INTERIM ACTION RECORD OF DECISION

SITE NAME AND LOCATION

Petroleum Products Corporation Site
Operable Unit #1
Pembroke Park, Broward County, Florida

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected interim remedial action for the Petroleum Products Corporation (PPC) Site, Pembroke Park, Florida which was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and, to the extent practicable, the National Contingency Plan (NCP). This decision is based upon the administrative record for the Site.

The State of Florida has concurred with this interim action.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this Interim Action Record of Decision (IAROD), may present a current or potential threat to public health, welfare, or the environment.

DESCRIPTION OF SELECTED REMEDY

This Petroleum Products Corporation interim remedial action is the first to be taken at the Site. This alternative calls for the design and implementation of interim response measures which will protect human health and the environment. The principal threat at this time involves the potential migration of the plume away from the Site and into the drinking water. The goal of this remedial action is to contain the groundwater contaminant plume; modify the waste oil recovery system; prevent further flushing of contaminants into the groundwater from on-site drainage and degraded wells; and to collect data on aquifer and contaminant response remediation to ensure that the future final action is effective. Upon completion of the Remedial Investigation and Feasibility Study (RI/FS), this system will be incorporated into the design of the Site remedy specified in the final action Record of Decision (ROD).

The ultimate goal of remediation is to return the groundwater to its beneficial uses, in this case, drinking water. However, EPA recognizes that the selected remedy may not achieve this goal because of the technical difficulties associated with removing contaminants to groundwater cleanup levels. These measures are intended to prevent further migration of contaminants, and will provide hydraulic
information necessary to determine the final remedy, during the on-going RI/FS process.

The major components of the selected remedy for this interim remedial action include:
- Decommissioning damaged or nonoperating water and monitoring wells.
- Redirecting the drainage from the Site.
- Closing culvert drainage wells on-Site.
- Post warning signs on the site.
- Preventing access to the concrete dike area in the warehouse rental unit by closing the unit for rental.
- Sampling selected wells in the area for the presence of contaminants in the drinking water.
- Modifying the current waste oil recovery system.
- Off-site disposal of the waste oil into an approved refinery.

STATUTORY DETERMINATION

This interim action remedy is protective of human health and the environment, complies with Federal and State applicable or relevant and appropriate requirements directly associated with this action, and is cost-effective. This interim remedial action utilizes permanent solutions and alternative treatment (or resource recovery) technologies, to the maximum extent practicable, given the limited scope of the action. Because this interim remedial action does not constitute the final remedy for the Site, the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element will be addressed by the final response action. Subsequent actions are planned to fully address the principal threats posed by this Site.

October 5, 1990

Date

Patrick M. Tobin
Acting
Greer C. Tidwell
Regional Administrator
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RECORD OF DECISION

DECISION SUMMARY

1.0 SITE LOCATION AND DESCRIPTION

The PPC Site is located in Pembroke Park, Florida, approximately 0.2 miles west of Interstate 95, 1.5 miles north of the Broward County-Dade County line. The area surrounding the Site is highly developed and contains a high-density residential population in addition to a variety of commercial/industrial activities. The Site lies within the radius of influence of two major municipal well fields: the Hallandale Municipal Well Field, approximately 2000 and 3700 east of the Site, and the Hollywood Municipal Well Field, less than two miles northwest of the Site. A third proposed wellfield for Broward County will be located approximately 7500 feet west of the Site. See Figures 1-1 and 1-2.

The Site currently is occupied by a commercial/industrial warehouse complex known as the Pembroke Park Warehouses. A fenced area in the southeastern portion of the Site is the only area of the previous PPC facility that has been left unpaved. The fenced area contains a few drums of waste generated during the RI fieldwork and an oil recovery system well. This well has recovered approximately 6900 gallons of oil since 1985. Refer to Figure 1-3.

2.0 SITE HISTORY

PPC has been reported to have started operations in 1958. In September 1958, several tanks were staged in an area bounded on the east and north by large areas of standing water serving as a drainage system. From 1966 to 1968, PPC was experiencing maximum operation as a refinery of waste oils. During this two year period the residents in the area began complaining of overflow of the oils onto the trailer park property located adjacent to and south of the Site.

In 1970, PPC initiated major changes in its operation after a large rainfall caused the disposal pit to overflow, producing an oil slick on the trailer park lakes. After increased community pressure at the time of the spill, PPC began preparations to sell the property. The disposal pits were filled in and it is suspected that the sludges were mixed in with clean fill, returned to the pit and/or spread over the property.

In 1971, PPC ended the operation of refining the waste oils and began operating as a storage and distribution facility. Mr. Jerry Blair, owner and operator of the PPC facility, sold the majority of the property to Dr. Robert Cornfeld, who holds the property in four land trusts of which he is the beneficiary. The southeastern corner of the property is still owned by the Petroleum Products Corporation.
Figure 1-1 LOCATION OF PETROLEUM PRODUCTS CORPORATION (PPC) SITE
Figure 1–2  VICINITY MAP – PPC SITE
Figure 1-3  PPC SITE MAP
Warehouses were constructed by PPC and Dr. Cornfeld on the northern and western sections of the property. Site conditions have remained essentially the same from 1972 to 1984.

In 1979, PPC cleaned up portions of the Site in response to two warning notices from Broward County Environmental Quality Control Board. The two oil-soaked areas and rehabilitating two other areas. In 1983, the FDER Southeast Florida District Office issued a Notice of violation requesting that PPC remove additional waste oils from the Site and submit a detailed sampling analysis plan. PPC hired Dames and Moore, Inc., an environmental consulting firm, to conduct sampling at the Site. The sampling revealed a layer of oil floating on the groundwater table. In addition, the groundwater contained varying amounts of oil and grease, petroleum hydrocarbons, volatile organic compounds, and several inorganic compounds. In 1984, Florida Department of Environmental Regulation (FDER) hired Environmental Science and Engineering, Inc. (ESE) to determine the extent of free hydrocarbon contamination at the PPC Site. ESE estimated that 20,000 to 60,000 gallons of free oil was present in a groundwater plume centered on the tank farm area. The plume appeared to be slowly migrating to the east-southeast. The extensive saturation of the soils with oil has been attributed to the fluctuation of the water table.

In 1985, EPA collected samples from the storage tanks on-site and an area away from the tanks. The samples exhibited levels of lead (244 ppm), oil and grease (1,000,000 ppm), and toluene at (240 ppm). EPA issued an Administrative Order to PPC on March 1, 1985. PPC agreed to work under a consent order where PPC would undertake the required cleanup action under the direction of an EPA On-Scene Coordinator. The order stated that all tanks were to be emptied, cleaned and rendered inoperable; all oil, water and sludges were to be chemically tested prior to disposal; the oil properly disposed of or recycled; and the asbestos in the boiler house removed or encapsulated. Two hundred sixty-two drums of sludge were removed from the property in October, 1985.

