United States
Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R02-90/128
September 1990

EPA

Superfund Record of Decision:

Imperial Oil/Champion Chemicals, NJ

50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO. EPA/ROD/R02-90/128	2.	3. Recipient's Accession No.
4. Title and Subtitle SUPERFUND RECORD OF DECISION Imperial Oil/Champion Chemicals, NJ First Remedial Action			5. Report Date 09/26/90 6.
7. Author(s)			8. Performing Organization Rept. No.
9. Performing Organization Name and Address			10. Project/Task/Work Unit No. 11. Contract(C) or Grant(G) No. (C) (G)
12. Sponsoring Organization Name and Address U.S. Environmental Protection Agency 401 M Street, S.W. Washington, D.C. 20460			13. Type of Report & Period Covered 800/000 14.

15. Supplementary Notes

16. Abstract (Limit: 200 words)

The 15-acre Imperial Oil/Champion Chemicals site is an active oil blending facility in Marlboro Township, Monmouth County, New Jersey. Surrounding land use is primarily residential, and several contaminated wetland areas are located to the north of the site. Since 1912, a variety of operations have taken place onsite, including food processing, chemical manufacturing, and flavor and essence production. In 1950, the plant was modified for oil reclamation during which time used oil was washed and distilled onsite. Residual sludge and oily filter clay were disposed of onsite and wash water was discharged to an onsite settling lagoon. Wash water and used oil were also reportedly spread on area roads to control dust. In 1969 Imperial Oil began onsite oil blending operations that included mixing and repacking unused oil. Currently, chemicals are delivered by truck and transferred to 56 onsite above-ground tanks. The resulting oil/water separator sludge reportedly has been disposed of onsite near the oily filter clay pile. Several private and State investigations from 1981 to 1990 revealed contamination in onsite soil and ground water, as well as contamination by oily sludge in two of the offsite wetland areas. Probable sources of the contamination include leaching and erosion of material from an onsite waste pile, overflowing of oil/water

(See Attached Page)

17. Document Analysis a. Descriptors

Record of Decision - Imperial Oil/Champion Chemicals, NJ
First Remedial Action
Contaminated Medium: soil
Key Contaminants: VOCs (benzene, toluene, xylenes), other organics (PAHs, PCBs), metals (arsenic, chromium, lead)

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report) None	21. No. of Pages 59
	20. Security Class (This Page) None	22. Price

EPA/ROD/R02-90/128
Imperial Oil/Champion Chemicals, NJ
First Remedial Action

Abstract (Continued)

separators, and improper treatment of separator effluent for arsenic. This Record of Decision (ROD) addresses remediation of the contaminated offsite wetland areas. Remediation of onsite sources and contaminated ground water will be addressed in a subsequent ROD. The primary contaminants of concern affecting the soil are VOCs including benzene, toluene, and xylenes; other organics including PAHs and PCBs; and metals including arsenic, chromium, and lead.

The selected remedial action for this site includes excavating approximately 3,700 cubic yards of soil from the offsite wetlands area contaminated with greater than 1 mg/kg PCBs; temporarily storing the excavated material onsite in a dewatering and staging area before disposing of the material offsite in a hazardous waste landfill; air monitoring and soil sampling; restoring the wetlands after completion of excavation; and controlling site access with fencing until remediation has been completed. A contingency for soil treatment has been included if leachability studies determine treatment is necessary to meet land disposal restrictions. The estimated present worth cost for this remedial action is $6,889,985, which includes an annual O&M cost of $1,700 for 10 years.

PERFORMANCE STANDARDS OR GOALS: Cleanup levels for soil have been based on State Soil Cleanup Objectives and include lead 250-1,000 mg/kg, PAHs 10 mg/kg and PCBs 5 mg/kg. The actual excavation volume of 3,700 cubic yards of soil has been based on a PCB level of 1 mg/kg, which is designed to account for all soil contaminated above Soil Cleanup Objectives for any contaminant of concern.

ROD FACT SHEET

SITE

Name:	Imperial Oil Company Inc./Champion Chemicals
Location:	Marlboro Township, Monmouth County, New Jersey
EPA Jurisdiction:	Region II
HRS Score:	42.69
NPL Rank (date):	583 (9/1/83)

ROD

EPA Signature:	September 26, 1990
Remedy:	Excavation and appropriate off-site disposal of contamination soil from within a wetlands and restoration of the wetlands
Capital Cost:	$ 5,670,200
O & M Cost:	$ 1,700
Present Worth:	$ 6,889,000

Lead

Agency:	NJDEP
Primary Contact:	Michael Lukas, (609) 633-0769
EPA Contact:	Trevor Anderson, (212) 264-5391

Waste

Type:	Total petroleum hydrocarbons, inorganics, and PCBs
Medium:	Soil
Origin:	Potentially a former dump site for waste oil
Est. Quantity:	3,700 cubic yards

DECLARATION STATEMENT

RECORD OF DECISION

IMPERIAL OIL/CHAMPION CHEMICALS

SITE NAME AND LOCATION

Imperial Oil Company Inc./Champion Chemicals
Marlboro Township, Monmouth County, New Jersey

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Imperial Oil Company Inc./Champion Chemicals site in Marlboro Township, which was chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan.

This decision is based on the administrative record for this site.

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 Record of Decision, may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The remedial action described in this document is the first planned operable unit for the site. It will address the contaminated soil in the wetlands adjacent to the site which poses a sufficiently imminent hazard to require expedited remediation. The principal threats posed by the conditions on the site itself are not addressed by this operable unit, but will be the subject of a future Record of Decision.

Subsequent operable units for long-term remediation of the site will be determined as appropriate. A comprehensive remedial investigation to determine the nature and extent of contamination is underway. Areas of concern include soils, surface water, groundwater, sediments, air quality, and other remaining contaminant sources.

The major components of the selected remedy for this first operable unit include:

- Installation of fencing to control access to the contaminated soil areas;
- Excavation and appropriate off-site disposal of contaminated soil from within the wetlands; and
- Restoration of the affected wetlands.

Prior to landfilling, the contaminated soil will be analyzed to determine its leachability characteristics. If required by the RCRA Land Disposal Restrictions, the soil will be properly treated prior to disposal.

STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. This remedy utilizes permanent solutions and alternative treatment (or resource recovery) technologies, to the maximum extent practicable, given the limited scope of the action. It provides a permanent solution for the contaminated soil areas.

Constantine Sidamon-Eristoff
Regional Administrator

September 26, 1990
Date

DECISION SUMMARY FOR THE RECORD OF DECISION

IMPERIAL OIL COMPANY, INC./CHAMPION CHEMICALS SITE
MARLBORO TOWNSHIP, MONMOUTH COUNTY
NEW JERSEY

Operable Unit I

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DECISION SUMMARY FOR THE RECORD OF DECISION

IMPERIAL OIL COMPANY, INC./CHAMPION CHEMICALS

SITE LOCATION AND DESCRIPTION

The Imperial Oil Company, Inc./Champion Chemicals (IOC/CC) site is a 15-acre facility located in the Morganville section of Marlboro Township, Monmouth County, New Jersey (Figure 1). Champion Chemical Company is the owner of the real property located on Lot 30, Block 10, Orchard Place in Morganville. The premises are leased to the Imperial Oil Company, Inc., which operates an oil blending facility. The site is currently active with an oil blending operation that occupies approximately 4.2 acres.

The site consists of seven production, storage and maintenance buildings. There are also 56 above-ground storage tanks which in 1975 had a total storage capacity of 963,000 gallons. Sandy soil extends over those areas not covered by buildings, asphalt or pavement. The process area is enclosed within a six-foot chain-link fence and is protected by security. The western property line abuts the abandoned Central Railroad of New Jersey's Freehold and Atlantic Highlands Branch Main Line (Figure 2).

The site is situated in a predominantly residential area of Monmouth County. The population size of Marlboro Township is approximately 27,000. There are approximately 30 residential properties sparsely located along the surrounding roads within a one mile radius of the site. The nearest residence is within 100 feet of the employee parking lot. A small commercial center (Morganville) is located approximately 1/2 mile southeast of the site at the junction of Route 3 and Route 79. Two automobile scrap yards are located just to the northeast of the site. Lake Lefferts, a swimming and recreational area, is located approximately one mile north of the site. Lake Lefferts has been identified as a potential potable water source for the area.

The site is located within the Matawan watershed of the Atlantic Coastal Drainage Basin. The topography of the site ranges from 120 feet above mean sea level (MSL) in the southwest corner of the site to 97 feet above MSL at the northern boundary. Surface water runoff at the site is to the north. During periods of heavy rainfall, water accumulates in a catchment area in the northern section of the site. Surface water is contained by an earthen berm which extends along the northeastern fence line of the site. To the east of the berm is a fire pond which discharges to Birch Swamp Brook. Birch Swamp Brook, an intermittent stream at the site, flows through a bog northwest of the site, and subsequently drains into Lake Lefferts which, in turn, empties into Raritan Bay.

