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August 1993

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Superfund Record of Decision:

Wilson Farm, NJ

50272-101

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15. Supplementary Notes

PB94-963808

16. Abstract (Limit: 200 words)

The 10-acre Wilson Farm site is part of a 218-acre farm located in Plumsted Township, Ocean County, New Jersey. Land use in the area is predominantly agricultural, with wooded and unoccupied areas. The site borders the Colliers Mills Fish and Wildlife Management Area to the east and Run Creek to the south and west, and lies within the New Jersey Pinelands area. In the 1960s and early 1970s, the surface of the site allegedly was used to illegally dispose of chemical wastes from Thiokol Corporation. In 1980, a State investigation identified onsite contamination. Later that year, the State required the removal and disposal of approximately 620 yd^3 of mixed chemical waste material and soil offsite, and the installation of six ground water monitoring wells. In 1986, the State established a Well Restriction Area on the site and surrounding areas to protect any new drinking water wells which might be installed near the site. In 1992, the State required a second removal action to remove and dispose of various surface waste materials offsite. This ROD addresses a 10-acre area of the 218-acre Wilson Farm, as OU1. An EPA baseline risk assessment, conducted after the completion of the 1992 removal action, determined that previous actions have removed the source of the contamination; therefore, there are no contaminants of concern affecting this site.

(See Attached Page)

17. Document Analysis a. Descriptors

Record of Decision - Wilson Farm, NJ
First Remedial Action - Final
Contaminated Medium: None
Key Contaminants: None

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report) None	21. No. of Pages 42
	20. Security Class (This Page) None	22. Price

(See ANSI-Z39.18) *See Instructions on Reverse* OPTIONAL FORM 272 (4-77) (Formerly NTIS-35) Department of Commerce

Abstract (Continued)

The selected remedial action for this site is no further action, with monitoring of ground water, surface water, and sediment, and continuation of the Well Restriction Area. The State, with EPA concurrence, has determined that the prior removal actions conducted in 1980 and 1992 sufficiently have eliminated any risks to human health or the environment. The estimated present worth cost for this no action remedy is $436,800 for five years.

PERFORMANCE STANDARDS OR GOALS:

Not applicable.

ROD FACT SHEET

SITE

Name : Wilson Farm
Location/State : Plumsted Township, New Jersey
EPA Region : 2
HRS Score (date): 33.93 (1982)

ROD

Date Signed: August 3, 1993
Remedy/ies: No Action/Monitoring
Operating Unit Number: OU-1
Construction Completion: August 1993 (month/year)
Present worth: $436,800 (5%, 5 years) (Monitoring program)

LEAD

State/Enforcement
Primary contact (phone): Mike Burlingame,NJDEPE (609)292-1424
Secondary contact (phone): Gary Adamkiewicz,EPA (212)264-7592
Main PRP(s): Morton International Inc.
PRP Contact (phone): Nick Klumpp, (312)807-3126

WASTE

Type (metals, PCB, etc.): Organics, Metals
Medium (soil, g.w.,etc.): Surface waste(removed), soil, ground water
Origin: Surface disposal of mixed waste by Thiokol Corporation (now Morton International)
Est. quantity: Approximately 1270 cu.yd. of surface waste/soil removed during two removal actions (1980 and 1992)

DECISION DECLARATION

RECORD OF DECISION

WILSON FARM SITE

SITE NAME AND LOCATION

Wilson Farm Site
Plumsted Township, Ocean County, New Jersey

STATEMENT OF BASIS AND PURPOSE

This Record of Decision presents the selected no action remedy for the Wilson Farm Site, in Plumsted Township, New Jersey. The remedy was developed in accordance with 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 Contingency Plan.

The U.S. Environmental Protection Agency concurs with the selected remedy. The information supporting this decision is contained in the administrative record for the site.

DESCRIPTION OF THE SELECTED REMEDY

The New Jersey Department of Environmental Protection and Energy has determined that no further remedial action is necessary at the Wilson Farm Site. The removal of chemical and industrial waste materials from the site by Morton International, Inc, in 1992 was successful in remediating the principal threats associated with the site.

The major components of the no action remedy are:

- Implementation of a five-year monitoring program involving ground water, surface water and sediments to verify that any residual contamination remains below levels of concern. Also, three additional ground water monitoring wells will be installed at the site as part of this program.

- Visual inspection of the site during monitoring to ensure that no further waste materials are present which frost or erosion might bring to the surface.

- Continuation of the Well Restriction Area, for 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 Contingency Plan, the New Jersey Department of Environmental Protection and Energy 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 Wilson Farm Site. Therefore, the site now qualifies for inclusion in the "sites awaiting deletion" subcategory of the construction completion category of the National Priorities List. Because the site does not contain hazardous substances above health-based levels, the five year review will not apply to this decision.

Jeanne M. Fox

Jeanne M. Fox, Acting Commissioner
N.J. Department of Environmental Protection
and Energy

8/2/93
Date

RECORD OF DECISION

DECISION SUMMARY

WILSON FARM SITE
PLUMSTED TOWNSHIP, OCEAN COUNTY, NEW JERSEY

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY
AUGUST 1993

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DECISION SUMMARY

RECORD OF DECISION

WILSON FARM SITE

1. INTRODUCTION

This Decision Document presents the preferred no action remedy for the Wilson 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 (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986, and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan of 1990. The investigations which led to this Decision Document were developed pursuant to the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11a et. seq. (Spill Act) and the Water Pollution Control Act, N.J.S.A. 58-10A. This decision document serves to explain the factual and legal basis for selecting the no action remedy for this site.

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

2. SITE LOCATION AND DESCRIPTION

The Wilson Farm Site is located approximately one-quarter mile southwest of the intersection of State Highway Route 528 and Hawkin Road, in Plumsted Township, Ocean County (Figure 1). The area of concern, which hereafter will be referred to as the "site", covers approximately 10 acres of the 218 acre property, which is listed on the Plumsted Township Tax Maps as Block 76, Lot 63.

The site is bordered on the north by cultivated land which is part of the Wilson Farm property. The site area is wooded and unoccupied. The two sand roads that circle the site approximately define the site boundaries. Across Hawkin Road to the east is the Colliers Mills Fish and Wildlife Management Area. To the south and west is Bordens Run Creek which flows into Colliers Mills Lake. The site has a number of unimproved roadways in and around it and is used mainly for hunting. The Wilson Farm is privately owned and has been posted with "No Trespassing" signs.

3. SITE HISTORY AND ENFORCEMENT ACTIVITIES

The Wilson Farm Site was allegedly used to dispose of chemical

wastes from Thiokol Corporation during the 1960s and early 1970s. The site was first inspected by the Ocean County Health Department, Plumsted Township Representatives and the NJ Department of Environmental Protection and Energy (NJDEPE) in February 1980 which led to the implementation of an Immediate Removal Action by NJDEPE in September 1980. Approximately 620 cubic yards of mixed chemical waste material and soils were removed from the site. Concurrent with the Immediate Removal Action, the NJDEPE installed and sampled six ground water monitoring wells in July 1980. Ground water from these wells was found to contain chemical contamination.

In December 1982, the NJDEPE inspected the site and scored it utilizing the Federal Hazard Ranking System. Based on this ranking the site was included on the Federal National Priorities List (NPL) of Superfund sites.

In 1986, the NJDEPE established a Well Restriction Area on the Wilson Farm and surrounding properties in order to protect any new drinking water wells which might be installed near the site. The Well Restriction required that all new wells within approximately a 2,000 foot radius of the site be installed to a depth of at least 150 feet. The purpose of this action was to ensure that new wells were not impacted by contamination in the shallow aquifer by locating them in a deeper, separate aquifer.

In July 1986, the NJDEPE directed Morton Thiokol, Incorporated (MTI) to make payment to the Department for the cost of a Remedial Investigation and Feasibility Study (RI/FS) at the site. On December 3, 1987, the NJDEPE and MTI entered into an Administrative Consent Order (ACO) in which MTI agreed to comply with this Directive (No. 1).

In January 1987, Acres International Corporation (Acres) was contracted by the State to perform a RI/FS to determine the nature and extent of contamination at the site and to recommend cleanup alternatives. After initial site investigations were performed, it was determined that further remedial studies were necessary. The NJDEPE, in January 1990, directed Morton International, Incorporated (MII) and the Thiokol Corporation (since Directive No. 1 was issued, Morton Thiokol, Inc. had split into these two, component corporations) to pay for the additional studies. MII complied and the RI/FS was completed by Acres in March 1992.