In 1985, FDER hired a contractor to install a free-product recovery system which consisted of a 30-inch diameter, 23-foot-deep extraction well, with a 25 gallon-per minute (gpm) drawdown pump and an oil skimming unit for the recovery of floating oil underneath the Site. The recovery system has been in operation since 1985, and has recovered approximately 6900 gallons of oil to date.

In 1986, FDER contracted Ecology and Environment to perform the RI/FS for the Site. The RI indicated that contamination was still present at the PPC site. The draft FS was presented to EPA in March, 1988.
EPA was unable to accept the FS as final before FDER expended all funding available for the FS. FDER and EPA are jointly investigating the remedy selection with plans to present a soil and groundwater contamination remedial action in 1991.

3.0 HIGHLIGHTS OF COMMUNITY PARTICIPATION

The RI and Interim Action Proposed Plan for the Petroleum Products Corporation Site were released to the public in July 1990. These documents were made available to the public in both the administrative record, and in information repositories maintained at the EPA Docket Room in Region 4 and at the Broward County Main Library. The notice of availability for the documents was published in the Sun Sentinel on August 1, 1990. A public comment period was held from July 31, 1990 through August 30, 1990. In addition, a public meeting was held on August 14, 1990. At this meeting, representatives from EPA and FDER answered questions about problems at the Site and the remedial alternatives under consideration. EPA granted a 30 day extension to the public comment period in response to requests from the Potential Responsible Party's. The public comment period ended on September 30, 1990. A response to the comments received during this period is included in the Responsiveness Summary, which is part of this Interim Action Record of Decision. This decision document presents the selected interim remedial action for the PPC Site, in Pembroke Park, Florida, chosen in accordance with CERCLA, as amended by SARA and, to the extent practicable, the National Contingency Plan. The decision for this Site is based on the administrative record.

4.0 SCOPE AND ROLE OF THE OPERABLE UNIT

The major goal of this interim action is to contain the plume within the boundaries of the Site. Preventing further water infiltration into the area of the disposal pits by preventing infiltration of water into the soils and increasing the recovery of waste oil from the groundwater. There are a number of wells that were installed on-site in the past that have degraded. These wells are not useful for monitoring or pump and treat activities. The wells are sources of infiltration of stormwater and commercial wastewater from the Site. Drainage on the Site consists of a french drain system relieving run-off over the entire property. These drains allow for flushing of the former PPC disposal pit contamination into the groundwater.

The warehouse complex and surrounding area support a variety of small commercial/industrial operations. Many of the current operations use solvents and other chemicals that represent a continuing source of soil and groundwater contamination via leakage from the surface water drainage system or direct infiltration in unpaved areas. Area businessmen have stated that small-scale dumping of industrial chemicals is common in this area.
The PPC Site and the surrounding neighborhood are in a topographically flat area which results in a drainage problem. Extensive local ponding occurs after periods of substantial rainfall. The property owner of the PPC Site installed a drainage system for the property which consists of a number of drainage wells and storm sewers. The intake of some of these wells extends about one foot above the collection sump, which essentially skims the water. The drains are actually french drains allowing stormwater containing waste oils from the PPC sludge pits as well as dumped wastewater from the industries within the warehouses to be released directly into the groundwater. A method by which the drains and wells are closed out while the run off from the Site is diverted to another area would slow down the water infiltration as well as limit the flushing effect the wells and drainage system have on the closed disposal pits.

Inoperable wells in the immediate plume vicinity are potential pathways for migration of contaminants from the shallow soils. Identification of damaged or inoperable wells should be conducted and those wells decommissioned. This interim remedial action will be consistent with any planned future actions, to the extent possible. Source control and groundwater treatment will be addressed as a subsequent Operable Unit.

The FDER RI report presented to EPA provides information to indicate that the following activities should be implemented at the Site:

- Discontinue on-site, small-scale dumping by area businesses;
- Modify the surface drainage system;
- Modify the free-product recovery system;
- Post local wells; and
- Decommission non-operating water and monitoring wells.

In warehouse number 261, located northwest of the center of the former disposal pit, free oil was found to have seeped from the ground upward through the floor. A concrete dike of about 1 square yard was installed in the warehouse to contain the oil. See Photo # 1.

The present waste oil recovery system should be improved to recover more of the waste oil from the groundwater. Numerous operation and maintenance problems have prevented the system from achieving maximum recovery rates.

5.0 SITE CHARACTERISTICS

The Petroleum Products Corporation Site formerly contained a tank farm and two unlined disposal pits. Soil, sediment, groundwater and surface water samples were collected in and around the Site. Although the Remedial Investigation (RI) identified areas of
contamination, it did not sufficiently define the extent of contamination in the groundwater and soils. The treatability studies presented in the FS were also not sufficient to determine which alternative would best suit the source control at the Site. Therefore, EPA and the State of Florida have begun studies and sampling activities to determine the appropriate alternative for the second operable unit remedy. The remedy for source control or contaminated soil remediation will be set forth in a separate Record of Decision and will be conducted as a second operable unit at the Site. The first operable unit will focus on containment of the plume from the Site into surrounding areas.

5.1 Soil Gas Investigation

Soil gas sampling was performed to determine the extent of hydrocarbon contamination in the vadose zone and shallow groundwater. Sampling locations in addition to those samples that exhibited a gas chromatograph (GC) peak are indicated on Figure 3-1. The data from this survey was utilized in determining the areas for soil sampling and placement of groundwater monitoring wells. Examination of the results presented in Table 1 did not reveal any clear pattern as to GC peak types. There was very little correlation between GC peak and the down-pipe readings or the open-hole readings. Some samples that exhibited high open-hole readings did not exhibit GC peaks and some samples that exhibited GC peaks did not exhibit high down-pipe readings. Despite the problems, the soil gas survey provides an indicator of areas most likely contaminated with the exception of samples 1A, 3A, 41, 55 and 51.

5.2 Oil Sampling

Two oil samples, PWS01 and duplicate PSW01D, were collected from a concrete impoundment. The impoundment, in warehouse 261, had been constructed to restrain the spreading of oil that seeped through the warehouse floor to a depth of one to two feet. Figure 3-2 shows the oil sample location.

Lead (2,050 parts per million (ppm)), calcium (1,540 ppm), sodium (533 ppm), magnesium (178 ppm) and boron (81.5 ppm) were detected. These concentrations reflect the calcareous soils and associated groundwater contact with the reprocessed waste oil in the subsurface.