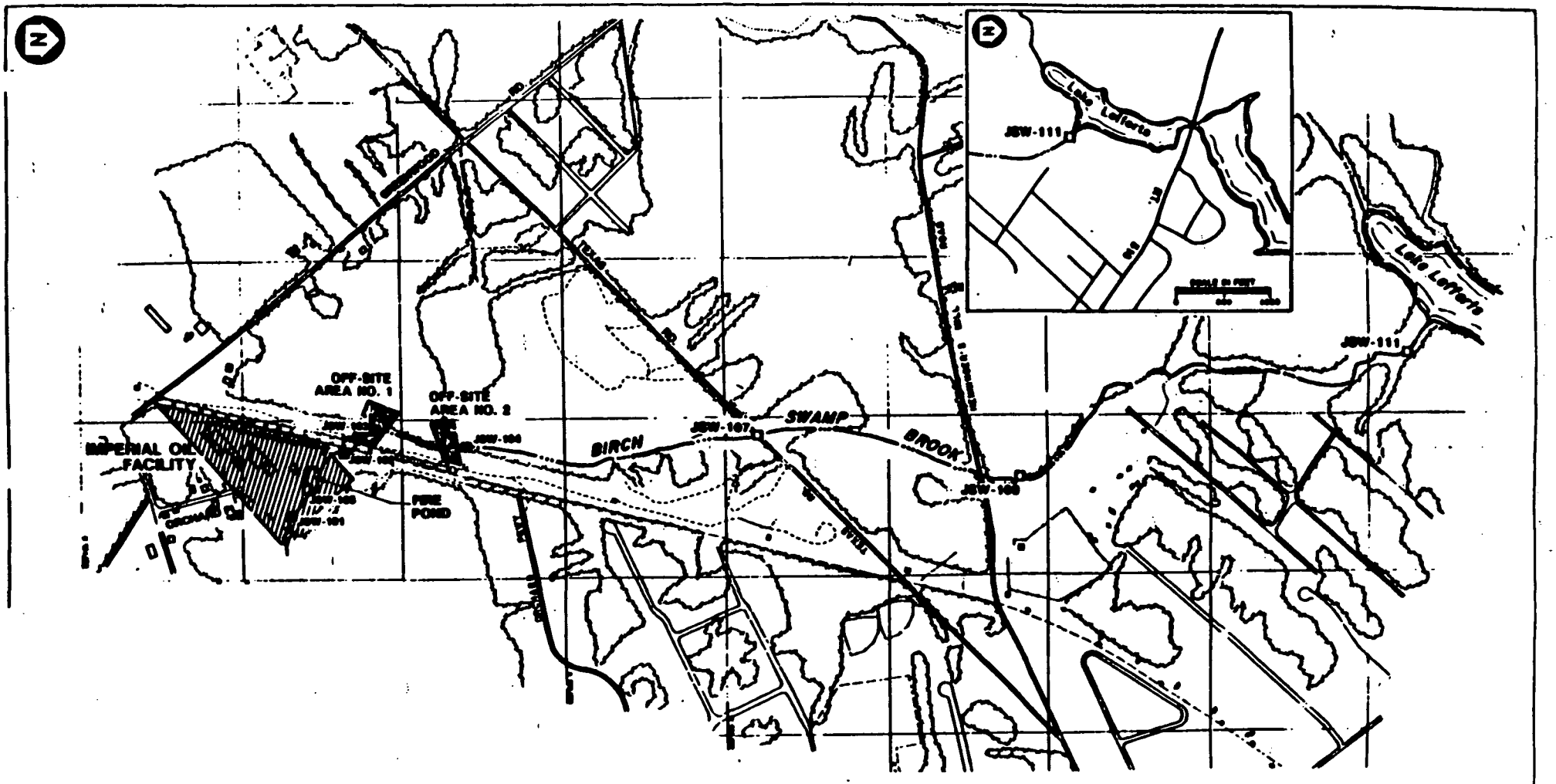
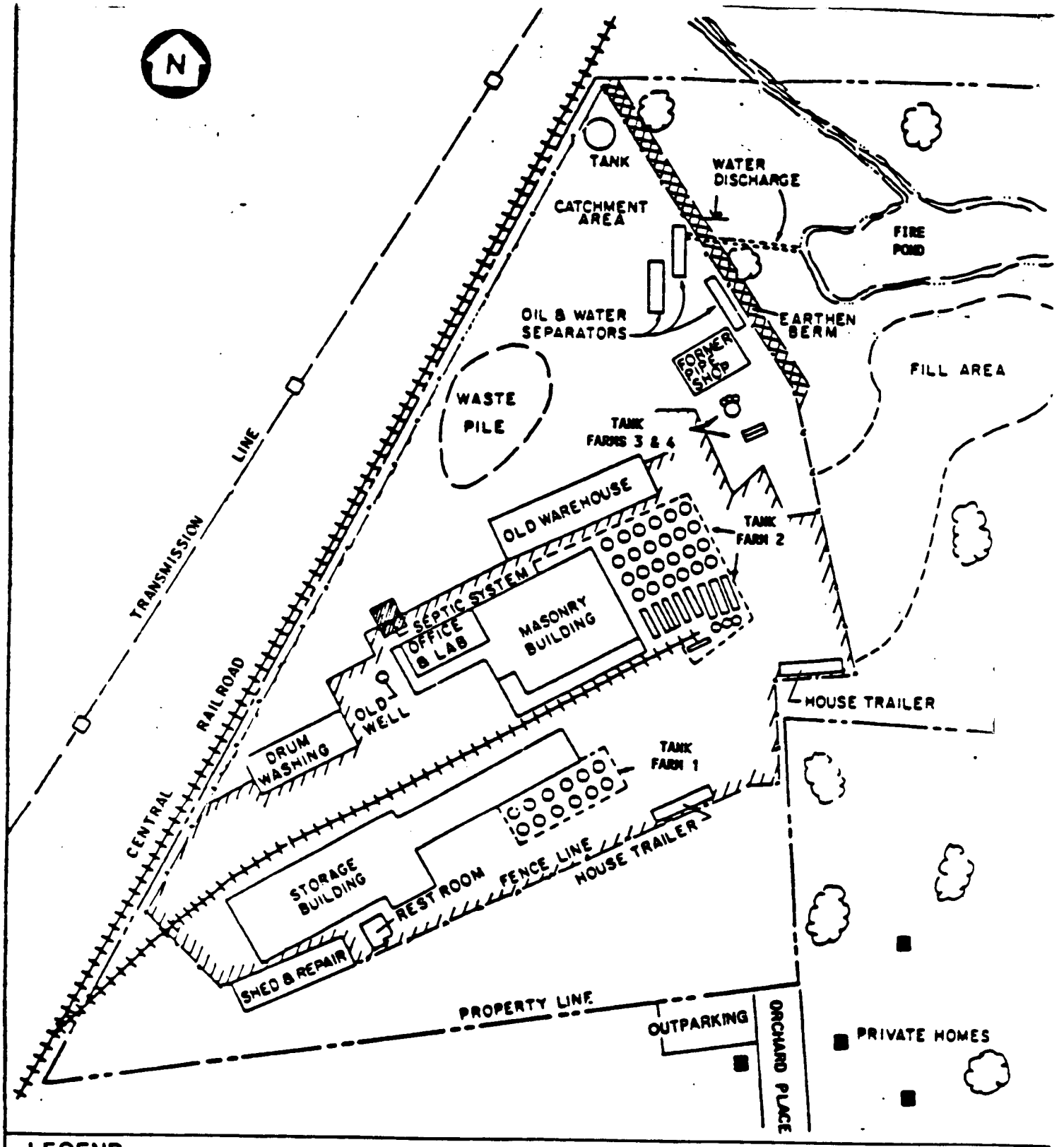


FIGURE 1

IMPERIAL OIL/CHAMPION CHEMICALS SITE
MORGANVILLE, NEW JERSEY

E.C.JORDAN CO.



LEGEND

EXTENT OF PAVED AREA

SCALE

0 50 100 200 FEET

FIGURE 2

SCHEMATIC LAYOUT OF
IMPERIAL OIL CO. FACILITY
IMPERIAL OIL/CHAMPION CHEMICALS SITE
MORGANVILLE, NEW JERSEY

E.C. JORDAN CO.

A significant natural resource in the area of the site is the groundwater contained in the Englishtown Aquifer. The geologic formation hosting the Englishtown Aquifer, the Englishtown Formation, outcrops in the vicinity of the site. The Englishtown Aquifer is classified as potable (GW-2) and is an important source of water supply for Monmouth and northern Ocean Counties. The groundwater in the shallow and deep zones of the aquifer beneath the site flows to the north and northeast, respectively.

Wetlands are present north of the site. Based on a preliminary survey, some of the land surrounding the Fire Pond, as well as most of the area encompassing the off-site areas, appear to qualify as wetlands. Soils in these areas are somewhat poorly to very poorly drained. Vegetation observed in these areas is consistent with those normally found in wetland areas. The two types of wetlands identified are forested wetlands and a more traditional freshwater marsh. These areas appear to be hydraulically connected.

Off-site Areas 1 & 2 are located approximately 220 feet and 700 feet northwest of the facility, respectively. These areas contain surface soils which are stained with an oily sludge residue. They appear to have been former dump sites for waste oil. The vegetation in these areas is visibly stressed and the soils are highly stained, as are the soils in the adjacent banks of Birch Brook. These two areas are the subject of this operable unit.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

Historical Site Use

The Imperial Oil Company, Inc. facility and associated land has been the site for a variety of business operations since the original buildings were constructed in 1912.

The first company to occupy the site produced tomato ketchup and tomato paste. The plant changed operation and possibly owners around 1917. Also, around that time, the Stratford Chemical Company took over the site and began producing arsenate and arsenic acid. In the 1930s, the Stratford Chemical Company changed its name to the Brocker Chemical Company and continued to manufacture chemicals until bankruptcy forced them to sell out around 1945 to S. B. Penick and Company. S. B. Penick and Company produced flavors and essences until 1949.

The Champion Chemicals Company acquired the property in 1950. The existing facilities were modified to support Champion Chemicals' oil reclamation operations. During this period of time, Eagle Asphalt Company was also utilizing the property. The process of oil reclamation involved washing the used oil with caustic material in vertical process tanks to remove the sludge and impurities. The washed oil was distilled to remove the heavy

oil and then passed through a clarification process. This process involved mixing the oil with filter clay (diatomaceous earth) in large holding tanks, where the filter clay was allowed to settle to the bottom and the oil was skimmed off the top. The filter clay was used to remove the heavy metals (tetraethyl lead, zinc, iron, etc.) present in the waste oil. The purified oil was then passed through a filter press to remove any remaining earth.

The waste products of the reclamation process included wash water, waste oils and sludges, and oily filter clay. Reportedly, the waste filter clay was piled outside near the settling tank for temporary storage. Wash water was discharged into a lagoon located just north of the shop building for settling. The purpose was to recover excess oil which would float to the surface. Waste wash water and used oil was used to oil dirt roads in the area, a practice which was performed to reduce fugitive dust. In addition, it has been reported that waste wash water and used oil was dumped into leaching ponds located off North Texas Road. It has also been reported that oil-contaminated soil was dumped on the site in the area east of the front gate and the on-site house trailer.

Since 1969, Imperial Oil Company, Inc. has leased the facility from Champion Chemicals. The Imperial Oil Company, Inc. runs an oil blending operation at the site which involves the mixing and repackaging of unused oil for delivery. Currently, raw product (refined clean oils) is delivered by truck and transferred to above-ground tanks on the site. The Imperial Oil Company, Inc. has reportedly removed sludge material from the oil/water separators and deposited it in the area between the old process building and the filter clay pile. Laboratory wastes and sanitary wastes were disposed in a septic system located north of the office building.

Remedial Actions to Date

The New Jersey Department of Environmental Protection (NJDEP), U.S. Environmental Protection Agency (EPA), Princeton Aqua Science (PAS), Fred C. Hart and Associates, and the Monmouth County Health Department have conducted investigations at the IOC/CC site to date.

In April 1981, a NJDEP site inspection found oil-contaminated soils and numerous large puddles at the base of tank farms 1 and 2. The outfall area for the three oil/water separators was also inspected. This area showed oily surface water and oil-stained surface soils. The catchment area for the site surface water runoff, north of the separators, was also stained with oil. Results of analyses of soil and waste pile samples revealed petroleum hydrocarbons, lead, barium, arsenic, and polychlorinated biphenyls (PCBs). Sediment samples from Birch Swamp Brook also showed significant concentrations of lead, arsenic, PCBs, and petroleum hydrocarbons.

In May 1981, the EPA conducted a limited sampling program at the off-site areas and the waste filter clay pile. Results of analyses of the sediment samples from the stream bed of Birch Swamp Brook confirmed the presence of PCBs, petroleum hydrocarbons, lead, and arsenic. The analytical results of the samples from the clay pile indicated that this material contained significant concentrations of PCBs.

In June 1981, a letter from the Imperial Oil Company, Inc. consultant (Harold Seldin) to the EPA indicated that, in 1976, the Imperial Oil Company, Inc. excavated contaminated soil and replaced it with clean sand in the area of the oil/water separators. An earthen berm was constructed and one oil/water separator was cleaned and repaired.

In June and August 1981, the NJDEP conducted two site inspections and identified the following potential sources of contamination:

- Oil/water separators: Overflow from flooding has contaminated surrounding soils; sludge was being removed from the skimmers and dumped on site.
- Waste filter clay pile: Initial estimated volume was approximately 50 to 75 cubic yards.
- Tank farm areas: Tanks appeared to be discharging oils and additives to the surrounding grounds; fill hoses, pipes, and boiler blowdown fluids drained onto the grounds.
- Floor drains: Boiler room and machine shop, unknown composition of liquids being drained, destination of liquids unknown.
- Septic tank and leach field: Receives laboratory wastes generated on site.
- Drum washing area: Oil spillages observed.
- Waste dump: Contaminated soils dumped east of house trailer.
- Two off-site waste dumps: Visible oil sludge and residue on the ground and stress vegetation.
- Banks of Birch Swamp Brook: Stained with oily residue.

In August 1981, the NJDEP conducted an inspection of the off-site waste oil contamination areas. During the inspection, two distinct areas of contamination were identified. The areas are located north of the Imperial Oil Company, Inc. along the flanks

of Birch Swamp Brook. At both areas, the surface soils were visibly stained with oil material. The banks of the stream were also observed by the NJDEP to be stained with oily residue. Vegetation in these areas was noticeably stressed.