On August 23, 1991, the NJDEPE and MII entered into a second ACO for the removal of surface waste materials at the site. This Removal Action took place between June and July 1992. On April 30, 1993, following a review of post-excavation sampling results, the NJDEPE notified MII that the Removal Action was complete. Restoration of the site by regrading and replanting will take place in the near future.

4. COMMUNITY RELATIONS HISTORY

Throughout the RI/FS process, representatives from the NJDEPE have attended meetings concerning the Wilson Farm Site at the New Egypt Town Hall in Plumsted Township. The first public meeting was held in New Egypt on March 31, 1987 to brief interested parties concerning what the Department knew about the site and to explain the RI/FS work which was commencing at that time. Fact sheets were distributed by the NJDEPE.

Since this initial meeting, the NJDEPE has participated in a Township Meeting in New Egypt on May 14, 1990 to update concerned persons on the status of the site. Another meeting was held on August 27, 1990 in New Egypt. Prior to all meetings, the NJDEPE mailed meeting notices to a list of concerned parties. Questions at the meetings generally focused on the potential for contamination of ground water around the site. Concerns about whether the site could ever be commercially developed were raised. The Well Restriction Area was also discussed.

Over the course of the RI/FS and Removal Action, numerous correspondences and discussions have taken place between the NJDEPE and potential home-buyers, Plumsted Township Officials, the Plumsted Township Environmental Committee, property owners, building developers, and the Ocean County Health Department.

At the onset of the RI/FS in 1987, the NJDEPE established a records repository at the New Egypt Library. All major site-related documents were sent to this location. The Administrative Record, a comprehensive collection of all records relating to the case, is located at the NJDEPE in Trenton. The Index to the Administrative Record is attached to this Decision Document.

A Proposed Plan which presented the preferred no action remedy was released to potentially affected persons and the public for comment on May 3, 1993. The notice of availability of these documents was announced by means of a newspaper advertisement in the Tri-Town News on April 29, 1993. Notices were also mailed to the area residents and other concerned parties on the NJDEPE's mailing list for this site.

A public comment period on site-related documents was held from April 30, 1993 to June 3, 1993. In addition, a public meeting was held on May 11, 1993. At this meeting, representatives from NJDEPE answered questions about the site and the proposed no action remedy. Responses to significant comments and criticisms received during this period are included in the Responsiveness Summary, which forms the third part of this Decision Document.

5. SITE CHARACTERISTICS SUMMARY

Site investigations were conducted from the period of 1987 to 1993.

Results from the NJDEPE's Remedial Investigation (RI) and soil sampling by MII are summarized in this section.

5.1 Subsurface Characteristics

Figure 2 shows a generalized representation of subsurface conditions at the site. The site is immediately underlain by recent-aged sediments to depths of 0.5 to 5 feet. The Cohansey Sand Formation underlies these sediments and is 20 to 29 feet thick. Below this formation the 15 to 20 foot thick, sandy Upper Member of the Kirkwood Formation was encountered. Both units are valuable sources of drinking water. Underlying the Upper Member of the Kirkwood Formation is the Lower Member of the Kirkwood Formation and the Lower Member of the Manasquan Formation. The Lower Members of the Kirkwood and Manasquan Formations act as confining units to restrict the downward flow of ground water into deeper aquifers.

5.2 Geophysical and Soil Gas Surveys

Geophysical investigations were conducted at the site in order to locate any buried wastes, to determine the depth to ground water and to obtain stratigraphic information. Electromagnetic, magnetometer and electrical resistivity investigations were performed. The areas where waste dumping had occurred, on either side of a sand road paralleling Bordens Run Creek, generally correlated with anomalous readings from the geophysical instruments. All anomalies were located and targeted for investigation.

Measurements of the levels of volatile organic chemicals in the soil pore gases were also made in an attempt to locate contamination. Efforts to locate chemical waste material through soil gas measurements gave inconclusive results.

5.3 Waste Materials

Figure 3 shows the areas where chemical/industrial waste was found and subsequently removed by MII. The material which was removed generally consisted of small pieces scattered over the ground surface on either side of a dirt road running parallel to Bordens Run Creek. The waste was visually classified into three types in the RI. These included reddish brown to black tar-like material, a yellow to light brown solid with a pitted texture and greenish-yellow or yellow granular masses with no definite shape. The waste materials were found to contain hazardous organic chemicals such as carbon disulfide (Not Detectable, ND-148 parts per billion, ppb), trichloroethene (ND-6.2 ppb), methylene chloride (ND-140 ppb), pentachlorophenol (ND-2500 ppb), bis (2-ethylhexyl)phthalate (ND-2400 ppb) and di-n-butyl phthalate (ND-3600 ppb). Hazardous metals were also detected including arsenic (ND-4.1 parts per million, ppm), beryllium (ND-0.1 ppm), chromium (ND-5 ppm), copper (ND-13.9

ppm), lead (3.9-85.4 ppm), mercury (ND-0.6 ppm) and zinc (10.4-25.9 ppm).

In June and July 1992, MII excavated areas of the site where chemical waste materials were found. Material was removed to a depth of 6 to 12 inches over various areas throughout the site and processed by a mechanical sieve to separate waste materials from natural soils. Approximately 650 cubic yards of mixed chemical waste materials and soils were segregated for disposal. Soils not containing waste material were stockpiled on-site and analyzed for reuse as backfill. Analytical testing (Toxic Characteristics Leaching Procedure Test) of the waste materials by MII indicated that some of these materials leached lead at concentrations above regulatory standards for a non-hazardous waste. Also, some of the material contained total petroleum hydrocarbon concentrations above acceptable State levels for a non-hazardous waste. As a result of these findings, the contaminated materials were disposed of off-site at the Envirotech Management Services, Inc. facility which is a permitted, hazardous waste landfill located in Ypsilanti, Michigan.

5.4 Soils

Soil borings indicate that the site is immediately underlain by recent-aged sandy sediments to depths of 0.5 to 5 feet. Underlying these sediments is the Cohansey Sand Formation with a thickness of 20 to 29 feet. Below the Cohansey Sand, the sandy Upper Kirkwood Formation was encountered with a thickness of 15 to 20 feet. The Lower Member of the Kirkwood Formation was encountered at depths of 39 to 49 feet and consists of sand with varying amounts of silt and clay. Several borings were terminated in the Lower Member of the Manasquan Formation at depths of 68 to 79 feet. This stratum consisted of extremely dense sands and sandy clay.

Surficial soil sampling and analysis were performed during the RI at locations throughout the site where waste had been disposed. A total of 37 post-excavation soil samples were subsequently taken under the areas excavated during the MII Removal Action (see Figure 3) between June 24 and July 16, 1992. The soils were analyzed for Target Compound List/Target Analyte List compounds. A number of organic and inorganic compounds were detected in post-excavation samples at low levels including: 2-butanone (ND-5 ppb), 4,4 DDT (ND-4,800 ppb), di-n-butyl phthalate (ND-430 ppb), diethyl phthalate (ND-700 ppb), endrin (ND-24 ppb), polychlorinated biphenyls (ND-120 ppb), toluene (ND-98 ppb), arsenic (ND-1.8 ppm), copper (ND-7.5 ppm), lead (1.8-110 ppm), mercury (ND-0.26 ppm) and zinc (3.8-42.1 ppm). Table 1 summarizes the contaminants found in post-excavation soil samples. Analyses of the soils which were separated from the waste materials during the Removal Action were also performed and, after a quality assurance check, the results will be reviewed by the NJDEPE and USEPA to determine whether they may be reused as backfill for the excavations.

Subsurface soil samples were also obtained at depths ranging from 6 to 13 feet. Organic compounds were detected such as: benzene (ND-6 ppb), vinyl acetate (ND-66 ppb) and total xylenes (ND-1.7 ppb). Inorganic compounds were detected including: barium (ND-6.4 ppm), chromium (ND-5.7 ppm), copper (ND-5.9 ppm), lead (1.1-93.3 ppm) and zinc (3.9-48.5 ppm).

5.5 Ground Water

Six shallow and four deep monitor wells were installed at depths ranging from 14 to 65 feet in the Cohansey and Upper Member Kirkwood Formations. The depth to ground water at the site is 5 to 10 feet. Water level measurements indicate that ground water flows generally to the south; however, near Bordens Creek it swings westward to intercept the Creek. Figure 4 shows the well locations and the shallow ground water flow direction. The Lower Member of the Kirkwood and the Manasquan Formations are believed to form a composite aquitard, retarding transfer of contaminants to deeper aquifers.

