of ignitability, corrosivity, toxicity, or reactivity, defined by the Resource Conservation and Recovery Act (RCRA) and identified or listed in 40 CFR 261 or by the Toxic Substances Control Act (TSCA).

Krypton-85: A radioactive isotope of the element krypton, which is typically a gaseous element with an atomic mass number of 84. The radioactive isotope, krypton-85, contains an additional neutron.

Level of Service: A qualitative measure describing operating conditions within a traffic stream as perceived by motorists and/or passengers.

Low Level Radioactive Waste: Waste that contains radioactivity, but is not classified as high-level waste, transuranic waste, spent nuclear fuel, or "11e(2) by-product material" as defined by DOE 5820.2. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium, may be classified as low-level waste, provided the concentration of transuranic waste is less than 100 nCi/g. Some LLW is considered classified because of the nature of the generating process and/or constituents, as the waste would tell too much about the process.

Millirem: A unit used to represent the radiation dose for biological absorption. It is one-thousandth of a rem (see rem in this glossary).

National Ambient Air Quality Standards: Air quality standards established by the Clean Air Act. The primary NAAQS are intended to protect the public health with an adequate margin of safety, and the secondary NAAQS are intended to protect the public welfare from any known or anticipated adverse effects of a pollutant.

National Emission Standards for Hazardous Air Pollutants: A set of national emission standards for listed hazardous pollutants emitted from specific classes or categories of new and existing sources. These were introduced in the Clear Air Act Amendments of 1977.

Nonattainment Area: An air quality control region (or portion thereof) in which the U.S. Environmental Protection Agency has determined that ambient air concentrations exceeded national ambient air quality standards for one or more criteria pollutants.

Nonnuclear Production: Production operations for components of nonnuclear weapons that are not fabricated from plutonium, uranium, or other special nuclear materials. Raw material stock may include tritium.

Ozone (O3): The triatomic form of oxygen; in the stratosphere, ozone protects the earth from the sun's ultraviolet rays, but in lower levels of the atmosphere, ozone is considered an air pollutant.

pH: A measure of the hydrogen ion concentration in an aqueous solution; specifically, the negative logarithm of the hydrogen ion concentration. Acidic solutions have a pH from 0 to 7; basic solutions have a pH greater than 7.

Peak Hour Volume: The maximum volume of vehicles in an hour-long period passing a point during a given day,

often estimated to be 10 percent of the total average daily traffic.

picocuries (pCi): One picocurie is equal to 1 x 10-12 curies.

Plume: The elongated pattern of contaminated air or water originating at a point-source, such as a smokestack or a hazardous waste disposal site.

Radioisotopes/Radionuclide: A radioactive element characterized according to its atomic mass and atomic number that can be man-made or naturally occurring. Radioisotopes can have a long life as soil or water pollutants and are believed to have potentially mutagenic effects on the human body.

Rem: The unit of radiation dose for biological absorption, equal to the product of the absorbed dose in rads, a quality factor, and a distribution factor.

Resource Conservation Recovery Act: A cradle to grave regulatory program for hazardous waste that established, among other things, a system for managing hazardous waste from its generation to its ultimate disposal. The Resource Conservation Recovery Act was amended in 1984 by the Hazardous and Solid Waste Amendments

Risk: A term used to identify the combination of the likelihood (probability) and the consequence (severity) of an accident. Risk is typically quantified into the categories of low, medium, and high.

Scientific Notation: A form of numerical notation used to describe extremely high or extremely low values in a systematic manner. Scientific notation is written as the product of a factorial of ten and a base numerical value. For example, 5,000 is written as 5 x 104, while 0.005 is written as 5 x 10-3.

Solid Waste Management Unit: Any unit which has been used for the treatment, storage, or disposal of solid waste at any time, regardless whether the unit is, or ever was, intended for the management of solid waste.

Surplus: Any equipment, facility, building, or site that has no identified or planned programmatic use as determined by the program secretarial office currently administering the program.

Total Suspended Solids: Total concentration of the tiny particles of solids disbursed, but undissolved in the liquid effluent that is removable by laboratory filtration.

Total Toxic Organics: Combined total of the concentrations of the organic compounds that have been detected above detection limits in a given sample of wastewater.

Tritium: A radioactive isotope of the element hydrogen with two neutrons and one proton. Common symbols for the isotope are H3 and T.

Uranium: A heavy (atomic mass = 238.03) silvery-white metal with 14 radioactive isotopes. Uranium-235 is most commonly used as a fuel for nuclear fission. Another isotope, uranium-238, is transformed into fissionable plutonium-239 following its capture of a neutron in a nuclear reactor.

