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November 1996

EPA Superfund Record of Decision:

Hopkins Farm Site, Ocean County, NJ 9/27/1996

DECISION DECLARATION

RECORD OF DECISION

HOPKINS FARM SITE

SITE NAME AND LOCATION

Hopkins Farm Site
Plumsted Township, Ocean County, New Jersey

STATEMENT OF BASIS AND PURPOSE

This Record of Decision presents the selected no further action remedy for the Hopkins Farm Site, in Plumsted Township, Ocean County, New Jersey. The remedy was developed 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.

The New Jersey Department of Environmental Protection concurs with the selected remedy. A copy of their concurrence letter can be found in Attachment 1. The information supporting this remedial action decision is contained in the Administrative Record for this Site, the index of which is Attachment 2 to this document.

DESCRIPTION OF THE SELECTED REMEDY

The U.S. Environmental Protection Agency, in conjunction with the New Jersey Department of Environmental Protection, has determined that no further remedial action is necessary at the Hopkins Farm Site. The removal of chemical and industrial waste materials from the Site by the Potentially Responsible Party in 1992 and 1994 was successful in remediating the principal threats associated with the Site.

The major components of the no further action remedy are:

- Implementation of a monitoring program involving ground water, surface water and sediment sampling to confirm that any residual contamination remains below levels of concern. Samples will be collected and analyzed for volatile organic, semi-volatile and inorganic compounds for the first year on approximately a quarterly basis. The monitoring program may be modified based on sampling results collected during the first year.

- Visual inspection of the Site in order to monitor and maintain the revegetated areas to insure that the planted species survive or are replaced, as needed. Swamp pink plants present on the Site will also be qualitatively monitored.

- 'Continuation of the Well Restriction Area by the New Jersey Department of Environmental Protection, for a minimum of five years, to ensure the protection of area drinking water supplies.

DECLARATION

In accordance with the Comprehensive Environmental Response, Compensation and Liability Act and the National Oil and Hazardous Substances Pollution Contingency Plan, the New Jersey Department of Environmental Protection and the U.S. Environmental Protection Agency have determined that no further remedial action is necessary to ensure the protection of human health and the environment at the Hopkins Farm Site and the response at this Site is complete. Therefore, the Site now qualifies for inclusion on the Construction Completion List. A five year review will be not performed at this Site since no contaminants remain on-Site above health-protective levels, and such levels allow for unlimited use and unrestricted exposure.

Jeanne M. Fox, Regional Administrator
U.S. Environmental Protection Agency Region 2

Date 9/27/96

DECISION SUMMARY

RECORD OF DECISION

HOPKINS FARM SITE

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1. INTRODUCTION

This Decision Document presents the preferred no further action remedy for the Hopkins Farm Site located in Plumsted Township, Ocean County, New Jersey. The selected remedy for the Site 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 of 1990. This decision document serves to explain the factual and legal basis for selecting the no further action remedy for this Site.

The information supporting the no further action remedy is contained in the administrative record for this Site. This Decision Document includes a Decision Declaration, Decision Summary, and a Responsiveness Summary.

2. SITE LOCATION AND DESCRIPTION

The Hopkins Farm Site is located approximately one-quarter mile north of State Highway Routes 528 and 539, on the east side of Route 539, in Plumsted Township, Ocean County, New Jersey (Figure 1). It is located on Block 48, Lot 16 in Plumsted Township and is privately owned. The Site property consists of approximately 57 acres, of which less than one acre was previously used for disposal of waste materials. The Site is bordered on the west by Route 539 and on the other sides by undeveloped, wooded lots. The southwest portion of the Site property is a farm field and the northeast portion, where waste dumping occurred, is wooded. Access to the Site is by an unimproved, dirt road which enters the property at its southern corner along Route 539. Access to the field is via a dirt road off of Pinehurst Road. The area surrounding the Site is rural-residential. The nearest residence is located approximately 500 feet southeast. Over 200 residences are located within a 1 mile radius of the Site.

The Site property is divided approximately in half by a fresh water stream, which is an unnamed tributary to Lahaway Creek. The stream flows from south to north along the eastern Site boundary and turns to flow westward along the northern Site boundary before it joins Crosswicks Creek approximately two miles downstream. The stream is three to five feet wide and approximately six inches deep. Marshy areas are present along the stream valley. An exceptional value wetland has been identified in the vicinity of the stream and supports a number of colonies of swamp pink (Helonias bullata), a federally listed threatened plant species. The

Site topography in the central portion of the Site slopes eastward to the wetlands and stream. Waste dumping was observed along this slope. A narrow ditch (also referred to as a swale) runs along the toe of the slope and channels water toward the stream.

3. SITE HISTORY AND ENFORCEMENT ACTIVITIES

The Hopkins Farm Site was allegedly used to dispose of chemical wastes from the Thiokol Corporation during the late 1950s and early 1960s. Investigations by the Ocean County Health Department, Plumsted Township representatives and the New Jersey Department of Environmental Protection (NJDEP) began in 1980 and led to the installation of six groundwater monitoring wells in June of that year. Chemical analyses were performed on two groundwater samples and one soil sample during that investigation. Contaminants detected in the ground water included organic chemicals such as ethylbenzene, toluene and benzene. Traces of pesticides were also detected. Inorganic chemicals detected in the ground water included antimony, arsenic and chromium. The soil sample contained the contaminants ethylbenzene, toluene and benzene.

An unnamed stream and wetland area are adjacent to the area formerly used for waste disposal. These wetlands lie in a valley approximately ten feet lower than the surrounding ground surface. A portion of the wetland area forms a swale which drains surface water runoff from the upland area of the Site into the stream. Evidence of waste dumping such as laboratory glassware, rusted pails, chemical materials and household wastes were found on the western bank of the stream/wetland valley and, also, in a small depression in the upland area, west of the valley. Most of the industrial waste was found in the central area of the Site and consisted of a rubbery, tar-like material that covered the bottom of what appeared to be a natural depression. The depression was ringed with five-gallon pails, laboratory glassware, small patches of industrial waste and other debris.

In November of 1982, NJDEP inspected the Site and scored it according to the Hazard Ranking System (HRS). Based on this ranking, the Site was included on the National Priorities List on September 1, 1984.

As a precaution, to protect any new potable wells from potential groundwater contamination from the Site, in 1987, NJDEP established a Well Restriction Area (WRA) involving the Hopkins Farm and surrounding properties within approximately 2,000 feet of the Site, based on hydrological estimates of the potential extent of any groundwater contamination. The WRA advised that any new wells to be installed on the restricted properties be drilled at least 150 feet deep. This would insure that the wells would be located in the Lower Kirkwood and Lower Manasquan Formations, which is an aquifer separate from the upper, potentially contaminated one.

In July 1986, NJDEP issued a directive to Morton Thiokol, Incorporated (MTI, now Morton International, Inc. (MII)) requiring the company to pay NJDEP for the cost of a Remedial Investigation and Feasibility Study (RI/FS) at the Site. On December 3, 1987, NJDEP and MTI entered into an Administrative Consent Order (Order) in which MTI agreed to comply with this directive.

In January 1987, Acres International Corporation was contracted by NJDEP to perform the RI/FS to determine the nature and extent of contamination at the Site and to recommend cleanup alternatives. The RI was performed in two phases from 1987 through 1991. The results of the RI/FS are summarized in the May 1991 RI Report and the February 1992 FS Report which are included in the Administrative Record for this Site and are summarized later in this document.

Based on the findings of the RI, on August 23, 1991, NJDEP entered into another Order with MII. Under the terms of this Order, MII agreed to perform a Removal Action at the Site to remove surficial waste materials. The removal action was performed in two phases and included the excavation and off-Site disposal of waste materials and contaminated soils. A detailed description of the Removal Action is included in the December 1994 Final Summary Report, Surface Waste and Subsurface Soil Removal Program which is included in the Administrative Record and is summarized later in this document.

4. COMMUNITY RELATIONS HISTORY

Throughout the RI/FS process, representatives from NJDEP have attended meetings concerning the Site. The first public meeting was held in March 1987 to brief interested parties and discuss the RI/FS process. Fact Sheets were distributed by NJDEP.

Since this initial meeting, NJDEP has participated in a subsequent meetings to update the community on the progress at the Site. Over the course of the RI/FS and Removal Action, numerous correspondences and discussions have taken place between NJDEP, Plumsted Township officials, the Plumsted Township Environmental Committee, property owners, building developers, and the Ocean County Health Department and potential home-buyers.

The Administrative Record is a comprehensive collection of all records relating to the selection of the no further action remedy for the Site. An information repository has been established at the New Egypt Library, NJDEP offices in Trenton, as well as EPA offices in New York City. The Index to the Administrative Record is Attachment 2 to this Decision Document.

A Proposed Plan which presented the preferred no further action remedy was released to the public for comment on July 25, 1996. The notice of availability of this document was announced by means of a newspaper advertisement in the *Asbury Park Press* on July 25, 1996. Notices were also mailed to the area residents and other concerned parties identified for this Site. A public comment period was established from July 25, 1996 to August 23, 1996, during which

time EPA and NJDEP welcomed any verbal and/or written comments or questions on the proposed no further action remedy.

In addition, a public meeting was held, during the public comment period, on August 6, 1996 at the Plumsted Township Municipal Building. At this meeting, representatives from EPA and NJDEP presented Site background information and the rationale for the proposed no further action remedy and answered questions about the Site. Responses to significant comments and concerns received during the public comment period are included in the Responsiveness Summary, which is Attachment 3 to this document.

5. SITE CHARACTERISTICS SUMMARY

The RI performed at the Hopkins Farm Site was conducted in two phases from 1987 to 1991. The RI included: a geophysical survey; a soil gas survey; waste material investigations; soil, groundwater, surface water, and sediment sampling; and a qualitative health and environmental risk assessment. Note that the findings of the RI are reflective of Site conditions in 1991, prior to the removal of waste materials and associated soils. The results of the RI are presented here to provide a historical perspective of the Site and to provide a basis for comparison of current Site conditions. The Site conditions described in the RI Report are not, for the most part, reflective of current Site conditions. Current Site conditions are described in the Removal Action section of this Decision Document.

The results of the RI are summarized as follows:

5.1 Hydrology

Geotechnical analysis of deep soil borings indicates that the Site is underlain by recent sand or fill deposits up to four feet thick. In the stream valley, recent deposits consist of a two foot thick layer of organic soils over up to six feet of sand. The next formation encountered is the Cohansey Sand/Upper Kirkwood Formation with a thickness of 26 to 32 feet. Underlying the Cohansey Sand/Upper Kirkwood Formation is the Lower Member of the Kirkwood Formation which is 13 to 18 feet thick and consists of silty sand to sandy clay. Underlying the Kirkwood Formation is the Lower Manasquan Formation composed of sand to sandy clay, at depths of 47 to 53 feet. The Vincentown Formation was encountered at depths of approximately 85 feet and consists of extremely dense sands. The Lower Kirkwood and Lower Manasquan Formations are thought to form a composite aquitard below 40 to 50 feet, discouraging any transfer of contaminants to deeper aquifers. Due to its density, the Vincentown Formation is also considered a confining layer, incapable of carrying significant water flow, to a depth of 100 feet. Below the Vincentown Formation is the Wenonah-Mount Laurel Formation. Figure 2 shows the geologic cross section of the Site. No potable wells were located downgradient within one-half mile of the Site. The residents in the area obtain their drinking water from private wells, most of which are screened in the Wenonah-Mount Laurel Formation.

5..2 Waste Materials

Three general types of industrial waste material were found on the Site including: grey-green, tar-like material; reddish brown to black, tar-like material; and a yellow to light brown solid with a vesicular texture. Some laboratory glassware, rusted five-gallon pails and household trash were found mixed with the waste. The waste materials were found to contain hazardous organic chemicals including: methylene chloride; acetone; chloroform; 2-butanone; trichloroethene; benzene; toluene; xylenes; phenol; bis(2-chloroethoxy) methane and bis(2-ethylhexyl)phthalate. Inorganic chemicals were also detected including arsenic, chromium, lead, mercury, cyanide, copper and zinc.

The industrial waste material had been dumped over the edge of an embankment and down onto a low lying area. The waste dumping occurred over an area of less than an acre in size. Surrounding this central area, was an area containing various waste materials, including industrial and household wastes. Industrial wastes observed at the Site included glassware, metal containers, rubbery masses, and foam-like material. Household wastes were found mixed in with the industrial waste.

5.3 Soils

Analytical results from a total of 13 soil samples were presented in the RI Report. These samples included three surface soil samples (from a depth of zero to two feet) and soil samples collected from a variety of depths from borings installed during monitoring well construction.

Two of the three surface soil samples were collected in the area of disposal. The other sample was taken from a background location. A number of volatile organic compounds (VOCs) including acetone, 1,1,1-trichloroethane, vinyl acetate and benzene were detected. The semi-volatile organic compounds phenol, bis(2-chloroethoxy)methane, 4,6-dinitro-2-methylphenol, bis(2-ethylhexyl)phthalate, and benzo(a)pyrene were detected. In addition, the pesticides 4,4'-DDT, Endosulfan Sulfate, and Endrin Ketone were detected in these samples at low levels. Several inorganic compounds were detected at elevated levels.

Of the subsurface soil samples, the levels of total VOCs ranged from 3.6 parts per billion (ppb) to 4,380 ppb. The VOC contaminants detected at the highest levels were acetone, methylene chloride, and vinyl acetate. A number of semi-volatile compounds including benzo(a)pyrene, bis(2-ethylhexyl)phthalate, and phenol as well as several inorganic compounds were also detected at elevated levels in some of the subsurface soil samples.

Table 1 lists the compounds and their concentrations detected in the soil. Some additional compounds were detected in the subsurface soil as compared to the surface soil. Analytical results from all soil samples were compared to existing New Jersey Soil

Action Levels and presented in the 1991 RI Report , which were guidelines recommended for site cleanups by NJDEP. Only one soil sample located in the central area of the Site exceeded these guidelines. The inorganic compounds antimony, copper and lead were noted to exceed the 1991 New Jersey Soil Action Levels established for these compounds.

5.4 Ground Water

Seven monitoring wells were installed and sampled during the RI. Of these wells, five are considered shallow wells and two are deep wells. The shallow wells are screened to monitor the uppermost 10 feet of the shallow, unconfined water table of the upper zone of the Cohansey Sand/Upper Kirkwood aquifer. The two deep wells are set to screen the bottom of the water table portion of the Cohansey/Upper Kirkwood aquifer and are screened to a depth of 40 feet (MW-1D) and 45 feet (MW-2D). Figure 3 indicates the location of the existing groundwater monitoring wells. At the beginning of RI activities in 1987, the six wells which were installed in 1980 were deemed unsuitable for groundwater sampling, as they had not been secured with protective casings and some wells were missing caps. These six wells were used, however, to provide supplemental groundwater elevation data, and they were later sealed.

Based on water level measurements, the direction of shallow groundwater flow was determined to be east to northeasterly. Shallow groundwater discharge to the stream on the Site was evidenced by the upward gradient observed in the two deep wells. The depth to ground water from the ground surface ranges from 11.5 feet in the upland portion of the Site to approximately the land surface in the stream valley. Regional groundwater flow direction in the deeper portion of the Kirkwood/Cohansey aquifer system is generally eastward.

There were two rounds of groundwater sampling performed during the RI. These rounds are referred to as Phase I and Phase II sampling.

<u>RI Phase I - Ground Water Sampling - January 1988</u>:
Seven VOCs were detected at low levels. However, it should be noted that different VOC compounds were identified at different wells, thereby indicating the absence of a VOC plume. Total VOC concentrations ranged from non-detect in three wells (MW-1S, MW-2S and MW-2D) to 41.8 ppb in well MW-5S. Bis(2-ethylhexyl) phthalate, a semi-volatile organic compound, was detected in three wells. A number of inorganic compounds were also detected in the wells. Most of the contamination was detected in shallow wells. One contaminant was detected at minimal levels in one deep well. The analytical results of the wells which were sampled during Phase I of the RI are presented in Table 2.