Ground water in eight monitor wells was sampled for Target Compound List/Target Analyte List compounds. Various organic compounds were detected above the NJDEPE Ground Water Quality Standards (GWQS) for Class I-PL (Pinelands Protection Area) Aquifers (ref. NJAC 7:9-6). The New Jersey Ground Water Quality Standards are the specific criteria necessary to implement the nondegredation policy contained in the Pinelands Comprehensive Management Plan (NJAC 7:50 et seq). These standards require that discharges to the Cohansey and Kirkwood Aquifers within the Pinelands Protection Area should be at "background" water quality levels.

Organic compounds detected above GWQS included methylene chloride (ND-1500 ppb), carbon disulfide (ND-11 ppb), acetone (ND-17 ppb), di-n-octyl phthalate (ND-150 ppb), 1,1,1 trichloroethane (ND-3.1 ppb), and di-n-butyl phthalate (ND-3 ppb). Sampling results are summarized on Table 2. The only organic contaminants to be consistently identified in the same monitor wells, over repeated sampling events, were bis(2-ethylhexyl) phthalate in a shallow well (MW-3S) and acetone in a deep well (MW-3D). Both of these detections were questionable based on a quality assurance review of the data. Both contaminants are considered to be common laboratory and/or sampling induced contaminants.

Inorganic contaminants detected in the ground water above NJDEPE Ground Water Quality Standards (GWQS) for Class I-PL(Protection Area) Aquifers (ref. NJAC 7:9-6) were aluminum (ND-7886 ppb), calcium (2292-50,213 ppb), copper (ND-26 ppb), sodium (1044-7372 ppb), lead (ND-185 ppb) and zinc (ND-289 ppb). Only aluminum and lead were detected above human health-based standards for drinking water aquifers. Lead was also detected in the chemical waste material which was removed from the site while aluminum was not. All these compounds were found in background ground water samples

at levels which may represent natural variability in the aquifer, with the exception of lead in Monitor Well No. 5S (MW-5S). The Class I-PL GWQS for lead at this site is 10 ppb, which is the compound's Practical Quantitation Limit in the laboratory. Lead was detected above the GWQS in Monitor Well No. MW-5S at levels ranging from 60 ppb to 185 ppb. Lead was also detected in Well MW-2S at 11.1 ppb. Lead in the ground water of Well MW-4S, which is directly downgradient from MW-5S by a distance of approximately 270 feet, was at background levels (3.2 ppb). The extent of elevated levels of lead in the ground water, therefore, is very limited.

5.6 Potable Residential Wells

Five residential wells at locations to the north, northeast and southeast of the site were sampled in 1988 and the water analyzed for Target Compound List/Target Analyte List compounds during the RI. Figure 5 shows the potable well sampling locations. No potable wells were located downgradient of the site (to the south) within approximately 3,000 feet. No organic or inorganic contamination was detected in any of the wells sampled except for lead, which may be due to the household plumbing.

In order to determine if the elevated concentrations of lead in the area of MW-5S at the site could affect off-site wells, a ground water model was developed as part of the FS Report. The model indicated that at a distance of 1,300 feet, lead levels would be naturally attenuated from 185 ppb to 15 ppb. The potable wells in which elevated levels of lead were detected during the RI are 2,500 feet and 4,000 feet distant from Well MW-5S. These wells are not hydraulically downgradient from Well MW-5S. Based on this ground water model and the direction of ground water flow, it was concluded that lead would not be expected to migrate off the site at unsafe levels.

5.7 Air

Air monitoring was performed at the site during the RI. No hydrocarbon-based contamination was detected, however, a faint odor was noticeable which seemed to be associated with the exposed waste. Since the chemical wastes at the site have been removed, the odor problem has been mitigated.

5.8 Surface Water and Sediments

Table 3 summarizes the results of surface water and sediment sampling in Bordens Run Creek. An upstream surface water sample was taken during the RI in order to determine the impact of the site on Bordens Run Creek. Surface water samples taken adjacent and downstream of the site contained no organic contaminants (Figure 4 shows sampling locations). Copper (10 ppb) and total cyanide (12.6 ppb) were the only inorganic contaminants detected which exceeded levels found in background surface water.

Resampling was performed for cyanide but its presence was not confirmed.

Sediment samples were taken during the RI in January 1988 and May 1990 and by MII in February of 1992 in order to determine the impact of the site on Bordens Run Creek. Organic chemicals detected in the stream sediments adjacent to or downstream of the site were: acetone (ND-350 ppb), methylene chloride (ND-19 ppb), carbon disulfide (ND-28 ppb), di-n-butyl phthalate (ND-170 ppb) and 2-butanone (ND-5 ppb). None of these contaminants were consistently detected in the same areas during sampling events. The majority of these detections were qualified after a quality assurance review; these contaminants are considered to be common laboratory and/or sampling induced artifacts.

Stream sediments also contained a number of inorganic chemicals. Sediments sampled during the RI and in February of 1992 at locations adjacent to and downstream of the site and were found to contain copper, lead, mercury and zinc. Upstream sediment samples also contained these same four metals at comparable levels. Total cyanide (0.2-1.1 ppm) was the only contaminant detected downstream of the site which was not in upstream samples. Cyanide was not detected in the chemical waste material at the site.

In response to concerns expressed by the Fish and Wildlife Service, MII obtained three additional sediment samples in a wetland area adjacent to Bordens Run Creek in February 1992. Other than methylene chloride and acetone, two common field sampling and laboratory contaminants, no other organic contaminants were detected. Elevated levels of lead (136 ppm) and zinc (403 ppm) were detected in one of the wetland sediment samples. Further sampling around this area in August 1992 indicated lead levels of 112 ppm to 137 ppm away from the Creek and 23.5 ppm in a drainage area near the Creek. Zinc levels ranged from 28.9 ppm to 97 ppm. It was concluded that the extent of the wetland sediments with elevated levels of zinc was very limited. Wetland sediments with elevated lead levels were found to be more extensive, however, these levels decreased toward the Creek.

6. SITE RISK SUMMARY

In June and July of 1992 an Interim Removal Action was performed by MII in which the surficial chemical waste materials were removed from the site and disposed of at a federally-permitted hazardous waste landfill. Any risks to human health or the environment due to contact with these materials no longer exist. Risks to human health and the environment from contaminants still remaining at the site are discussed in this section.

The US Environmental Protection Agency (EPA) conducted a baseline risk assessment to evaluate the potential risks to human health and the environment after the Removal Action was completed. The Risk

Assessment evaluated contaminants in ground water, soil, surface water and sediments. A summary of the contaminants of concern in each of these media is listed in Table 4.

6.1 Human Health Risk Assessment

The EPA human health risk assessment identified several exposure pathways at the site under current and potential, future land-use scenarios. Health effects were then evaluated for each of these exposure scenarios and respective chemicals of concern. Based on the present land-use, dermal exposure to surface water and incidental ingestion of sediments were evaluated. Under a hypothetical, future residential-use situation, exposure scenarios evaluated in detail included ingestion of shallow ground water, incidental ingestion of soils, dermal exposure to surface water and incidental ingestion of sediments. Receptor populations included on-site residents, excavation workers and trespassers/recreational users. Table 5 presents a summary of all pathways considered.

EPA guidelines require the separate analysis of carcinogenic (cancer causing) and non-carcinogenic effects due to chemicals at the site. It is assumed that the toxic effects of chemicals at the site would be additive. Therefore, carcinogenic and non-carcinogenic risks associated with exposures to individual contaminants of concern were added to determine the potential risks associated with mixtures of potential carcinogens and non-carcinogens, respectively.

Non-carcinogenic risks were assessed using a Hazard Index (HI), which is the ratio of the expected contaminant intakes to the safe levels of intake (reference doses). Reference doses (RfDs) have been developed by EPA for indicating the potential for adverse health effects. RfDs, which are expressed in units of milligrams per kilogram per day (mg/kg/day), are estimates of daily exposure levels for humans which are thought to be safe over a lifetime (including sensitive individuals). Estimated intakes of chemicals from environmental media (e.g., the amount of a chemical ingested from contaminated drinking water) are compared with the RfD to derive the hazard quotient for the contaminant in the particular media. The reference doses for the chemicals of potential concern at the Wilson Farm Site are presented in Table 6. The Hazard Index is obtained by adding the hazard quotients for all compounds across all media. A hazard index greater than 1.0 indicates that potential exists for non-carcinogenic health effects to occur as a result of site-related exposures. The HI provides a useful reference point for gauging the potential significance of multiple contaminant exposures within a single medium or across media. A summary of the non-carcinogenic risks associated with these chemicals across various exposure pathways is presented in Table 7.