Volatile Organic Compounds: A broad range of organic compounds, often halogenated, that vaporize at ambient or relatively low temperatures, such as benzene, chloroform, and methyl alcohol.

Table B-1. 1990 Base Year Pinellas County Transportation Data and Mobile Source Emissions Factors

Average Daily Vehicle Miles Traveled urban and rural Pinellas county Total (ADVMT) (miles)1,2	15,437,475
Pinellas County On Road emissions VOC for all vehicle classes (lbs/day)3	152,693
1990 Base Year Mobile 5A Emissions Factors at 18.9 mph avg speed for LTGV1 vehicle class (grams VOC/mile)4	4.01

Estimated Average Pinellas Plant commute length roundtrip (miles)	30
Estimated Pinellas Plant Commuting vehicle population	1,100
Estimated Pinellas Plant Commute Days/year for full commuting population	250
Estimated mobile source (indirect) Emissions (tons/year)	36.4

1-4 Source: Pinellas County Air Quality Division, 1990 Base Year Emissions Factors and Emissions Inventory, April, 1994.

Table C-1. Estimated Hourly Traffic Volumes and Traffic Noise Levels Along the Access Routes to Pinellas

Routes	Peak Hour Traffic Volume (veh/hr)		Noise Level in Leq (1-hr) (dBA)a	
	Baseline	Relocate to Pinellas	Baseline	Relocate to Pinellas
Construction				
Belcher Road	3,483	3,506	76	76
Bryan Dairy Road	3,557	3,678	76	76
Operation				
Belcher Road	4,191	4,295	76	77
Bryan Dairy Road	4,280	4,780	77	77

a Leq (1-hr) is the hourly Leq in dBA, and is predicted for a receptor located 50 feet from the center line of nearest lanes.

Table C-2. Contribution to Air Quality from the Pinellas Consolidation Alternative and Concentrations with Comparisons to Applicable Regulations and Guidelines

Pollutant	Averaging Time	Most Stringent Regulation or Guideline (mg/m3)	Baseline Concentration (mg/m3)f	Proposed Action Concentration (mg/m3)	Total Concentration (mg/m3)
Carbon Monoxide	8-hour 1-hour	1,000b 40,000b	8,016 13,742	5.1 11.3	8,021.1 13,753.3
Lead (Pb)	Calendar Quarter	1.5c	e	g	e
Nitrogen Dioxide (NO2)	Annual	100b	e	0.4	[3]0.4
Ozone (O3)	1-hour	235b	243.4	g	243.4
Particulate Matter (PM10)	Annual 24-Hour	50b 150b	e e	0.02 0.3	[3]0.02 [3]0.3
Sulfur Dioxide (SO2)	Annual 24-hour 3-hour	60c 260c 1,300b	23 133 526	0.0009 0.01 0.04	23 133 526
Hazardous Air Pollutants and Other Toxic Compounds a					
1,1,1-Trichloroethane	24-hour 8-hour	9,168c 38,200c	[3]26 [3]40	0.4 1.1	[3]26.4 [3]41.1
1,4-Dioxane	24-hour 8-hour	216c 900c	[3]16 [3]30	1.2 3.2	[3]17.2 [3]3.2