RI Phase II - Ground Water Sampling - May 1990:
Four VOC compounds which were detected in Phase I were again detected in Phase II (carbon disulfide, toluene, 1,1,1-trichloroethane and xylene), and four additional VOCs were detected in Phase II at low levels. The semi-volatile compound, bis(2-ethylhexyl)phthalate was detected in both phases of sampling. All contaminants detected in ground water were compared to New Jersey Safe Drinking Water Standards and this comparison was presented in the RI. Only one compound, tetrachloroethene, exceeded its standard of 1 ppb. Tetrachloroethene was detected in MW-2D at an estimated level of 3 ppb, and in MW-1S at an estimated level of 1 ppb. This did not exceed the Federal Drinking Water Standard of 5 ppb for this compound. Resampling of these wells was performed and the samples were analyzed for VOCs. Tetrachloroethene was not detected in the additional samples, however, carbon disulfide and 1,1,2,2-tetrachloroethane were detected at levels of 2 ppb and 7 ppb, respectively. This exceeds the current NJ Specific Ground Water Quality Criteria standard of 2 ppb for 1,1,2,2-tetrachloroethane and there is no standard, at this time, for carbon disulfide. The analytical results of the wells which were sampled during Phase II of the RI are presented in Table 3.

5.5 Residential Wells

Two residential wells were sampled in January 1988. Both were upgradient of groundwater flow from the Site. No potable wells were located downgradient within one-half mile of the Site. No organic or inorganic contaminants were confirmed to be present in these wells at levels above established drinking water standards.

5.6 Surface Water and Sediments

The stream located on the Site, an unnamed tributary to Lahaway Creek, is typically three to six feet wide and six inches deep. It flows year round and is fed by groundwater seepage. A ditch that occasionally holds standing water is located at the Site. During Phase I of the RI (January 1988), three surface water and sediment samples were collected from the stream: upstream, downstream and adjacent to the Site. A surface water and sediment sample was also collected from the ditch. During Phase II of the RI (May 1990), one surface water and sediment sample was taken from the on-Site ditch. No industrial waste was ever observed in the stream, but waste material as well as visible sediment contamination was observed in the ditch. Additional sediment sampling was performed in 1992, after the first phase of the Removal Action was performed at the Site (that data is discussed in the Removal Action section, below).

No VOCs were detected in Site surface water samples. Bis(2-ethylhexyl)phthalate was reported in the upstream surface water sample at an estimated level of 30 ppb. A pesticide, methoxychlor, was detected in a downstream sample at a level of 9 ppb. A number of contaminants at elevated levels were detected in the surface water sample from the ditch. Tables 4 through 7 summarize volatile and inorganic compounds detected in the surface water during Phase I and Phase II of the RI.

In the May 1991 RI report, the risk to ecological receptors via contact with and/or ingestion of surface water was estimated by comparing contaminant levels detected in the stream and ditch surface water to the Ambient Water Quality Criteria (AWQC). For VOCs, none of the AWQC were exceeded in the stream or ditch. In the stream, no inorganic AWQC were exceeded. In the ditch, six contaminants in the standing water exceeded AWQC for acute and/or chronic exposure. These contaminants are: cadmium, copper, lead, silver, zinc, and mercury.

Two VOCs, one semi-volatile compound and six inorganic compounds were detected in stream sediment. A greater variety and higher concentrations of contaminants were detected in ditch sediment. No sediment standards were available for comparison, however, the levels of contaminants in sediment were compared to the New Jersey Soil Action Levels in the RI Report. Stream sediment samples did not exceed any New Jersey Soil Action Levels. However, ditch sediment samples did exceed the guidelines for lead. Note that contaminated ditch sediments were later excavated and removed from the Site for disposal. Tables 8 through 11 summarize the volatile and inorganic compounds detected in the stream and ditch sediments during Phase I and Phase II of the RI.

5.7 Air

Ambient air monitoring for organic contamination was performed at the Site during the RI. No contamination was detected during the monitoring program. A faint odor was noticeable at the Site, mostly near the exposed waste. The inability to detect the odor with instruments may be attributable to either its inorganic nature or limitations with the sampling equipment. Since the chemical wastes at the Site have been removed, the odor problem has been mitigated.

5.8 Removal Action

Based on the findings of the RI, on August 23, 1991, NJDEP entered into an Order with MII. Under the terms of this Order, MII agreed to perform a Removal Action at the Site to address surficial waste. The Removal Action was performed in two phases and included the excavation and off-Site disposal of waste material, and underlying contaminated soils.

The data collected during and after the removal action, as described below, forms the basis for the no further action remedy presented in this document.

Removal Action - Phase I - July/August 1992 Excavation:
Prior to the initiation of excavation activities, additional sediment samples were collected from the on-Site ditch to further define the extent of contamination. Activities included excavation, sampling and appropriate off-Site disposal of waste materials and associated soils in and around the area of disposal, including impacted soils in the ditch. The extent of waste materials was discovered to extend approximately three to five feet below grade.

During Phase I of the Removal Action, 841.95 tons (565 cubic yards) of waste material were excavated and transported off-Site for treatment by stabilization and then disposal in a hazardous waste landfill due to elevated levels of lead.

Upon completion of the Phase I excavation, soil samples were collected to determine if any additional excavations were necessary. From this data, NJDEP identified as contaminants of concern all compounds detected at levels above NJDEP Soil Action Levels, which are used as guidelines for soil cleanup. The contaminants of concern included: bis(2-chloroethyl)ether; cadmium; selenium; and 1,2-dichloroethane. In addition, bis(2-chloroethoxy)methane was identified at elevated concentrations, although no cleanup standard was available for comparison. Based on the elevated concentrations of these contaminants of concern it was determined that additional excavations were necessary. NJDEP recommended that MII take additional measures to mitigate the potential spread of contaminants remaining in Site soils to the adjacent wetlands and ground water. MII agreed to excavate and properly dispose of additional soils in a second phase of the Removal Action.

Removal Action - Post Phase I Sampling - November 1992 and January 1993:
After these contaminants of concern were identified by NJDEP, MII collected additional groundwater, surface water, sediment and soil samples in November 1992 and January 1993.

Soil samples collected after the Phase I removal action defined areas of soil contamination which were addressed in Phase II of the removal action. The highest levels of soil contamination were determined to be in the center of the former disposal area of the Site. These data are presented in Table 12.

The groundwater sampling performed after completion of the Phase I Removal Action indicated some elevated levels of contaminants primarily in the center of the former disposal area of the Site. NJDEP Class IIA Water Cleanup Standards were exceeded for the following compounds: 1,2-dichloroethane; benzene; chloroform; methylene chloride; toluene; bis(2-chloroethyl) ether; cadmium; tetrachloroethylene; and selenium. Contaminants were detected at three sample locations at elevated levels and most of the elevated levels of these contaminants were detected in one groundwater sample from a shallow well. This data is presented on Table 13, Post Phase I Excavation Ground Water Data and denoted under location by "H-2".

Surface water and sediment sampling was performed in conjunction with the Removal Action. Bis(2-chloroethyl)ether, bis(2-chloroethoxy)methane, bis(2-chloroisopropyl) ether, cadmium and selenium were detected in one of the two sediment samples collected. The other sediment sample did not contain any contaminants. Table 14 presents a summary of the sediment sampling which was performed during the removal activities. Bis(2-chloroethyl)ether, bis(2-chloroethoxy)methane, and cadmium were detected in

surface water samples. The level of cadmium detected in the surface water sample exceeded established criteria for the protection of aquatic life. Table 15 presents a summary of the surface water sampling which was performed after the Phase I removal action.

Removal Action - Phase II - June 1994 Excavation:
Phase II removal activities were initiated in June 1994 and resulted in the excavation and off-Site disposal of 599.45 tons (450 cubic yards) of subsurface soils which Post Phase I sampling indicated were contaminated. These soils were classified as non-hazardous and were disposed of at an off-Site landfill. Phase II included soil excavation down to and within the saturated zone in impacted areas. Since the soil was excavated down to the saturated zone, no post-excavation soil samples were collected from the bottom of the excavation. A number of soil samples taken around the edges of the excavation during the Removal Action confirmed that the full extent of lateral contamination had been addressed. Only two contaminants were detected in wetland areas outside the area of excavation, bis(2-ethylhexyl)phthalate and selenium. The levels of these contaminants detected were below New Jersey Soil Action Levels established for protection of humans from direct contact risks.

Removal Action - Post Phase II Sampling - 1995:
In 1995, two additional groundwater monitoring wells (referred to as HF-MW-6S and HF-MW-7D) were installed at the Site. The purpose of these wells was to provide for a more detailed evaluation of the extent of groundwater contamination at the Site after the excavation of waste materials and impacted soils. Two rounds of groundwater sampling were then performed at all nine of the on-Site wells. These sampling events took place in May and July of 1995. None of the groundwater samples collected after completion of the second phase of the Removal Action had contaminants at levels that exceeded federal drinking water standards. The results of the groundwater analyses are discussed in detail in the Site Risk Summary section of this document, below, and shown on Table 16.

6. SITE RISK SUMMARY

The May 1991 RI Report included a Public Health and Environmental Assessment. This assessment provided a qualitative assessment of the health effects associated with the Site as it existed prior to the Removal Action. At that time, industrial waste and debris were present at the Site and hazardous substances had been detected in waste material, soil, ground water, surface water, and sediment. The conclusions of this assessment can be found in the May 1991 RI Report, which is part of the Administrative Record for the Site. These conclusions are not presented in this document, as they are no longer relevant based on current Site conditions.

In 1992 and 1994, a two-phased Removal Action was performed at the Site, as described above, which included the excavation and off-Site disposal of the waste materials, debris and contaminated soils at the Hopkins Farm Site. This Removal Action was performed by MII,

under NJDEP oversight. The risks once posed to human health or the environment by these materials no longer exist. In July 1996, EPA completed a document titled "Baseline Risk Assessment" for the Hopkins Farm Site (Risk Assessment). This Risk Assessment evaluated risks posed by any residual contaminants currently present at the Site.

6.1 Human Health Risk Assessment

EPA's July 1996 Baseline Risk Assessment for the Hopkins Farm Site evaluated human health risks associated with both current and future land uses, were there to be no further remedial actions taken. Risks were evaluated based on potential human exposure to contaminants currently present in Site soil, sediment and ground water. To be most protective of human health, the baseline risk assessment assumed that the Site would be developed for residential use in the future. This is based on the current use of property in the area of the Site as rural-residential.

The data used in the baseline risk assessment were collected during and after the Removal Action performed at the Site. During the second phase of the Removal Action in 1994, all waste materials and contaminated soils were excavated below the water table and properly disposed of at an off-Site facility. Soils around the limits of excavation, as well as stream surface water and sediment were sampled and analyzed. The results of the analysis of the soils and sediment, as well as groundwater sampling performed in nine groundwater monitoring wells in 1995, were evaluated as part of the human health risk assessment. Contaminants present in stream surface water were evaluated in the ecological assessment.

A four-step process is utilized for assessing site-related human health risks for a reasonable maximum exposure scenario: "Hazard Identification" identifies the contaminants of concern at a site based on several factors such as toxicity, frequency of occurrence and concentration. "Exposure Assessment" estimates the magnitude of actual and/or potential human exposures, and the pathways (e.g., ingestion of contaminated well water) by which humans are potentially exposed. "Toxicity Assessment" determines the types of adverse health effects associated with the chemical exposures and the relationship between magnitude of exposure (dose) and severity of adverse effects (response). "Risk Characterization" summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative (e.g., one-in-one million excess cancer risk) assessment of site-related risks.

The baseline risk assessment began with selecting contaminants of concern which would be representative of risks at the Hopkins Farm Site. A summary of the contaminants of concern are listed in Table 17. Because relatively few contaminants were detected in Site soils, sediments and ground water, all of the detected contaminants were considered potential contaminants of concern. These contaminants included acetone, chloroform,

trichloroethylene, benzene, toluene, bis(2-chloroethoxy)methane, cadmium, chromium, selenium and lead and other compounds.

The baseline risk assessment evaluated the human health risks posed by the Site by comparison of identified contaminants of concern to established Federal and State drinking water standards and EPA's Soil Screening Levels Guidance, as appropriate. Based on the current residential use of the area surrounding the Site, the risk assessment evaluated residential exposure scenarios for exposure to potentially Site-related contaminants in surface soils, sediments and ground water.

For ground water, a total of 13 contaminants were detected. Table 16 summarizes the analytical results for groundwater samples collected at the Site. The levels detected for 12 of these compounds were below both Federal and State drinking water standards established for these compounds. The other compound, bis(2-chloroethoxy)methane, was detected at a maximum level of 1 part per billion. EPA lacks sufficient data to generate an estimate of the toxicity of this compound, and there are no established Federal or State drinking water standards or guidelines established for this compound. However, bis(2-chloroethoxy)methane was detected rarely and at very low levels and is not thought to present a risk at this Site. Furthermore, the Well Restriction Area that is in place around the Site would prevent any resident from coming into contact with this contaminant in drinking water.

In Site soils and sediments, a total of five compounds were detected during the Removal Action in a total of six samples. Three of these contaminants, bis(2-chloroethyl)ether, bis(2-chloroethoxy)methane, and cadmium, were only detected in one of the six samples. Bis(2-ethylhexyl)phthalate was detected in four out of six samples, and selenium was detected in five out of six samples collected. The levels of these contaminants were compared to levels established in EPA's Soil Screening Guidance. Table 18 summarizes the analytical results for soils and sediments samples collected at the Site. The Soil Screening Guidance has been developed by EPA as a tool to help standardize and accelerate the evaluation and cleanup of contaminated soils at Superfund sites. Generic Soil Screening Levels (SSLs) are risk-based comparison values for protection of ground water and contact with soils that are derived from equations combining conservative exposure scenarios and toxicity values obtained from EPA databases. Generally, at sites where contaminant levels are below SSLs, no further action or study is warranted. Maximum levels of contaminants detected in soils and sediments were compared to their SSLs in EPA's Baseline Risk Assessment. With the exception of bis(2-chloroethyl)ether, no SSLs were exceeded. The concentration of bis(2-chloroethyl)ether in a single sample at the Site exceeded the generic SSL for protection of ground water. However, this compound was not detected in ground water at the Site. The estimated concentration of bis(2-chloroethyl) ether was considerably below the SSL for ingestion of soil and the low concentration of this compound is unlikely to be of concern at the Site.

In summary, the Baseline Risk Assessment concluded that the levels of compounds detected in ground water, soils and sediments at the Hopkins Farm Site, evaluated under conservative scenarios for exposure to humans, did not present significant risks to human health.

6.2 Ecological Risk Assessment

A flora and fauna survey was conducted at the Site during the RI in May 1990 by NJDEP. The goal of the survey was to compile a Site inventory of plants and animals, and to identify any rare and endangered species or their habitat. Details regarding this survey are presented in the RI Report. The RI Report indicates that no rare or endangered species were identified at that time.

In May 1992, during a visit to the Site to evaluate potential requirements for restoration related to the ongoing Removal Action, MII's consultant observed swamp pink (Helonias bullata). Swamp pink is a federally listed threatened plant species. The species is listed as endangered by the state of New Jersey. Based on this finding, modifications were made to plans for the second phase of the Removal Action to provide monitoring of water levels around the swamp pink colonies and to assure the protection of the plants.

As all known waste, debris and associated soil contamination has been addressed in the Removal Action performed at the Site, the primary media of concern in evaluating ecological risks were determined to be the surface water and sediment in the stream. There is not a direct route of exposure to groundwater contamination by ecological receptors. Prior to the Removal Action performed at the Site, standing water and sediment associated with the ditch had elevated levels of contaminants in them and presented an ecological risk. However, since these risks have been mitigated by the removal of all contaminated materials, this area is not considered to pose any current ecological risks.

Analytical data collected during the RI and the Removal Action involving sediment samples were compared to sediment screening values to evaluate any ecological risk that these sediments may pose. The screening values that were used for comparison were included in the "Guidelines for the Protection and Management of Aquatic Sediment Quality in Ontario" (D.Persaud, et al.). The contaminant levels detected in these samples are not significantly elevated. However, the concentrations of copper and zinc in one sediment sample collected in 1992 exceeded the screening levels for these compounds. Removal activities which were performed from 1992 through 1994 included the excavation of soil in the area where these contaminants were detected.

Surface waters in the stream and ditch were sampled between 1992 and 1993 (between the two phases of the Removal Action). Surface water was found to be impacted in a limited manner by previous waste disposal at the Site. During this sampling event, only

three compounds were detected in surface water samples in the stream and/or ditch. These compounds are: bis(2-chloroethyl)ether; bis(2-chloroethoxy)methane; and cadmium. After this sampling event, additional contaminated soils, which are the likely source of any surface water contamination in the stream, were excavated and removed from the Site. The level of cadmium detected in one surface water sample exceeded established standards for protection of aquatic life. However, based on the fact that after this sample was collected additional contaminated soils were removed from the Site, it is believed that surface waters at the Site do not currently pose a significant ecological risk. This will be verified with additional sampling. Furthermore, since all known areas of soil contamination have been removed from the Site in the second phase of the Removal Action, it is believed that there is not a future risk posed to ecological receptors at the Site from surface water.