In December 1981, the Imperial Oil Company, Inc. entered into an Administrative Consent Order (ACO) with the NJDEP in which the Imperial Oil Company, Inc. agreed to cease discharging of hazardous waste and other pollutants into the waters of the State, except if the effluent met certain specified discharge limits set forth by New Jersey Pollutant Discharge Elimination System (NJPDES). In addition, the ACO required the Imperial Oil Company, Inc. to repair the oil/water separators and dispose of oil/water-separator sludge in a manner acceptable to NJDEP. Further, the ACO required the company to conduct an environmental assessment of their site to determine the nature and extent of contamination and implement a remedial plan for cleaning up the site.

In May 1982, Princeton Aqua Science (PAS), contracted by the Imperial Oil Company, Inc., conducted an evaluation of the site. During this investigation, seven test pits were excavated and sampled. In addition, four monitor wells were installed. The purpose of the investigation was to assess the nature and extent of contamination in the soil and groundwater at the site. The results of this investigation were presented in a report issued by PAS in January 1983. The analyses performed on the selected samples confirmed the presence of petroleum hydrocarbons, PCBs, arsenic, and volatile organic compounds in the groundwater and soil. A floating product layer was detected in monitoring wells MW-3 and MW-5 during sampling.

In August 1982, the site was ranked using the MITRE Hazardous Ranking System (HRS) and received a computed score of 42.69. The IOC/CC site was proposed for inclusion on EPA's National Priority List (NPL) of hazardous waste sites on December 1, 1982; the site was finalized on the NPL on September 1, 1983.

In May 1983, a NJDEP inspection of the Imperial Oil Company, Inc. site, including the off-site waste oil contamination areas, confirmed the continued presence of oily stained soils in the areas that had historically exhibited visible contamination.

In September 1983, a Remedial Action Master Plan was prepared by Fred C. Hart Associates for EPA for the IOC/CC site. The report summarized the data collected up to that point in time and concluded that soil and groundwater on site, and sediment off site, were contaminated with heavy metals and priority organic pollutants, including PCBs.

From 1984 through 1985, three site inspections by the NJDEP detected several occasions of overflowing of impounded surface

water from the catchment area, erosion of material from the waste filter clay pile by surface runoff, and flooding into the Fire Pond and Birch Swamp Brook. There was a noticeable oil sheen on the surface of Fire Pond. The inspections also revealed laboratory waste contained in 55-gallon drums stored in a warehouse, overflowing of the oil/water separators, and the oil/water separator effluent not being passed through the arsenic treatment system.

In July 1986, the Monmouth County Prosecutor's Office conducted an investigation of the IOC/CC site. Samples were obtained and analysis showed that heavy metals, PCBs, and petroleum hydrocarbons were present in soil and groundwater.

In October 1986, a site reconnaissance by the NJDEP's consultant, E.C. Jordan Company, was undertaken. During the reconnaissance, on-site and off-site areas were inspected. Oil-stained surface soils were evident throughout the site. The inspection also revealed mats of oily sludge along the banks of Birch Swamp Brook, in the immediate flood plain, and at the two off-site oil contamination areas.

A remedial investigation (RI) was conducted at the IOC/CC site in two phases. Phase I and Phase II were performed in 1987, and 1989 through 1990, respectively. At the completion of the first phase, a draft Phase I Sampling Report (July 1987) was prepared detailing the findings of the field investigations. Also included in the Phase I Sampling Report were recommendations for a second phase of investigation. The objective of the Phase II investigation was to further delineate the distribution of contaminants identified during Phase I and previous investigations in preparation for a site risk assessment and a feasibility study (FS). In June 1990, a draft RI report was prepared.

In June 1987, the IOC/CC entered into a Plea Agreement with Monmouth County. The companies agreed to remove the clay pile to grade at a cost not to exceed $400,000. In addition, the companies agreed to contribute $400,000 to Phase I of the remedial investigation and feasibility study (RI/FS) and a sum not to exceed $7,000 to defray State costs for laboratory fees. The companies also agreed to abide by the 1981 ACO with the NJDEP.

In September 1987, the EPA initiated a Superfund Innovative Technology Evaluation (SITE) demonstration Program at the IOC/CC site. The technology demonstrated was the solidification/ stabilization process developed by Solitech, Inc. of Houston, Texas. A Technology Evaluation Report for the project was released in February 1990.

In September 1989, the EPA issued an Administrative Order (AO) to the Imperial Oil Company, Inc. and Champion Chemicals Company for the delineation, characterization, removal and/or treatment and disposal of the waste filter clay pile.

In July 1990, a focused feasibility study (FFS) was prepared by NJDEP to addressed the soil contamination at two off-site areas. This study was based on surface and subsurface soil samples collected during the Phase I and II field investigations of the RI. Samples were either field screened using an on-site portable gas chromatograph or submitted to a Contract Laboratory Program (CLP) approved laboratory. The soils in these areas were found to contain petroleum hydrocarbons, heavy metals and PCBs. Meanwhile, the full RI/FS evaluation for the entire site is ongoing.

In August 1990, the EPA noticed four potentially responsible parties (PRPs) pursuant to Sections 106(a) and 107(a) of CERCLA, that they may be ordered to perform response actions deemed necessary by EPA to protect public health, welfare or the environment.

Current Conditions

The site is presently an active oil blending facility under the control of the Imperial Oil Company, Inc. The on-site facility/ operations is fenced on all sides. The off-site areas are not restricted from access and are currently being used for recreational purposes by children.

The E.C. Jordan Company, contracted by the NJDEP, is currently finalizing the RI report and commencing the FS which will identify and evaluate remedial alternatives for the on-site contamination and the Birch Swamp Brook contamination. This study is being conducted concurrently with the off-site areas operable unit action and will address the remaining site contamination. Virtually all of the sampling activities for the RI/FS have been completed.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The focused feasibility study and the Proposed Plan for remediation of the off-site areas of the IOC/CC site were released to the public for comment on July 26, 1990. These two documents are available to the public in both the administrative records at the NJDEP, and at the Marlboro Township Municipal Building. The notice of availability for these two documents was published in the Asbury Park Press on August 1, 1990. A public comment period was held from July 26, 1990 to August 25, 1990. In addition, a public meeting was held on August 14, 1990. At this meeting, representatives from the NJDEP presented the

findings of the FFS and the Proposed Plan and also answered questions about problems concerning the site and the remedial alternatives under consideration. A response to the comments received during the public comment period is included in the Responsiveness Summary, which is part of this Record of Decision (ROD).

This decision document presents the selected remedial action for the off-site areas of the IOC/CC site, in Marlboro, New Jersey, chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA) and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The decision for this site is based on the administrative record.

SCOPE AND ROLE OF REMEDIAL ACTION

As with many Superfund sites, the problems at the Imperial Oil Company, Inc./Champion Chemical site are complex. As a result, NJDEP has organized the remedial work into phases or operable units. This ROD addresses the first planned remedial action at the site which will address those hazards in the off-site areas that require immediate attention. Remedial alternatives for a permanent cleanup of the entire site are being evaluated in the ongoing RI/FS.

- Operable Unit 01: is the subject of this decision document. It will address the principle threats posed by the off-site areas that require expedited remediation. These areas include contaminated soil within the wetlands adjacent to the IOC/CC site.

- Additional Units: will determine the nature and extent of contamination over the entire site. An RI/FS is currently being performed that will address the remaining areas of contamination at the site. The RI/FS will examine soils, surface water, groundwater, sediments, air, and other remaining contamination sources. The remaining areas will be examined for further operable unit segregation so as to address the worst areas of the site first.

SUMMARY OF SITE CHARACTERISTICS

A variety of manufacturing operations have utilized the site over the years. Most recently, the IOC/CC site has been used for the reclamation and blending of oil products. As a result, there are

a variety of potential sources of chemical contamination, numerous potential mechanisms for chemical migration, and many potential exposure pathways for both human and ecological receptors.

Numerous potential contamination sources of hazardous wastes are identified at the site. Below is a list of potential sources segmented into areas to be addressed under this ROD and those to be addressed in the ongoing RI/FS.

Operable Unit 1

- Approximately 3,700 cubic yards of contaminated soil contained in Off-site Areas 1 & 2.

Polychlorinated biphenyls and total petroleum hydrocarbons (TPHs) appear to be of the greatest concern in Off-site Areas 1 & 2. Arsenic, antimony, beryllium and lead, were also detected in the off-site areas at elevated concentrations. Other contaminants identified in the study areas include volatile organic compounds: benzene, ethylbenzene, toluene and xylene; semi-volatile organic compounds: bis(2-ethlhexyl) phthalate, butyl benzyl phthalate, chrysene, di-n-butyl phthalate, fluoranthene, phenananthrene, 2-methylnaphthalene and pyrene; and inorganic compounds: chromium, copper, silver and zinc. Maximum and mean concentration levels of validated data are presented in Table 1.

The most widespread soil contaminant at Off-site Areas 1 & 2 is PCBs. The horizontal distribution of PCBs within the off-site areas are displayed on Figures 3 and 4. At Off-site Area 1, PCBs was detected above 50 parts per million (ppm) in an area of approximately 2,400 cubic feet. At Off-site Area 2, PCBs were not detected above 50 ppm. PCB concentrations greater than 10 ppm were detected below two feet.

The soils of the off-site areas appear to be a source of contamination and potentially impact the sediments and surface water of Birch Swamp Brook. While some contaminants have relatively low solubility and tend to sorb to soil and sediments, some potential routes of migration occur during sediment erosion and flooding events.

The RI soil sampling analyses demonstrate that the distribution of PCBs and other organic and inorganic contaminants in the soils is similar. Therefore, remediation of the PCB contaminated soil will also effectively remediate all other contaminants of concern.

Based on the distribution of PCBs, the volume of soil to be remediated to the NJDEP cleanup level of 5 ppm, is approximately 1,900 cubic yards. However, the existing RI data has not ruled out the possibility that concentrations of carcinogenic

TABLE 1

CHEMICALS DETECTED IN SOILS (0-3 FEET)
OFF-SITE AREAS 1 AND 2

CHEMICAL COMPOUNDS	CONCENTRATION LEVEL	
VOLATILES (PPB)	MAXIMUM	MEAN
Benzene	16.0	2.37
Ethylbenzene	170.0	27.30
Toluene	740.0	89.20
Xylenes	660.0	69.40
SEMI-VOLATILES (PPB)		
Bis(2-ehtylhexyl) phthalate	140000.0	33158.00
Butyl benzyl phthalate	19000.0	3979.00
Chrysene	41.0	3.15
Di-n-butyl phthalate	5700.0	651.00
Fluoranthene	49.0	3.77
Phenanthrene	270.0	20.76
2-Methylnaphthalene	700.0	117.00
Pyrene	590.0	100.15
PCBS (PPB)		
Aroclors	22040.0	1465.00
INORGANICS (PPM)		
Antimony	96.2	14.2
Arsenic	203.0	31.9
Beryllium	3.6	0.897
Chromium	71.5	18.4
Copper	107.0	22.5
Lead	2330.0	178.0

NOTES:
- Concentration levels presented in this table represent Contract Laboratory Program (CLP) analyzed data, and does not include results from field screening activities.
- Parts per million is denoted by ppm.
- Parts per billion is denoted by ppb.