Results of the quantitative risk assessment using the Hazard Index approach show that the site media currently do not pose any

significant non-carcinogenic risk to human health. Under hypothetical, future conditions where on-site residents rely on shallow ground water for drinking, a marginal degree of risk was determined. Under this scenario, the chronic hazard index was equal to 1.0 for ingestion of ground water, which is the upper limit of acceptable risk established by the National Contingency Plan and EPA. This non-carcinogenic risk is attributed to methylene chloride, bis(2-ethylhexyl) phthalate, and aluminum.

The Hazard Index of 1.0 is based on the conservative assumption that there will be future residential use of the site. It is assumed that the shallow ground water would be used for potable purposes, in spite of the NJDEPE Well Restriction. The detections of methylene chloride and bis(2-ethylhexyl)phthalate in the ground water are qualified based on a quality assurance review of the data and both are common laboratory and/or field sampling-induced contaminants. Aluminum was detected in all wells on-site and in background ground water samples but was not detected in the chemical waste materials. Aluminum, therefore, is not thought to be a "site related" contaminant.

Potential carcinogenic risks were evaluated using the cancer potency factors developed by the EPA for the contaminants of concern. Cancer slope factors (SFs) have been developed by EPA's Carcinogenic Risk Assessment Verification Endeavor for estimating excess lifetime cancer risks associated with exposure to potentially carcinogenic chemicals. SFs, which are expressed in units of $(mg/kg/day)^{-1}$, are multiplied by the estimated intake of a potential carcinogen, in mg/kg/day, to generate an upper-bound estimate of the excess lifetime cancer risk associated with exposure to the compound at that intake level. The term "upper-bound" reflects the conservative estimate of the risks calculated from the SFs. Use of this approach makes the underestimation of the risk highly unlikely. The SFs for the chemicals of concern are presented in Table 6.

For known or suspected carcinogens, EPA considers excess upper bound individual lifetime cancer risks of between 1×10^{-4} to 1×10^{-6} to be acceptable. This level indicates that an individual has not greater than a one-in-ten-thousand to one-in-one-million chance of developing cancer as a result of site-related exposure to a carcinogen over a 70-year period under specific exposure conditions at the site. A summary of the carcinogenic risk estimates is presented in Table 8.

Under current conditions the site media do not pose any significant, carcinogenic risk to human health. Risks were also calculated for potential future conditions where residents live on-site and have potable wells in the shallow ground water aquifer. The pathway with the highest upper bound carcinogenic risk is residential ingestion of shallow ground water, which was calculated to be 1×10^{-4} (one-in-ten-thousand). This risk number, which is

considered a conservative upper-bound estimate, means that one additional person in ten thousand would be at risk of developing cancer if the site is not remediated. As indicated by Table 8, carcinogenic risk associated with each of the pathways falls within or below EPA's acceptable risk range of 1×10^{-4} to 1×10^{-6}. Carcinogenic risks associated with on-site residents' ingestion of surface soil, subsurface soil and sediments ranged from 1×10^{-10} to 5×10^{-6} (one-in-ten-billion to five-in-one-million).

The hypothetical residential carcinogenic risk for the site of 1×10^{-4} is attributed to the presence of methylene chloride and bis(2-ethylhexyl) phthalate, both of which are common laboratory and/or field sampling-induced contaminants. The detections of both of these compounds were qualified after a quality assurance review and neither compound was consistently detected between sampling events.

Following the Removal Action and post-excavation soil sampling, the NJDEPE performed an assessment of risk at the site, independent of the EPA. The methods used by the NJDEPE consisted of comparing the levels of contaminants on-site with the NJDEPE requirements for organic and inorganic contaminants in soil and Ground Water Quality Standards. These requirements and standards are based on health-related risks for each contaminant and are protective over a lifetime of exposure. The NJDEPE concurs with the EPA conclusions that there is currently no unacceptable risk to human receptors at the site. An unacceptable risk was determined, however, for potential future residents at the site which rely on shallow, potable wells in areas where elevated levels of lead occur in the ground water. However, this scenario is unlikely due to the existing Well Restriction which advises against the installation of shallow wells at the site.

6.2 Ecological Risk Assessment

The Wilson Farm Site is located in the New Jersey Pinelands, an area which is protected under the State Pinelands Comprehensive Management Plan to preserve natural ecosystems and the capacity for recharging the underlying aquifers. A number of New Jersey threatened or endangered species have been historically reported in the Colliers Mills Fish and Wildlife Management Area and in Bordens Run Creek including the Pine Barren Boneset, Wood Turtle, Bog Turtle, Pine Barrens Tree Frog, Pine Snake, Red-Headed Woodpecker, Purple Bladderwort and Humped Bladderwort. A flora and fauna survey was conducted by Acres at the site in May 1990. It was concluded that the site did not contain any significant habitat for rare or endangered species that are unique to the Pinelands. A Pine Snake was observed on the site, during the Removal Action by MII. In July 1992, EcolSciences, Inc. inspected the site for Swamp Pink, a New Jersey Endangered Plant, but failed to find any.

The EPA ecological risk assessment first evaluated contaminants found on site that could pose risks to associated ecological (non-

human) receptors. Chemicals of concern in the surface water were copper, cyanide, iron, vanadium and zinc. Chemicals of concern in the sediments were acetone, carbon disulfide, di-n-butyl phthalate, aluminum, barium, cyanide, lead, mercury, selenium, vanadium and zinc.

Next, for evaluating risk due to contaminated surface soils, two indicator species of two distinct feeding guilds were selected as representative of those ecological receptors interacting with that medium. The white-footed mouse and the short-tailed shrew were chosen to model estimated exposure doses of surface soil contaminants received by the omnivorous mouse and insectivore, respectively. Exposure to most surface soil contaminants by terrestrial wildlife receptors is not expected to result in adverse effects based on a comparison of the estimated exposure doses of the two indicator species to applicable acute and chronic toxicity values. The exception was post-excavation Soil Sample No. S-3 which contained high levels of 4,4'-DDT which could result in adverse impacts to sensitive benthic species. Historically, 4,4'-DDT was used as a pesticide in agricultural areas and it was not detected in the chemical waste material.

The risk to ecological receptors via contact with and/or ingestion of surface water was estimated by comparing acute and chronic toxicity information obtained from the EPA Ambient Water Quality Criteria and the AQUIRE database with site conditions. The results indicate that the concentrations of copper and zinc in surface water may cause adverse, acute effects to aquatic receptors. Vanadium and cyanide concentrations in the surface water may cause adverse chronic effects to aquatic biota. However, zinc and vanadium concentrations appear to be naturally elevated or a result of an upstream source. Cyanide was not detected in the chemical waste material at the site and resampling of surface water did not confirm its presence in Bordens Run Creek. Copper was detected at elevated levels adjacent to the site in surface water and sediments, but downstream samples were at background concentrations. The extent of any copper contamination in Bordens Run Creek, therefore, is limited.

Bordens Run Creek sediments were evaluated by comparing the contaminants of concerns' mean and maximum concentrations to EPA (1977) and National Oceanic and Atmospheric Administration (1990) guidance for sediment contamination. Concentrations of cyanide provide the greatest risk to ecological receptors contacting sediments in Bordens Run Creek, although the detected cyanide concentrations have not been documented to result in adverse impacts to benthic organisms. Lead, zinc and mercury were also detected at concentrations which may result in adverse impacts to sensitive benthic organisms. However, all three metals were detected in sediments located upstream of the site and are, in part, if not entirely, naturally elevated or a result of an upstream source.

The NJDEPE has promulgated Ground Water Quality Standards (NJAC 7:9-6) for the Pinelands Protection Area (Class I-PL waters) in which the site is located. They have been established to protect the Pineland's plant and animal species and their habitats and to protect the use of the ground water for drinking and agricultural purposes. The only contaminant that exceeded these standards with any level of confidence was lead. A qualitative assessment of the environmental risks due to lead in the ground water was performed in the RI Report. This assessment found that there are several factors which would limit environmental exposure to lead in the ground water. Organic binding of lead to the soil and the shallow root structure of many plants would tend to reduce or mitigate uptake. Also, plants tend to concentrate lead in their roots rather than their above-ground structures which are a food source for animals.

Based on these ecological risk assessments, site-related contaminants should have no significant impact on plant or animal species on and around the site.

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;
- fate and transport modeling;
- exposure parameter estimation; and
- toxicological data.

Uncertainty in environmental sampling arises in part from the potentially uneven distribution of chemicals in the media sampled. Consequently, there is significant uncertainty as to the actual levels present. Environmental chemistry analysis error can stem from several sources including the errors inherent in the analytical methods and characteristics of the matrix being sampled.