Based on the evaluation of data collected at the Site, the actual or threatened releases of hazardous substances from the Hopkins Farm Site are not considered to present a current or potential threat to public health or the environment. Additional environmental monitoring of surface water, sediments and ground water will be performed to verify these findings.

6.3 Uncertainties

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

- environmental chemistry sampling and analysis;
- environmental parameter measurement;
- exposure parameter estimation; and
- toxicological data.

Uncertainty in the exposure assessment are related to estimates of how often an individual 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. In this assessment, uncertainty in the exposure assessment was addressed by conservatively assuming that the Site will be developed for residential use in the future. In addition, the assessment assumes that the well restriction will be lifted and that potential future residents will use ground water as a source of potable water.

Uncertainties in toxicological data occur in extrapolating both from animals to humans 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 about the toxicity and exposure parameters throughout the

assessment. The assessment has utilized a conservative approach to estimate contaminant concentration and exposure scenarios at the Site. As a result, the Risk Assessment provides upper-bound estimates of the risks to populations near the Site, and is highly unlikely to underestimate actual risks related to the Site.

More specific information concerning public health and ecological risks, including quantitative evaluation of the degree of risk associated with various exposure pathways, can be found in the Baseline Risk Assessment Report.

7. EVALUATION AND SUMMARY OF THE 'NO FURTHER ACTION' REMEDY

The no further action remedy will involve no further remedial action at the Site. The Removal Action performed by MII and completed in 1994 has effectively removed the source of contamination. The human health risk assessment performed for the Site has indicated that the Site, as it currently exists, poses no unacceptable risks to human health. A qualitative environmental assessment was also performed which indicated no contaminants currently present at the Site pose an ecological risk warranting an action at this time.

Two groundwater sampling events in 1995 have indicated that ground water does not pose an unacceptable risk. This finding will be confirmed through long-term monitoring. Since the ground water underlying the Site is a drinking water aquifer, EPA has determined that it is appropriate to perform long-term monitoring to confirm this conclusion. Sediment and surface water in the stream were sampled prior to and during the Removal Action at the site and were not determined to pose a risk warranting an action. However, long-term monitoring will be required to confirm this conclusion.

As part of the no further action remedy, the long-term monitoring program will consist of collecting ground water, surface water, and sediment samples. These samples will be analyzed for VOCs, semi-volatile, and inorganic compounds for the first year on approximately a quarterly basis. The monitoring program may be modified based upon sampling results collected during the first year. Currently, EPA and NJDEP do not believe that additional groundwater monitoring wells will be required for the purpose of the sampling program. However, if the results of the initial rounds of sampling indicate that additional wells are necessary, then they will be installed. In addition to monitoring for chemical contamination, qualitative monitoring of the revegetated area will be conducted to insure that the planted species survive or are replaced, as needed. The swamp pink plants will also be qualitatively monitored.

The long-term monitoring program will be performed on a periodic basis initially. Based on EPA's evaluation of the data, the frequency of sampling may be modified thereafter. The monitoring would then either be terminated, continued periodically, or other action considered. If monitoring indicates that contaminants are present at levels similar or lower than levels currently present at the Site over time, it is likely that the sampling frequency would be reduced, and when appropriate, the sampling program terminated. If monitoring reveals that

contamination at the Site increases so that an unacceptable risk to human health or the environment develops, an appropriate action can be initiated at any time during the monitoring period to address the risks.

Restoration of the Site has already taken place as part of Removal Action activities. After removal of contaminated soils, the Site was backfilled with clean soil from an off-Site source. Final surface contour grades were established to restore the Site to what was believed to be natural grades existing prior to waste disposal. The wetland areas and wetland/upland transition areas which were impacted by the Removal Action were replanted with approved species. The Site restoration planting will be monitored and maintained throughout the period of long-term monitoring.

Under the no further action remedy, the existing Well Restriction Area is expected to continue in effect for the Hopkins Farm Site throughout the monitoring period. This will prevent human contact with the shallow ground water by advising any persons drilling new potable wells to install the wells to a depth of at least 150 feet deep. The Well Restriction Area may be modified by NJDEP depending on the results of groundwater monitoring data.

The present worth cost of the monitoring program is estimated to be $417,000.

The no further action alternative for the Site has been developed based on the findings of the RI Report, the Risk Assessment Report and data collected during and after the completion of the Removal Action. The remedy is protective of human health and the environment and is cost-effective.

8. NJDEP ACCEPTANCE

NJDEP concurs with the no further action remedy. NJDEP's Letter of Concurrence is Attachment 1 of this Record of Decision.

9. COMMUNITY ACCEPTANCE

A summary of the comments received during the public comment period is provided in the Responsiveness Summary which is Attachment 3 to this Decision Document.

10. EXPLANATION OF SIGNIFICANT DIFFERENCES

There are no significant changes from the recommended no further action remedy presented in the Proposed Plan.

ATTACHMENT 1

NJDEP LETTER OF CONCURRENCE

State of New Jersey

Christine Todd Whitman
Governor

Department of Environmental Protection

Robert C. Shinn, Jr.
Commissioner

SEP 27 1996

Ms. Jeanne Fox, Regional Administrator
U.S. Environmental Protection Agency
Region II
290 Broadway
New York, NY 10007-1866

Subject: Record of Decision
Hopkins Farm Site
Plumsted Township, Ocean County, New Jersey

Dear Regional Administrator Fox,

A Record of Decision (ROD) has been prepared by the United States Environmental Protection Agency (USEPA), in accordance with the requirements of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) for the Hopkins Farm Site in Plumsted Township, Ocean County. The State of New Jersey has reviewed the ROD and concurs with the selected "No Further Action" alternative. It should be noted that USEPA employed Federal Soil Screening Levels as part of the remedy selection process to evaluate risks posed by site soils. These Levels are still under review by the Department, however, based on our evaluation of the data we concur with the remedy.

The selected remedy includes long term monitoring of the ground water, surface water, and sediments. The vegetation planted on the site from a previous Removal Action will also be monitored and/or replaced to ensure it becomes established in order to protect the endangered Swamp Pink plants in the adjacent wetland.

The State of New Jersey appreciates the opportunity to participate in this decision making process and looks forward to future cooperation with USEPA.

Very truly yours,

Robert C. Shinn, Jr., Commissioner
Department of Environmental Protection

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ATTACHMENT 2

ADMINISTRATIVE RECORD INDEX

HOPKINS FARM SITE
ADMINISTRATIVE RECORD FILE
INDEX OF DOCUMENTS

1.0 SITE IDENTIFICATION

1.1 Background - RCRA and other Information

P. 100001-100040 Hazardous Ranking System Package, Hopkins Farm, Plumsted Township, New Jersey, June 15, 1983.

P. 100041-100065 Report: Hopkins Farm, Plumsted Township, undated.

1.6 Correspondence

P. 100066-100066 Notice re: proper listing of Hopkins Farm as a National Priorities Site, July 31, 1995.

2.0 REMOVAL RESPONSE

2.1 Sampling and Analysis Plans

P. 200001-200079 Letter to Mr. Mark Godfrey, Principal Environmental Specialist, NJDEPE, From Mr. Nicholas P. Klumpp, Senior Environmental Engineer, Morton International, re: enclosed Wetlands Mitigation Plan, June 26, 1992. (Attachment.)

P. 200080-200116 Plan: Soil Removal Work Plan, Hopkins Farm Site, Plumsted Township, New Jersey, prepared for Morton International, Inc., prepared by Conestoga-Rovers & Associates, Inc., September 2, 1993.

P. 200117-200134. Plan: Revised Wetlands Mitigation Plan, Hopkins Farm Site, Plumsted Township, Ocean County, New Jersey, prepared for Morton International, Inc., prepared by CH2M Hill, October 1993.

P. 200135-200206 Plan: Groundwater Monitoring Plan for the Hopkins Farm Site in Plumsted Township, Ocean County, New Jersey, prepared for Morton International, Inc., prepared by r.e. wright environmental, inc., January 1995.

2.2 Sampling and Analysis Data/Chain of Custody Forms

P. 200207-200350 Report: Biological Assessment, Hopkins Farm Site, Plumsted Township, Ocean County, New Jersey, June 1992. (Attachment: Report: Preremedial Sampling/Classification and DisposalPlan for Properties in Plumsted and Jackson Townships, New Jersey, prepared for Morton International, Inc., prepared by IT

Corporation, December 9, 1991.

P. 200351-200542 Letter to Mr. Michael Burlingame, P.E., Site Manager, NJDEPE, Division of Publicly Funded Site Remediation, Bureau of Site Management, from Mr. Nicholas P. Klumpp, Senior Environmental Engineer, Morton International, Inc., re: enclosed Hopkins Farm, Wilson Farm, Gravel Pit Sites, Analytical Report for Sediments Sampling, August 10, 1992.(Attachment: Report: Preremedial Sampling/Classification Results for the Lesser Three Sites in Plumsted and Jackson Townships, New Jersey, prepared for Morton International, Inc., prepared by IT Corporation, 4/92.)

P. 200543-200597 Report: Supplemental Soil and Groundwater Investigation Report, Volume I, Text, Tables,Figures and Appendices A Through C, Hopkins Farm Site, Plumsted Township, New Jersey, prepared for Morton International, Inc., prepared by Conestoga-Rovers & Associates, Inc., March 1993.

P. 200598-200612 Report: Biological Assessment, Hopkins Farm Site, Plumsted Township, Ocean County, New Jersey, prepared for Morton International, Inc., prepared by CH2M Hill, October 1993.

P. 200613-200668 Report: Final Summary Report, Surficial Waste and Subsurface Soil Removal Program, Hopkins Farm Site, Plumsted Township, New Jersey, Volume 1 -Text, Tables, Figure, Plans, prepared for Morton International, Inc., prepared by Conestoga-Rovers & Associates, Inc., December 1994.

P. 200669-202324 Report: Final Summary Report, Surficial Waste and Subsurface Soil Removal Program, Hopkins Farm Site, Plumsted Township, New Jersey, Volume 2 - Appendices A - L, Appendix M (1 of 2) prepared for Morton International, Inc., prepared by Conestoga-Rovers & Associates, Inc., December 1994.

P. 202325-204331 Report: Final Summary Report, Surficial Waste and Subsurface Soil Removal Program, Hopkins Farm Site, Plumsted Township, New Jersey, Volume 3 - Appendix M (2 of 2), Appendices N - O prepared for Morton International, Inc., prepared by Conestoga-Rovers & Associates, Inc., December 1994.

P. 204332-204530 Report: Preliminary Site Activities Summary Report, Hopkins Farm Site - Plumsted Township, Ocean County, New Jersey, prepared for Morton International, Inc., prepared by r.e. wright environmental, inc., May 1995.

P. 204531-204588 Report: Field Report, Groundwater Sampling, Morton - Hopkins Farm Site, Plumsted Township, New Jersey, prepared for Morton International, Inc., prepared by RECRA Environmental, Inc., May 1995.

P. 204589-204622 Report: Field Report, Groundwater Sampling, Morton - Hopkins Farm Site, Plumsted Township, New Jersey, prepared for Morton International, Inc., prepared by RECRA Environmental, Inc., July 1995.

P. 204623-204644 Report: Hopkins Farm, Plumsted Township, Ocean County, New Jersey, Baseline Risk Assessment, prepared for U.S. EPA, Region II, June 1996.

2.7 Correspondence

P. 204645-204645 Letter to Mr. Clifford G. Day, Field Supervisor, U.S. Fish and Wildlife Service, from Mr. Robert W. Hargrove, Chief, Environmental Impacts Branch, U.S. EPA, Region II, re: determination of federal endangered/threatened species or critical habitats present in the vicinity of the Hopkins Farm National Priorities List Site, December 12, 1990.

P. 204646-204650 Letter to Mr. Robert W. Hargrove, Chief, Environmental Impacts Branch, U.S. EPA, Region II, from Mr. Clifford G. Day, Field Supervisor, U.S. Fish and Wildlife Service, re: response to request for information on the presence of federally listed and proposed endangered and threatened species within the study area of the proposed Hopkins Farms National Priorities List Site in the Plumsted Township, Ocean County, New Jersey, January 15, 1991. (Attachments: 1) Federally Endangered and Threatened Species in New Jersey, 2) Candidate Species in New Jersey.)

P. 204651-204652 Letter to Mr. Constantine Sidamon-Eristoff, Regional Administrator, U.S. EPA, Region II, from Ms. Nancy L. Zerbe, Deputy State Historic Preservation Officer, NJDEPE, re: Hopkins Farm - Interim Removal Action, October 3, 1991.

P. 204653-204653 Memorandum to Mr. Gary Adamkiewicz, Environmental Engineer, Southern New Jersey Section II, U.S. EPA, Region II, from Ms. Shari Stevens, Coordinator, Biological Technical Assistance Group, U.S. EPA, Region II, re: Biological Technical Assistance Group (BTAG) Meeting, December 10, 1991.

P. 204654-204657 Memorandum to Mr. Raymond Basso, Chief, New Jersey Superfund Branch II, U.S. EPA, Region II, from Ms. Donna Hasemen, Industrial Hygienist, Administrative Management Section, U.S. EPA, Region II, re: Review of

Health and Safety Plan for Hopkins and Wilson Farms Removal Action, March 24, 1992.

P. 204658-204677 Letter to Mr. Nicholas Klumpp, Morton International, Inc., from New Jersey Natural Resource Conservation Program, re; Remedial Activities; Wilson Farm; Plumsted Township; Hopkins Farm; Plumsted Township; Gravel Pit; Jackson Township, May 15, 1992. (Attachments: 1) Cover Sheet: Soil Erosion and Sediment Control Plan for Properties in Plumsted and Jackson Township, New Jersey, prepared for Morton International, Inc., prepared by IT Corporation, April 1992; 2) Letter to Mr. Nicholas Klumpp, Morton International, Inc., from Mr. Chuck Collins, Erosion Control Specialist, New Jersey Natural Resources Conservation Program, re: Remedial Activities; Wilson Farm; Hopkins Farms Gravel Pit; Blocks - Various; Lots - Various; Plumsted Township & Jackson Township, June 8, 1992; 3) Plan: Soil Erosion and Sediment Control Plan for Properties in Plumsted and Jackson Township, New Jersey, prepared for Morton International, Inc., prepared by IT Corporation, April 1992; 4) Figure 3: Soil Erosion and Sediment Control Plan (Hopkins Farm), February 1992.)

P. 204678-204679 Letter to Mr. Gary Adamkiewicz, Project Manager, U.S. EPA, Region II, from Mr. Nicholas P. Klumpp, Senior Environmental Engineer, Morton International, Inc., re: Hopkins Farm Site, Plumsted Township, Ocean County, NJ, Wetlands Issues, June 9, 1992.

P. 204680-204723 Letter to Mr. Satvinder Singh, NJDEPE, Division of Coastal Resources, Engineering Support, from Mr. Nicholas Klumpp, Senior Environmental Engineer, Morton International, Inc., re: attached Hopkins Farm CERCLA Site, Plumsted Township, Ocean County, NJ, LURP #: 1523-92-0004.1, Stream Encroachment Permit Application, June 26, 1992. (Attached: Stream Encroachment Permit Application Package.)

P. 204724-204724 Letter to Mr. R. Witte, U.S. EPA, Region II, from Mr. Nicholas P. Klumpp, Senior Environmental Engineer, Morton International, Inc., re: Hopkins Farm CERCLA Site, Plumsted Township, Ocean County, NJ, Biological Assessment, June 26, 1992.

P. 204725-204726 Letter to Mr. Clifford G. Day, Field Supervisor, U.S. Fish and Wildlife Service, from Mr. Robert W. Hargrove, Chief, Environmental Impacts Branch, U.S. EPA, Region II, re: presence of a federally listed threatened species, Hellonias bullata (swamp pink), on the Hopkins Farm Site, Plumsted Township, Ocean County, New Jersey, June 30, 1992.