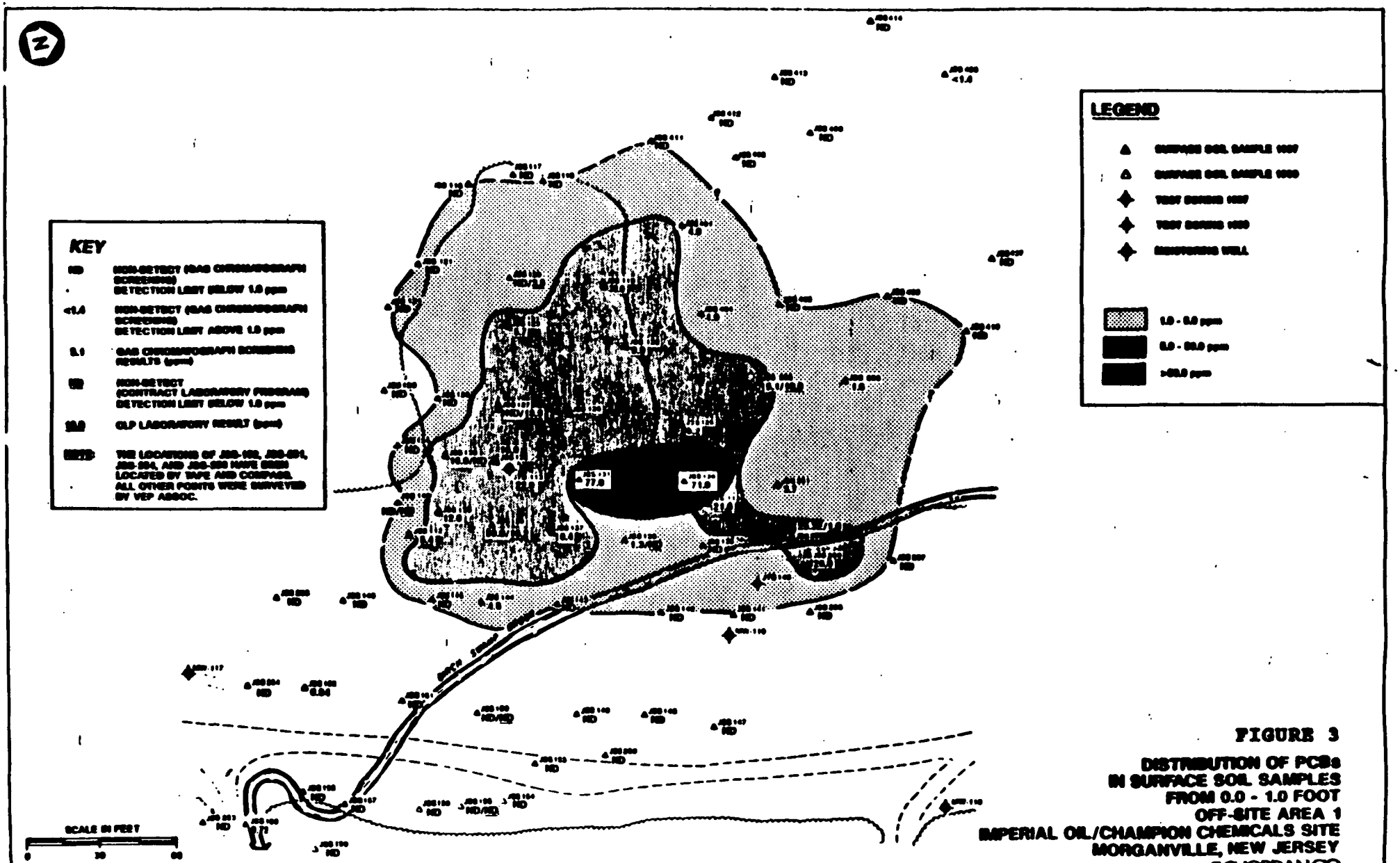


FIGURE 3

DISTRIBUTION OF PCBs
IN SURFACE SOIL SAMPLES
FROM 0.0 - 1.0 FOOT
OFF-SITE AREA 1
IMPERIAL OIL/CHAMPION CHEMICALS SITE
MORGANVILLE, NEW JERSEY

ECJORDANCO

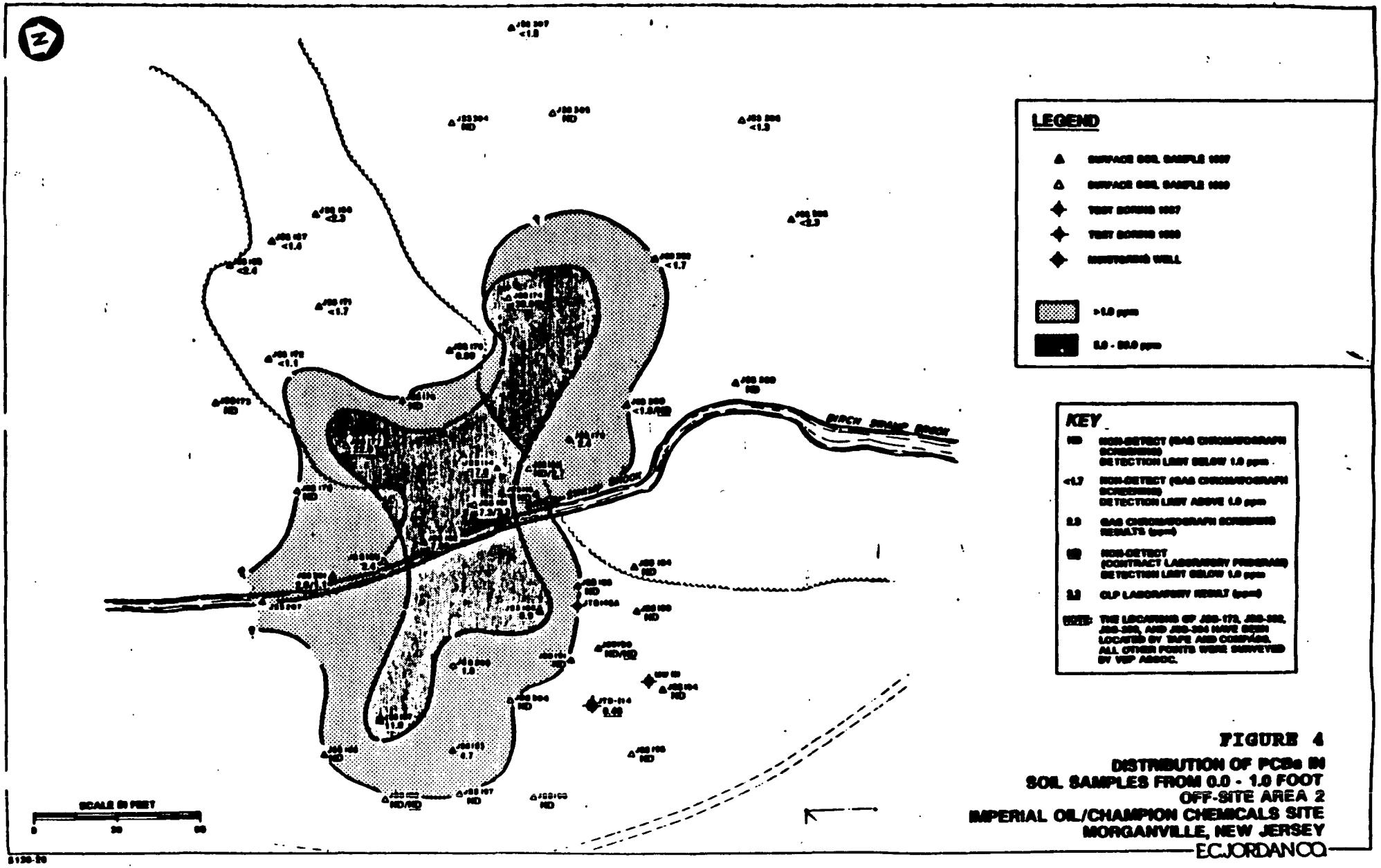


FIGURE 4
DISTRIBUTION OF PCBs IN SOIL SAMPLES FROM 0.0 - 1.0 FOOT OFF-SITE AREA 2 IMPERIAL OIL/CHAMPION CHEMICALS SITE MORGANVILLE, NEW JERSEY

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polycyclic aromatic hydrocarbons (cPAHs), arsenic (As) or lead (Pb) above the NJDEP Soil Cleanup Objectives may remain unremediated in the horizontal and/or vertical fringes of the off-site areas where total PCB concentrations are below the 5 ppm cleanup level.

In order to fill this data gap, surface sampling (0-12") of the fringe areas (between the 1 ppm and 5 ppm PCB contour) and subsurface sampling (12-24") underneath the central, heavily contaminated portions of each off-site area for targeted analytes (i.e., cPAHs, As or Pb) will be included as part of the remedial design (RD) for this operable unit. To allow for the potential existence of these contaminants, the volume of contaminated soil to be addressed by this ROD (3,700 cubic yards) is based on the soil contaminated with PCBs greater than 1 ppm. This volume will be adjusted based on the findings of the remedial design phase for this operable unit.

Additional Contamination

The on-going RI/FS is addressing the contamination at the site itself. The potential sources of contamination include:

- Approximately 56 above-ground tanks and surrounding soils located within the four on-site fuel tank farms.
- A waste filter clay pile with an estimated volume of contaminated soil ranging from 1,000 to over 3,600 cubic feet.
- A layer of oil floating on the surface of the groundwater immediately beneath the waste filter clay pile and adjacent catchment area.
- Three oil/water separators which are used to treat accumulated storm water runoff and discharge under a permit to the fire pond.
- Seven on-site buildings which contain environmental hazards including contaminated sediments on the floor.
- A fill area which is the site of a former settling lagoon for the oil reclamation process.
- Contaminated soils in the catchment area.
- A septic tank and leaching field which potentially received laboratory wastes.
- Sediments contained in a storm water drainage system flow into the oil/water separators.

- Contaminated fill areas located west of the outparking area, south of the fire pond, and adjacent to the drum wash building.

- Sediments along Birch Swamp Brook.

In addition to the numerous contamination sources described above, contaminants have migrated into the soil, water, sediment and air. Sampling of contaminated environmental media was conducted and is still under investigation.

SUMMARY OF SITE RISKS

Human Health Risks

The EPA conducted an Endangerment Assessment (EA) of the "no action" alternative to evaluate the potential risks to human health and the environment associated with the two off-site areas of Imperial Oil Company, Inc./Champion Chemical site in its current state. The EA focused on the surface soil contaminants at Off-site Areas 1 & 2 which are likely to pose the most significant risks to human health and the environment. Selected contaminants of concern (COC) at Off-site Areas 1 & 2 include:

Volatile Organic Contaminants

- Benzene
- Ethylbenzene
- Toluene
- Xylenes

Semi-Volatile Organic Contaminants

- Bis(2-ethylhexyl) phthalate
- Butyl benzyl phthalate
- Chrysene
- Di-n-butyl phthalate
- Fluoranthene
- Phenanthrene
- 2-Methylnaphthalene
- Pyrene

Polychlorinated Biphenyls (PCBs)

- Aroclors

Inorganic Contaminants

- Antimony
- Arsenic
- Beryllium
- Chromium
- Copper
- Lead

EPA's EA identified several potential exposure pathways by which the public may be exposed to contaminant releases. The potential exposure routes identified in the EA include:

- Inhalation of Soil
- Dermal Contact and Ingestion of Soil

At Off-site Areas 1 & 2, the current receptor population is primarily limited to children known to use the off-site areas for dirt-biking in contaminated soils. Future receptor population is anticipated to be the children using the area under a residential scenario. Potential exposure pathways include the direct dermal contact, incidental ingestion and inhalation of airborne soil particulates by children. For most exposure pathways, exposure assumptions were made for a most probable and realistic worst case exposure scenario.

Under current EPA guidelines, the likelihood of carcinogenic (cancer causing) and noncarcinogenic effects due to exposure to site chemicals are considered separately. It was assumed that the toxic effects of the site related chemicals would be additive. Thus, carcinogenic and noncarcinogenic risks associated with exposures to individual COCs were summed to indicate the potential risks associated with mixtures of potential carcinogens and noncarcinogens, respectively.