Uncertainties 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. 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 concerning risk and exposure parameters throughout the assessment. 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 Risk Assessment Report.

7. DESCRIPTION OF THE NO ACTION REMEDY

The Removal Action performed by MII has effectively removed the source of contamination at the site. Restoration of the site will take place shortly. Regrading and replanting the excavated areas will help mitigate the spread of any remaining contaminants. As a result, the NJDEPE has determined that no further remedial action is necessary at the site. However, because contaminants were detected in the ground water, surface water and sediments, a limited monitoring program will be implemented.

Monitoring of ground water, surface water and sediments will be conducted for five years. In addition, a total of three ground water monitor wells will be installed along the southern site boundary and between Well MW-5S and Bordens Run Creek. The seven existing and three proposed monitor wells will be sampled and analyzed quarterly for TCL/TAL compounds during the first year. Surface water and sediments will also be monitored quarterly at three locations for TCL/TAL compounds for the first year. Monitoring frequency may be adjusted in subsequent years. At a minimum, annual monitoring will be required. If, at any time, the monitoring indicates the need for action to protect human health or the environment, the appropriate measures will be taken. The present worth cost for the installation of three monitor wells and a five year monitoring program is estimated to be $436,800.

As part of the No Action Remedy, the existing Well Restriction Area would continue in effect for the southern portion of the Wilson Farm Property (Block 76, Lot 63), for at least five years. This will effectively prevent human contact with the shallow ground water by advising anyone drilling a new well on the site that it should be at least 150 feet deep. The Well Restriction may be modified after five years by the NJDEPE depending on the results of ground water monitoring data.

During the monitoring work, the site will be inspected for any small scattered pieces of chemical waste material which could be remaining and come to the ground surface through the action of frost and erosion. Any such waste materials will be removed, as appropriate.

8. USEPA ACCEPTANCE

The EPA concurs with the No Action Remedy. The EPA's letter of

concurrence is attached to 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 V to this Decision Document.

10. EXPLANATION OF SIGNIFICANT DIFFERENCES

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

ATTACHMENT I
FIGURES

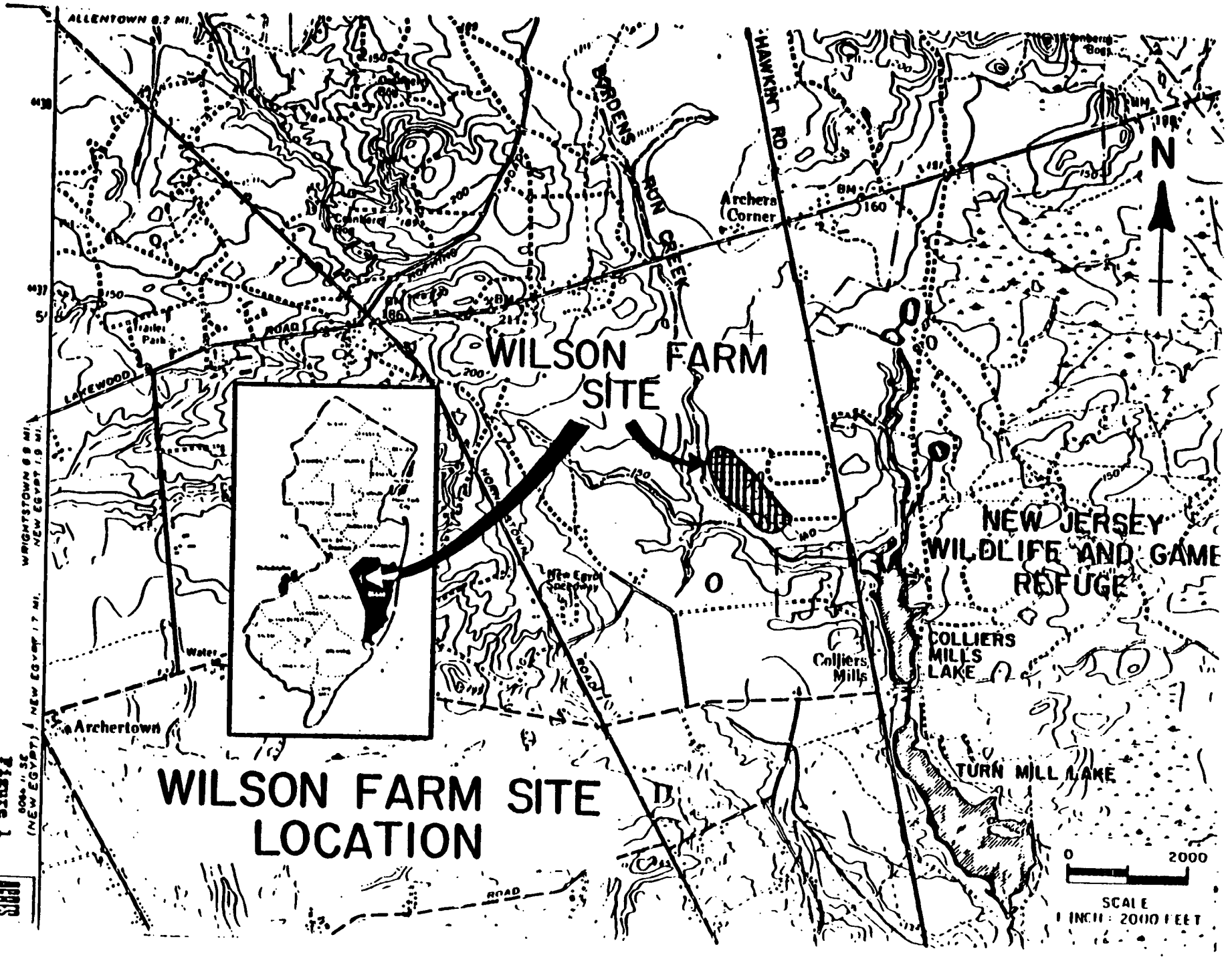
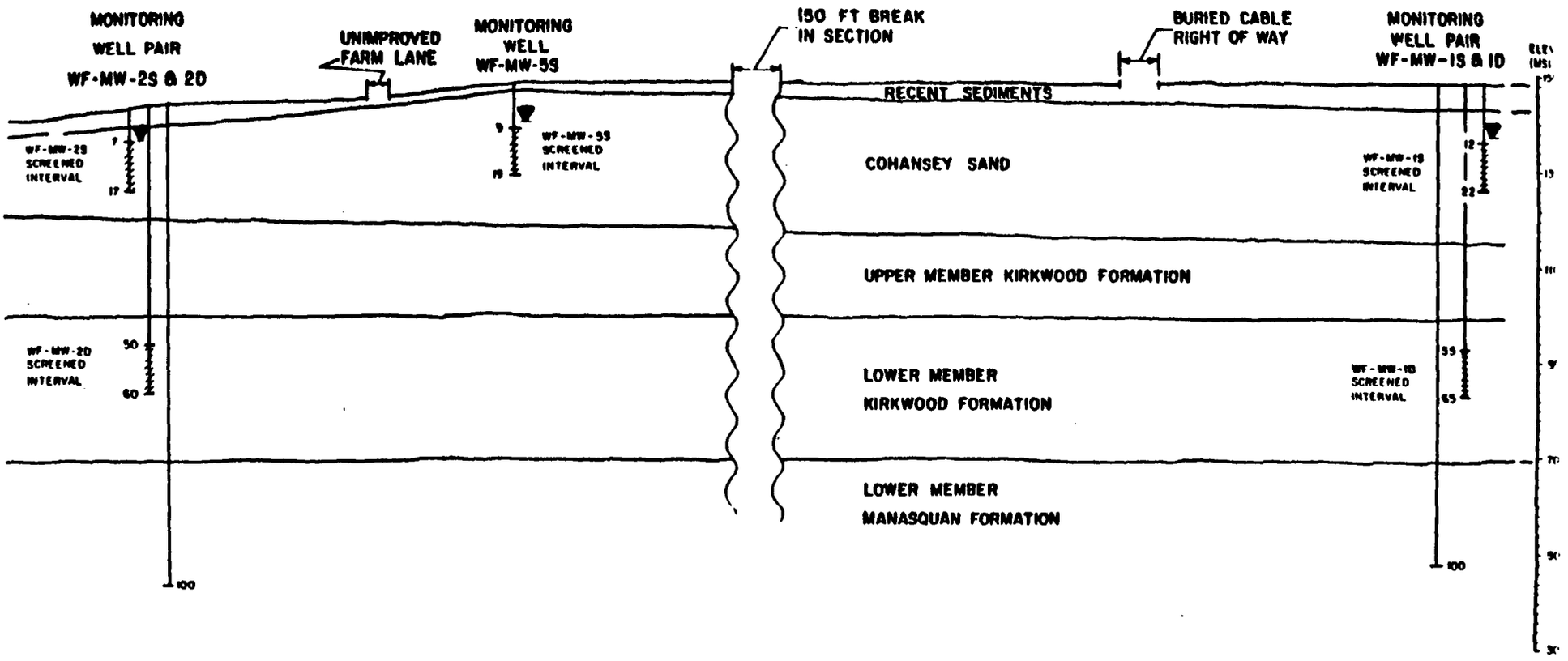
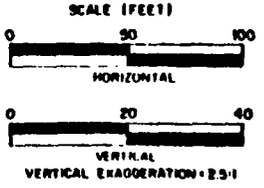