P.	204727-204731	Memorandum to Mr. Raymond Basso, Chief, New Jersey Superfund Branch II, U.S. EPA, Region II, from Mr. Robert W. Hargrove, Chief, Environmental Impacts Branch, U.S. EPA, Region II, re: Hopkins Farm, July 14, 1992. (Attachments: 1) Letter to Mr. Robert W. Hargrove, Chief, Environmental Impacts Branch, U.S. EPA, Region II, from Mr. Clifford G. Day, Supervisor, U.S. Fish and Wildlife Service, re: concurrence with EPA's conclusion that the planned remedial action for the Hopkins Farm site is not likely to have an adverse effect upon the federally listed threatened species, swamp pink (Helonius bullata); 2) Letter to Mr. Gary Adamkiewicz, Project Manager, U.S. EPA, Region II, from Mr. Nicholas P. Klumpp, Senior Environmental Engineer, Morton International, Inc., re: Hopkins Farm Site, Plumsted Township, Ocean County, NJ, Wetlands Issues, June 9, 1992.)
P.	204732-204733	Letter to Mr. Robert Witte, U.S. EPA, Region II, from Mr. Nicholas P. Klumpp, Senior Environmental Engineer, Morton International, Inc., re: Hopkins Farm CERCLA Site, Plumsted Township, Ocean County, NJ, Amendment of Biological Assessment, July 23, 1992.
P.	204734-204736	Letter to Mr. Clifford G. Day, Supervisor, U.S. Fish and Wildlife Service, from Mr. Robert W. Hargrove, Environmental Impacts Branch, U.S. EPA, Region II, re: amendment to EPA's Biological Assessment for the threatened swamp pink (Hellonians bullata) at the Hopkins Farm Site, in Plumsted, New Jersey, July 28, 1992.
P.	204737-204738	Letter to Mr. Robert Witte, U.S. EPA, Region II, from Mr. Nicholas P. Klumpp, Senior Environmental Engineer, Morton International, Inc., re: Hopkins Farm CERCLA Site, Plumsted Township, Ocean County, NJ, Amendment 2 of Biological Assessment, July 28, 1992.
P.	204739-204740	Letter to Mr. Robert W. Hargrove, Chief, Environmental Impacts Branch, U.S. EPA, Region II, from Mr. Clifford G. Day, Supervisor, U.S. Fish and Wildlife Service, re: amendment to EPA's Biological Assessment for the federally listed threatened plant, swamp pink (Hellonians bullata), at the Hopkins Farm Site, in Plumsted, New Jersey, August 14, 1992.
P.	204741-204742	Letter to Mr. Michael Burlingame, Site Manager, NJDEPE, from Mr. Gary Adamkiewicz, Project Manager, Southern New Jersey Section II, U.S. EPA, Region II, re: Hopkins Farm Site, September 10, 1992.
P.	204743-	Letter to Mr. Robert W. Hargrove, Chief,

	204744	Environmental Impacts Branch, U.S. EPA, Region II, from Mr. Clifford G. Day, Supervisor, U.S. Fish and Wildlife Service, re: August 25, 1992 visit to the Hopkins Farm National Priorities List (NPL) site in Plumsted, Ocean County, New Jersey, September 23, 1992.
P.	204745-204754	Letter to Mr. Nicholas Klumpp, Environmental Engineer, Morton International, Inc., from Mr. Michael Burlingame, Site Manager, NJDEPE, re: attached Hopkins Farm Site Post-Excavation Sampling Results, October 8, 1992. (Attachment.)
P.	204755-204756	Letter to Mr. Michael Burlingame, Site Manager, NJDEPE, from Mr. Gary Adamkiewicz, Project Manager, Southern New Jersey Section II, U.S. EPA, Region II, re: comments on Work Plan for additional sampling at the Hopkins Farm site dated October 21, 1992, October 29, 1992.
P.	204757-204757	Letter to Mr. Gary Adamkiewicz, Project Manager, U.S. EPA, Region II, from Mr. Michael Burlingame, Site Manager, NJDEPE, re: Hopkins Farm Site, October 30, 1992.
P.	204758-204759	Letter to Mr. Nicholas Klumpp, Environmental Engineer, Morton International, Inc., from Mr. Michael Burlingame, Site Manager, NJDEPE, re: Hopkins Farm Site, Work Plan for Additional Post-Excavation Sampling, November 2, 1992.
P.	204760-204761	Letter to Mr. Nicholas Klumpp, Senior Environmental Engineer, Morton International, Inc., from Mr. Michael Burlingame, Site Manager, NJDEPE, re: Hopkins Farm Site, Soil Erosion Control, November 24, 1992.
P.	204762-204764	Memorandum to Addressee List, from Mr. Robert W. Hargrove, Chief, Environmental Impacts Branch, U.S. EPA, Region II, re: Final Habitat Surveys for the Threatened Swamp Pink and Knieskern's Beaked-Rush at Various NPL Sites in New Jersey, February 18, 1993. (Letter to Mr. Robert W. Hargrove, Chief, Environmental Impacts Branch, U.S. EPA, Region II, from Mr. Clifford G. Day, Supervisor, U.S. Fish and Wildlife Service, re: formal concurrence with EPA's final Habitat Survey Report, January 22, 1993.)
P.	204765-204767	NJDEPE Comments on the "Soil Removal Work Plan" by Conestoga-Rovers, for Morton International, Inc., dated March 1993.
P.	204768-204774	Letter to Mr. Michael Burlingame, Site Manager, NJDEPE, from Mr. Samuel Jung, Conestoga-Rovers & Associates, Inc., re: attached Soil Removal Work Plan:

Response to NJDEPE Comments, Hopkins Farm Site, Plumsted Township, New Jersey, June 30, 1993. (Attachment.)

P. 204775-204775 Letter to Mr. Gary Adamkiewicz, Project Manager, U.S. EPA, Region II, from Mr. Michael Burlingame, Site Manager, NJDEPE, re: Hopkins Farm, Soil Removal Work Plan, July 8, 1993.

P. 204776-204777 Letter to Mr. Nicholas Klumpp, Environmental Engineer, Morton International, Inc., from Mr. Michael Burlingame, Site Manger, NJDEPE, re: Soil Removal Work Plan, Hopkins Farm Site, CRA Response to NJDEPE Comments, August 2, 1993.

P. 204778-204779 Letter to Mr. Michael Burlingame, Site Manager, NJDEPE, from Mr. Gary Adamkiewicz, Project Manger, U.S. EPA, Region II, re: Hopkins Farm Site, Plumsted Township, New Jersey, September 17, 1993.

P. 204780-204781 Letter to Mr. Nicholas Klumpp, Senior Environmental Engineer, Morton International, Inc., from Mr. Michael Burlingame, Site Manager, NJDEPE, re: Hopkins Farm Site, Soil Removal Work Plan, Dated September 1993, September 20, 1993. (Attachment: NJDEPE Comments on the "Soil Removal Work Plan" by Conestoga-Rovers, for Morton International, Inc., dated September 1993.)

P. 204782-204783 Letter to Mr. Michael Burlingame, Site Manager, NJDEPE, from Mr. Nicholas P. Klumpp, Senior Environmental Engineer, Morton International, Inc., re: Hopkins Farm Site, Soil Removal Work Plan, October 5, 1993.

P. 204784-204785 Letter to Mr. Michael Burlingame, Site Manager, NJDEPE, from Mr. Clifford G. Day, Supervisor, U.S. Fish and Wildlife Service, re: Revised Soil Removal Work Plan, October 20, 1993.

P. 204786-204786 Memorandum to Ms. Kimberly O'Connell, Chief, Southern New Jersey Section II, U.S. EPA, Region II, from Mr. John Filippelli, Chief, Environmental Analysis Section, U.S. EPA, Region II, re: Hopkins Farm Site, Wetlands Mitigation and Biological Assessment, November 15, 1993.

P. 204787-204788 Letter to Mr. Mark Godfrey, Principle Environmental Specialist, NJDEPE, from Mr. Nicholas P. Klumpp, Senior Environmental Engineer, Morton International, Inc., re: Hopkins Farm CERCLA Site, Plumsted Township, Ocean County, NJ, LURP # 1523-92-0004.1 & 1523-92-0004.3, Notice of Additional Activity,

November 30, 1993.

P. 204789-204790 Letter to Mr. Satvinder Singh, NJDEPE, from Mr. Nicholas P. Klumpp, Senior Environmental Engineer, Morton International, Inc., re: Hopkins Farm CERCLA Site, Plumsted Township, Ocean County, NJ, LURP # 1523-92-0004.1 & 1523-92-0004.3, Notice of Additional Activity, December 1, 1993.

P. 204791-204792 Letter to Mr. Michael Burlingame, Site Manager, NJDEPE, from Mr. Gary Adamkiewicz, Project Manager, U.S. EPA, Region II, re: Hopkins Farm Site, Plumsted Township, New Jersey, December 30, 1993.

P. 204793-204795 Letter to Mr. Nicholas Klumpp, Senior Environmental Engineer, Morton International, Inc., from Mr. Michael Burlingame, Site Manager, NJDEPE, re: Hopkins Farm Site, Biological Assessment and Wetlands Mitigation Plan, January 5, 1994. (Attachment: Facsimile transmission to Mr. Michael Burlingame, Site Manager, NJDEPE, Mr. Gary Adamkiewicz, Project Manager, U.S. EPA, Region II, re: Hopkins Farm Site, Plumsted Township, New Jersey, December 30, 1993.)

P. 204796-204799 Letter to Mr. Michael Burlingame, Site Manager, NJDEPE, from Mr. Gary Adamkiewicz, Project Manager, U.S. EPA, Region II, re: Hopkins Farm Site, Plumsted Township, New Jersey, January 28, 1994. (Attachment: EPA Comments on the Draft Hopkins Farm Ground-water Monitoring Plan dated November 1993.)

P. 204800-204804 Letter to Mr. Nicholas Klumpp, Senior Environmental Engineer, from Mr. Michael Burlingame, Site Manager, NJDEPE, re: Hopkins Farm Site, Draft Groundwater Monitoring Plan, February 25, 1994. (Attachment: NJDEPE Review Comments on the Draft "Groundwater Monitoring Plan", Hopkins Farm Site, by Advanced Pollution Technologies, dated November 1993.)

P. 204805-204809 Letter to Mr. Michael Burlingame, Site Manager, NJDEPE, from Ms. Kimberly O'Connell, Chief, Southern New Jersey Superfund Section II, U.S. EPA, Region II, re: Revised Groundwater Monitoring Plan, October 1994, Hopkins Farm Site, Plumsted Township, New Jersey, December 14, 1994. (Attachment: EPA Comments on the October 1994 Groundwater Monitoring Plan for the Hopkins Farm Superfund Site.)

P. 204810-204812 Letter to Mr. Nicholas Klumpp, Senior Environmental Engineer, Morton International, Inc., from Mr. Michael Burlingame, Site Manager, NJDEPE, re: Hopkins Farm Site, Ground Water Monitoring Plan, December 23, 1994. (Attachment: NJDEPE Comments on "Groundwater Monitoring

Plan", Hopkins Farm Site, by APT, dated October 1994.)

P.	204813-204823	Letter to Ms. Kimiko Link, Project Manager, U.S. EPA, Region II, from Mr. Michael Burlingame, Site Manager, NJDEPE, re: Hopkins Farm Site, First Round Groundwater Samples, September 1, 1995. (Attachment: Memorandum to Mr. Steve Macgregor, Technical Coordinator, Bureau of Environment Evaluation and Risk Assessment, NJDEPE, from Mr. Karanvir S. Kaushal, Research Scientist, Quality Assurance Section, Bureau of Environmental Measurements & Quality Assurance, re: Review of the Analytical Data Package for Hopkins Farm Submitted by RECRA Environmental Inc., August 29, 1995.)
P.	204824-204824	Letter to Ms. Kimiko Link, Project Manager, U.S. EPA, Region II, from Mr. Michael Burlingame, Site Manager, NJDEPE, re: Hopkins Farm Site, Groundwater Monitoring Plan, February 24, 1995.
P.	204825-204826	Letter to Mr. Michael Burlingame, Site Manager, NJDEPE, from Ms. Kimberly O'Connell, Chief, Southern New Jersey Superfund Section II, U.S. EPA, Region II, re: Groundwater Monitoring Plan for the Hopkins Farm Site, January 1995, February 24, 1995.
P.	204827-204828	Letter to Ms. Kimberly O'Connell, Chief, Southern New Jersey Superfund Section II, U.S. EPA, Region II, from Mr. Michael Burlingame, Site Manager, NJDEPE, re: Groundwater Monitoring Plan for the Hopkins Farm Site, January 1995, March 7, 1995.
P.	204829-204829	Letter to Mr. Nicholas Klumpp, Senior Environmental Engineer, Morton International, Inc., from Mr. Michael Burlingame, Site Manager, NJDEPE, re: Hopkins Farm Site, Groundwater Work Plan, March 14, 1995.
P.	204830-204923	Letter to Mr. Michael Burlingame, Site Manager, NJDEPE, from Mr. Nicholas P. Klumpp, Senior Environmental Engineer, Morton International, Inc., re: Hopkins Farm CERCLA Site, Plumsted Township, Ocean County, NJ, Groundwater Sample Analytical Results, June 9, 1995. (Attachment: analytical data summary sheets.)
P.	204924-205008	Letter to Ms. Kimberly O'Connell, Chief, Southern New Jersey Superfund Section II, U.S. EPA, Region II, from Mr. Michael Burlingame, Site Manager, NJDEPE re: attached summary raw data sheets for the July 1995 second round of ground sampling at the Hopkins Farm Site, September 12, 1995. (Attachment: data.)
P.	205009-205020	Letter to Ms. Kimberly O'Connell, Chief, Southern New Jersey Superfund Section II, U.S. EPA, Region II,

from Mr. Michael Burlingame, Site Manager, NJDEPE re: Hopkins Farm Site, 2nd Round of Groundwater Sampling, October 20, 1995. (Attachment: data.)

P. 205021-205022 Memorandum to Ms. Kimberly O'Connell, Chief, Southern New Jersey Superfund Section II, U.S. EPA, Region II, from Ms. Shari Stevens, Coordinator, Biological Technical Assistance Group, re: Biological Technical Assistance Group Review, Hopkins Farm, June 5, 1996.

3.0 REMEDIAL INVESTIGATION

3.4 Remedial Investigation Reports

P. 300001-300369 Report: Remedial Investigation/Feasibility Study, Wilson Farm, Hopkins Farm, Gravel Pit, Plumsted and Jackson Townships, Ocean County, New Jersey, PD-12B, Final Remedial Investigation Report - Hopkins Farm, Volume I of II, prepared for NJDEPE, prepared by ACRES International Corporation, May 1991.

P. 300370-300383 Report: Remedial Investigation/Feasibility Study, Wilson Farm, Hopkins Farm, Gravel Pit, Plumsted and Jackson Townships, Ocean County, New Jersey, PD-12B, Final Remedial Investigation Report - Hopkins Farm, Volume II of II, prepared for NJDEPE, prepared by ACRES International Corporation, May 1991.

3.5 Correspondence

P. 300384-300387 Letter to Mr. Michael Burlingame, Site Manager, NJDEPE, from Mr. Thomas K. Uzzo, Environmental Engineer, Southern New Jersey Compliance Section, U.S. EPA, Region II, re: Hopkins Farm draft Phase I RI Report Comments, June 23, 1988.

P. 300388-300389 Memorandum to Mr. Joseph P. Gowers, Project Manager, U.S. EPA, Region II, from Mr. Roland Hemmett, Chairman, Biological Technical Assistance Group, U.S. EPA, Region II, re: Biological Technical Assistance Group (BTAG) Meeting, December 13, 1990.

P. 300390-300409 Letter to Mr. Gary Adamkiewicz, Project Manager, U.S. EPA, Region II, from Mr. Michael Burlingame, Site Manager, NJDEPE, re: Hopkins Farm Draft RI Report, Dated October 1990, January 29, 1991. (Attachment: NJDEP Response to USEPA Comments on the Hopkins Farm Site Draft Remedial Investigation by ACRES International, dated October 1990.)

P. 300410-300411 Letter to Mr. Michael Burlingame, Site Manager, NJDEPE, from Mr. Gary Adamkiewicz, Project Manager,

U.S. EPA, Region II, re: EPA's comments on the revised Final Remedial Investigation (RI) report, dated May 1991, August 8, 1991.

4.0 FEASIBILITY STUDY

4.3 Feasibility Study Reports

P. 400001-400173 Report: Remedial Investigation/Feasibility Study, Plumsted Township, New Jersey, Contract No. S87118, PD-14B, Final Feasibilty Study Report - Hopkins Farm, prepared for NJDEPE, prepared by ACRES International Corporation, February 1992.