5.3 Surface Water and Sediment Investigation

In general, lake waters in the area exhibited minimal metal contamination. Magnesium, calcium, sodium and boron were the primary metals detected. The presence and detected concentrations of these metals are not unusual, given that these man-made lakes are excavated calcareous terrain. Lead was the primary metal contaminant associated with the PPC Site at 8 parts per billion (ppb) from a
Figure 3-1 LOCATIONS OF SOIL GAS SAMPLES EXHIBITING PEAKS ON OVA-60
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<td>1-10</td>
<td>1-5</td>
<td>2</td>
<td>--</td>
</tr>
<tr>
<td>48</td>
<td>0-1</td>
<td>70-100**</td>
<td>100-400**</td>
<td>8</td>
<td>--</td>
</tr>
<tr>
<td>49</td>
<td>2-3</td>
<td>1-10</td>
<td>2-3</td>
<td>2-3</td>
<td>--</td>
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<tr>
<td>50</td>
<td>2-3</td>
<td>1000**</td>
<td>200-1000**</td>
<td>2-3</td>
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</tr>
<tr>
<td>51</td>
<td>15</td>
<td>1000**</td>
<td>1000**</td>
<td>25</td>
<td>3</td>
</tr>
<tr>
<td>52</td>
<td>2-3</td>
<td>200-1000**</td>
<td>15-50**</td>
<td>2-3</td>
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<tr>
<td>53</td>
<td>0-1</td>
<td>1000**</td>
<td>1000**</td>
<td>0-1</td>
<td>--</td>
</tr>
<tr>
<td>54</td>
<td>2-3</td>
<td>50-100**</td>
<td>50-100**</td>
<td>5</td>
<td>--</td>
</tr>
<tr>
<td>55</td>
<td>0</td>
<td>1000**</td>
<td>100-900**</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>


*GC Peak Types are as follows:

1 = Large, sharp peak within 10 seconds after injection.
2 = Same as 1, but with long, sloping tail that itself occasionally exhibited peaks.
3 = Rounded peak of varying amplitude with a retention time of 110-120 seconds (Sample 27A exhibited a similar peak with a retention time of 190 seconds).
4 = Sharp peak immediately after initiation of backflush.

**Anomalously high reading compared with the subsequent open-hole readings: may reflect the residual presence of the isopropanol used to decontaminate the pipes.

Note: Where a range is given for the down-pipe and open-hole readings, the higher value usually represents the initial maximum level, whereas the lower value represents the level at which the readings stabilized.
Figure 3-2 LOCATION OF OIL SAMPLES (PWS01 AND PWS01D)
sample from the Orange Brook Golf Course. The location of the lake water and sediment samples are shown on Figure 3-3. Calcium, magnesium, sodium, and boron were detected in lake sediment samples reflecting the calcareous fraction of the peat-rich sediment. Aluminum, copper, manganese, iron and zinc were also present. Lead was detected in the Bamboo Paradise Trailer Park lakes located south of the Site in three samples (19.8 ppm, 31.4 ppm, and 100 ppm). The lead concentration found in these lakes may be attributed to the runoff from the disposal pit.

Surface water runoff samples were collected from three drainage culverts on the southern half of the Site. The data showed that surface water runoff from the Site includes a variety of dissolved constituents. Lead contamination varied from 198 ppb to 320 ppb. TPHC was also detected at concentrations of 8,600 ppb to 18,000 ppb. Consequently, surface water runoff provides a potential pathway of continuing contamination of soils, groundwater and surface waters (lakes).

Soil investigations indicated that only lead, aluminum, barium, chromium, copper, iron, and zinc appear to be of significance in the soil contamination. Lead concentrations varied in the disposal pit soils from 957 ppm to 7,660 ppm, and total organic compound (TOC) concentrations ranged from 306 ppm to 4,652 ppm. Refer to Figures 3-4, 3-5, 3-6, 3-7, 3-8, 3-9 and 3-10.

5.4 Groundwater

Groundwater beneath the Site consists of the surficial zone and intermediate zone of the Biscayne aquifer, and Floridan aquifer. The surficial zone is heavily contaminated with waste oil, lead, chromium, aluminum, iron, manganese and benzene. The metals found in the surficial zone are also found in the intermediate aquifer at the PPC Site at lower concentrations. The Floridan aquifer at the Site is not contaminated. The off-site surficial and intermediate zones of the Biscayne aquifer were found to be contaminated with similar contaminants in the areas south, east and west of the PPC Site.

The surficial zone is located in the soft limestone bedrock. Soil boring results from 20 - 30 foot depths indicated that this limestone is interbedded with higher percentage of sand, silt, and shell fragments.

A deep well boring shows little lithologic variation between 30 feet and 200 feet. In deep wells, drilling mud had to be added continually to prevent loss of circulation, suggesting the presence of voids and cavities. Contaminated water from the upper aquifers into the Floridan aquifer will likely occur in the near future.
Figure 3-3 LOCATIONS OF LAKE WATER (PLW01-PLW05) AND SEDIMENT (PLS01-PLS05) SAMPLES
Figure 3-4 SOIL SAMPLING LOCATIONS
Figure 3-5 LEAD CONCENTRATIONS (ppm) IN SHALLOW SOIL COMPOSITE SAMPLES AND SHALLOW SPLIT-SPOON SOIL COMPOSITES
Figure 3-6  LEAD CONCENTRATION AREAS BASED ON SHALLOW SOIL COMPOSITE SAMPLES AND SHALLOW SPLIT-SPoon SOIL COMPOSITES
Figure 3-7  CHROMIUM CONCENTRATIONS (ppm) IN SHALLOW SOIL COMPOSITE SAMPLES AND SHALLOW SPLIT-SPoon SOIL COMPOSITES
Figure 3-8 ACTUAL TOTAL ORGANIC CONCENTRATIONS (ppm) IN SHALLOW SOIL COMPOSITE SAMPLES AND SHALLOW SPLIT-SPOON SOIL COMPOSITES
Figure 3-9  TOTAL ORGANIC CONCENTRATION AREAS BASED ON ADJUSTED CONCENTRATIONS IN SHALLOW SOIL COMPOSITE SAMPLES AND SHALLOW SPLIT-SPOON SOIL COMPOSITES
Figure 3-10 LEAD CHROMIUM, AND TPHC (ppm) CONCENTRATIONS IN DEEP SPLIT-SPOON SOIL SAMPLES (PTS01A-D TO PTS04A-D; PTS05A-G)
5.5 **Surface Soil**

Surface soil (0-20 feet) at the PPC Site is highly contaminated with lead. High off-site lead contamination was found at the corner of Carolina Road and S.W. 31st Avenue (near the tank farm area). Arsenic concentrations were of health concern at the south and west areas of the Site. The Site and surrounding areas are developed and landscaped, therefore, inhalation of wind blown contaminated soil is not a current concern. This would be a concern during the removal of contaminated soils from the Site.

5.6 **Surface Water**

Pembroke Park is a relatively flat area, with a few man-made high-lying land areas. The elevation of the PPC Site was raised about 5 inches when the waste oil pit was refilled. No disposal ponds or ditches are located on-site. Surface water at the Site is collected by drainage wells. The drainage water showed high concentrations of lead and moderate concentrations of chromium and manganese. Off-site surface water samples from the nearby trailer park lakes, however, showed low levels of copper, zinc, and iron in several samples. The metals analyses suggest that contamination associated with the PPC Site is not currently affecting the water quality of the surrounding lakes. The PPC Site is located in a flooding area (the average annual rainfall is 60 inches per year). The contaminants found may be carried by surface water run-off into the lakes at the Bamboo Trailer Park, Ted’s Aqua Golf course, and into the business complex at the PPC Site.