Summary of Noncarcinogenic Risks

Noncarcinogenic risks were assessed using a hazard index (HI) approach, based on a comparison of expected contaminant intakes and safe levels of intake (reference doses). Reference doses (RfDs) have been developed by the EPA for indicating the potential for adverse health effects. RfDs, which are expressed in units of milligrams per kilogram per day (mg/kg-day), are estimates of daily exposure levels for humans which are thought to be safe over a lifetime (including sensitive individuals). Estimated intakes of chemicals from environmental media (e.g., the amount of a chemical ingested from contaminated drinking water) are compared with the RfD to derive the hazard quotient for the contaminant in the particular media. The hazard index is obtained by adding the hazard quotients for all compounds across all media. A hazard index greater than 1 indicates that potential exists for noncarcinogenic health effects to occur as a result of site-related exposures. The HI provides a useful reference point for gauging the potential significance of multiple contaminant exposures within a single medium or across media.

The RfDs and HIs for the COCs at the Imperial Oil Company, Inc./ Champion Chemical site are presented in Tables 2 and 3, respectively. The hazard index for non-carcinogenic effects from soil exposure under a future residential scenario is greater than 1, suggesting that noncarcinogenic effects may occur.

TABLE 2

REFERENCE DOSES (RfDs)
CHEMICALS OF CONCERN

IMPERIAL OIL/CHAMPION CHEMICAL COMPANY SITE
OFF-SITE AREAS 1 & 2

Compound	RfD (Oral) (mg/kg/day)
Antimony	4.00E-04
Butyl benzyl Phthalate	2.00E-01
Chromium III	1.00E+00
Copper	3.70E-02
Di-n-butyl phthalate	1.00E-01
Ethylbenzene	1.00E-01
2-Methylphenol (o-cresol)	5.00E-02
Toluene	3.00E-01
Xylenes (total)	2.00E+00

TABLE 3

SUMMARY OF NONCANCER RISK

IMPERIAL OIL/CHAMPION CHEMICAL COMPANY SITE
OFF-SITE AREAS 1 & 2

INHALATION OF SOIL:

	Most Probable Case	Realistic Worst Case
Children Dirt-Biking	0.01	0.06

DERMAL CONTACT AND INGESTION OF SOIL:

	Most Probable Case	Realistic Worst Case
Children Dirt-Biking	0.03	0.20
Residential Children	0.40	3.00

COMBINED INHALATION/DERMAL/INGESTION OF SOIL:

	Most Probable Case	Realistic Worst Case
Children Dirt-Biking	0.04	0.26

Summary of Carcinogenic Risks

Potential carcinogenic risks were evaluated using the cancer potency factors developed by the EPA for the COCs. Cancer potency factors (CPFs) have been developed by EPA's Carcinogenic Risk Assessment Verification Endeavor for estimating excess lifetime cancer risks associated with exposure to potentially carcinogenic chemicals. CPFs, which are expressed in units of $(mg/kg\text{-}day)^{-1}$, are multiplied by the estimated intake of a potential carcinogen, in mg/kg-day, to generate an upper-bound estimate of the excess lifetime cancer risk associated with exposure to the compound at that intake level. The term "upper bound" reflects the conservative estimate of the risks calculated from the CPF. Use of this approach makes the underestimation of the risk highly unlikely. The CPFs for the COCs and their corresponding cancer risk levels are presented in Tables 4 and 5 respectively.

For known or suspected carcinogens, the EPA considers excess upper bound individual lifetime cancer risks of between 1×10^{-4} to 1×10^{-6} to be acceptable. This level indicates that an individual has no greater than a one in ten thousand to one in a million chance of developing cancer as a result of site-related exposure to a carcinogen over a 70-year period under specific exposure conditions at the site. The EPA has determined that the target risk for the site should be on the order of 1×10^{-6}, based on the sensitivity of the neighboring population (school children and residents in very close proximity to the site).

Uncertainties

The procedures and inputs used to assess risks in this evaluation, as in all such assessments, are subjected to a wide variety of uncertainties. In general, the main sources of uncertainty include:

- Environmental Chemistry Sampling and Analysis
- Environmental Parameter Measurement
- Fate and Transport Modeling
- Exposure Parameter Estimation
- Toxicological Data

Uncertainty in environmental sampling arises in part from the potentially uneven distribution of chemicals in the media sampled. Consequently, there is significant uncertainty as to the actual levels present. Furthermore, uncertainty occurs because a large percentage of screened data was unusable in the calculation of site risk. Environmental chemistry analysis error can stem from several sources including the errors inherent in the analytical methods and characteristics of the matrix being sampled.

TABLE 4

CANCER POTENCY FACTORS (CPFs)
CHEMICALS OF CONCERN

IMPERIAL OIL/CHAMPION CHEMICAL COMPANY SITE
OFF-SITE AREAS 1 & 2

Compound	Weight of Evidence	CPF $(mg/kg/day)^{-1}$
Arsenic	A	5.00E+01 (I)
Bis(2-ethylhexyl) phthalate	B_2	1.40E-02 (O)
Benzene	A	2.90E-02 (O&I)
Beryllium	B_2	4.30E+00 (O)
		8.40E+00 (I)
Carcinogenic PAHs	B_2	1.15E+01 (O)
		6.10E+00 (I)
PCBs	B_2	7.70E+00 (O)

(I) - Inhalation
(O) - Oral

Group A - Human Carcinogen
Group B_2 - Sufficient Evidence of Carcinogenicity in Animals

TABLE 5

SUMMARY OF CANCER RISKS

IMPERIAL OIL/CHAMPION CHEMICAL COMPANY SITE
OFF-SITE AREAS 1 & 2

INHALATION OF SOIL:

	Most Probable Case	Realistic Worst Case
Children Dirt-Biking	$3x10^{-5}$	$2x10^{-5}$

DERMAL CONTACT AND INGESTION OF SOIL:

	Most Probable Case	Realistic Worst Case
Children Dirt-Biking	$7x10^{-6}$	$7x10^{-5}$
Residental Children	$2x10^{-5}$	$8x10^{-4}$

COMBINED INHALATION/DERMAL/INGESTION OF SOIL:

	Most Probable Case	Realistic Worst Case
Children Dirt-Biking	$4x10^{-5}$	$9x10^{-5}$

Uncertainty in the exposure assessment is related to the presence of potentially sensitive populations (school children and residents) in very close proximity to the site. Additional uncertainties arise from estimates of how often an individual that would actually come in contact with the chemicals of concern, the period of time over which such exposure would occur, and in the models used to estimate the concentrations of the chemicals of concern at the point of exposure.

Uncertainties in toxicological data occur in extrapolating both from animal to human and from high to low doses of exposure, as well as from the difficulties in assessing the toxicity of a mixture of chemicals. These uncertainties are addressed by making conservative assumptions concerning risk and exposure parameters throughout the assessment. In addition, there is currently no lead RfD, hence the noncancer risk attributable to lead exposure at IOC/CC was not assessed.

Site-specific information concerning public health risks, including quantitative evaluation of the degree of risk associated with various exposure pathways, is presented in Section 1.3.2 of the FFS report, which is available at the Marlboro Township Municipal Building.

Additional Health Risks

In addition to the risk assessment, concentrations of lead in the soils of the off-site areas were compared to EPA's health-based cleanup level of 500-1000 ppm. In general, exposure to lead in soil is thought to be responsible for blood lead levels increasing above background in children when the concentration of lead in the soil exceeds 500-1000 ppm. The concentrations of lead in the soils of the off-site areas at the IOC/CC site exceed this level.

Environmental Risks

Environmental Assessment

A baseline ecological risk assessment of the off-site areas was conducted. A detailed analysis of the assessment is contained in section 1.3.3 of the FFS report.

Chemicals of Concern (COCs) for the ecological risk assessment were identified for surface soil, sediment and surface water. The critical habitats considered under this investigation include: Fire Pond, Birch Swamp Brook, Lake Lefferts and the surrounding wetland areas. Following the identification of COCs, an exposure assessment was conducted to identify the actual or

potential exposure routes to ecological receptors at the site, and to estimate contamination concentrations at the point of exposure. The potential exposure pathways identified are in direct contact with (including ingestion of) surface water, sediments, surface soils, and ingestion of biota which have bioconcentrated chemicals in their tissues.

The potential for adverse impacts from site associated chemicals was evaluated by comparing the concentrations of chemicals detected to relevant standards and criteria. The most relevant standards for evaluating risks to aquatic organisms are Ambient Water Quality Criteria (AWQC) and Sediment Quality Criteria (SQC).

The ecological risk assessment of the area indicates that PCBs, arsenic, and lead in Birch Swamp Brook sediments pose risks to aquatic organisms in the vicinity of the IOC/CC site. Although PCBs in surface soils are posing limited risks to wildlife, they are a source of further sediment contamination.

Excavation of contaminated soil will focus on reducing exposure to contaminants on aquatic organisms and wildlife. In addition, this remedy will limit off-site migration of contaminants to areas downgradient from the site. The benefits of removing the contaminated soil and restoring the affected wetlands out weighs the risks associated with adverse impacts from construction on the environment.

Conclusion

Actual or threatened release of hazardous substances from this site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF ALTERNATIVES

The alternatives analyzed for this action are presented below. These alternatives are numbered to correspond with those in the Focused Feasibility Study report and the Proposed Plan. These alternatives were developed by screening a range of alternatives for their applicability to site-specific conditions. They were also evaluated for effectiveness, implementability, and cost. The alternatives that were not eliminated from consideration during screening were subjected to a more detailed evaluation.

Based on the site conditions, nature of contaminants and conclusions of the risk assessment, the primary remedial objectives for Off-site Areas 1 & 2 are the following:

- Reduce exposure risks through incidental ingestion, inhalation and dermal contact with contaminated soil.
- Eliminate the potential migration of contaminants into the groundwater and surface water.
- Restoration of the affected wetlands.
- Complete remediation of Off-site Areas 1 & 2 in a short-term timeframe.

Alternative 1: No Action and Monitoring

Estimated Capital Cost:	$ 0
Estimated Annual O&M Cost:	$ 13,800
Estimated Present Worth:	$ 280,800
Implementation Period:	None

The NCP and CERCLA require the evaluation of a No Action alternative as a basis for comparison with other remedial alternatives. The No Action alternative consists of those actions required for monitoring the future migration of contaminants to groundwater, surface water and sediment. Because this alternative would result in contaminants remaining on site, CERCLA requires that a review of site conditions be conducted every five years. If justified by the review, remedial actions would be implemented at that time to remove or treat the wastes.

Alternative 2: Excavation with On-site Storage of Contaminated Soil

Estimated Capital Cost:	$ 2,159,800
Estimated Annual O&M Cost:	$ 3,500
Estimated Present Worth:	$ 2,613,500
Implementation Period:	1 Year

This alternative involves the excavation of contaminated soil followed by the restoration of the wetlands. An above-ground storage facility would be constructed within the IOC/CC property for storage of the contaminated soil. Excavated soils will be loaded in rolloff containers and transported to the storage building. Following the completion of excavation activities, the building will be locked, and warning signs will be placed on the exterior of the building. The storage facility will require monthly inspections during the storage period to comply with the Resource Conservation and Recovery Act (RCRA) regulations.

The soil would be stored while an assessment is conducted during the on-going RI/FS for remedial alternatives for contaminated soils from other areas associated with the IOC/CC site. This alternative is considered an interim remedy, but is an acceptable means of minimizing adverse environmental impacts while awaiting final disposition of the soil.

Prior to implementation, a fence will be installed around the perimeter of the two off-site areas. The fence will restrict access of children and other uninformed persons from entering these areas until restoration of the areas are completed. Following the completion of excavation activities, the wetlands must be restored to its original condition. The clean fill material will be graded to the elevation as it existed prior to the excavation. The areas will be revegetated to stabilize the fill material and restore the affected wetland areas. Fence installation and restoration of wetlands are two components which are common to Alternatives 2 through 5.