4.6 Correspondence

P. 400174-400175 Memorandum to Mr. Gary Adamkiewicz, Project Manager, U.S. EPA, Region II, from Mr. Roland Hemmett, Chairman, Biological Technical Assistance Group, U.S. EPA, Region II, re: Biological Technical Assistance Group (BTAG) Meeting, April 30, 1991.

P. 400176-400178 Letter to Ms. Kimberly O'Connell, Chief, Southern New Jersey Superfund Section II, U.S. EPA, Region II, from Mr. Michael Burlingame, Site Manager, NJDEPE, re: Hopkins Farm Superfund Site, Present Worth Analysis of No Further Action Alternative, July 5, 1996. (Attachment: cost calculations.)

7.0 ENFORCEMENT

7.3 Administrative Orders

P. 700001-700008 Administrative Consent Order In the Matter of the Gravel Pit, Hopkins Farm and Wilson Farm Waste Disposal Sites and Morton Thiokol, Inc., dated December 3, 1987.

P. 700009-700014 Administrative Consent Order of Morton International, Inc., In The Matter of the Gravel Pit, Hopkins Farm and Wilson Farm Waste Disposal Sites: Morton International, Inc., dated August 20, 1991.

8.0 HEALTH ASSESSMENTS

8.1 ATSDR Health Assessments

P. 800001-800007 Memorandum to Mr. Fred Cataneo, U.S. EPA, Region II, from Mr. William Nelson and Ms. Denise Johnson, ATSDR Regional Representatives, Department of Health & Human Services, re: attached working draft Health Assessment for Hopkins Farm, Ocean County, Plumsted Township, New Jersey, August 26, 1988, September 7, 1988. (Attachment.)

10.0 PUBLIC PARTICIPATION

10.2 Community Relations Plans

P. 1000001-1000011 Plan: Community Relations Plan for Hazardous Waste Site Remedial Action, Hopkins Farm, Plumsted Township, Ocean County, October 1986.

Several documents comprising the Administrative Record file for the Wilson Farm Site, which are highlighted on the attached index, are hereby incorporated into the Administrative Record file for the Hopkins Farm Site.

ATTACHMENT 3

RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY

DECISION DOCUMENT

HOPKINS FARM SITE

OVERVIEW

This is a summary of the public's comments and concerns regarding the Proposed Plan and related documents for the Hopkins Farm Site and EPA's and NJDEP's response to those comments.

In accordance with the public participation requirements of the Comprehensive Environmental Response, Compensation and Liability Act as amended (CERCLA), EPA, in conjunction with NJDEP, held a public comment period from July 25, 1996 to August 23, 1996 to provide interested parties the opportunity to comment on the Proposed Plan and documents contained in the Administrative Record for the Hopkins Farm Site.

During the public comment period, EPA and NJDEP held a public meeting on August 6, 1996 at 7:00 pm at the Plumsted Township Municipal Building to discuss the results of the Remedial Investigation and Feasibility Study (RI/FS), Removal Actions and to present the preferred no further action remedy. No objections to the no further action remedy presented in the Proposed Plan were raised at the public meeting. Public comments received during the public meeting are documented in this Responsiveness Summary.

During the public meeting, residents supported EPA's no further action alternative but also had some concerns which focused primarily on: ① resale value of properties near Superfund Sites; ② length of time the monitoring wells would remain on the Site; ③ the Well Restriction Area; and ④ the schedule for deleting the Site from the National Priorities List (NPL).

This Responsiveness Summary is divided into the following sections:

I. BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS: This section provides the history of community concerns and interests regarding the Site.

II. SUMMARY OF COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD AND AGENCY RESPONSES: This section summarizes the oral comments, as well as written comments, received by EPA and NJDEP at the public meeting and during the public comment period.

III. COMMUNITY RELATIONS ACTIVITIES AT THE HOPKINS FARM SITE: This section provides information regarding the location of the Administrative Record repositories.

I. Background on Community Involvement and Concerns

Officials from Plumsted Township were present during the initial inspection of the Site by NJDEP and the Ocean County Health Department in 1980. Over the course of the Site investigation and subsequent removal actions, numerous discussions and exchanges of correspondence have taken place between NJDEP and the Plumsted Township officials, the Plumsted Township Environmental Commission, the Ocean County Health Department, building developers, property owners and potential home buyers. Since people in the area rely solely on private residential wells to provide drinking water, the concerns expressed by the members of the community have generally focused on the potential for contamination of ground water in the vicinity of the Site and the Well Restriction Area imposed by NJDEP on properties around the Site.

II. SUMMARY OF COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD AND AGENCY RESPONSES

Comments raised during the Hopkins Farm Site Public Meeting held on August 6, 1996, as well as written comments received during the public comment period, and EPA's and NJDEP's responses are summarized below:

IIA. Summary of Verbal Questions and Responses:

Resale Value of Property Issues:

Comment: Several citizens asked how the monitoring wells, which are located on the property, will affect the ability of the property owner to transfer or sell the property.

Response: It has been determined that long-term monitoring is warranted in order to provide additional assurance that there is no contamination at the Site and to determine if any residual contamination is detected over time. The ground water will be sampled periodically throughout this time. If no elevated levels of contaminants are detected, the wells are expected to be sealed at the completion of long-term monitoring. EPA may propose that the Site be deleted from the National Priorities List (NPL) during long-term monitoring. Once the Site is deleted, it would not require any deed restrictions because the waste was removed. In the event the property is sold, EPA will still require access to the area of the property where the monitoring wells are located during the period of long-term monitoring. EPA and the property owner can usually work out an amicable access agreement, but at times when an agreement cannot be reached, EPA can get access via a court order. In the event of a transfer of property, the attorney for the property owner and

EPA's attorney could discuss the issue in further detail. EPA does not get involved in the legalities of the buying or selling of the property.

Comment: A citizen asked if EPA makes a final decision and everything is positive, could somebody feasibly build a house, meeting State and Township requirements, in November.

Response: Yes, a home could be built on the property. However, at this time, a NJDEP Well Restriction Area is in place and would advise the owner that any new well to be constructed on the property should be drilled to a depth of at least 150 feet. In addition, EPA will continue to collect data from the existing on-Site monitoring wells at the Hopkins Farm Site for several years. Since long-term monitoring will be on-going, EPA would require access to the area of the property where the monitoring wells are located from any new owner. EPA and the property owner can usually work out an amicable access agreement. In the event of a planned transfer of property, the attorney for the property owner and EPA's attorney should discuss the issue in further detail.

Comment: A citizen, who is a potential home buyer in Plumsted Township, expressed concern over the information which realtors and the media have provided him with respect to Superfund sites in the town.

Response: EPA encourages the public to contact EPA with any questions related to any Superfund site or environmental issue. Realtors often provide information to potential homebuyers to make them aware of Superfund sites located in the area. EPA encourages the public to contact local officials, NJDEP or EPA personnel for further information. In addition, EPA schedules community meetings and public availability sessions to inform the public about activities on-going at Superfund Sites. As for media coverage, EPA spoke with a reporter from the *Asbury Park Press* before the public meeting about an article on the Hopkins Farm Site. EPA routinely places a public notice of all public meetings in local papers to notify the community of upcoming meetings; the notices include EPA and NJDEP points of contact whom the public can contact for additional information.

Comment: Several citizens asked if realtors can directly contact NJDEP or EPA.

Response: A realtor can refer the potential buyer to local officials, as well as EPA or NJDEP staff, for additional information pertaining to a Superfund site or can contact EPA or NJDEP directly.

General Comment: Ms. Vicky Wilbur of the Ocean County Planning Board stated that there is an Ocean County Potentially Hazardous Site Map available from her office. The number is 929-2054. It is also available by municipality. The map lists the location of all Superfund sites, landfills, and other known or suspected hazardous sites in the area.

Monitoring Well Issues:

Comment: What is the monitoring schedule? Who will be responsible for the monitoring?

Response: The responsible party (Morton International, Inc.) at the Hopkins Farm Site has funded the cleanup of this Site and is expected to conduct the long term monitoring. EPA is expected to enter into a legal agreement with Morton to conduct the long-term monitoring. EPA is estimating sampling on approximately a quarterly basis for the first year and then the data will be evaluated to determine the frequency of sampling thereafter. If contamination is not detected, the frequency of sampling may be reduced to once or twice a year. In addition, surface water and sediment samples will be collected and evaluated on a periodic basis.

Comment: A citizen asked if the property owner can be notified when the monitoring wells will be sampled and if EPA can provide the results to the owner.

Response: EPA will notify the property owner of the scheduled sampling dates and will provide the results in a timely manner.

General Superfund Issues:

Comment: A citizen asked how many Superfund sites are located in Plumsted Township.

Response: There are five Superfund sites in Plumsted Township; the Hopkins Farm Site; the Goose Farm Site; the Wilson Farm Site; the Spence Farm Site; and the Pijak Farm Site. Of these sites, Hopkins Farm, Wilson Farm, Spence Farm and Pijak Farm are expected to be deleted from the NPL in the near future. There is a groundwater pumping and treatment plant currently operational at the Goose Farm Site. In addition, the following non-NPL sites are located in the vicinity of Plumsted Township: the Gravel Pit and the Friedman Property.

Comment: Several citizens asked what 'deletion' means.

Response: Once a site is placed on the NPL, that makes it eligible to be cleaned up using federal dollars or through EPA's enforcement program, where the responsible parties pay for the cleanup. There is a certain path which a site goes through, which includes a remedial investigation, feasibility study, evaluation of remedial alternatives, the actual cleanup, post remedial monitoring and then deletion. Sites are deleted after a cleanup is complete or after EPA determines that no cleanup is necessary. In order for a site to be deleted from the NPL, EPA must first propose the deletion and solicit public comment for this action, and pending the evaluation of public comment, the site is formally deleted and is no longer considered a Superfund site. A site which is deleted from the NPL

remains eligible for remedial actions in the unlikely event that conditions at the site would warrant such action. The majority of sites located in Plumsted Township are expected to be deleted in the near future.

Comment: A citizen asked how many Superfund sites are on Route 539.

Response: Both the Hopkins Farm Site and the Goose Farm Site are located on Route 539.

Well Issues:

Comment: A citizen asked when the well restriction will be lifted.

Response: The well restriction will remain in place in order to perform monitoring on a periodic basis. The type of well restriction in place at the Hopkins Farm Site is not actually a restriction in a legal sense, but it is an advisory. When a person applies to NJDEP for a permit to drill a well on a property within 2,000 feet of the Site, NJDEP will notify the property owner that there is a potential for contaminated ground water and would suggest the well be drilled 150 feet deep into the deeper aquifer. In addition, Ocean County requires that private wells be tested when any property changes hands or a new well is installed. There are approximately 22 different compounds that are commonly found at these types of sites that are tested for in order to get a certificate of occupancy.

Comment: A citizen asked what the definition is of shallow and deep wells.

Response: At the Hopkins Farm Site, there are shallow wells which are screened across the water table, which is at a depth of approximately fifteen to twenty feet. The deeper wells are approximately forty feet deep.

General Comment: Mayor Ronald S. Dancer stated that EPA and NJDEP have done a "good job" in keeping the public informed about issues pertaining to Site-related activities and thanked EPA and NJDEP for being accessible to the residents who had questions or concerns regarding the Hopkins Farm Site.

IIB. Summary of Written Comments and Responses:

During the public comment period, one party submitted written comments to EPA regarding the Hopkins Farm Site Proposed Plan. These comments are summarized and responded to as follows:

Long-Term Monitoring:

Comment: The commenter questioned EPA's strategy for long-term ground water, surface water and sediment monitoring, in light of the minimal risk associated with the Site.

Response: A long-term groundwater, surface water and sediment sampling program is warranted at the Site, even though the source has been removed, to confirm the effectiveness of the Removal Action and in order to determine if any residual contamination is detected.

Two groundwater sampling events, conducted in May and July 1995, have indicated that ground water does not pose an unacceptable risk. However, since the two sampling events occurred within a short timeframe, EPA believes that additional monitoring is necessary to evaluate the ground water to confirm the effectiveness of the Removal Action. Since the ground water underlying the Site is a drinking water aquifer, EPA has determined that it is appropriate to perform long-term monitoring.

Sediment and surface water in the stream were sampled prior to and during the Removal Action at the Site and were not determined to pose a risk warranting an action. The level of cadmium detected in one surface water sample exceeded established standards for protection of aquatic life. However, based on the fact that after this sample was collected additional contaminated soils were removed from the Site, it is believed that surface waters at the Site do not currently pose a significant ecological risk. Long-term monitoring will be required to confirm this conclusion.

The long-term monitoring plan currently being considered by EPA is quarterly sampling of ground water, surface water and sediment for the first year and evaluation of that data. Based upon the review of the first year's data, the frequency of sampling may be modified by EPA. If monitoring indicates that contamination at the Site is decreasing, it is likely that the sampling frequency would be reduced. If monitoring reveals that contamination at the Site increases so that an unacceptable risk to human health or the environment develops, an appropriate action can be initiated at any time during the monitoring period to address the risks.

Comment: The commenter stated that a five year review is not required for this Site since no hazardous substances, pollutants or contaminants remain on-Site, but does indicate that if long-term monitoring is performed, it should be performed in a limited manner.

Response: EPA agrees with the commenter that a five year review is not necessary, but EPA requires that long-term monitoring be performed to confirm that no contaminants remain on-Site. Monitoring will be performed on a periodic basis initially. Based on EPA's evaluation of the data, the frequency of sampling may be modified thereafter. The

groundwater monitoring would then either be terminated, continued periodically, or other action considered. If monitoring reveals that contamination at the Site increases so that an unacceptable risk to human health or the environment develops, an appropriate action can be initiated at any time during the monitoring period to address the risks.

III. COMMUNITY RELATIONS ACTIVITIES AT THE HOPKINS FARM SUPERFUND SITE

- NJDEP prepared a Community Relations Plan in October 1986.

- NJDEP has established information repositories at the following locations:

  New Egypt Library
  10 Evergreen Road
  New Egypt, NJ 08533

  New Jersey Department of Environmental Protection
  Central File Room
  CN 413
  401 East State Street
  Trenton, New Jersey 08625

  U.S. Environmental Protection Agency
  Records Center - 18th Floor
  290 Broadway
  New York, New York 10007-1866

The repositories contain a comprehensive collection of records relating to the Site which comprise the Administrative Record. The index to the Administrative Record is Attachment 2 of the Record of Decision.

- Throughout the RI/FS process, representatives from NJDEP attended meetings concerning the Site. The first public meeting was held in March 1987 to brief interested parties and discuss the RI/FS process. NJDEP distributed Fact Sheets.

- NJDEP has participated in subsequent meetings to update the community on the progress at the Site. Over the course of the RI/FS and Removal Action, numerous correspondences and discussions have taken place between NJDEP and potential home-buyers, Plumsted Township officials, the Plumsted Township Environmental Committee, property owners, building developers, and the Ocean County Health Department.

- On August 6, 1996, NJDEP and EPA held a public meeting at the Plumsted Township Municipal Building to discuss the Site investigations and present the Proposed Plan for the no further action remedy. Approximately 18 people

attended. A transcript of the meeting can be found in the record repositories listed above.

- A public comment period was held from July 25, 1996 to August 23, 1996.