5.7 **Air**

Analytical results of air sampling are not reported in the Remedial Investigation. However, the Remedial Investigation report did mention that a strong smell of solvents were present from the open monitoring wells. Monitoring wells are normally capped, except the monitoring/recovery well in the fenced area. The air exposure pathway at the PPC Site has not been fully evaluated. During remediation, the potential may be increased for the air exposure pathway to become an environmental pathway of concern.

6.0 **HUMAN EXPOSURE PATHWAYS**

The above mentioned contaminated environmental media constitutes the following potential human exposure pathways.

Contaminated groundwater presents ingestion, dermal absorption and inhalation exposure pathways. Surficial and intermediate zones of the Biscayne were shown to be contaminated at the PPC Site, off-site areas, southwest, and east of the Site. According to the FDER files, there are reports that people became ill after drinking water supplied by several of the private wells in the area. All drinking water in the area is presently provided by the Hallandale well field according to the FDER remedial investigation report. Dermal
absorption and ingestion of contaminants in the ground water could occur to residents in the area who have irrigation wells.

7.0 SUMMARY OF SITE RISKS

Analytical results of the remedial investigation indicate that off-site contamination appears to be in the groundwater and the soils in the south, east and west areas adjacent to the site. Aluminum, chromium, iron, lead, manganese, trichloroethylene and arsenic are the contaminants in the off-site and on-site areas. At this time, the contamination from the site has not entered into the well fields. However, if the contaminants are allowed to remain, the potential for human exposure exists.

7.1 On-site Contamination

Contaminants of concern on-site consist of the following:

<table>
<thead>
<tr>
<th>Media</th>
<th>Contaminant</th>
<th>Range (Unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>surficial zone</td>
<td>Lead</td>
<td>0.0246 - 22,400 ppm</td>
</tr>
<tr>
<td>of the Biscayne</td>
<td>Chromium</td>
<td>&lt;0.01 - 1.1 ppm</td>
</tr>
<tr>
<td>(Black oil in 18&quot; - 20&quot; thickness)</td>
<td>Aluminum</td>
<td>0.647 - 376 ppm</td>
</tr>
<tr>
<td></td>
<td>Manganese</td>
<td>0.0571 - 0.308 ppm</td>
</tr>
</tbody>
</table>

The current maximum contaminant level for lead is 50 ppb and was promulgated as an interim drinking water regulation in 1975. In 1985, EPA began the process of revising the standard for lead by proposing a maximum contaminant level goal (MCLG) of 20 ppb. The high levels of lead found in the soil and groundwater raise special concerns though we have no numbers by which to quantify the risk from exposure to lead. EPA headquarters has recently recommended that 15 ppb of lead in drinking water not be exceeded, due to central nervous system effects occurring at very low blood levels of this metal.

7.2 Off-site Contamination

Analytical results of the RI indicate that off-site contamination appears to be in groundwater and soils in the south, east and west areas adjacent to the Site. The contaminants of concern consist of the following.

<table>
<thead>
<tr>
<th>MEDIA</th>
<th>LOCATION</th>
<th>CONTAMINANT</th>
<th>RANGE (UNIT) (ug/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surficial Zone of the Biscayne</td>
<td>South</td>
<td>Aluminum</td>
<td>44,100 - 202,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chromium</td>
<td>139 - 474</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Iron</td>
<td>11,700 - 27,600</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lead</td>
<td>58 - 161</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manganese</td>
<td>77.6 - 99.6</td>
</tr>
</tbody>
</table>
East Chromium 468
Aluminum 169,000
Iron 34,600
Lead 219
Manganese 99.6

West Aluminum 10,500
Iron 5,250
Lead 1,800
Manganese 97.2
Trichloroethylene 5.1

Intermediate Zone of South Aluminum 1,440
the Biscayne Iron 757
Aquifer East Aluminum <200 - 2,560
Iron 175 - 598

Shallow Soil South Arsenic <1.5 - 4.38
East Lead <1.5 - 5.090
West Lead 3.87 - 1,860

8.0 DESCRIPTION OF ALTERNATIVES

Alternative 1 - No Action
Alternative 2 - Relief from Water Infiltration
Alternative 3 - Relief from Water Infiltration with Recovery System Modifications

The alternatives chosen for this activity provide for a phased approach. Alternatives chosen for this interim action will limit the amount of contamination continuing to be released from the Site.

8.1 Alternative 1 - No-Action

Estimated Capital Cost: $-0-
Estimated Operation and Maintenance (O&M): $63,000
Months to Implement: 1 month

The no-action alternative is required by the National Contingency Plan (NCP) to be considered through the nine point criteria. It provides a baseline for comparison of other alternatives. Under the no-action alternative, no source control remedial measures would be undertaken at the Petroleum Products Corporation NPL Site at the present time. Potential health risks would remain associated with current exposure by ingestion to surface soil and exposure to surface water by ingestion.
Although no action would entail groundwater monitoring as operation and maintenance (O&M), unremediated soils would continue to release contaminants into this Class I aquifer, thereby extending the period of time over which the drinking and groundwater treatment systems will be required to operate and the amount of soil requiring remediation.

8.2 Alternative 2 - Relief from Water Infiltration

Estimated Capital Cost: $480,000
Estimated Operation and Maintenance (O&M): $63,000
Months to Implement: 3

Alternative 2 recommends decommissioning of non-operating water and monitoring wells; redirecting the drainage from the Site; closing culvert drainage wells that are on-site; and, conducting a public well survey to post wells in the area for sampling and analysis the presence of contaminants in the drinking water. Other Site activities would include posting warning signs identifying the Site as an NPL Site, preventing access to the concrete dike area in the warehouse rental unit, and imposition of institutional controls (land use restrictions). The activities recommended will diminish the amount of contaminants flushing into the groundwater and locate contaminated water sources that could be presently utilized by the public. At the present time, the storm drainage wells have an intake about one foot above the collection sump which essentially skims the water. The wastewater and wash water from the surrounding industrial/commercial businesses flows into the wells and down into the groundwater, increasing the problem. Limiting the number of conduits into the aquifer in the area of the disposal pits limits the mobility of contamination into the area. The public well survey would define the number of individuals presently on private wells.

The transportation and disposal of recovered waste oil from the Site; design and installation of drainage systems for the Site; and the construction and closure of wells shall comply with appropriate Federal and State ARARS. Maximum contaminant levels (MCLs) for groundwater remediation will not be met in this interim action, however, they will be addressed in the final remediation of the groundwater.