WILSON FARM SITE
WILSON FARM SITE LOCATION
NEW JERSEY WILDLIFE AND GAME REFUGE
COLLIERS MILLS LAKE
TURN MILL LAKE
Archers Corner
Colliers Mills
Archertown
Trailer Park
LAKEWOOD ROAD
HAWKIN RD
BORDENS RUN
ALLENTOWN 6.2 MI.
WRIGHTSTOWN 6.8 MI.
NEW EGYPT 1.9 MI.
NEW EGYPT 1.7 MI.
N
0
2000
SCALE
1 INCH = 2000 FEET

Figure 1



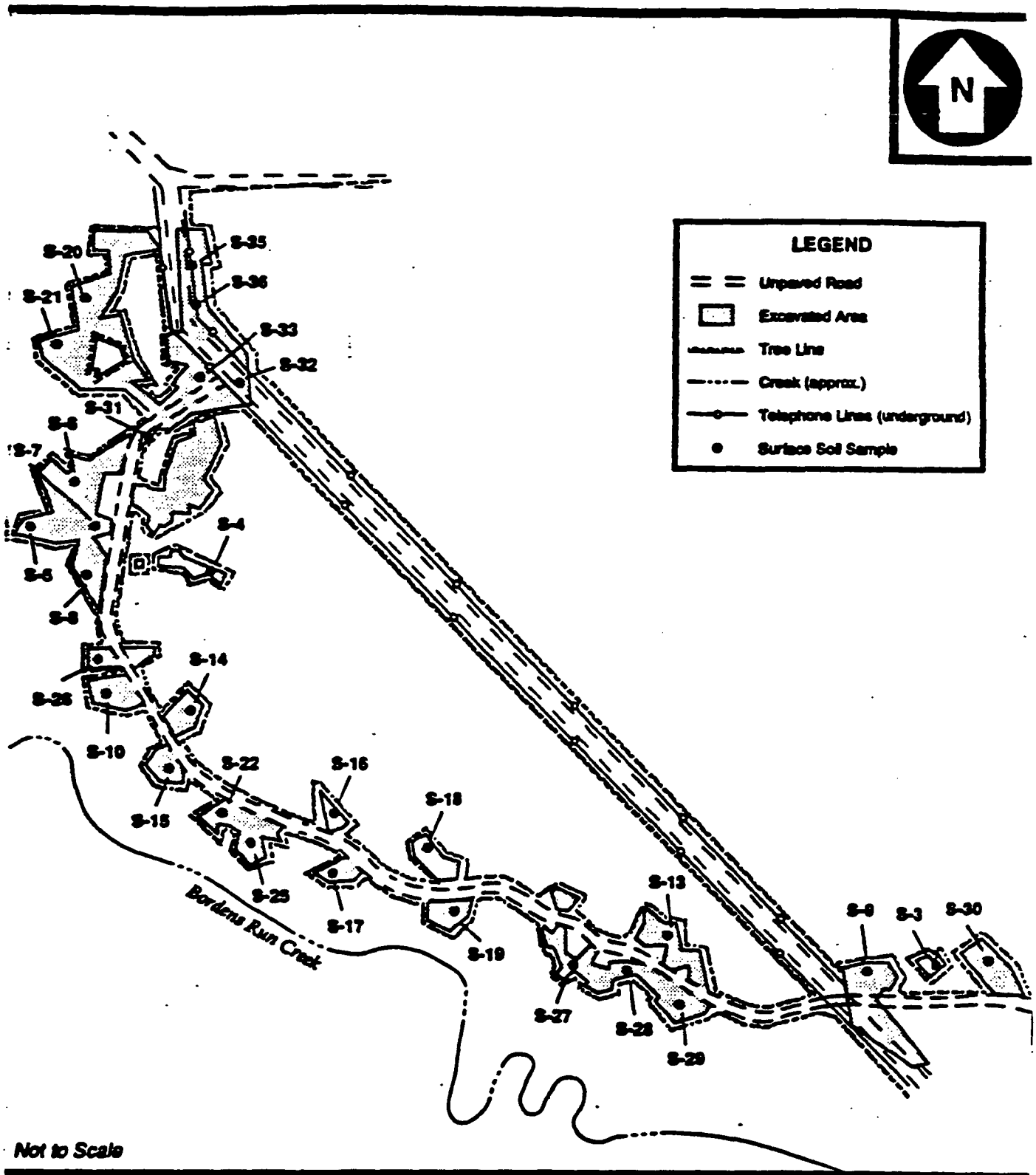


NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

WILSON FARM SITE RI/FS

GEOLOGIC CROSS SECTION
WILSON FARM SITE

Figure 2

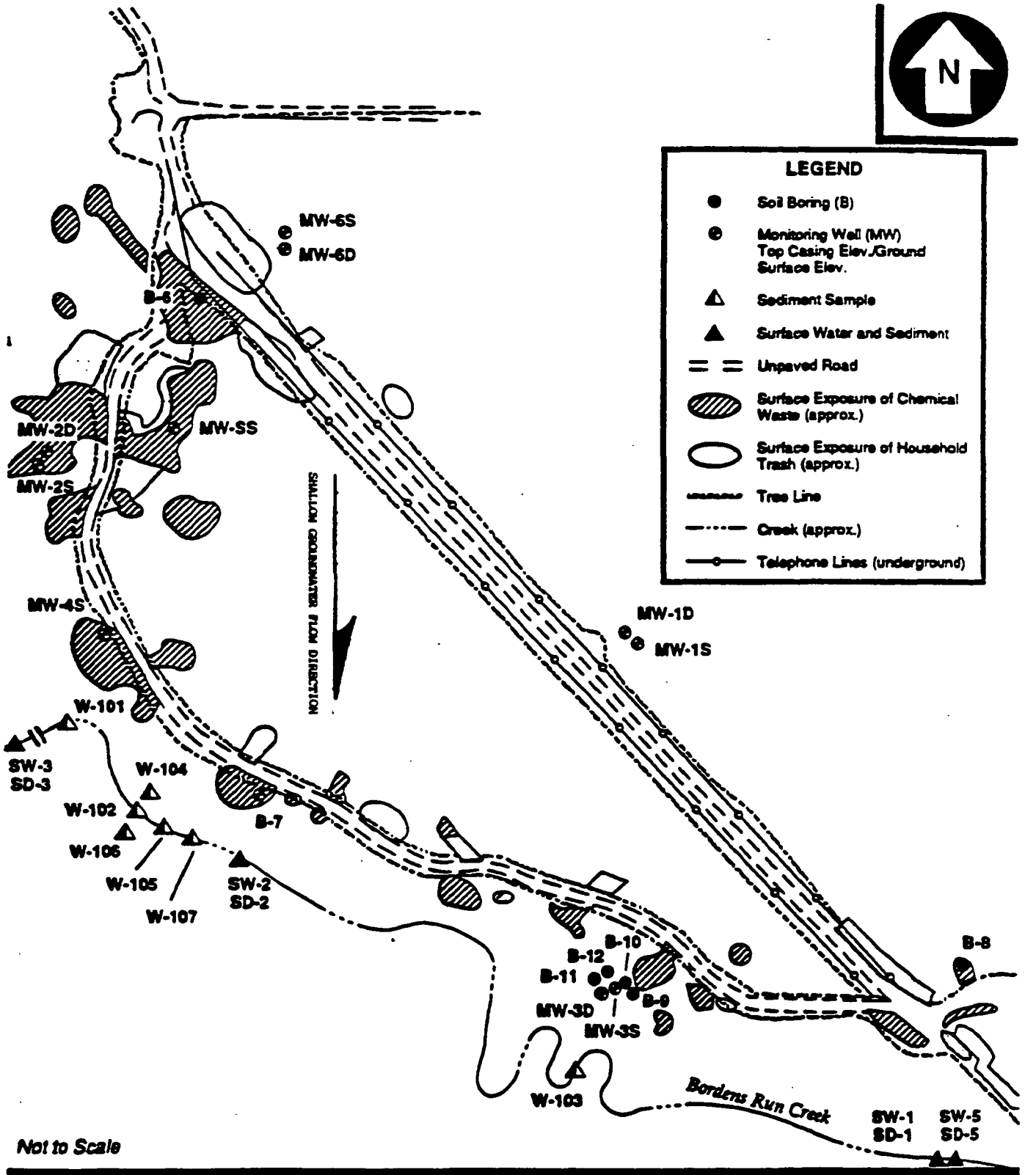


APPROXIMATE POST-EXCAVATION SURFACE SOIL SAMPLING LOCATIONS

WILSON FARM SITE
PLUMSTED TOWNSHIP, NEW JERSEY

TRC

Figure 3

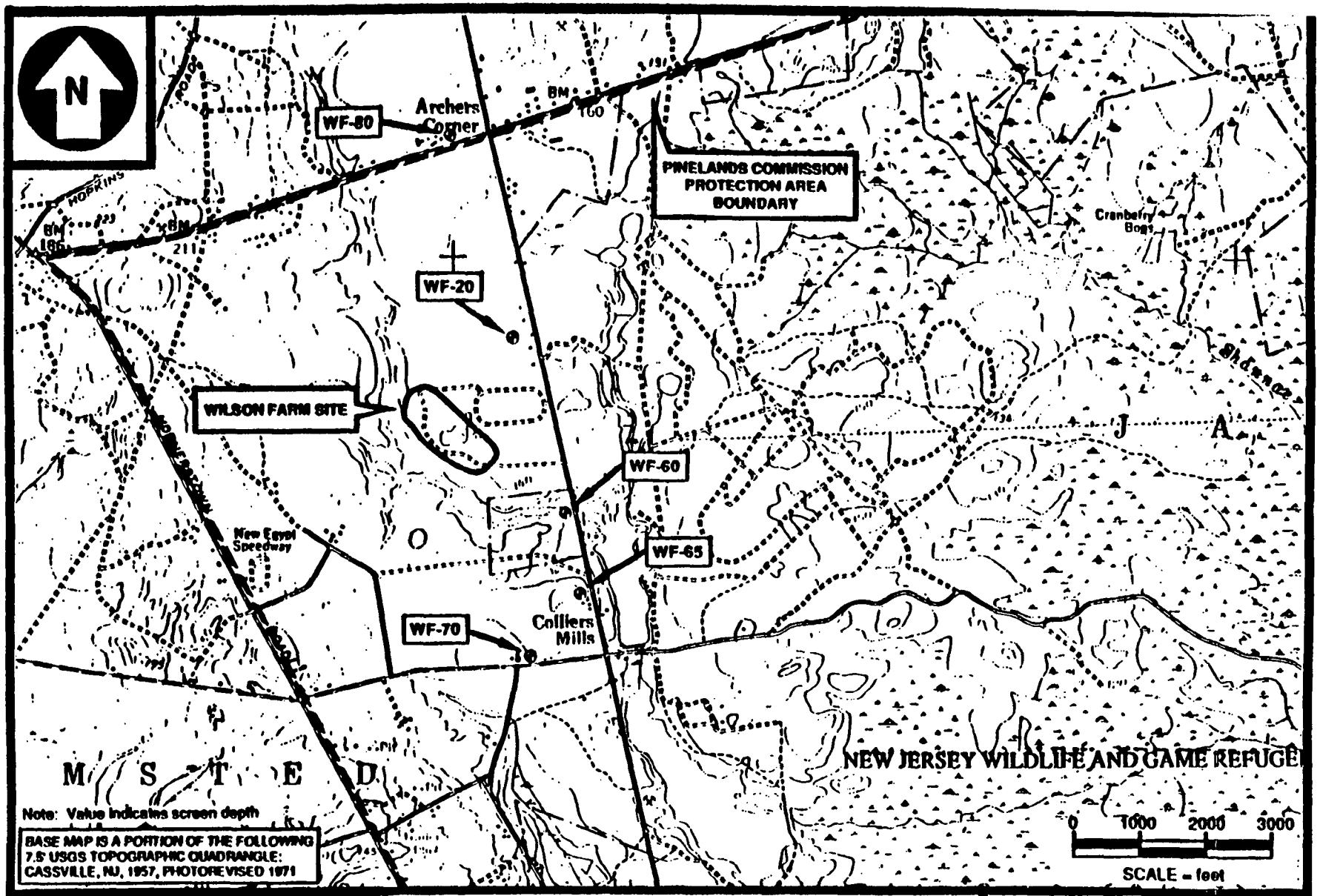


APPROXIMATE PREREMEDIAL SAMPLING LOCATIONS

WILSON FARM SITE
PLUMSTED TOWNSHIP, NEW JERSEY

TRC

Figure 4



LOCATIONS OF OFFSITE RESIDENTIAL DRINKING WATER WELLS

WILSON FARM SITE
PLUMSTED, NEW JERSEY

TRC

Figure 5

ATTACHMENT II
TABLES

TABLE 1 - TCL AND TAL COMPOUNDS DETECTED IN POST-EXCAVATION SOIL SAMPLES

Chemical	Frequency of Detection	Range of Concentrations Detected (ug/kg)
Volatile Organic Compounds:		
Acetone	23/33	4JB - 34B
2-Butanone (MEK)	18/33	2JB - 7JB
Chloromethane	1/33	20
Methylene chloride	1/33	24
Toluene	29/33	3J - 98
1,1,1-Trichloroethane	1/33	3JB
Trichloroethene (TCE)	1/33	3J
Semi-Volatile Organic Compounds:		