Alternative 3: Excavation with Off-site Landfill Disposal of Contaminated Soil

Estimated Capital Cost:	$ 5,670,200
Estimated Annual O&M Cost:	$ 1,700
Estimated Present Worth:	$ 6,889,000
Implementation Period:	6 Months

This alternative involves the excavation of contaminated soil followed by the restoration of the wetlands. Excavated soils would be stockpiled temporarily in an intermediate staging area prior to transport off site. The purpose of the staging area is to permit uninterrupted progress of excavation activities while transport trucks are loaded and manifested.

The contaminated soil would be hauled to an appropriate off-site permitted hazardous waste landfill for proper disposal. If additional analysis during remedial design indicates that Land Ban Restrictions apply, the appropriate treatment will be performed prior to landfilling. This alternative includes the contingency for off-site soil treatment prior to landfilling to meet these regulations.

Alternative 4: Excavation with On-site Thermal Treatment of Contaminated Soil

Estimated Capital Cost:	$ 9,549,700
Estimated Annual O&M Cost:	$ 1,700
Estimated Present Worth:	$11,475,800
Implementation Period:	9 Months

This alternative involves the excavation of contaminated soil followed by the restoration of the wetlands. A temporary thermal treatment facility would be constructed on site to incinerate the excavated soil. Mobilization and demobilization of the incinerator would be a major component of this remedial alternative. The incinerator and auxiliary equipment require preparation of an area with dimensions of approximately 40,000 square feet.

Following a successful trial burn testing, analysis of residual ash, stack gases and scrubber water, and the approval of appropriate permit applications, processing of contaminated soils will begin. Excavated soils will be delivered to the waste feed area, where it will be conveyed to the incinerator. Residual ash will be stored in ash bins and analyzed for contaminant levels. A residue delisting petition documenting the quality of ash will be approved prior to backfilling in the excavated area. If the delisting petition is not approved, off-site disposal of the residual ash would result.

Alternative 5: Excavation with Off-site Thermal Treatment of Contaminated Soil

Estimated Capital Cost:	$14,693,900
Estimated Annual O&M Cost:	$ 1,700
Estimated Present Worth:	$17,648,800
Implementation Period:	6 Months

This alternative involves the excavation of contaminated soils followed by the restoration of the wetlands. Excavated soils would be stockpiled temporarily in an intermediate staging area. The staging area would also be used to drum the soils prior to loading and transport. The soil would be placed in 55-gallon drums to be transported to a RCRA approved off-site thermal treatment facility for incineration.

SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

In accordance with the NCP, a detailed analysis of each remedial alternative was conducted with respect to each of the nine criteria for selecting a site remedy. This section discusses and compares the performance of the remedial alternatives under consideration against these criteria. The nine criteria are described below. All selected alternatives must at least attain the Threshold Criteria. Alternatives that do not provide protection of human health and the environment will be eliminated from further consideration. The selected alternative should provide the best trade-offs among the Primary Balancing Criteria. The Modifying Criteria were evaluated following the public comment period.

THRESHOLD CRITERIA

- **Overall Protection of Human Health and the Environment** addresses whether or not 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 ARARs** addresses whether or not a remedy will meet all of the applicable or relevant and appropriate requirements of Federal and State environmental statutes, and/or provide grounds for invoking a waiver.

PRIMARY BALANCING CRITERIA

- **Long-term Effectiveness and Permanence** refers to the magnitude of residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time once remedial objectives have been met.

- **Reduction of Toxicity, Mobility, or Volume Through Treatment** is the anticipated performance of the disposal or treatment technologies that may be employed in a remedy.

- **Short-term Effectiveness** refers to the speed with which the remedy achieves protection, as well as the remedy's potential to create adverse impacts on human health and the environment that may result during the construction and implementation period.

- **Implementability** is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement the chosen solution.

- **Cost** refers to estimates used to compare costs among various alternatives.

MODIFYING CRITERIA

- **State Acceptance** indicates whether, based on its review of the FFS and the Proposed Plan, the NJDEP concurs with, opposes, or has no comment on the preferred alternative.

- **Community Acceptance** will be assessed in the Record of Decision following a review of the public comments received on the FFS report and the Proposed Plan.

ANALYSIS

The first seven evaluation criteria are considered in the order they are listed above and the merits of each alternative relative to that criterion are evaluated. To avoid redundancy, the remaining two criteria, state acceptance and community acceptance, are summarized for the preferred alternative.

Overall Protection of Human Health and the Environment

Alternatives 3, 4 and 5 appear to offer the greatest degree of protection. Under Alternative 3, the contaminated soil is excavated and disposed off site, thereby removing the on-site risk. Alternatives 4 and 5 thermally destroy volatile and semi-volatile contaminants, thereby removing the contaminants from the soil medium. The inorganic contaminants remaining in the residual ash would be properly treated and/or disposed. These alternatives are expected to offer equivalent overall protection. Alternative 2 offers on-site containment of the contaminated soil. This alternative is an interim remedy which offers protectiveness through potential future treatment of the contaminated soil and addresses the immediate current environmental concerns. The no action alternative is not protective of human health and the environment and is not consistent with the remedial objectives. Therefore, no action is eliminated from further consideration in the comparative analysis.

Compliance with Potential ARARs

There are no chemical related applicable or relevant and appropriate requirements (ARARs) that need to be met before implementation. NJDEP Soil Cleanup Objectives have been regarded as To-Be-Considered (TBC) guidelines for the remediation of soils contaminated with both inorganics and organics. The NJDEP Soil Cleanup Objective for concentrations of PCBs in soils is 5 ppm. Activities related to the handling of waste would be accomplished in accordance with RCRA and Toxic Substance Control Act (TSCA) hazardous waste management requirements. Alternatives 3, 4 and 5 meet location related ARARs involved with conducting activities in wetland areas. Alternative 2 is expected to meet ARARs within the limited scope of this alternative and is consistent with Section 121 of SARA which allows the selection of an alternative as an interim remedy. Maintenance and inspection of the storage facility for Alternative 2 will comply with RCRA regulations. The no action alternative, Alternative 1, does not attain either chemical related TBCs or location and management related ARARs.

Long-Term Effectiveness and Permanence

Alternatives 4 and 5 are considered to provide the greatest long-term effectiveness and permanence since the contaminated soil would be excavated and the organic contaminants would be thermally destroyed. Under Alternative 4, the ash would be backfilled on site depending upon meeting the land disposal requirements. Should this alternative not meet these requirements, the ash would then be disposed off site. The off-site thermal treatment facility will handle the proper disposal of residual ash generated under Alternative 5. Alternative 3 provides off-site disposal of contaminated soil in an approved hazardous waste landfill, thereby eliminating the potential risks associated with on-site handling and storage of treatment residuals. However, landfilling requires long-term monitoring/management. Alternative 2, on-site storage of excavated soils, requires long-term monitoring until such time as the final remedy for on-site contaminated soils is determined. This alternative is considered an interim remedy and would not have long-term effectiveness or permanence in and of itself.

Reduction of Toxicity, Mobility or Volume Through Treatment

Alternatives 4 and 5 provide the greatest reduction of toxicity, mobility and volume of soil contamination. Thermal treatment of contaminated soil offers a high degree of toxicity reduction. Through containment and potential treatment, Alternative 3 would reduce the mobility of the contaminants, however, no reduction in toxicity or volume would occur. Alternative 2 offers no current treatment of contaminated soil. The potential for future reductions in mobility, toxicity or volume through treatment, in conjunction with on-site soils, is beyond the limited scope of this action.

Short-Term Effectiveness

Alternatives 3 and 5 provide the greatest overall short-term effectiveness. They are also expected to provide the most rapid and most effective achievement of remedial objectives because waste disposal will occur at an off-site facility. Short-term hazards involved in handling and transporting the waste include risk to workers as well as a potential threat to nearby populations. Adequate worker protection during implementation can be ensured by wearing the proper level of protection, following the proper handling protocols, and good safety practices. Alternative 4 provides on-site thermal treatment of soil contamination, thereby increasing the short-term risks associated with a longer time to achieve the remedial objective (though not unacceptable). Any short-term impacts during implementation can be mitigated by following proper protocols and

requirements. Alternative 2 offers a temporary achievement of remedial objectives within a relatively short time frame, but a final remedy is not achieved until the final disposition of the on-site contaminated soil.

Implementability

Those alternatives which offer the greatest technical and administrative feasibility, and which consider the availability of service and material are considered to be most implementable. Those alternatives involving off-site treatment of contaminated soil offer the least amount of on-site construction, thereby increasing their technical feasibility. The availability of off-site services must also be considered. Typically, those alternatives which involve the least innovative treatment/disposal methods are more easily implemented.

Alternatives 3 and 5 are fairly easily implemented because contaminated soil is handled off site, and off-site landfills and thermal treatment facilities are currently available. Alternative 2 is considered the next most implementable alternative because it simply involves storage of the contaminated soil in a building located on the site, although adequate storage area may not exist. The implementation of Alternative 4 is complicated by the use of an on-site thermal treatment unit, which will need to be temporarily located in a cleared area on private property which presents many logistical problems. Excavation, grading, and revegetation are common elements to Alternatives 2 through 5 and are acceptable and constructive means for soil removal.

Cost

The cost for Alternative 2, excavation with on-site storage, has an estimated total present worth of $2,609,700. The cost for Alternative 3, excavation with off-site RCRA landfill disposal, has an estimated total present worth of $6,889,000. This cost includes the contingency for treatment of soils prior to landfilling.

The cost for Alternative 4, excavation with on-site thermal treatment, is $11,472,500. Off-site disposal of residual ash would result in an increase in cost of $1,644,300. Alternative 5, excavation with off-site thermal treatment, has the highest cost in comparison with the other alternatives, at a total estimated present worth cost of $17,645,500.

State Acceptance

As the lead agency for the investigation, the State of New Jersey participated in the selection of the remedy for this site. The State, therefore, concurs with the selected remedy of Alternative 3.

Community Acceptance

The objective of the community relations activities was to inform the public about the work being performed at the site and to receive input from the public on the remedy. The community expressed support for the preferred alternative. Questions and answers raised during the public meeting are presented in the responsiveness summary.

SELECTED REMEDY

After a thorough review and evaluation of the alternatives presented in the Focused Feasibility Study, to achieve the best balance among all evaluation criteria, NJDEP presented excavation with off-site landfill disposal of contaminated soil (Alternative 3) to the public as the preferred remedy for the IOC/CC site. The input received during the public comment period, which consisted primarily of questions and statements transmitted at the public meeting held on August 14, 1990, is presented in the attached Responsiveness Summary. Public comments received encompassed a wide range of issues but did not necessitate any changes in the remedial approach proposed to be taken at the site. Accordingly, the preferred alternative was selected by EPA as the remedial solution for the site. However, at the public meeting, the Mayor requested that a fence be installed to protect the public until the contaminated soil is remediated. EPA and NJDEP agree with this request and has incorporated it into the selected alternative.

The estimated total cost for all tasks associated with this remedy is $6,889,000. This alternative includes the cost for potential soil treatment. O&M costs provide for ground maintenance of the two off-site areas for ten years after implementation activities (Table 6).

Some additional activities may be performed during the initial phases of the remedial design process and prior to implementation of the selected remedial alternatives. Prior to implementation, a fence will be installed around the perimeter of the two off-site areas to restrict access of children and other persons from entering these areas until restoration of the areas are completed.