8.3 Alternative 3 - Relief from Water Infiltration and Recovery System Modification

Estimated Capital Cost: $660,000
Estimated Operation and Maintenance (O&M): $83,000
Months to Implement: 4

This alternative includes all items discussed in Alternative 2 and includes the modification of the current oil recovery system to increase the amount of oil recovered. FDER has hired a local
contractor to dispose of the oil at a recycling facility. The purpose of closing out the damaged wells and drainage system is to prevent the possible increase in contamination and migration of contaminants from the Site. Many of the drainage wells are from 42 to 75 feet in depth. With these wells open to the aquifer, contamination of the drinking water and groundwater is possible. The exact modification to the present system has not been investigated at this time although this could be accomplished during the remedial design phase. Modifying the present oil recovery system should be an easily implemented interim action.

Increasing the oil recovery system should aid in the capture of waste oil from the groundwater. These recovery wells could be utilized in the future in the event that a large scale groundwater pump and treat system is to be constructed on-site. Also, the wells could be used as a monitoring location for groundwater contamination in the area.

9.0 SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

A detailed analysis was performed on the three alternatives using the nine evaluation criteria in order to select a site remedy. The following is a definition and brief summary of each alternatives' strengths and weaknesses with respect to the nine evaluation criteria. These nine criteria are: 1) overall protection of human health and the environment; 2) compliance with applicable or relevant and appropriate requirements (ARARS); 3) short-term effectiveness; 4) long-term effectiveness and permanence; 5) cost; 6) reduction of toxicity, mobility and volume; 7) implementability; 8) State acceptance; and 9) community acceptance.

Overall protection of human health and the environment addresses whether a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced or controlled through treatment, engineering controls or institutional controls.

Compliance with applicable or relevant and appropriate requirements (ARARS) addresses whether a remedy will meet all of the ARARs of other Federal and State environmental laws and/or justifies a waiver.

Long-term effectiveness and permanence refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once clean-up goals have been met.

Reduction of toxicity, mobility or volume through treatment is the anticipated performance of the treatment technologies a remedy may employ.

Short-term effectiveness addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period, until cleanup goals are achieved.
Implementability is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.

Cost includes estimated capital and O&M costs, as well as present-worth costs.

State/support agency acceptance indicates whether, based on its review of the RI and Proposed Plan, EPA and FDER agree on the preferred alternative.

Community acceptance indicates the public support of a given alternative.

Overall Protection.

All of the alternatives, with the exception of the "no action" alternative, would provide protection of human health and the environment by reducing risk through engineering controls or institutional controls. Alternatives 2 & 3 offer reduction of contaminants into the groundwater by removing the infiltration into the aquifer of run-off from on-site businesses and rainfall.

Because the "no-action" alternative offers no reduction in risk to human health and the environment, it is not considered further in this analysis as an option for this Site.

Long-Term Effectiveness and Permanence.

None of the alternatives provides for a long-term remedy in that the goal of the interim action is to contain contaminant migration prior to implementing the large scale remedy to follow at a later date.

Short-Term Effectiveness.

There should be no adverse effects to human health and the environment from either of the alternatives under consideration. The short-term effect will be to address the removal of the waste oil from the groundwater and prevention of plume migration in Alternative 3 until a final remedy is undertaken.

Implementability.

All alternatives are easily implemented for the Site. There should be no problem in securing the equipment and materials for the decommissioning of wells and modification to the present recovery system as stated in Alternative 3.

Community Acceptance.
Community acceptance of the preferred alternative has been very positive. During the public meeting, many of the residents and local officials agreed with Alternative 3 as an appropriate remedy for the interim action.

Compliance with ARARs.

There are very few ARARs that are associated with will be met in the initiation of either of the remedies. No MCLs will be met. The alternatives are only containment remedies; not a final remedy for the Site. Federal and State regulations in regard to the closure and construction of wells, implementation of drainage systems and transportation and disposal of recovered waste oils will be addressed by both alternatives.

Of the above criteria, the following apply in limited capacity to the Interim Action Record of Decision: 1) Overall protection of human health and the environment; 2) Compliance with ARARs; 3) Reduction of toxicity, mobility or volume through treatment; 4) Implementability; 5) Costs; 6) State acceptance; and 7) Community Acceptance. All ARARs will not be met since the containment of the contamination plume is the primary goal of the remedy for this action. There is no long-term or short-term effectiveness to be addressed with this interim action. All of the nine criteria will be addressed to the fullest extent in the final remedy. The interim action is not meant to address the final cleanup of the Site nor is the intent to address clean-up standards or regulations in regard to groundwater. This remedy mitigates a threat posed by the potential migration of the plume into drinking water wells and limiting the environmental factors that contribute to plume migration.

Alternative 3 is the most cost-effective alternative that effectively provides protection to public health and the environment at this time. There are few ARARs to be met by this alternative or any of the other alternatives presented. There is a reduction in mobility of the contamination plume which would occur from the limiting of the groundwater as well as rainwater to flow near the contaminated soils in the area of the disposal pit locations. Alternative 3 is the only alternative that provides for a modification to the present oil recovery system which would decrease the potential for the contamination to migrate off-site and into the well fields nearby.

As stated previously this Interim Action Alternative addresses the plume migration and factors that enhance the migration of contaminants away from the Site.

10.0 SELECTED REMEDY

Alternative #3 has been selected as the appropriate remedy for the Site as an interim remedial action. This first operable unit addresses the containment of the contamination until the time that
EPA and PDER has had the opportunity to evaluate and test alternatives for source control at the Site. The selected remedy is to decommission the nonoperating wells that remain on-site, close out the storm drainage wells that are on-site which deposit wastewater and stormwaters into the lower zone of the Biscayne aquifer, conduct a private water well survey to identify present users of the groundwater in the affected area, and modify the present recovery system in an effort to remove a larger volume of oil from the groundwater and contain the plume. Specific design protocols and criteria will be determined by bench scale or pilot testing during the remedial design. This remedy will only address the continued release of contamination into the groundwater through infiltration of wastewater and flushing of the contaminants into the groundwater from drainage wells and drainage systems at the Site. Operable unit two will address source control of the contamination at the Site and final groundwater action.

11.0 STATUTORY DETERMINATIONS

EPA had determined that this interim remedy will not satisfy all of the statutory requirements of providing permanent protection of human health and the environment, or attaining applicable or relevant and appropriate requirements of other environmental statutes. However, this interim remedy will limit the continued migration of contaminants into the groundwater and will utilize resource recovery technologies to the maximum extent practicable. An interim remedy waiver is requested for this Site. The final remedy will comply with the ARARs for the Site.

12.0 RESPONSIVENESS SUMMARY

12.1 Overview

In August 1990, the United States Environmental Protection Agency (EPA) selected a preferred alternative for remediating soils at the Petroleum Products Corporation (PPC) site in Pembroke Park, Florida. The preferred alternative is referred to as U.S. EPA's Interim Action Proposed Plan. The proposed plan was developed as a phased approach to site remediation. The first phase of remediation, known as Operable Unit One, involves containing the ground-water plume and impeding the release of site contaminants to the ground-water. Operable Unit One will be implemented through the following activities: (1) discontinue on-site dumping by area businesses; (2) redirect surface water drainage; (3) expand the existing oil recovery system; (4) identify and monitor local wells and; (5) decommission nonoperating water and monitoring wells.