ATTACHMENT 4

FIGURES

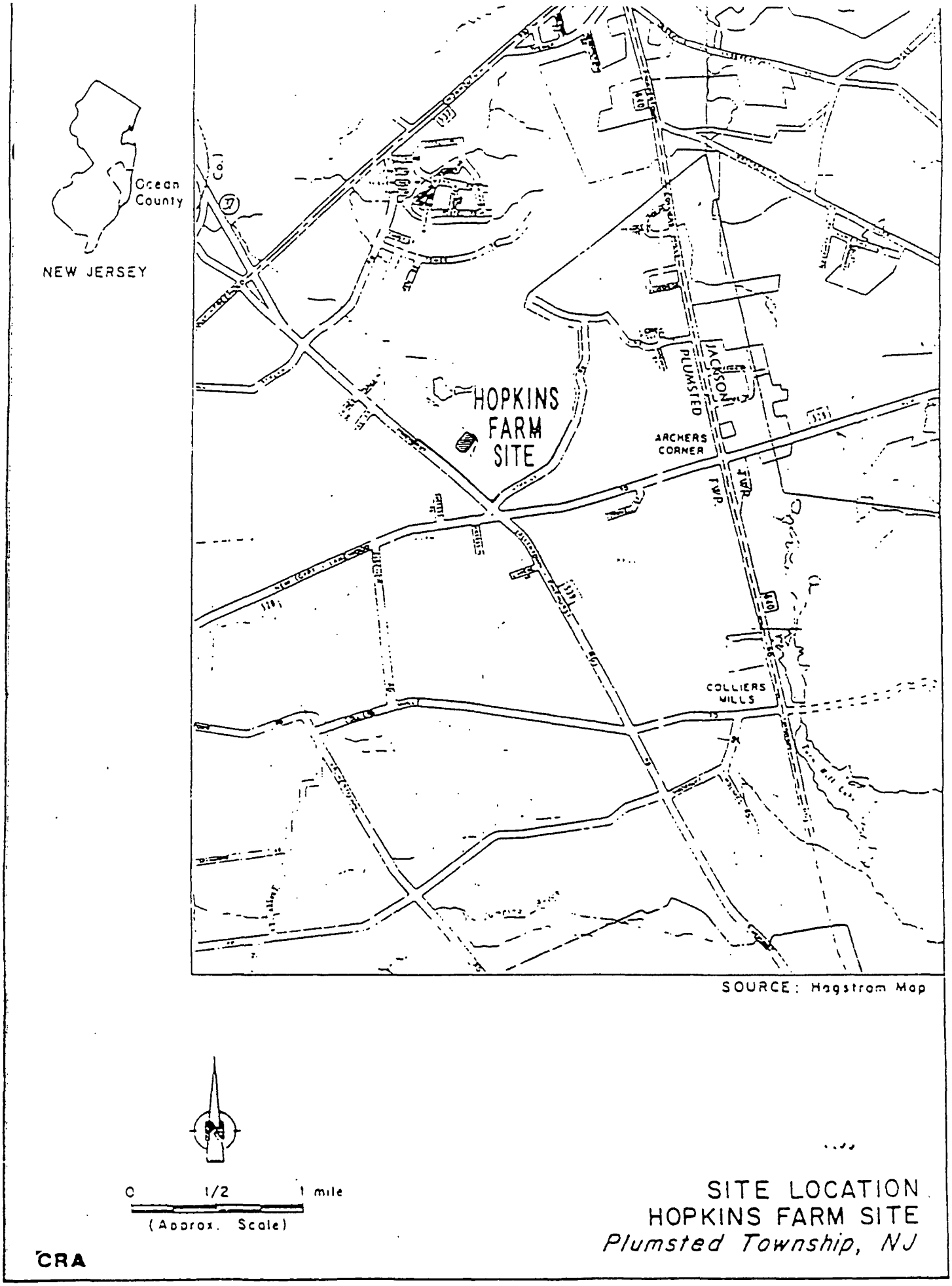
Ocean County
NEW JERSEY
HOPKINS FARM SITE
PLUMSTED
JACKSON
ARCHERS CORNER
JCT.
TWP.
COLLIERS MILLS
SOURCE: Hagstrom Map
0
1/2
1 mile
(Approx. Scale)
SITE LOCATION
HOPKINS FARM SITE
Plumsted Township, NJ
CRA

FIGURE 1

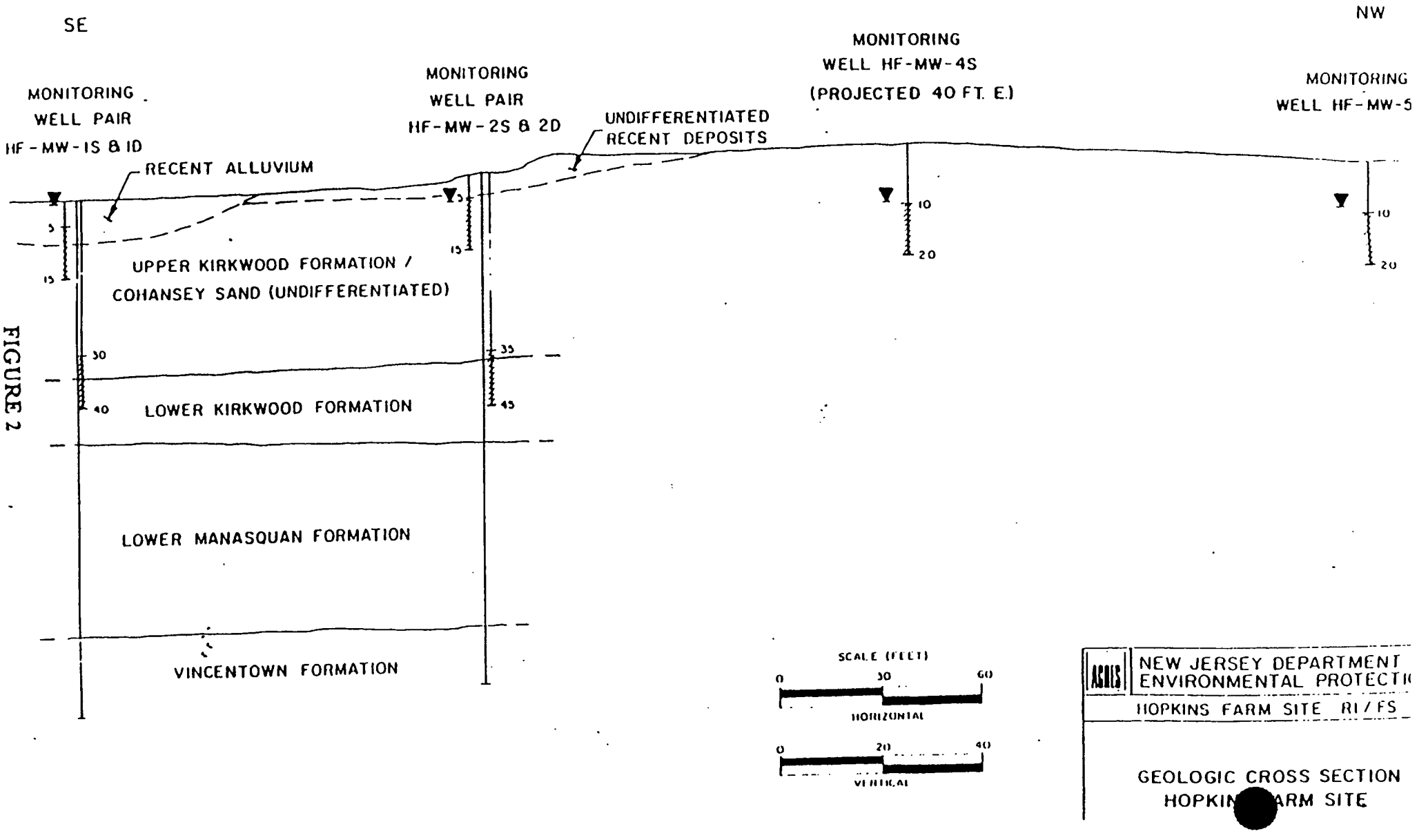
SE
NW
MONITORING WELL PAIR HF-MW-1S & 1D
MONITORING WELL PAIR HF-MW-2S & 2D
MONITORING WELL HF-MW-4S (PROJECTED 40 FT. E.)
MONITORING WELL HF-MW-5
RECENT ALLUVIUM
UNDIFFERENTIATED RECENT DEPOSITS
UPPER KIRKWOOD FORMATION / COHANSEY SAND (UNDIFFERENTIATED)
LOWER KIRKWOOD FORMATION
LOWER MANASQUAN FORMATION
VINCENTOWN FORMATION
5
15
30
40
5
15
35
45
10
20
10
20
SCALE (FEET)
0
30
60
HORIZONTAL
0
20
40
VERTICAL
NEW JERSEY DEPARTMENT ENVIRONMENTAL PROTECTI
HOPKINS FARM SITE RI/FS
GEOLOGIC CROSS SECTION
HOPKIN ARM SITE

FIGURE 2

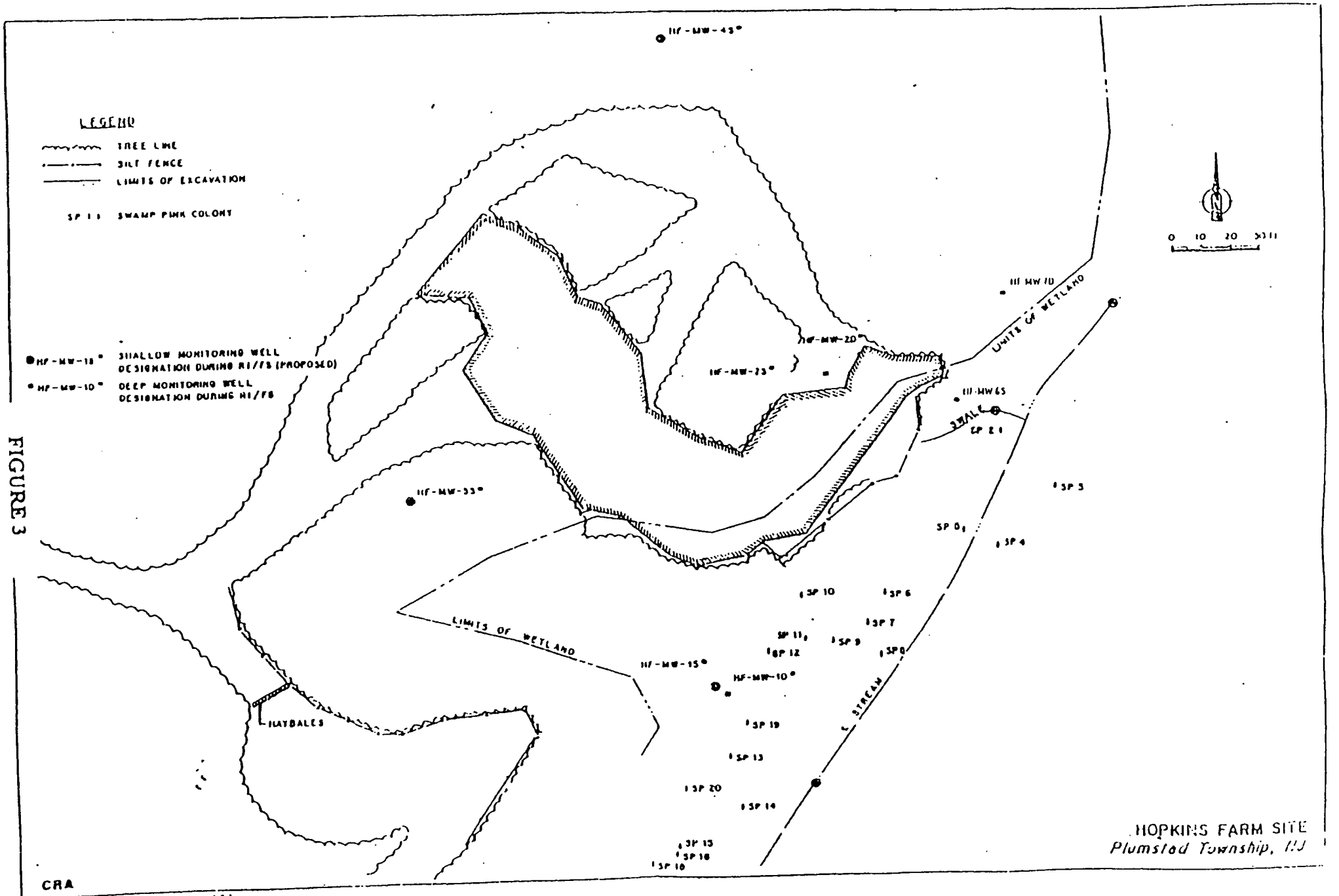

FIGURE 3

4781(6)-OCT. 20, 92-REV 0-(C)

ATTACHMENT 5

TABLES

TABLE 1

HOPKINS FARM SITE
TARGET ORGANIC CHEMICALS AND PESTICIDES DETECTED IN SOIL SAMPLES
(Presented in the May 1991 Remedial Investigation Report)

CHEMICAL	FREQUENCY OF DETECTION	CONTRACT REQUIRED QUANTITATION LIMITS (ug/kg)	RANGE OF CONCENTRATIONS DETECTED (ug/kg)	BACKGROUND LEVELS (MW-3S) (3-5 ft) (ug/kg)	ISALs (1) (ug/kg)
VOLATILE ORGANIC COMPOUNDS					
Acetone*	3/12	10	290JB - 3,600JB	ND	NA
Benzene*	6/12	5	ND - 1.5J	ND	NA
Bromomethane	1/12	10	ND - 6.1J	ND	NA
Chloroethane	2/12	10	1.3J - 7.3J	ND	NA
Chloroform*	1/12	5	ND - 4.7J	ND	NA
Chloromethane	1/12	10	ND - 5.7J	ND	NA
Methylene Chloride*	5/12	5	39JB - 170JB	ND	NA
1,1-Dichloroethane	1/12	5	ND - 1.9J	ND	NA
1,1,1-Trichloroethane	5/12	5	1.2J - 8.7	ND	NA
Vinyl Acetate	9/12	10	6.7J - 6,100JB	80J	NA
Xylenes (Total)*	3/12	5	2.3J - 18J	ND	NA
SEMI-VOLATILE ORGANIC COMPOUNDS					
Benzo(a)Pyrene	5/12	330	470B - 1,100JB	ND	NA
Bis(2-Chloroethoxy) Methane*	1/12	330	ND - 1300	ND	NA
Bis(2-Ethylhexyl) Phthalate*	4/12	330	136J - 860J	ND	NA
4,6-Dinitro-2-Methylphenol	1/12	1,700	ND - 670J	ND	NA
Phenol*	2/12	330	310J - 622J	ND	NA
PESTICIDES					
Aldrin	1/12	8	ND - 5.1J	ND	NA
4,4' DDT	6/12	16	3.54J - 173.4	ND	1,000-10,000
Endrin Ketone	1/12	16	ND - 232.3J	ND	NA
Endosulfan Sulfate	2/12	16	8.6 - 12.5J	ND	NA

ND - Not detected
NA - None applicable
J - Data qualified as a result of QA data validation
B - Compound present in the method blank
* - Analyte also identified in waste sample
(1) NJDEP Interim Soil Action Levels: Total VOA = 1 ppm, Total BNA = 10 ppm, Total Petroleum Hydrocarbons = 100 ppm

TABLE 1

TABLE 2

SUMMARY TABLE OF TARGET ORGANIC COMPOUNDS IN GROUND WATER SAMPLES
(PHASE I: JAN 1988)
(DATA REPORTED IN UG/L)

Monitoring Well	MW-1S	MW-1D	MW-2S	MW-2S Dup	MW-2D	MW-3S	MW-4S	MW-5S
Volatile Organic Compounds								
Carbon Disulfide						19JB		
2-Butanone							10.5J	
1,1,1-Trichloroethane								6.6
Vinyl Acetate							10.9J	
2-Hexanone		4.3J						
Toluene								29.9
Xylene (Total)								5.3
Semi-Volatile Organic Compounds								
bis(2-Ethylhexyl)Phthalate	230B			1900JB				91J

Notes:

1. Quantities listed indicate detectable concentrations.

2. No data entry indicates the following: no detectable concentration; or data were rejected or negated. See Appendix C for complete QA Summary tables, for target and non-target organic compounds.

3. J indicates data qualified as a result of QA data validation.

4. B indicates the presence of the compound in the method blank.

TABLE 2

TABLE 3

SUMMARY TABLE OF TARGET ORGANIC COMPOUNDS IN GROUND WATER SAMPLES
(PHASE II: MAY 1990)
(DATA REPORTED IN UG/L)

Monitoring Well	MW-1S	MW-1D	MW-2S	MW-2D	MW-3S	MW-4S	MW-5S
Volatile Organic Compounds							
Acetone							60J
Carbon Disulfide				2J			
1,1 -Dichloroethane				1J			
Toluene		1J		20			
1,1,1-Trichloroethane				15			
Styrene		1J					
Tetrachloroethene	1J			3J			
Xylene (Total)				4.9J			
Semi-Volatile Organic Compounds							
Bis(2-Chloroethoxy)Methane			10J				
Di-n-butylphthalate			2J				2J
Bis(2-ethylhexyl)phthalate					28JB		22JB

Notes:

1. Quantities listed indicate detectable concentrations.

2. No data entry indicates the following: no detectable concentration; or data were rejected or negated. See Appendix C for complete QA Summary tables, for target and non-target organic compounds.