TABLE 6

ESTIMATED COST SUMMARY

EXCAVATION AND OFF-SITE DISPOSAL OF CONTAMINATED SOILS

CAPITAL COST	
DIRECT:	
• Runon/Runoff Controls	$ 16,966
• Air Monitoring	$ 231,700
• Removal of Contaminated Soils	$3,335,050
• Soil Sampling During Excavation	$ 201,000
• Equipment Decontamination	$ 36,330
• Engineering Management Mob/Demob	$ 13,098
• Dust Control	$ 35,700
• Site Restoration	$ 361,721
• Dewatering Pad	$ 198,400
• Temporary Road Construction	$ 12,000
TOTAL DIRECT CAPITAL COST SUBTOTAL	$4,441,965
INDIRECT:	
• Prime Contractor Markup	$ 666,295
• Engineering and Design	$ 488,616
• Legal and Administrative	$ 133,259
TOTAL INDIRECT CAPITAL COST SUBTOTAL	$1,288,170
TOTAL CAPITAL COSTS	$5,730,135
ANNUAL O&M COSTS	$ 1,700
SUBTOTAL COST	$5,740,821
CONTINGENCY (20%)	$1,148,164
TOTAL PRESENT VALUE COST	$6,888,985

During the remedial design, soil samples will be taken within the fringes of the off-site areas and analyzed for carcinogenic polycyclic aromatic hydrocarbons (cPAHs), arsenic and lead. The results of this analysis will be used to determine the horizontal and vertical extent of excavation. Also, confirmatory sampling is needed to determine the extent of contamination with PCB concentrations of 50 ppm and greater. TSCA regulates the disposal of soils contaminated with PCB concentrations of 50 ppm and greater. In addition, samples of the contaminated soil will be analyzed prior to landfilling to determine the requirement for pretreatment as defined by the RCRA Land Disposal Restrictions.

Also during the remedial design, a wetlands and floodplains assessment and a wetlands restoration plan will be performed for the vicinity of the two off-site areas. Not only is this information necessary for the wetlands restoration effort for this action, but may be needed for subsequent remedial actions addressing the site and other off-site areas.

STATUTORY DETERMINATIONS

The EPA's selection of the alternative for the areas of concern comply with the requirements of Section 121 of CERCLA as amended by SARA. The action is protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to this action, and is cost-effective. This action utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable, given the limited scope of the action. The statutory preference for treatment that reduces toxicity, mobility or volume will be addressed in this action, as appropriate. The action does not constitute the final remedy for the site. Subsequent actions are planned to fully address the remaining principle threats posed by this site. A brief, site-specific description of how the selected remedy complies with the statutory requirements is presented below.

1. <u>Protection of Human Health and the Environment</u>

The selected alternative is protective of human health and the environment, dealing effectively with the threats posed by the contaminants which were identified. The principle threats involve:

- Direct contact, incidental ingestion and inhalation of airborne soil particulates by children using the areas for dirt-biking.
- Direct contact and incidental ingestion of contaminated soil by children using the areas for future residential activities.

The selected remedy addresses these contaminant pathways by removing the contaminant sources before any additional migration continues and will minimize any cross-media impacts. In implementing the action, the risks associated with construction and the length of time for implementation will be minimized. The selected remedy will reduce risks posed through each pathway to the population by excavating and disposing the contaminated soil at an approved off-site facility.

2. Compliance with Applicable or Relevant and Appropriate Requirements

The selected remedy will comply with the following ARARs and State To-Be-Considered (TBC) requirements. TBCs are guidelines, agreed upon by EPA and NJDEP, that are not legally binding.

Action-Specific

All remedial activities will comply with RCRA/CERCLA regulations.

- RCRA Subpart 268 - Land Disposal Restrictions
- RCRA Part 264 standards are applicable to the bulking and storage of hazardous waste for off site disposal. If the material, once displaced, remains on site for more than 90 days, RCRA standards are applicable to the storage of hazardous waste on the facility property. Even if not stored for more than 90 days, RCRA standards are relevant and may be appropriate.
- Toxic Substances Control Act regulates the storage and disposal of soil contaminated with PCB concentrations of 50 ppm and greater. TSCA regulations are applicable to decontamination of heavy equipment used during construction activities.

Chemical-Specific

- EPA plans to analyze the contaminated soil prior to disposal. If required, the contaminated soil would be treated in conjunction with off site disposal. The pre-disposal treatment measures would reduce toxicity to levels (treatment standards) specified by the RCRA Land Disposal Restrictions (LDR). Treatment methods will have to reduce the waste's leachability to TCLP concentrations established by LDR.

Location-Specific

- The National Environmental Protection Act (NEPA) regulations (40 CFR Part 6) are applicable for actions involving construction of facilities in wetlands or alterations of wetland property.

To-Be-Considered (TBCs)

- The shipment of hazardous waste off site to a treatment facility should be consistent with the Off-Site Policy Directive Number 9834.11 issued by the Office of Solid Waste and Emergency Response (OSWER), which became effective November 13, 1987. This directive is intended to ensure that facilities authorized to accept CERCLA generated waste are in compliance with RCRA operating standards.

- NJDEP Soil Cleanup Objective for concentrations of lead in soil, ranging between 250-1000 ppm.

- U.S. Department of Health and Human Services (Centers for Disease Control) health-based concentrations of lead in soil, which range between 500-1000 ppm

- NJDEP Soil Cleanup Objective for concentrations of PCBs in soil, which is 5 ppm.

- NJDEP Soil Cleanup Objective for concentrations of carcinogenic PAHs in soil, which is 10 ppm.

- NJDEP Soil Cleanup Objective for concentrations of inorganic compounds in soil.

- Potential emissions are expected in the form of volatilization of hazardous constituents and fugitive dust during excavation, transport and disposal of contaminated soil. Dust control measures will be included in the design specifications, and health and safety plans to ensure compliance with RCRA, Clean Air Act and State regulations during implementation.

3. Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

The selected remedy utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable by providing the best balance among the nine evaluation criteria for all the alternatives examined. While the selected remedy does not offer as high a degree of long-term effectiveness and permanence as the incineration alternatives, it

will significantly reduce the inherent hazards posed by the contaminated soils by removing them permanently off site to an appropriate RCRA approved treatment and disposal facility.

4. Preference for Treatment as a Principal Element

This selected remedy addresses contamination in the off-site areas of IOC/CC, only. While the risks posed by this contamination are unacceptable if left in place, the levels of contamination found in these areas do not warrant the expenditures which would be needed for thermal treatment. However, if required, the contaminated soil will be treated to meet the Land Disposal Regulations prior to landfilling in a RCRA approved facility.

The principal threats of IOC/CC, found at the site itself, will be addressed under a separate ROD.

5. Cost-Effectiveness

Of the alternatives which most effectively address the threats posed by the off-site contamination, the selected remedy affords the highest level of overall effectiveness proportional to its cost. Based on the information generated during the FFS, the estimated total project cost is $6,889,000.

DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for the IOC/CC site was released to the public in July, 1990. The Proposed Plan identified the preferred alternative. NJDEP reviewed all written and verbal comments submitted during the public comment period. Upon review of these comments, it was determined that no significant changes to the selected remedy, as it was originally identified in the Proposed Plan, were necessary.

APPENDIX A

NJDEP LETTER OF CONCURRENCE

Let's preserve our earth

STATE OF NEW JERSEY

Post-it™ brand fax transmittal memo 7671	# of pages ▸ 2
To S. Sidamon-Eristoff	From Yaskin
Co.	Co. NJDEP
Dept. USEPA	Phone # 609-292-2885
Fax # 212-264-7611	Fax #

Mr. Constantine Sidamon-Eristoff
Regional Administrator
USEPA - Region II
Jacob K. Javits Federal Building
New York, New York 10278

Dear Mr. Eristoff:

The Department of Environmental Protection has evaluated and concurs with the selected remedy for the Imperial Oil Company Inc./Champion Chemicals (IOC/CC) Superfund Site outlined below:

"The remedial action described in this document is the first planned operable unit for the site. It will address contaminated soil within the wetlands adjacent to the site which pose a sufficiently imminent hazard to require expedited remediation. The principal threats posed by the conditions on the site itself are not addressed by this operable unit, but will be the subject of a future Record of Decision.

Subseqent operable units for long-term remediation of the site will be determined as appropriate. A comprehensive remedial investigation to determine the nature and extent of contamination is underway. Areas of concern include soils, surface water, groundwater, sediments, air quality, and other remaining contaminant sources.

The major components of the selected remedy for this first operable unit include:

- Installation of fencing to control access to the contaminated soil areas;
- Excavation and appropriate off-site disposal of contaminated soil from within the wetlands; and
- Restoration of the affected wetlands.

Prior to landfilling, contaminated soil will be analyzed to determine the waste's leachability characteristics. If required by the RCRA Land Disposal Restrictions, the soil will be properly treated prior to disposal."

The Department reserves its final comments on the complete Record of Decision pending on opportunity to review the completed documents, including the documents responsiveness summary.

Sincerely,

Judith A. Yaskin
Commissioner

APPENDIX B

ADMINISTRATIVE RECORD INDEX

IMPERIAL OIL COMPANY INC./CHAMPION CHEMICALS SITE
ADMINISTRATIVE RECORD FILE *
INDEX OF DOCUMENTS

REMEDIAL INVESTIGATION

Sampling Plan

P. 0001 - 0046 — Report: Phase II Sampling Plan, Imperial Oil/Champion Chemical RI/FS, Monmouth County, New Jersey, prepared by E.C. Jordan Co., Revised 7/89.

Health and Safety Plan

P. 0047 - 0185 — Report: Health and Safety Plan, Imperial Oil Co., Inc./Champion Chemicals Site, Monmouth County, New Jersey, prepared by E.C. Jordan Co., 1/87.

Quality Assurance Project Management Plan

P. 0186 - 0274 — Report: Quality Assurance Project Management Plan, Imperial Oil Co., Inc./Champion Chemicals Site, Monmouth County, New Jersey, prepared by E.C. Jordan Co., 1/87.

Remedial Investigation Report

Note: The Remedial Investigation for the site has not been finalized. The Focused Feasibility Study Report for Offsite Areas 1 & 2 contains the information from the Remedial Investigation that pertain to the two off-site areas.

FEASIBILITY STUDY

Feasibility Study Report

P. 0275 - 0721 — Report: Focused Feasibility Study, Offsite Areas 1&2, Imperial Oil/Champion Chemical Site, Morganville, New Jersey, prepared by New Jersey Department of Environmental Protection, Division of Hazardous Site Mitigation, 7/90.

* Administrative Record File available

Note: Company or organizational affiliation is mentioned only when it appears in the record.

Correspondence

P. 0722 Memorandum to Distribution from Mr. Anthony J. Farro, New Jersey Department of Environmental Protection, re: Draft Proposed Plan, 6/28/90.

P. 0723 Letter to Mr. George Kulick, Jr., Imperial Oil Company from Mr. Michael J. Lukas, Site Manager, Bureau of Site Management, New Jersey Department of Environmental Protection, Department of Hazardous Site Mitigation, re: Final Focused Feasibility Study Report, 8/1/90.

P. 0724 Letter to Mr. Peter Baker, E.C. Jordan Company from Mr. Michael J. Lukas, Site Manager, Bureau of Site Management, New Jersey Department of Environmental Protection, Department of Hazardous Site Mitigation, re: Final Focused Feasibility Study Report, 8/1/90.

P. 0725 Letter to Mr. Colin R. Sweeney, Jersey Central Power & Light Company from Mr. Michael J. Lukas, Site Manager, Bureau of Site Management, New Jersey Department of Environmental Protection, Department of Hazardous Site Mitigation, re: Final Focused Feasibility Study Report, 8/1/90.

P. 0726 - 0728 Letter to Mr. H. Scott Stevens, President, Imperial Oil Company from Mr. Richard L. Caspe, P. E., Director, Emergency and Remedial Response Division, U.S. Environmental Protection Agency, Region II, re: Notice Letter, 8/3/90

P. 0729 - 0731 Letter to Champion Chemical Co. Corp. from Mr. Richard L. Caspe, P. E., Director, Emergency and Remedial Response Division, U.S. Environmental Protection Agency, Region II, re: Notice Letter, 8/3/90

P. 0732 - 0734 Letter to Mr. Richard Sacca, Jersey Central Power and Light from Mr. Richard L. Caspe, P. E., Director, Emergency and Remedial Response Division, U.S. Environmental Protection Agency, Region II, re: Notice Letter, 8/3/90

* Administrative Record File available

Note: Company or organizational affiliation is mentioned only when it appears in the record.