EPA conducted a public meeting regarding the proposed plan on August 14, 1990, and a 30-day public comment period was held from July 31 to August 30, 1990. A 30-day extension of the public comment period was granted so that all citizens had sufficient time to review the
proposed plan and submit any questions or concerns regarding the plan to EPA.

The purpose of this responsiveness summary is to identify the comments and concerns of the local community and potentially responsible parties (PRP) regarding the Interim Action Proposed Plan, and to document how EPA considered these comments and concerns during the selection of a remedial alternative. This responsiveness summary is organized into the following sections:

Background on Community Involvement

Summary of Comments Received during the Public Meeting and Public Comment Period and Agency Responses

Additional Comments Received

12.2. Background on Community Involvement

PPC operated as a processor and broker of waste oil from 1958 through 1971. Sludges generated from the oil refining process were disposed of in unlined pits located on the site property. From 1966 to 1970, residents of the nearby Bamboo trailer parks lodged a series of complaints against PPC with municipal authorities after sludges overflowed from the disposal pits onto the trailer park property. Also, overflow from the disposal pits after heavy rains produced oil slicks on trailer park lakes. In 1970 and 1971, PPC conducted site development activities in anticipation of selling the property. In 1971, a majority of the PPC property was developed as the currently existing commercial and industrial warehouse complex known as the Pembroke Park Warehouses. Several of these warehouses were constructed over abandoned disposal pits, and contaminated soils were left on-site during development. PPC continued to operate a portion of the site property until 1985.

Community involvement with the PPC site was most active during the late 1960s and early 1970s when the sludges from the PPC facility were overflowing into nearby residential areas. After redevelopment of the PPC property in 1971, community concern about the PPC property decreased markedly; however, some residents felt that redevelopment of the property should not have been allowed until some type of cleanup action was taken regarding the waste oil on the property.

Since redevelopment in 1971, community interest in the PPC site has remained low. Newcomers to the area are unaware of the site and most long-time residents and individuals working near the site are not concerned with the site, and expressed little or no concern regarding potential health problems associated with the site.
The concerns of local government officials are focused on the effect the site may have on drinking water sources. City water supplies are obtained from well fields located near the site. Government officials are concerned with the possible migration of contaminants from the PPC site into these nearby drinking water supplies.

The greatest concern of both local officials and residents is the length of time between indentifying problems at the site and the actual response to these problems. Most officials and residents cannot understand the urgency to clean up the site after the government has investigated the site for so many years. Most government officials feel that the site should have been cleaned up several years ago.

12.3 SUMMARY OF COMMENTS RECEIVED DURING PUBLIC MEETING AND PUBLIC COMMENT PERIOD

Comments raised during the PPC public comment period and public meeting on the proposed plan are summarized below. The comments or questions and the agency responses are categorized by topic.

Remedial Alternative Preference:

1. **PRP Comment**: This PRP does not believe that it is cost effective or consistent with the National Contingency Plan (NCP) to select a proposed remedy for containment of the ground-water plume (Operable Unit One) until the remedial investigation/feasibility study (RI/FS), presently being supplemented, has been reviewed and finally approved by EPA.

   **EPA Response**: The NCP allows for an interim action prior to the completion of the RI/FS, therefore, EPA is consistent with the NCP.

2. **PRP Comment**: Although the proposed remedy may indeed limit both the amount of contamination continuing to be released and plume migration, it would seem more cost effective and reasonable to incorporate this function as part of either the second or third operable units, particularly in view of the conclusions reached in the 1987 RI.

   **EPA Response**: The proposed remedy does limit the amount of contamination and plume migration. Delaying the reduction of the contamination is not viewed as cost effective in terms of final cleanup costs. The potential for migration and contamination of ground-water and costs for remediation increase the longer cleanup is delayed. Postponement of the proposed activities does not present a more cost effective function of the second and third operable units.

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3. **PRP Comment:** The Interim Action Proposed Plan for the PPC site does not appear necessary or appropriate to "achieve significant risk reduction quickly" considering the stability of the system and the low degree of lateral contaminant migration revealed in the RI.

**EPA Response:** The interim action will achieve significant risk reduction with the modification of the existing oil recovery system. As stated in the NCP, "phased analysis and response is necessary or appropriate given the size or complexity of the site." This situation applies to the PPC site, which is complex and may require many years for implementation of a final remedial action plan.

4. **PRP Comment:** The implementation of Operable Unit One as proposed will not expedite the completion of total site cleanup.

**EPA Response:** The interim action is not intended to expedite total site cleanup. The purpose of the interim remedial action is to contain the contamination plume by preventing the increase in the plume size.

5. **Public Comment:** A representative from the Broward County Water Resources Management Division (WRMD) stated that Broward County is in favor of EPA's Interim Action Preferred Alternative and requests that EPA accelerate the implementation of Operable Units Two and Three to achieve site remediation.

**EPA Response:** EPA appreciates Broward County's interest in site remediation and will do everything possible to implement Operable Units Two and Three in a timely manner.

6. **PRP Comment:** Why is an interim removal being performed when the RI indicates that no immediate threat exists?

**EPA Response:** The proposed interim remedial action plan is not a removal action. There was concern that the waste oil in the ground-water could potentially migrate off-site into nearby private wells or the municipal drinking water wells, thereby endangering the public. The existing oil recovery system had been reported as recovering approximately 60 gallons of waste oil per week; however, upon recent site investigations, the system was found to be operating at a much lower rate. This recovery system aids in removing a portion of the threat from ground-water contamination. By implementing this proposed interim action, an existing problem can be controlled, rather than persisting until a final remedy is developed. A final remedy for the site is not expected to be complete for several years.
7. **PRP Comment:** The preferred alternative for Operable Unit One is Alternative 1 or No Action. Site action will neither improve the existing contamination in upgradient or downgradient ground-water, nor in soil quality. Because site contaminants pose no immediate threat to water supplies, there is sufficient time to implement a remedial action. A remedial design/remedial action (RD/RA) should be pursued, although an interim removal action will only prolong the final remedy.

**EPA Response:** The RD/RA will be pursued for Operable Unit One. The investigations and activities needed to achieve a final remedy will in no way be hindered or prolonged by the implementation of an interim action. To assume that this interim action would not improve down-gradient soil or water quality is premature. Although down-gradient soil quality is not an issue, there has been no indication in previous testing that down-gradient soil quality has been affected by any of the former disposal pits on site. Only surface spills have affected down-gradient soil quality. The interim action is not meant to remediate all site contamination, nor is it meant as a substitute for a final remedy. Presently, with the exception of plume migration possibly affecting municipal wells, the EPA and/or PRPs have time to implement the interim action remedy before public endangerment becomes an issue.

8. **PRP Comment:** Why is EPA addressing the sediment contamination under the No Action alternative?