Acetic Acid	24-hour 8-hour	60c 250c	[3]12.2 [3]21.4	0.8 2.1	[3]13.0 [3]23.5
Acetone	24-hour 8-hour	8,544c 35,600c	[3]194.7 [3]340.8	12.4 34.2	[3]207.1 [3]375.0
Chlorodifluoroethane	Annual 24-hour 8-hour	d d d	e e e	0.1 0.8 2.1	[3]0.1 [3]0.8 [3]2.1
Chlorodifluoromethane	24-hour 8-hour	16,992c 70,800c	[3]12 [3]21	0.4 1.1	[3]12.4 [3]22.1
D'Limonene	Annual 24-hour 8-hour	d d d	e e e	0.3 3.1 8.6	[3]0.3 [3]3.1 8.6
Dichlorodifluoromethane	Annual 24-hour 8-hour	200c 23,760c 99,000c	[3]2.4 [3]9.8 [3]16.8	0.04 0.4 1.1	[3]2.4 [3]10.2 [3]17.9
Dimethyl Formamide	Annual 24-hour 8-hour	30c 72c 300c	[3]0 [3]0.01 [3]0.01	0.04 0.4 1.1	[3]0.04 [3]0.4 [3]1.1
Ethyl Alcohol	24-hour 8-hour	9,024c 37,600c	[3]1.2 [3]2.1	0.4 1.1	[3]1.6 [3]3.2
Ethyl Benzene	Annual 24-hour 8-hour	1,000c 1,041.6c 4,340c	e e e	0.1 0.8 2.1	[3]0.1 [3]0.8 [3]2.1
Fluoboric Acid	Annual 24-hour 8-hour	d d d	e e e	0.1 0.8 2.1	[3]0.1 [3]0.8 [3]2.1
Fluorine End-Capped Homopolymers	Annual 24-hour 8-hour	d d d	e e e	0.6 6.6 18.2	[3]0.6 [3]6.6 [3]18.2
Fluoroaliphatic Polymeric Esters	Annual 24-hour 8-hour	d d d	e e e	0.04 0.4 1.1	[3]0.04 [3]1.4 [3]1.1
Fluorobenzene	Annual 24-hour 8-hour	d d d	e e e	0.4 4.7 12.8	[3]0.4 [3]4.7 [3]12.8
Fluorotelomer	Annual 24-hour 8-hour	d d d	e e e	0.04 0.4 1.1	[3]0.04 0.4 1.1
Glycol Ethers	24-hour 8-hour	42.2c 180c	0.02 0.03	43.9 120.7	[3]43.9 [3]120.7
Hexane	24-hour 8-hour	422.4c 1,760c	[3]0.6 [3]1.1	1.2 3.2	[3]1.8 [3]4.3
Hydrochloric Acid	Annual 24-hour 8-hour	7c 18c 75c	[3]1.1 [3]5.0 [3]11.0	0.5 5.1 13.9	[3]1.6 [3]10.0 [3]24.9
Isopropyl Alcohol	24-hour 8-hour	2,359.2c 9,830c	[3]49.0 85.7	26.8 73.7	[3]15.8 [3]159.4
Lead Compound	Annual	0.09c	[3]0.01	g	[3]0.01

	24-hour 8-hour	0.12c 0.5c	[3]0.07 [3]0.10	g g	[3]0.1 [3]0.1
Methyl Alcohol	24-hour 8-hour	628.8c 2,620c	[3]40.4 [3]70.7	0.4 1.1	[3]40.8 [3]71.8
Methyl Ethyl Ketone	Annual 24-hour 8-hour	80c 1,416c 5,900c	[3]0.3 [3]1.07 [3]1.9	0.1 1.2 3.2	[3]0.4 [3]2.2 [3]5.1
Methyl Isobutyl Ketone	24-hour 8-hour	492c 2,050c	e e	2.3 6.4	[3]2.3 [3]6.4
Methylene Chloride	Annual 24-hour 8-hour	2.1c 417.6c 1,740c	[3]2.0 [3]30.0 [3]60.0	0.04 0.4 1.1	[3]2.0 [3]30.4 [3]61.1
Naptha/Mineral Spirits	Annual 24-hour 8-hour	d d d	[3]0.8 [3]3.2 [3]5.7	0.7 7.0 19.3	[3]1.5 [3]10.2 [3]15.0
Nickel Chloride	24-hour 8-hour	0.24c 1c	[3]0.1 [3]0.3	g g	[3]0.1 [3]0.3
Nitric Acid	24-hour 8-hour	12.48c 52c	[3]3.0 [3]5.0	14.8 40.6	[3]17.8 [3]45.6
Phosphoric Acid	24-hour 8-hour	2.4c 10c	[3]0.9 [3]2.5	1.2 3.2	[3]2.1 [3]5.7
Sulfuric Acid	Annual 24-hour 8-hour	d d d	e e e	0.9 9.3 25.6	[3]0.9 [3]9.3 [3]25.6
Tetrachloroethylene	24-hour 8-hour	813.6c 3,390c	[3]0.3 [3]0.5	0.8 2.1	[3]1.1 [3]2.6
Toluene	Annual 24-hour 8-hour	2,000c 904.8c 3,770c	[3]6.6 [3]6.3 [3]6.0	0.6 6.6 18.2	[3]7.2 [3]32.9 [3]64.2
Trichloroethylene	24-hour 8-hour	645.6c 2,690c	[3]8 [3]14	7.4 20.3	[3]15.4 [3]34.3
Trichlorotrifluoroethane	24-hour 8-hour Annual	36,816c 153,400c 300c	e [3]642.7 [3]1,124.1	0.4 1.1 0.4	[3]0.4 [3]642.7 [3]1,124.1
Xylene	24-hour 8-hour	1,041.6c 4,340c	e e	4.3 11.8	[3]4.3 [3]11.8

a Compounds listed are the major pollutants of concern (See Ref. 1 for source)

b Federal standard (40 CFR 50)

c State standard (See Ref. 1 for source)

d No standard or guideline

e Data unavailable

f Baseline Concentrations are from Table 4.1.7.2-1 (See Ref. 1)

g Emissions of this pollutant would be less than 100 lb/yr (0.01 lb/hr) (See Ref. 1 for source)