3. J indicates data qualified as a result of QA data validation.

4. B indicates the presence of the compound in the method blank.

TABLE 3

TABLE 3

SUMMARY TABLE OF TARGET ORGANIC COMPOUNDS IN GROUND WATER SAMPLES
(SUPPLEMENTAL SAMPLING EVENT: JANUARY 1991)
(DATA REPORTED IN UG/L)

Monitoring Well	MW-1S	MW-1S Dup	MW-2D
Volatile Organic Compounds			
Carbon Disulfide	2.0J		

Notes:

1. Quantities listed indicate detectable concentrations.
2. No data entry indicates the following: no detectable concentration or data were rejected or negated. See Appendix C for complete summary tables for target and non-target organic compounds.
3. J indicates data qualified as a result of QA validation.
4. B indicates the presence of the compound in the method blank.

SUMMARY TABLE OF TARGET ORGANIC COMPOUNDS IN GROUND WATER SAMPLES
(SUPPLEMENTAL SAMPLING EVENT: FEBRUARY 1991)
(DATA REPORTED IN UG/L)

Monitoring Well	MW-1S	MW-1S Dup	MW-2D
Volatile Organic Compounds			
1,1,2,2-Tetrachloroethane	7		

TABLE 4

SUMMARY TABLE OF TARGET ORGANIC COMPOUNDS
IN STREAM AND DITCH WATER SAMPLES
(PHASE I: JANUARY 1988)
(DATA REPORTED IN UG/L)

Sample No.	Stream SW-1	Ditch SW-2	Stream SW-3	Stream SW-4
Volatile Organic Compounds				
Methylene Chloride		19JB		
1,2-Dichloroethane		2J		
Benzene		2J		
4-Methyl-2-Pentanone		6J		
Total Xylenes		3J		
Semi-Volatile Organic Compounds				
Bis(2-Chloroethyl)ether		360		
Bis(2-Chloroethoxy)methane		190		
Bis(2-Ethylhexyl)phthalate	30J	300		
Pesticides				
Methoxychlor				9

Notes:

1. Quantities listed indicate detectable concentrations.

2. No data entry indicates the following: no detectable concentration; or data were rejected or negated.

   See Appendix C for complete QA Summary tables, for target and non-target organic compounds.

3. J indicates data qualified as a result of QA data validation.

4. B indicates the presence of the compound in the method blank.

TABLE 5

SUMMARY TABLE OF TARGET ORGANIC COMPOUNDS
IN DITCH WATER SAMPLE (PHASE II: MAY, 1990)
(DATA REPORTED IN UG/L)

Sample No.	SW-5[5]
Volatile Organic Compounds	
1,2-Dichloroethane	4.8J
Ethylbenzene	1J
Trichloroethene	1J
Xylene (Total)	1J
Semi-Volatile Organic Compounds	
Bis(2-chloroethyl)methane	168
Di-n-butylphthalate	6J
Bis(2-ethylhexyl)phthalate	99JB
Benzyl alcohol	6J
Bis(2-chloroiosopropyl)ether	7J

Notes:

1. Quantities listed indicate detectable concentrations.

2. No data entry indicates the following: no detectable concentration; or data were rejected or negated.

   See Appendix C for complete QA Summary tables, for target and non-target organic compounds.

3. J indicates data qualified as a result of QA data validation.

4. B indicates the presence of the compound in the method blank.

5. Sample is from same location as SW-2.

TABLE 6

SUMMARY TABLE OF TARGET INORGANIC COMPOUNDS
IN STREAM AND DITCH WATER SAMPLES
(PHASE I: JANUARY 1988)
(DATA REPORTED IN UG/L)

Sample No.	Stream SW-1	Ditch SW-2	Stream SW-3	Stream SW-4
HSL Inorganics				
Arsenic		44.4NS		
Beryllium		0.5		
Cadmium		101		
Chromium		49.0		
Copper		3273		
Lead		3110N		
Mercury		0.9N		
Nickel		110		
Zinc	24.0	21495		
Aluminum		24270		
Barium		115		
Calcium	1415	28228	1692	1528
Cobalt		34		
Iron	305E*	93878E*	240	757
Magnesium	772	8498	270	373
Manganese		461		
Sodium	5841	7640	4729	2010

Notes:

1. N indicates spike samples recovery is not within control limits.

2. S indicates a value determined by method of standard addition.

3. E indicates a value estimated or not reported due to the presence of interference.

4. * indicates duplicate analysis not within control limits.

5. No data entry indicates that no detectable concentration was found.

TABLE 7

SUMMARY TABLE OF TARGET INORGANIC COMPOUNDS
IN DITCH WATER SAMPLE (PHASE II: MAY, 1990)
(DATA REPORTED IN UG/L)

Sample No.	SW-5[4]
HSL Inorganics	
Aluminum	19700
Antimony	120UJ
Barium	190J
Cadmium	32.0
Calcium	28300
Cobalt	13.0J
Copper	1050J
Iron	658000J
Lead	2220J
Magnesium	7250J
Manganese	422
Mercury	0.96
Nickel	99.0
Potassium	50.0J
Selenium	7.44J
Silver	5.3J
Sodium	6170J
Vanadium	56.0
Zinc	4300

Notes:

1. No data entry indicates that no detectable concentration was found.

2. U indicates the value is below the contract detection limit.

3. J indicates data qualified as a result of QA data validation.

4. Same location as SW-2.

TABLE 8

SUMMARY TABLE OF TARGET ORGANIC COMPOUNDS
IN STREAM AND DITCH SEDIMENT SAMPLES
(PHASE I: JANUARY 1988)
(DATA REPORTED IN UG/KG)

Sample No.	Stream SD-1	Stream SD-1RE	Ditch SD-2-1	Ditch Dup. SD-2-2	Ditch Dup. SD-2-2RE	Stream SD-3	Stream SD-4
Volatile Organic Compounds							
Methylene Chloride		See		See	See		68JB
Acetone	5217JB	Note 5	3354JB	Note 6	Note 7		
Benzene			20J				
Toluene			91J				
Semi Volatile Organic Compounds							
Bis(2-Chloroisopropyl)ether			3696J				
Bis(2-Chloroethoxy)methane			1112J	2132			
3-Nitroaniline			38483J				
Di-n-Butylphthalate				1385			

Notes:

1. Quantities listed indicate detectable concentrations.
2. No data entry indicates the following: no detectable concentration; or data were rejected or negated. See Appendix C for complete QA Summary tables, for target and non-target organic compounds.
3. J indicates data qualified as a result of QA data validation.
4. B indicates the presence of the compound in the method blank.
5. Resampled from SD-1 site. Analyzed for VOAs only. All data are rejected due to excessive holding time.
6. Duplicate SD-2 sample. All VOA data are rejected due to excessive holding time.
7. Resampling of SD-2 duplicate. Analyzed for VOAs only. All data are rejected due to excessive holding time.

TABLE 9

SUMMARY TABLE OF TARGET ORGANIC COMPOUNDS
IN DITCH SEDIMENT SAMPLES (PHASE II: MAY, 1990)
(DATA REPORTED IN UG/KG)

Sample No.	SD-5[4]	SD-5 Dup[4]
Volatile Organic Compounds		
Acetone	140J	
Chloroform	1J	
Trichloroethene	7J	
Tetrachloroethene	6J	
Toluene	4J	
Ethylbenzene	7J	
Xylene	18J	
Methylene chloride		25
Semi-Volatile Organic Compounds		
Bis(2-chloroethoxy)methane	59J	
Di-n-butylphthalate	250J	
Bis(2-ethylhexyl)phthalate	220J	220J

Notes:

1. Quantities listed indicate detectable concentrations.
2. J indicates data qualified as a result of QA data validation.
3. No data entry indicates that no detectable concentration was found.
4. Sample is from same location as SD-2.

TABLE 10

SUMMARY TABLE OF TARGET INORGANIC COMPOUNDS AND PHENOLS
IN STREAM AND DITCH SEDIMENT SAMPLES
(PHASE I: JANUARY 1988)
(DATA REPORTED IN MG/KG)

Sample No.	Stream SD-1	Ditch SD-2	Ditch SD-2 dup	Stream SD 3	Stream SD-4
HSL Inorganics					
Beryllium		0.1			
Chromium		8.2	12.3		
Copper	6.1	19.3	28.5		
Lead	3.8SN	15.4N	22.3N	2.9	10.8S
Nickel					18.8
Zinc		86.4	100		
Phenol				0.1	0.2
Aluminum	9600	1600	2500	333.5	586.9
Calcium		410	980		378.1
Iron	290E*	2120E*	4690E*	753	335.6
Magnesium		1160	9160		

Notes:

1. S indicates a value determined by method of standard addition.
2. N indicates spike samples recovery is not within control limits.
3. E indicates a value estimated or not reported due to the presence of interference.
4. * indicates duplicate analysis not within control limits.
5. No data entry indicates that no detectable concentration was found.

TABLE 11

SUMMARY TABLE OF TARGET INORGANIC COMPOUNDS AND PHENOLS
IN DITCH SEDIMENT SAMPLES (PHASE II: MAY, 1990)
(DATA REPORTED IN UG/KG)

Sample No.	Ditch SD-5	Ditch SD-5 Dup
HSL Inorganics		
Aluminum	780J	3380J
Arsenic	2.5J	
Chromium	2.6J	22.5
Cobalt		9.4J
Copper	7.6J	121
Iron	4860J	58500JB
Lead	69.0J	327J
Magnesium	78.8JB	123JB
Manganese	6.3J	113J
Potassium	63.0B	26.8J
Selenium		4.2J
Silver	2.0J	0.93
Thallium		0.37J
Vanadium		5.1J
Zinc	19.7JB	333JB
Cyanide	0.33UJ	0.74J

Notes:

1. Quantities listed indicate detectable concentrations.
2. J indicates data qualified as a result of QA data validation.
3. B indicates the presence of the compound in the method blank.
4. U indicates the value is below the contract detection limit.
5. No data entry indicates that no detectable concentration was found.

TABLE 12

SUMMARY OF DETECTED ANALYTES: NOVEMBER 1992 TO JANUARY 1993 SITE INVESTIGATION (NON-AQUEOUS SAMPLES)

Sample Number	*S4761-110492-SJ-54*	*S4761-110492-SJ-55*	*S4761-110492-SJ-56*
Date Sampled	*11/4/92*	*11/4/92*	*11/4/92*
Location	*S-02 (0-6")*	*Duplicate of S-54*	*S-05 (0-6")*
Volatiles (µg/kg)			
1,2-Dichloroethane	4,000(1)	4,800(1)	ND(490)
1,2-Dichloropropane	ND(130)	ND(170)	ND(490)
Benzene	980	1300	ND(490)
Chloroform	ND(130)	ND(170)	ND(490)
Ethylbenzene	370	560	ND(490)
Tetrachloroethylene	610	960	ND(490)
Toluene	7,200(1)	7,800(1)	15,000
Trans 1,2-Dichloroethylene	ND(130)	ND(170)	ND(490)
Trichloroethylene	ND(130)	ND(170)	ND(490)
Xylene (total)	2,300	3,500	540
Semivolatiles (µg/kg)			
Bis(2-Chloroethyl) ether	130,000(1)	150,000(1)	560
Bis(2-Chloroethoxy) methane	14,000	17,000	20,000(1)
Diethylphthalate	ND(870)	ND(1100)	770
Phenanthrene	ND(870)	ND(1100)	58 J
Di-n-butylphthalate	ND(870)	ND(1100)	280 J
Fluoranthene	ND(870)	ND(1100)	ND(480)
Pyrene	ND(870)	ND(1100)	ND(480)
Bis(2-Ethylhexyl) phthalate	ND(870)	220 J	520
Bis(2-Chloroisopropyl)ether	160 J	ND(1100)	250 J
Inorganic Compounds			
Metals (mg/kg)			
Antimony	ND(1.3)	ND(1.7)	0.96
Cadmium	1.3	ND(1.7)	ND(0.5)
Selenium	5.1	5.8	ND(0.5)

(1) Reported from Dilution

TABLE 12

TABLE 12

SUMMARY OF DETECTED ANALYTES: NOVEMBER 1992 TO JANUARY 1993 SITE INVESTIGATION (NON-AQUEOUS SAMPLES)

Sample Number	*S4761-011393-SJ-65*	*S4761-011393-SJ-66*	*S4761-011393-SJ-67*	*S4761-011493-SJ-68*	*S4761-01219.3-SJ-72*
Date Sampled	*1/13/93*	*1/13/93*	*1/13/93*	*1/14/93*	*1/21/93*
Location	*B-1(0 - 6")*	*B-1 (6" - 12")*	*B-3 (12" - 18")*	*B-4 & B-5 (36" - 48")*	*H-10 (0 - 12")*
Volatiles (µg/kg)					
1,2-Dichloroethane	ND(8.4)	ND(6)	16	ND(6.3)	ND(8.0)
1,2-Dichloropropane	13	ND(6)	ND(7.1)	ND(6.3)	ND(8.0)
Benzene	6.2 J	ND(6)	ND(7.1)	4 J	ND(8.0)
Chloroform	ND(8.4)	ND(6)	ND(7.1)	ND(6.3)	ND(8.0)
Ethylbenzene	24	ND(6)	30	7.1	ND(8.0)
Tetrachloroethylene	46	3.5 J	23	26	ND(8.0)
Toluene	330	12	7.6	15	ND(8.0)
Trans 1,2-Dichloroethylene	ND(8.4)	ND(6)	8.3	ND(6.3)	ND(8.0)
Trichloroethylene	29	ND(6)	ND(7.1)	ND(6.3)	ND(8.0)
Xylene (total)	160	21	88	33	ND(8.0)
Semivolatiles (µg/kg)					
Bis(2-Chloroethyl) ether	ND(4400)	ND(390)	ND(410)	ND(410)	ND(530)
Bis(2-Chloroethoxy) methane	17,000	560	560	ND(410)	ND(530)
Diethylphthalate	ND(4400)	ND(390)	ND(410)	ND(410)	ND(530)
Phenanthrene	ND(4400)	ND(390)	ND(410)	ND(410)	ND(530)
Di-n-butylphthalate	ND(4400)	ND(390)	50 J	ND(410)	ND(530)
Fluoranthene	ND(4400)	ND(390)	ND(410)	ND(410)	ND(530)
Pyrene	ND(4400)	ND(390)	ND(410)	ND(410)	ND(530)
Bis(2-Ethylhexyl) phthalate	8,200	40 J	57 J	52 J	ND(530)
Bis(2-Chloroisopropyl)ether	ND(4400)	ND(390)	ND(410)	ND(410)	ND(530)
Inorganic Compounds					
Metals (mg/kg)					
Antimony	ND(0.83)	ND(0.6)	ND(0.7)	ND(0.63)	ND(0.81)
Cadmium	ND(0.83)	ND(0.6)	ND(0.7)	ND(0.63)	ND(0.81)
Selenium	ND(0.83)	ND(0.6)	1.5	ND(0.63)	1.3

(1) Reported from Dilution

TABLE 12

SUMMARY OF DETECTED ANALYTES: NOVEMBER 1992 TO JANUARY 1993 SITE INVESTIGATION (NON-AQUEOUS SAMPLES)

Sample Number	*S4761-012193-SJ-73*	*S4761-012193-SJ-75*	*S4761-012193-SJ-79*	*S4761-012293-SJ-85*
Date Sampled	*1/21/93*	*1/21/93*	*1/21/93*	*1/22/93*
Location	*Duplicate of S-72*	*H-11 (0-40")*	*H-3 (6" - 30")*	*H-2 (3" - 48")*
Volatiles (µg/kg)				
1,2-Dichloroethane	ND(7.9)	ND(15)	ND(8.0)	38,000 (1)
1,2-Dichloropropane	ND(7.9)	ND(15)	ND(8.0)	800
Benzene	ND(7.9)	ND(15)	ND(8.0)	8,800
Chloroform	ND(7.9)	ND(15)	ND(8.0)	980
Ethylbenzene	ND(7.9)	ND(15)	59	970
Tetrachloroethylene	ND(7.9)	ND(15)	ND(8.0)	4,400
Toluene	ND(7.9)	ND(15)	16	81,000 (1)
Trans 1,2-Dichloroethylene	ND(7.9)	ND(15)	ND(8.0)	1,300
Trichloroethylene	ND(7.9)	ND(15)	ND(8.0)	270
Xylene (total)	ND(7.9)	ND(15)	250	3,200
Semivolatiles (µg/kg)				
Bis(2-Chloroethyl) ether	ND(530)	ND(1000)	ND(520)	530,000(1)
Bis(2-Chloroethoxy) methane	ND(530)	ND(1000)	3,700	59,000
Diethylphthalate	ND(530)	ND(1000)	ND(520)	ND(7800)
Phenanthrene	ND(530)	ND(1000)	87 J	ND(7800)
Di-n-butylphthalate	ND(530)	ND(1000)	740	ND(7800)
Fluoranthene	ND(530)	ND(1000)	150 J	ND(7800)
Pyrene	ND(530)	ND(1000)	120 J	ND(7800)
Bis(2-Ethylhexyl) phthalate	68 J	120 J	2,000	ND(7800)
Bis(2-Chloroisopropyl)ether	ND(530)	ND(1000)	ND(520)	ND(7800)
Inorganic Compounds				
Metals (mg/kg)				
Antimony	ND(0.79)	ND(1.5)	ND(0.81)	ND(2.4)
Cadmium	ND(0.79)	ND(1.5)	ND(0.81)	3.8
Selenium	1.3	3.2	1.7	5.1