**EPA Response:** EPA is not addressing the sediment contamination in any of the alternatives. EPA stated no further action would be taken at this time to prevent exposure to the sediment contamination. The sediment in question is the sludge and soil contamination which contribute to the ground-water contamination. Source contamination was not to be addressed in this interim action, nor was a final remedy to be considered with the interim action.

9. **PRP Comment:** Alternative 2, via decommissioning damaged or inoperative wells, closing culvert drains, and redirecting site drainage, will not achieve the objective of diminishing the amount of contaminants which flush the ground-water.

**EPA Response:** Alternative 2 was not the recommended alternative and does not allow for the removal of waste oil from the ground-water.

10. **PRP Comment:** In regards to locating other contaminated water sources presently used by the public, a well survey should be conducted as part of the risk assessment/feasibility study and not as an interim removal action. Well selection should be based on the potential influence of PPC contaminants on the water quality of individual wells.
EPA Response: Wells will be selected based on the potential of PPC contaminants to influence water quality. Part of the supplementary RI was to locate the private wells in the area that were not addressed in the past and consider them in the risk assessment. The original RI located these wells and the individual owners were notified of the need to discontinue public use as a potable water source. EPA wants to maintain that decision by posting the identified private wells as non-potable drinking water sources.

11. PRP Comment: The proposed plan fact sheet states that the preferred alternative includes the modification of the current waste-oil recovery system. However, the exact modification to this system will be determined during the RD phase. How can EPA implement the modified system as part of the proposed interim removal action?

EPA Response: The proposed interim remedial action is not a removal action. The Superfund process specifies that the remedial design will be developed after the public has had the opportunity to comment on the alternatives and the remedial Record of Decision (ROD) has been signed. After the remedial design has been completed, the remedial action will begin.

12. PRP Comment: EPA has not considered the implementability of redirecting the discharge of the storm water, since EPA has not identified any applicable or relevent and appropriate requirements (ARAR) to be met.

EPA Response: EPA has considered the implementability of redirecting the storm water. The Broward County WRMD has been contacted and informed EPA that redirecting the storm water was an implementable task. EPA has identified ARARs associated with the preferred alternative (Alternative 3). There are no maximum contaminant levels (MCL) that can be met by the alternatives. The nature of the interim action does not require that ARARs be met, since the final remedy will address the ARARs that apply to ground-water and soil cleanup.

13. PRP Comment: It is doubtful that the preferred alternative will reduce the mobility or volume of waste oil in the ground-water. To stop the mobility of the waste oil in the ground-water, the ground-water gradient would have to be reversed or the ground-water flow would have to be cut off. It appears that the existing system is performing as intended and was probably designed with the same purposes as the interim removal.
**EPA Response:** Alternative 3 will reduce the mobility and volume of waste oil in the ground-water. It will not totally reduce the amount of waste oil present. The performance of the existing oil recovery system has been decreasing over the years and is not performing as designed. Recent reports have indicated that the system is in need of repair or modification.

14. **PRP Comment:** The appropriate course of action would be to select Alternative two.

**EPA Response:** Alternative two does not address the removal of any contaminants from the groundwater. Alternative Three provides for contamination plume containment until the final remedy can be chosen for the Site. Alternative two does not protect the public health and the environment as well as Alternative Three for the purpose of this interim remedial action.

**Technical Questions/Concerns Regarding Remedial Alternative 3**

1. **PRP Comment:** How will the oil recovery system expansion, well posting, and inoperative well decommissioning impede the continuous release of contaminants into the ground-water?

**EPA Response:** The purpose of the interim action is to contain the ground-water plume by recovering waste oil from the site until a final remedy is implemented. Expanding the oil recovery system will enable more waste oil to be removed from the ground-water than the existing system is capable of. Posting wells is a precautionary measure to prevent individuals unaware of site problems from drinking from private wells previously not posted. Decommissioning inoperative wells will remove a source of contamination into the lower aquifer. Closing these wells will mitigate a direct contamination pathway into the drinking water. This is recommended by the EPA, State of Florida, and local officials.

2. **Public Comment:** A citizen asked how many nonoperating wells are located within the site vicinity, where these wells are located, how they originated, and their purpose.

**EPA Response:** Many of these wells are old monitoring wells constructed by the State of Florida. Newer wells will be constructed in the future to detect lower levels of contaminants. Other wells on-site are used for stormwater drainage. These drainage wells range from depths of 42 to 75 feet, and this type of well is commonly used in Florida. Approximately 13 drainage wells are located at the north end of the site. These wells serve as direct conduits for site surface water, and should be closed to decrease the amount of site contaminants entering the ground-water.
3. **Public Comment:** As stated in the proposed plan, site drainage water will be redirected. One citizen was concerned with the destination of this redirected water.

**EPA Response:** The plan for redirecting the site drainage water is presently in the engineering design phase. As previously stated, the purpose for redirecting this water is to eliminate the flow of site contaminants into the ground-water.

4. **PRP Comment:** EPA was asked whether the continued releases from area businesses are related to the former operations of PPC, and why these releases are not regulated by local agencies.

**EPA Response:** The continued release of contamination from local businesses is not related to the former operations of the PPC site. However, these releases could introduce additional solvents and oils into the ground-water, thereby contributing to site contamination. The appropriate local regulatory agencies are now aware of the releases and are taking action to terminate the releases.

5. **PRP Comment:** Is the purpose of redirecting the surface drainage water to redirect the releases from the area businesses, or solely to allow storm water runoff.

**EPA Response:** The purpose of redirecting the surface drainage water is not to redirect releases from area businesses. Redirecting the surface drainage eliminates the infiltration of run-off and large quantities of rain water which flush contamination into the ground-water from site sludges and soils.

6. **PRP Comment:** Because the fact remains that upgradient ground-water is contaminated with pollutants from off-site storm water discharges and natural aquifer fluctuations, this PRP feels that redirecting on-site drainage will not remedy these existing conditions.

**EPA Response:** The off-site ground-water contamination is not included in the discussion for site remediation; however, it will be considered during final remedy evaluations. Natural aquifer fluctuation has been considered. The aquifer fluctuations lend support to the need for removing as much of the waste oil from the ground-water as possible. The fluctuation contributes to the release of waste oil into the ground-water which had been adhering to surficial soils.

7. **Public Comment:** A representative from the City of Hollywood asked how fast the contaminant plume was moving off-site and wanted to know EPA’s proposed method for stopping the flow of
this plume. The citizen also inquired if a more costly method would stop the flow of the plume faster than the proposed method.

**EPA Response:** Site studies indicate that ground-water flow through the site and contaminant release to the groundwater are occurring at a slow rate. The types of site contaminants include oily sludges and heavy metals, which are both relatively immobile materials. The contaminants adhere to soils and, therefore, do not enter the ground-water very quickly. Because EPA wants to minimize cleanup costs, the proposed plan has been evaluated as the most cost efficient and effective method for controlling the contaminant plume.

8. **PRP Comment:** Has EPA considered the potential benefits of introducing surface water into the contaminant plume?