Correspondence (cont.)

P. 0735 - 0737 Letter to Mr. Herman Zell, J&M Land Company from Mr. Richard L. Caspe, P. E., Director, Emergency and Remedial Response Division, U.S. Environmental Protection Agency, Region II, re: Notice Letter, 8/3/90

P. 0738 - 0739 Letter to Ms. Grace L. Singer, Chief, Bureau of Community Relations, New Jersey Department of Environmental Protection, Department of Hazardous Site Mitigation from Mr. George Kulick, Imperial Oil Company, Inc., re: Response to Notice Letter, 8/24/90.

P. 0740 Letter to Dr. Mel Danzig from Ms. Grace L. Singer, Chief, Bureau of Community Relations, New Jersey Department of Environmental Protection, Department of Hazardous Site Mitigation, re: Final Focused Feasibility Study Report, 8/6/90.

P. 0741 Letter to Mr. Lester Jargowsky, Health Officer, Monmouth County from Ms. Grace L. Singer, Chief, Bureau of Community Relations, New Jersey Department of Environmental Protection, Department of Hazardous Site Mitigation, re: Final Focused Feasibility Study Report, 8/6/90.

HEALTH ASSESSMENT

Health Assessment Report

P. 0742 - 0755 Report: Health Assessment for Imperial Oil Co., Inc./Champion Chemicals, Marlboro Township, Monmouth County, New Jersey, prepared by the Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, 7/90.

* Administrative Record File available

Note: Company or organizational affiliation is mentioned only when it appears in the record.

PUBLIC PARTICIPATION

Community Relations Plan

P. 0756 - 0771 Report: Community Relations Plan for Imperial Oil Company Superfund Site, Marlboro Township, Monmouth County, New Jersey, prepared by NJDEP, 12/84.

Public Notice

P. 0772 Public Meeting Notice inviting public comment on the Proposed Plan for the Imperial Oil/Champion Chemical Site, Morganville, New Jersey, 8/90.

Public Meeting Minutes and Transcripts

P. 0773 - 0776 Meeting Minutes: Public Meeting, Imperial Oil/Champion Chemical Site, 5/87.

P. 0777 - 0856 Transcript: Public Meeting, Imperial Oil/ Champion Chemical Site, 8/14/90.

Fact Sheets and Press Releases

P. 0857 - 0865 Fact Sheet: "Initiation of Remedial Investigation/Feasibility Study for Imperial Oil/Champion Chemical Superfund Site", prepared by NJDEP., 5/13/87.

P. 0866 - 0867 Press Release: "NJDEP to Hold Public Meeting on the Remedial Investigation/Feasibility Study for the Imperial Oil/Champion Chemical Superfund Site", prepared by NJDEP., 5/1/87.

P. 0868 - 0880 Fact Sheet: "Focused Feasibility Study for Imperial Oil/Champion Chemical Superfund Site, Offsite Areas 1 & 2", prepared by NJDEP., 8/14/90.

P. 0881 - 0882 Press Release: "NJDEP to Hold Public Meeting on the Results of the Focused Feasibility Study for the Imperial Oil/Champion Chemical Superfund Site", prepared by NJDEP., 7/27/90.

* Administrative Record File available

Note: Company or organizational affiliation is mentioned only when it appears in the record.

Proposed Plan

P. 0883 - 0898 Report: Proposed Plan, Imperial Oil Company/Champion Chemical Site, Offsite Areas 1 & 2 Soil Contamination, Monmouth County, New Jersey, prepared by NJDEP, 7/90.

Correspondence

P. 0899 Letter to Ms. Peggy Ganza, Marlboro Township Municipal Building, from Ms. Grace L. Singer, Chief, Bureau of Community Relations, New Jersey Department of Environmental Protection, Department of Hazardous Site Mitigation, re: Documents for the information repository, 7/27/90.

* Administrative Record File available

Note: Company or organizational affiliation is mentioned only when it appears in the record.

APPENDIX C

RESPONSIVENESS SUMMARY

Attachment C
Responsiveness Summary
Imperial Oil Company, Inc./Champion Chemicals Superfund Site
Marlboro Township, Monmouth County, New Jersey

I. Introduction

In accordance with the U.S. Environmental Protection Agency's (EPA) Community relations policy and guidance and the public participation requirements of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), the New Jersey Department of Environmental Protection (NJDEP) held a public comment period from July 26, 1990 to August 25, 1990 to obtain comments on the Proposed Plan for the Imperial Oil Company, Inc./Champion Chemicals (IOC/CC) Superfund site.

The IOC/CC site is a 15-acre facility located in the Morganville section of Marlboro Township, Monmouth County. The site is currently active with an oil blending operation which occupies approximately 4.2 acres. Champion Chemicals is the owner of the real property and leases the premises to the Imperial Oil Company, Inc.

On August 14, 1990, the NJDEP held a public meeting at the Marlboro Township Municipal Building to receive public comment on the Proposed Plan and the agencies' (NJDEP and EPA) preferred alternative to remediate Off-site Areas 1 & 2 (Operable Unit 1). Approximately 20 community officials, residents and interested persons attended the meeting. Copies of the Proposed Plan were distributed at the meeting and had been previously placed in the information repositories for the site.

Public comments received during the comment period are documented and summarized in this Responsiveness Summary. Section II presents a summary of questions and comments expressed by the public at the August 14 public meeting, while Section III addresses comments received in writing by the NJDEP. All questions and comments are grouped into general categories, according to subject matter. Each question or comment is followed by the NJDEP's or the EPA's response.

II. Public Meeting Comments

This section contains questions and comments presented at the August 14, 1990 public meeting. Comments contained in this section are grouped according to subjects discussed.

construction contract is awarded, the construction contractor will be responsible for identifying a landfill and obtaining appropriate approvals from the NJDEP and the receiving state. Short-term storage is anticipated only for bulking and loading purposes; long-term storage (i.e., exceeding 90 days) is not anticipated.

5. Monitoring

One resident questioned whether the NJDEP was continuing to monitor the ground water flowing from the site.

NJDEP Response:

The ground water flowing from the site is being studied as part of the on-going RI. Contaminated ground water will be addressed by the FS to be conducted for the remainder of the site. Additional ground water monitoring will be conducted throughout the Remedial Design, Construction and Operation/Maintenance phases.

6. Preferred Alternative

Several residents voiced their agreement with the NJDEP's and the EPA's choice of preferred Alternative 3, excavation of contaminated soil with off-site disposal at a licensed hazardous waste landfill.

7. Drinking Water Supply

A Senator's Aide asked if the underground drinking water supply had been affected in the area surrounding the site.

NJDEP Response:

The ground water in the immediate vicinity of the off-site areas has been sampled and does not exceed New Jersey's ground water standards.

The ground water on the site and down-gradient has been found to be contaminated. A localized "floating product" of oil has been identified in the vicinity of the waste filter clay pile. At NJDEP's request, EPA will be performing a Removal Action to attempt to remove this floating product in advance of the full-scale ground water remediation.

The residences down-gradient of the site are not affected by the contaminated ground water because they are connected to a municipal water system. Monitoring of off-site wells has

not identified contaminants that could potentially threaten existing private wells.

III. Response to Written Comments

Mr. George Kulick, Vice President of Imperial Oil Company, Inc. submitted the following written comments to the NJDEP:

1. The Imperial Oil Company, Inc. asserts that the company has never handled PCB's and inorganic compounds at the site and, therefore, could not be responsible for those contaminants in Off-site Areas 1 & 2. Also, they state that the company never disposed of hazardous substances in the two areas and, therefore, should not be liable for cleanup costs.

   NJDEP Response:

   A determination of responsible parties for contamination in the off-site areas will be identified as part of future enforcement and cost recovery actions.

2. The Imperial Oil Company, Inc. asserts that petroleum hydrocarbons (PHCs) are not hazardous substances under CERCLA and, therefore, liability for associated cleanup costs could not be imposed.

   NJDEP Response:

   The statement that PHCs are not regulated as hazardous substances pursuant to CERCLA is true. However, the soils in the off-site areas are not only contaminated with PHCs, but are also contaminated with PCBs, lead and arsenic. As a result, the contaminated soils in the off-site areas fall within the jurisdiction of CERCLA which thereby triggers the liability for cleanup costs.

3. New Jersey soil action levels are unpromulgated, informal guidelines which do not qualify as ARAR's according to the Imperial Oil Company, Inc.

   NJDEP Response:

   As identified in the FFS report, the New Jersey soil cleanup levels have been determined "To Be Considered" as defined by SARA and the National Contingency Plan (NCP); they have been consistently applied to other remedial actions conducted in New Jersey.

4. The risk assessment in the draft FFS report indicated that the health risks are within the risk ranges deemed acceptable by the EPA. However, the NJDEP is recommending excavation of soil containing an excess of 1 parts per million (ppm) of PCBs, which the Imperial Oil Company, Inc. asserts is unwarranted based upon health considerations.

NJDEP Response:

As identified in the FFS report and the Proposed Plan, the soil cleanup level for PCBs is 5 ppm. For the purposes of estimating the soil volume, the 1 ppm contour for PCBs has been used due to the unknown concentrations of carcinogenic polycyclic aromatic hydrocarbons. Sampling for these compounds will be performed during the design phase for the off-site areas. The soil volume to be remediated will be adjusted based on the results of the analyses.

As identified in the FFS report and the Proposed Plan, the risk associated with direct contact and ingestion of contaminants detected in the soil by children, under a residential scenario, has been calculated to be $8x10^{-4}$ (eight in ten thousand). This risk is deemed unacceptable by the EPA and the NJDEP as it falls outside the acceptable risk range.

5. The Imperial Oil Company, Inc. states that a more cost-effective solution, which was not considered by the NJDEP, would be to cap Areas 1 & 2.

NJDEP Response:

As identified in the FFS report, capping the areas was not found to be viable since the contamination is within a wetlands area. The National Environmental Protection Act (NEPA) sets forth the EPA's policy for carrying out the provisions of the Wetland Executive Order (EO 11990) which states that an alternative located in a wetland may not be selected unless a determination is made that no practicable alternative exists outside the wetland. Since alternatives exist to remediate the contaminated soil and to restore the wetlands, capping is not an acceptable solution as it would irrevocably alter the natural water drainage in the area creating the wetland.

Chronology of Community Relations Activities

05/01/87	Press release issued announcing that a public meeting would be held by NJDEP to discuss the RI/FS.
05/13/87	Public meeting held at Marlboro Township Municipal Building to discuss RI/FS. Fact sheet prepared and distributed at public meeting.
10/01/87	BFB/IO CAC meeting held to discuss Phase I RI results.
10/26/88	BFB/IO CAC meeting to update committee on RI activities and to discuss the EPA's "SITE" Program.
12/07/88	EPA held a "SITE" demonstration at the IOC/CC site - committee members invited.
09/28/89	BFB/IO CAC meeting to discuss Phase II RI sampling and other issues.
04/18/90	BFB/IO CAC meeting held to discuss expected completion of RI for May 1990 and anticipated goal of a Summer 1990, in-house FFS.
07/26/90	Public comment period opened.
07/27/90	Press release issued announcing availability of Proposed Plan and study documents for Off-Site Areas 1 & 2 and public meeting scheduled for August.
08/14/90	Public meeting held at Marlboro Township Municipal Building to present preferred alternative for Off-Site Areas 1 & 2.
08/25/90	Public comment period closed.