Anthracene	1/33	24J
3,4-Benzofluoranthene (Benzo(b)fluoranthene)	2/33	24J - 27J
Bis(2-ethylhexyl) phthalate	21/33	20J - 200JB
Chrysene	1/33	21J
Di-n-butyl phthalate	18/33	22JB - 43B
Diethyl phthalate	9/33	19J - 60J
bis(2-chloroethoxy)methane	2/33	39J - 51J
Ethanol	25/33	11J - 80J
Fluoranthene	1/33	23J
Phenol	1/33	27J
Pyrene	1/33	20J
Pesticides/PCBs:		
4,4'-DDD (p,p'-TDE)	6/33	0.42J - 9.9
4,4'-DDE	2/33	14 - 99
4,4'-DDT	13/33	0.71J - 4800J
Dieldrin	4/33	0.18 - 3.3J
Endosulfan	2/33	1.1J - 19
Endrin	5/33	0.35J - 2.4J
Endrin Aldehyde	1/33	0.44J
Heptachlor epoxide	7/33	0.28J - 0.66J
Methoxychlor	7/33	7.1B - 87J
PCBs (Polychlorinated biphenyls)	1/33	120

TABLE 1 - TCL AND TAL COMPOUNDS DETECTED IN POST-EXCAVATION SOIL SAMPLES

Chemical	Frequency of Detection	Range of Concentrations Detected (mg/kg)
Inorganic Compounds:		
Antimony	2/33	4.1J - 5.5J
Arsenic (Total)	28/33	0.43J - 1.8J
Barium	33/33	1.4J - 14.2J
Cadmium	1/33	0.83J
Chromium	30/33	1.6J - 13.3
Copper	30/33	1J - 7.5
Cyanide	4/33	0.13J - 0.17J
Lead (Total)	33/33	1.8JB - 110
Mercury (Total)	7/33	0.11 - 0.26
Nickel (Soluble salts)	7/33	2.1 - 4.9J
Selenium (Total)	3/33	0.5J - 0.64J
Silver	14/33	0.41 - 1.1J
Thallium	8/33	0.22J - 0.35J
Vanadium	31/33	3.7JB - 14.4
Zinc	33/33	3.8J - 44.9

Notes:

B - Compound present in method blank
J - Data qualified as a result of QA data validation