Table C-3. Pinellas Alternative: Waste Management of Additional Hazardous/Toxic Wastes

Waste Stream	Disposal Method	Volume (ft3/yr)a Total
Acid Liquid, Bulk	Incineration/Recovery	460
Alkaline	Incineration/Recovery	1,000
Oil/Coolants	Incineration	2,210
Halogenated & Nonhalogenated Solvent	Incineration	1,600
Resin, Paint Curing Agent, Adhesive & Rubber	Incineration	1,510
Toluene Diisocyanate	Incineration	70
Cyanide, Liquid	Cyanide Destruction	40
Cyanide Salts	Recovery	10
Mercury Contaminated Debris	Landfilled	20
F006, F009 Sludge	Landfilled	4,200
Batteries (others)	Recovery/Landfilled	100
Classified Hazardous	Declassified/Landfilled	10
Acid/Chromate Contaminated Debris	Incineration	160
Cyanide/Alkaline Contaminated Debris	Incineration	100
Miscellaneous Lab Reagent/Off Spec. Product	Incineration/Landfilled	70
Non-Empty Aerosol Cans	Incineration	590
Solvent/Oil Contaminated Debris and Miscellaneous	Incineration	7,020
Compressed Gas Cylinders	Destruction/Incineration	30
Total		**19,200**

* Projected for 1995 workload

See Ref. 1 for source.

Table C-4. Pinellas Alternative: Additional Liquid Hazardous/Toxic Wastes (ft3/yr)

Waste Stream	Total
Acid Liquid, Bulk	460
Alkaline Liquid	1,000
Oil/Coolants	2,210
Halogenated & Nonhalogenated Solvent	1,600

Resin, Paint, Curing Agent, Adhesive & Rubber	1,510
Toluene diisocyanate	70
Cyanide, Liquid	40
Total	**6,890**

a Projected for 1995 workload

See Ref. 1 for source.

Table C-5. Pinellas Alternative: Additional Solid Hazardous/Toxic Wastes (ft3/yr)

Waste Stream	Total
Cyanide, Salts Mercury	10
Contaminated Debris	20
F006, F0019 Sludge	4,200
Batteries (others)	100
Classified Hazardous	10
Acid/Chromate Contaminated Debris	160
Cyanide/Alkaline Contaminated Debris	100
Misc. Lab Reagent/Off Spec. Product	70
Non-Empty Aerosol Cans	590
Solvent/Oil Contaminated Debris & Misc.	7,020
Compressed Gas Cylinders	30
Total	**12,310**

a Projected for 1995 workload.

See Ref. 1 for source.

Table C-6. Pinellas Plant: Radioactive Solid Waste Volumes

Tritium Waste Type	**1990 Actual Volume(ft3)**	**1991 Actual Volume(ft3)**	**1992 ActualVolume (ft3)**
Contaminated Equipment	700	665	640
Contaminated Dry Solids	3,900	1,758	787
Contaminated Product	330	298	242
LLW Total	**4,930**	**2,717**	**1,669**

See Ref. 1 for source.

Table C-7. Indicators of Regional Growth at Pinellas Plant, 1970-2040

Local Region-of-Influence	1970	1980	1990	2000	2020	2040
Civilian Labor Force	378,426	648,159	979,201	1,188,649	1,299,759	1,289,236
Unemployment Rate (%)	3.7	5.1	5.1	5.4	5.4	5.4
Personal Income (thousand $)	4,122,288	14,866,918	35,503,010	51,496,890	70,394,909	87,852,847
Per Capita Income	3,749	9,404	18.051	22,837	26,183	30,424

($/person)						
Three County Population						
Hillsborough County, FL	490,265	646,960	834,054	966,709	1,152,626	1,237,920
Pasco County, FL	75,955	193,661	281,131	314,527	375,017	402,768
Pinellas County, FL	522,329	728,531	851,659	973,706	1,160,969	1,246,881
Clearwater	52,074	85,528	98,784	112,940 75,085	134,661	144,626
Largo	22,031	58,977	65,674	49,649 10,577	89,526	96,131
Pinellas Park	22,287	32,811	43,426	272,942	59,198	63,578
Seminole	1,000	4,586	9,251		12,611	13,544
St. Petersburg	216,232	238,647	238,629		325,296	349,367
ROI (County Total)	**1,088,549**	**1,569,152**	**1,966,844**	**2,254,942**	**2,688,612**	**2,887,569**

Total employment includes only civilian employment. Personal Income and Per Capita Income are in current $ for 1970-1990 and are in constant 1992 $ for 2000-2040.

See Ref. 1 for sources.