(1) Reported from Dilution

TABLE 12

TABLE 13

SUMMARY OF DETECTED ANALYTES : NOVEMBER 1992 TO JANUARY 1993 SITE INVESTIGATION (AQUEOUS SAMPLES)

Sample Number		*W4761-110592-SJ-57*	*W4761-110592-SJ-63*	*W4761-110592-SJ-58*	*W4761-110592-SJ-59*
Date Sampled		11/5/92	11/5/92	11/5/92	11/5/92
Location		*H-1 (0-60")*	*Duplicate of W-57*	*H-2 (0-30")*	*H-3 (0-30")*
	NJDEPE Class IIA Water Cleanup Standard				
Volatiles (µg/L)					
1,1,1-Trichloroethane	30	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,2-Dichloroethane	2	ND(5.0)	ND(5.0)	9,100(1)	ND(5.0)
Benzene	1	ND(5.0)	ND(5.0)	240	ND(5.0)
Chloroform	6	ND(5.0)	ND(5.0)	220	ND(5.0)
Ethylbenzene	700	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Methylene Chloride	3	ND(5.0)	ND(5.0)	340	ND(5.0)
Tetrachloroethylene	1	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Toluene	1,000	ND(5.0)	ND(5.0)	1,500	2.5 J
Trans 1,2-Dichloroethylene	100	ND(5.0)	ND(5.0)	67 J	ND(5.0)
Xylene (total)	40	ND(5.0)	ND(5.0)	ND(100)	7.8
Semivolatiles (µg/L)					
Bis(2-Chloroethyl) ether	10	4.1 J	11 J	240,000(1)	200
Bis(2-Chloroethoxy) methane	None	20	ND(12)	23,000(1)	160
Fluorene	300	ND(13)	ND(12)	ND(15)	ND(14)
Bis(2-Ethylhexyl) phthalate	30	ND(13)	ND(12)	ND(15)	ND(14)
Bis(2-Chloroisopropyl)ether	300	ND(13)	ND(12)	ND(15)	3.6 J
Metals: Dissolved (µg/L)					
Antimony	0.020	0.012	0.011	0.008	0.011
Cadmium	0.004	0.010	ND(0.005)	ND(0.005)	0.008
Selenium	0.050	ND(0.005)	ND(0.005)	0.022	ND(0.005)
Metals: Undissolved (µg/L)					
Antimony	0.020	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.01)
Cadmium	0.004	0.014	0.019	0.015	0.027
Selenium	0.050	ND(0.005)	ND(0.005)	0.038	0.058

(1) Reported from Dilution

TABLE 13

TABLE 13

SUMMARY OF DETECTED ANALYTES : NOVEMBER 1992 TO JANUARY 1993 SITE INVESTIGATION (AQUEOUS SAMPLES)

Sample Number		W4761-110592-SJ-60	W4761-110592-SJ-61	W4761-110592-SJ-62	GW4761-012093-SJ-68	GW4761-012193-SJ-69	GW4761-012193-SJ-70
Date Sampled		11/5/92	11/5/92	11/5/92	1/20/93	1/21/93	1/21/93
Location		H-4 (0-42")	H-5 (0-36")	H-6 (0-42")	H-7 (36" - 48")	H-8 (34" - 57")	H-9 (25" - 49")
	NJDEPE Class IIA Water Cleanup Standard						
Volatiles (µg/L)							
1,1,1-Trichloroethane	30	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,2-Dichloroethane	2	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Benzene	1	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Chloroform	6	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Ethylbenzene	700	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Methylene Chloride	3	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Tetrachloroethylene	1	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Toluene	1,000	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Trans 1,2 Dichloroethylene	100	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Xylene (total)	40	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Semivolatiles (µg/L)							
Bis(2-Chloroethyl) ether	10	12	ND(11)	ND(11)	ND(10)	ND(10)	ND(10)
Bis(2-Chloroethoxy) methane	None	4.3 J	ND(11)	ND(11)	ND(10)	ND(10)	ND(10)
Fluorene	300	ND(11)	ND(11)	ND(11)	ND(10)	ND(10)	ND(10)
Bis(2-Ethylhexyl) phthalate	30	ND(11)	2.9 J	ND(11)	ND(10)	ND(10)	ND(10)
Bis(2-Chloroisopropyl)ether	300	ND(11)	ND(11)	ND(11)	ND(10)	ND(10)	ND(10)
Metals: Dissolved (mg/L)							
Antimony	0.020	0.016	0.014	0.011	Not tested	Not tested	Not tested
Cadmium	0.004	ND(0.005)	ND(0.005)	ND(0.005)	Not tested	Not tested	Not tested
Selenium	0.050	ND(0.005)	ND(0.005)	ND(0.005)	Not tested	Not tested	Not tested
Metals: Undissolved (mg/L)							
Antimony	0.020	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Cadmium	0.004	0.011	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Selenium	0.050	0.006	ND(0.025)	ND(0.005)	ND(0.005)	ND(0.025)	ND(0.005)

(1) Reported from Dilution

TABLE 13

TABLE 13

SUMMARY OF DETECTED ANALYTES : NOVEMBER 1992 TO JANUARY 1993 SITE INVESTIGATION (AQUEOUS SAMPLES)

Sample Number		W4761-012193-SJ-71	GW4761-012193-SJ-74	GW4761-012193-SJ-76	GW4761-012193-SJ-78	GW4761-012193-SJ-80	GW4761-012193-S
Date Sampled		1/21/93	1/21/93	1/21/93	1/21/93	1/21/93	1/21/93
Location		*Field Blank*	*H-10 (18" - 42")*	*H-11 (44"-70")*	*H-12 (28" - 48")*	*H-3 (42" - 60")*	*Field Blank*
	NJDEPE Class IIA Water Cleanup Standard						
Volatiles (µg/L)							
1,1,1-Trichloroethane	30	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,2-Dichloroethane	2	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Benzene	1	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Chloroform	6	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Ethylbenzene	700	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Methylene Chloride	3	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Tetrachloroethylene	1	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Toluene	1,000	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	1.3 J	ND(5.0)
Trans 1,2-Dichloroethylene	100	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Xylene (total)	40	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Semivolatiles (µg/L)							
Bis(2-Chloroethyl) ether	10	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Bis(2-Chloroethoxy) methane	None	ND(10)	ND(10)	ND(10)	ND(10)	130	ND(10)
Fluorene	300	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Bis(2-Ethylhexyl) phthalate	30	ND(10)	ND(10)	ND(10)	1.3 J	ND(10)	ND(10)
Bis(2-Chloroisopropyl)ether	300	ND(10)	ND(10)	ND(10)	ND(10)	4.5 J	ND(10)
Metals: Dissolved (mg/L)							
Antimony	0.020	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested
Cadmium	0.004	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested
Selenium	0.050	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested
Metals: Undissolved (mg/L)							
Antimony	0.020	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Cadmium	0.004	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	0.025	ND(0.005)
Selenium	0.050	ND(0.005)	ND(0.050))	ND(0.010)	ND(0.005)	0.032	ND(0.005)

(1) Reported from Dilution

TABLE 13

SUMMARY OF DETECTED ANALYTES : NOVEMBER 1992 TO JANUARY 1993 SITE INVESTIGATION (AQUEOUS SAMPLES)

Sample Number		GW4761-012193-SJ-82	GW4761-012193-SJ-83	GW4761-012293-SJ-84	GW4761-012293-SJ-86
Date Sampled		1/21/93	1/21/93	1/22/93	1/22/93
Location		MW-1S	Duplicate of GW-82	MW-2S	H-2 (54" - 72")
Volatiles (µg/L)	**NJDEPE Class IIA Water Cleanup Standard**				
1,1,1-Trichloroethane	30	ND(5.0)	ND(5.0)	ND(5.0)	3.9 J
1,2 Dichloroethane	2	ND(5.0)	ND(5.0)	ND(5.0)	210
Benzene	1	ND(5.0)	ND(5.0)	ND(5.0)	49
Chloroform	6	ND(5.0)	ND(5.0)	ND(5.0)	1.9 J
Ethylbenzene	700	ND(5.0)	ND(5.0)	ND(5.0)	2.9 J
Methylene Chloride	3	ND(5.0)	ND(5.0)	ND(5.0)	ND (5.0)
Tetrachloroethylene	1	ND(5.0)	ND(5.0)	ND(5.0)	5.6
Toluene	1,000	ND(5.0)	ND(5.0)	ND(5.0)	160
Trans 1,2-Dichloroethylene	100	ND(5.0)	ND(5.0)	ND(5.0)	20
Xylene (total)	40	ND(5.0)	ND(5.0)	ND(5.0)	3.6 J
Semivolatiles (µg/L)					
Bis(2-Chloroethyl) ether	10	ND(11)	ND(10)	ND(10)	ND(11)
Bis(2-Chloroethoxy) methane	None	ND(11)	ND(10)	4.8 J	46
Fluorene	300	ND(11)	ND(10)	ND(10)	1.4 J
Bis(2-Ethylhexyl) phthalate	30	ND(11)	ND(10)	ND(10)	2.7 J
Bis(2-Chloroisopropyl)ether	300	ND(11)	ND(10)	ND(10)	ND(11)
Metals: Dissolved (mg/L)					
Antimony	0.020	Not tested	Not tested	Not tested	Not tested
Cadmium	0.004	Not tested	Not tested	Not tested	Not tested
Selenium	0.050	Not tested	Not tested	Not tested	Not tested
Metals: Undissolved (mg/L)					
Antimony	0.020	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Cadmium	0.004	ND(0.005)	ND(0.005)	ND(0.005)	0.011
Selenium	0.050	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)

(1) Reported from Dilution

TABLE 13

TABLE 14

DITCH AND STREAM SEDIMENT SAMPLING (11/4/92) DATA

(FROM *FINAL SUMMARY REPORT DATED DECEMBER 1994*)

CONCENTRATIONS IN UG/KG

Sample ID	S4761-110492-SJ-51	S4761-110492-SJ-53
Location	SS-2 (0-6")	SS-1 (0-6")
VOLATILE ORGANICS		
1,2-dichloroethane	ND(6.1)	ND (17)
1,2-dichloropropane	ND(6.1)	ND (17)
benzene	ND(6.1)	ND (17)
chloroform	ND(6.1)	ND (17)
ethylbenzene	ND(6.1)	ND (17)
tetrachloroethylene	ND(6.1)	ND (17)
toluene	ND(6.1)	ND (17)
trans 1,2 dichloroethylene	ND(6.1)	ND (17)
trichloroethylene	ND(6.1)	ND (17)
xylene	ND(6.1)	ND (17)
SEMI-VOLATILES		
bis(2-chloroethyl) ether	ND (400)	300 J
bis(2-chloroethoxy)methane	ND (400)	850 J
diethylphthalate	ND (400)	ND (1100)
phenanthrene	ND (400)	ND (1100)
di-n-butylphthalate	ND (400)	ND (1100)
fluoranthene	ND (400)	ND (1100)
pyrene	ND (400)	ND (1100)
bis(2-ethylhexyl)phthalate	ND (400)	ND(1100)
bis(2-chloroisopropyl)ether	ND (400)	230 J
METALS		
antimony	ND(0.5)	ND(3.4)
cadmium	ND (0.5)	5.5
selenium	ND(0.5)	2.5

J = CONSTITUENT WAS DETECTED BELOW THE QUANTIFICATION LEVEL (ESTIMATED VALUE)

ND( ) = NOT DETECTED AT QUANTIFICATION LIMIT STATED IN PARENTHESES.

TABLE 15

SURFACE WATER SAMPLING (11/4/92) RESULTS

(FROM THE *SUPPLEMENTAL SOIL AND GROUNDWATER INVESTIGATION REPORT* Dated March 1993)

CONCENTRATIONS IN $\mu g/l$

Sample ID	W4761-110492-SJ-50	W4761-110492-SJ-52
Location	SW-2	SW-1
VOLATILE ORGANICS		
1,2-dichloroethane	ND(5.0)	ND (5.0)
1,1,1-trichloroethane	ND(5.0)	ND (5.0)
benzene	ND(5.0)	ND (5.0)
chloroform	ND(5.0)	ND (5.0)
ethylbenzene	ND(5.0)	ND (5.0)
tetrachloroethylene	ND(5.0)	ND (5.0)
toluene	ND(5.0)	ND (5.0)
trans 1,2 dichloroethylene	ND(5.0)	ND (5.0)
methylene chloride	ND(5.0)	ND (5.0)
xylene	ND(5.0)	ND (5.0)
SEMI-VOLATILES		
bis(2-chloroethyl) ether	2.3 J	25
bis(2-chloroethoxy)methane	ND (10)	100
fluorene	ND (10)	ND (11)
bis(2-ethylhexyl)phthalate	ND (10)	ND (11)
bis(2-chloroisopropyl)ether	ND (10)	ND(11)
METALS		
antimony	not tested	not tested
cadmium	not tested	37
selenium	not tested	not tested

J = CONSTITUENT WAS DETECTED BELOW THE QUANTIFICATION LEVEL (ESTIMATED VALUE)

ND( ) = NOT DETECTED AT QUANTIFICATION LIMIT STATED IN PARENTHESES.

TABLE 16
HOPKINS FARM SITE
Summary of Analytical Results for Ground Water

Contaminant (Sample Location)	Maximum Concentration (ug/l)	Federal Standard/ Action Level	State Standard/ Action Level	Risk-Based Concentration
Volatile Organic Compounds				
Acetone (HF-MW-2D)	44	-	700	3700
Chloroform (HF-MW-2S)	0.6	100	6	0.15
Trichloroethylene (HF-MW-5S)	0.5	5	1	1.6
Benzene (HF-MW-5S)	0.2	5	1	0.36
Toluene (HF-MW7D-GW2)	0.14	1,000	1000	750
Tetrachloroethylene (HF-TB-GW2)	0.14	5	1	1.1
Chlorobenzene (HF-TB-GW2)	0.063	100	4	39
Semivolatile Organic Compounds				
Bis (2-Chloroethoxy) methane (HF-MW-2S)	1	-	-	-
Metals				
Chromium (MW-1D)	11.9	100	100	180
Lead (MW-2S)	4.0	15*	10	-
Manganese (MW-1D)	53.6	50+	50+	180
Mercury (MW-6S)	0.24	2	2	3.7
Zinc (MW-2S)	110	5000+	5000+	11,000

+ indicates a Secondary Standard (primarily aesthetic)
* EPA's action level for lead in drinking water

TABLE 17

HOPKINS FARM SITE

Contaminants of Concern

Soils and Sediments

Semivolatile Organic Compounds

Bis (2-Chloroethyl) ether (SS-1)
Bis (2-Chloroethoxyl) methane (SS-1)
Bis (2-Ethylhexyl) phthalate (SS-1)

Metals

Cadmium (SS-1)
Selenium (H-11)

Ground Water

Volatile Organic Compounds

Acetone
Chloroform
Trichloroethylene
Benzene
Toluene
Tetrachloroethylene
Chlorobenzene

Semivolatile Organic Compounds

Bis (2-Chloroethoxy) methane

Metals

Chromium
Lead
Manganese
Mercury
Zinc

TABLE 18

HOPKINS FARM SITE

Summary of Analytical Results for Soils and Sediments

Contaminants (Sample Location)	Detection Frequency	Maximum Concentration	EPA Soil Screening Level
Semivolatile Organic Compounds			
Bis (2-Chloroethyl) ether (SS-1)	1/6	300 ug/kg*	0.4 ug/kg
Bis (2-Chloroethoxy) methane (SS-1)	1/6	850 ug/kg*	-
Bis (2-Ethylhexy) phthalate (SS-1)	4/6	230 ug/kg*	46,000 ug/kg
Metals			
Cadmium (SS-1)	1/6	5.5 mg/kg	8 mg/kg
Selenium (H-11)	5/6	3.2 mg/kg	5 mg/kg

* indicates an estimated result