**EPA Response:** The introduction of surface water from the area has been contributing to the problems at the site. The mounding effect produced by surface water introduction causes the waste oil on the ground-water surface to be forced up through the asphalt. Pools of waste oil have been observed on-site after heavy rainfall.

9. **Public Comment:** Because the public water supply is obtained from a major well field located approximately one mile from the site, a City of Hollywood representative was concerned with drinking water quality and controlling the existing site contamination.

**EPA Response:** EPA understands the water quality concerns of local residents. Although site studies indicate the ground-water to be moving off-site at a very slow rate, EPA wants to eliminate the potential for contamination of drinking water supplies through the implementation of the proposed plan and subsequent site remediation plans.

10. **Public Comment:** One citizen asked if the possibility exists for a site remedy, such as excavation and disposal of contaminated soil, or if the site will always remain contaminated.

**EPA Response:** Phase two of site remediation will address soil contamination (Operable Unit Two). By removing the soil contamination, the source for ground-water contamination is also removed. The cost and feasibility for some type of soil treatment is currently being evaluated.

11. **Public Comment:** A Broward County official asked if the Florida Department of Environmental Regulation (FDER) currently has regulations for permitting the disposal of petroleum-contaminated soils.
EPA Response: FDER does have regulations for the disposal of petroleum-contaminated soil. Petroleum-contaminated soils are commonly treated by incineration processes. Because soils at the PPC site also contain high concentrations of heavy metals, incineration alone is not an effective treatment method for the soils. Only soils containing a specific concentration of metals can be permitted for incineration, and the concentration of metals in site soils exceeds the allowable level.

12. **PRP Comment:** It expansion of the oil recovery system necessary to immediately minimize risk?

**EPA Response:** The reduction of the amount of waste oil in the ground-water will minimize the potential risk, although the interim remedial action will not totally eliminate the risk posed by the site.

**Costs/Funding Issues**

1. **Public Comment:** One citizen representing the town of Golden Beach asked what the projected costs for site cleanup were.

**EPA Response:** The projected costs for the three interim action alternatives are discussed in the Interim Action Proposed Plan fact sheet. These estimates do not include Operable Units Two and Three. No total estimate for site cleanup can be given at this time because costs have not been evaluated for implementing all phases of site remediation.

2. **Public Comment:** A citizen inquired into the liability of responsible parties for site cleanup and if any federal funds were available to supplement cleanup costs.

**EPA Response:** The responsible parties are liable for the entire cost of site cleanup. Federal money is available through the Superfund; however, cost-recovery actions will be implemented to seek repayment from responsible parties who do not pay upfront for cleanup costs.

3. **Public Comment:** How much money has been spent on contractors and consultants who have been involved in site cleanup work?

**EPA Response:** An accurate figure for contractor and consultant fees cannot be estimated at this time; however, preliminary cost figures for site cleanup and descriptions of cleanup technologies are presented in the feasibility study, which is available in the information repository.
4. **Public Comment:** Is EPA was aware of a newspaper article stating that all contaminated site soil was to be shipped to North Carolina at a cost of $40 million?

**EPA Response:** EPA is familiar with the plan and cost estimate. Shipping soils off-site is one of several methods currently being evaluated for site cleanup. Shipping contaminated soils off-site has been a common practice in the past; however, this method is not a permanent solution to the contamination problem. Developing a soil treatment method to remove contamination is preferred by EPA. The cost for the removal alternative cleanup has been estimated at $26 million.

**Enforcement**

1. **Public Comment:** What will be the liability of third parties, that is, those individuals living near the site if site contaminants happen to migrate onto their property?

**EPA Response:** Studies indicate that the heavy metals in site soils are not likely to do not migrate off the site; therefore, there is a very low potential for site contaminants to migrate onto adjacent properties. Ground-water contamination is also moving off-site at a very slow rate. If site-related contamination is detected off the site, these areas will be included in the overall cleanup plan. Any future contamination problems attributed to the site will be addressed by EPA as a site-specific case.

2. **Public Comment:** Does EPA conduct site cleanup negotiations with the responsible parties in court?

**EPA Response:** Once EPA selects the best cleanup method for the site, the responsible parties will be contacted, and EPA will give these parties an opportunity to settle out of court. This method of negotiating is the most efficient and cost effective because the responsible parties are in control of cleanup costs and no litigation fees are involved.

3. **Public Comment:** How does EPA determine how much each responsible party will pay for site cleanup, and is there any set formula EPA applies to the situation?

**EPA Response:** The PRPs are organized into a steering committee. This committee will then negotiate among themselves and EPA to determine what costs will be contributed for site cleanup. EPA does not dictate to the PRPs what each party will pay, but the decision is determined among the PRPs.
Public Participation Process

1. **PRP Comment:** Has anyone petitioned for a removal action at the site; and if not, why did EPA not take action sooner?

**EPA Response:** The proposed interim action plan is not a removal action. This comment does not apply to this site.

2. **PRP Comment:** Four different PRPs requested a 30-day extension to evaluate the proposed plan and submit comments.

**EPA Response:** The comment period was extended. EPA accepted comments until Monday, October 1, 1990, at the close of business.

Available Site Information

1. **PRP Comment:** A removal site evaluation report should be required for the PPC site, as stated in the NCP, section 300.410.

**EPA Response:** The proposed interim action is not a removal action. The removal site evaluation does not apply to the presentation of the Interim Action Proposed Plan. Therefore, this comment does not apply to this site.

2. **PRP Comment:** Where is the location of the supporting documents that the lead agency used to determine that an imminent and substantial endangerment exists, as required by the NCP, section 300.810?

**EPA Response:** The NCP section 300.810 does not discuss document requirements to support the determination that an imminent and substantial endangerment exists at a site. NCP section 300.810 discusses documents that may be excluded from the administrative record. For information purposes, the administrative record supporting site activities completed thus far is located at the Broward County Main Library, Ft. Lauderdale, Florida.

3. **PRP Comment:** Where is the location of a public health evaluation report for the site?

**EPA Response:** The Health Assessment prepared by the state health office for the Agency for Toxic Substances and Disease Registry is located in the administrative record at the Broward County Main Library, Ft. Lauderdale, Florida.

12.4 ADDITIONAL COMMENTS

The following general comments were received from PRPs and local officials and do not require an EPA response.
The Broward County WRMD commented regarding the EPA Interim Action Proposed Plan fact sheet. The WRMD noted that the only two operating wells for the City of Hallandale (wells 7 and 8), which are located approximately 2,000 and 3,700 feet east of the PPC site, were not mentioned in the fact sheet. A former City of Hallandale wellfield located approximately two miles southeast of the site has been closed.

The Broward County WRMD also informed EPA of the current expansion of Broward County’s water supply system. Included in this expansion is the construction of Wells E and F, located approximately 7,500 feet west of the site. Figure 1 of the fact sheet illustrates but does not discuss these wells.

One PRP stated that implementation of Operable Unit One is consistent with the NCP, and fully supports EPA’s interim removal action plan.