TABLE 2 - TCL AND TAL COMPOUNDS DETECTED IN GROUND WATER SAMPLES

Chemical	Frequency of Detection	Contract Required Quantitation Limits (ug/kg)	Concentrations Detected (ug/kg)	Background Levels * (ug/kg)
Volatile Organic Compounds:				
Acetone	2/19	10	7J - 17JB	ND
Carbon Disulfide	1/19	5	11J	ND
Methylene chloride	3/19	5	7JB - 1500JB	ND
1,1,1-Trichloroethane	1/19	5	3.1J	ND
Semi-Volatile Organic Compounds:				
Bis(2-ethylhexyl) phthalate	5/19	20	10JB - 1900JB	10JB - 1900JB
Di-n-octyl phthalate	1/19		150	ND
Di-n-butyl phthalate	3/19	20	2J - 3J	2J
Pesticides:				
Dieldrin	1/19	0.1	0.05J	0.05J
Inorganic Compounds:				
Aluminum	8/9	200	810 - 7,886E	810 - 1,799
Barium	1/9	200	114	114
Calcium	9/9	5000	1,846 - 50,213	3,969 - 4,598
Copper	8/9	25	8 - 26	9
Iron	9/9	100	1,571 - 23,265	4,317 - 8,785E
Lead	8/11	5	3.2 - 185J	ND - 5.7
Magnesium	9/9	5000	722 - 2,327	722 - 2,327
Manganese	5/9	15	19N - 105	39 - 52N
Sodium	9/9	5000	1,044 - 7,372	4,814 - 5,040
Zinc	8/9	20	ND - 289E	24 - 106

Notes:

E - Value estimateddue to the presence of interference
N - Spike sample recovery is not within control limits
B - Compound present in method blank
J - Data qualified as a result of QA data validation
* - From Monitor WellS No. MW-1D, MW-1S, MW-6S
ND - Not detectable

TABLE 3 - TCL AND TAL COMPOUNDS DETECTED IN SURFACE WATER AND SEDIMENT SAMPLES

STREAM SEDIMENT SAMPLE RESULTS

Chemical	Frequency of Detection	Concentrations Detected (ug/kg)	Background Levels * (ug/kg)
Volatile Organic Compounds:			
Acetone	2/5	32 - 154JB	ND
Carbon Disulfide	2/5	12JB - 28JB	ND
Benzene	1/5	1.1J	1.1J
Methylene Chloride	2/5	3BJ	ND
Semi-Volatile Organic Compounds:			
Di-n-butyl phthalate	2/5	170J - 470J	450J

Chemical	Frequency of Detection	Range of Concentrations Detected (mg/kg)	Background Levels * (mg/kg)
Inorganic Compounds:			
Aluminium	2/2	870 - 1,450	NA
Arsenic	1/2	0.66B - 2.6B	NA
Barium	2/2	3.4B - 76.9B	NA
Cadmium	1/2	2.8B	NA
Calcium	2/2	60.6B - 1170B	NA
Copper	3/5	1.4 - 5.2B	1.4
Chromium	2/2	2.6B - 3.6	NA
Cobalt	1/2	1.8B	NA
Cyanide	2/4	0.2 - 1.1J	ND
Iron	2/2	852 - 1,410	NA
Lead	5/5	2.8 - 14.4	4.8
Magnesium	2/2	18.3B - 136B	NA
Manganese	2/2	2.1B - 38.5	NA
Mercury	4/5	0.2 - 0.4	0.2
Nickel	1/2	6.3B	NA
Selenium	2/2	0.62B	NA
Sodium	2/2	39.7B - 61.7B	NA
Vanadium	2/2	1B - 1.6B	NA
Zinc	5/5	16.4 - 37.5	16.4

TABLE 3 - TCL AND TAL COMPOUNDS DETECTED IN SURFACE WATER AND SEDIMENT SAMPLES

SURFACE WATER SAMPLE RESULTS

Chemical	Frequency of Detection	Concentrations Detected (ug/kg)	Background Levels ** (ug/kg)
Organic Compounds:			
		None Detected	
Inorganic Compounds:			
Calcium	3/3	3,616 - 4,021	3,827
Copper	1/3	10	ND
Cyanide	1/4	12.6	ND
Iron	3/3	184 - 318	201
Magnesium	3/3	2,153 - 2,645	2,645
Vanadium	3/3	2,577 - 3,437	3,437
Zinc	3/3	78J - 98E	90E

Notes:

E - Value estimated due to the presence of interference
NA - Not avaialble
B - Compound present in method blank
J - Data qualified as a result of QA data validation
* - From Sample No. SD-3
** - From Sample No. SW-3
ND - Not detectable

TABLE 4 WILSON FARM SITE: CONTAMINANTS OF CONCERN (1)

	Surface Soils	Subsurface Soils	Ground Water	Surface Water	Sediments
Volatiles					
Acetone	X	X	X		X
Benzene		X			
2-Butanone	X				X
Chloromethane	X				
Methylene Chloride	X	X	X		X
Toluene	X				
1,1,1-Trichloroethane	X		X		
Vinyl Acetate		X			
BNAs					
Bis(2-chloroethoxy)methane	X				
Bis(2-ethylhexyl)phthalate	X	X	X		
Diethylphthalate	X				
Di-n-butylphthalate	X		X		X
Di-n-octylphthalate			X		
Pesticides/PCBs					
4,4'-DDD	X				
4,4'-DDE	X				
4,4'-DDT	X	X			
Dieldrin	X				
Endrin	X				
Heptachlor Epoxide	X				
Methoxychlor	X				
Inorganics					
Aluminum			X		X
Antimony	X	X			
Arsenic	X				X
Barium					X

TABLE 4 (CONTINUED) (1)

	Surface Soils	Subsurface Soils	Ground Water	Surface Water	Sediments
Cadmium	X	X			X
Chromium	X	X			X
Cobalt	X				X
Copper	X	X		X	X
Lead			X		X
Manganese					X
Mercury	X				X
Nickel	X	X			X
Selenium	X				X
Silver	X				
Thallium	X				
Vanadium		X			X
Zinc					X
Cyanide	X			X	X

(1) From "Final Risk Assessment Report", by TRC Environmental, dated 5/26/93

TABLE 5 WILSON FARM SITE: SUMMARY OF EXPOSURE PATHWAYS (1)

Pathway	Receptor	Time-Frame Evaluated		Degree of Assessment		Rationale for Selection or Exclusion	Data Grouping
		Present	Future	Quant.	Qual.		
Surface Soils							
Incidental Ingestion of Onsite Surface Soils	Onsite Resident	No	Yes	X		Future site development may occur.	All post-excavation surface soils (0- 6").
Dermal Contact with Onsite Surface Soils	Onsite Resident	No	Yes		X	Two of the three contaminants that are routinely evaluated for risk due to dermal uptake from soils (PCBs and dioxins, as per USEPA-Region II Risk Assessment policy) were not detected at the Wilson Farm site. Cadmium levels were at or near the detection limits.	
Inhalation of VOC Emissions and Particulates from Surface Soils	Onsite Resident	No	Yes		X	VOC concentrations in surface soils are typically less than 10 ug/kg (except for toluene with a maximum concentration of 96 ug/kg). This precludes significant future exposures.	
Subsurface Soils							
Incidental Ingestion of Onsite Surface and Subsurface Soils	Excavation Worker	No	Yes	X		Exposure to subsurface soils (0.5' to 15') may occur during excavations for future utility maintenance/residential development.	All subsurface soils from depths of 0.5' to 15'.
Dermal Contact with Onsite Surface and Subsurface Soils	Excavation Worker	No	Yes		X	Two of the three contaminants with sufficient toxicity data to complete a quantitative assessment were not detected at the Wilson Farm site. Mean cadmium concentrations were below the quantitation limit.	
Ground Water							
Ingestion of Ground Water	Onsite and/or Adjacent Resident	No	Yes	X		Adjacent areas are residential. Residents currently rely on private wells for drinking water. Although not currently affected, these wells may become contaminated in the future.	All ground water samples.

TABLE 5 WILSON FARM SITE: SUMMARY OF EXPOSURE PATHWAYS (1)

Pathway	Receptor	Time-Frame Evaluated		Degree of Assessment		Rationale for Selection or Exclusion	Data Grouping
		Present	Future	Quant.	Qual.		
Ground Water (continued)							
Inhalation of Volatilized Ground Water Contaminants During Showers	Onsite and/or Adjacent Resident	No	Yes		X	Concentrations of volatiles in ground water are low (e.g., less than 11 ug/L), so exposures are considered insignificant compared to other ground water exposures.	
Inhalation of Contaminants that Volatilize from Ground Water and Seep into Basements	Onsite and/or Adjacent Resident	No	Yes		X	Concentrations of volatiles in ground water are low (typically ≤ 17 µg/kg). Vicinity residences are unlikely to have subgrade living structures given the shallow water table, ranging from 2' to 9' below the surface. As a result, exposure to indoor air contaminants is expected to be less significant than other pathways.	
Dermal Contact with Ground Water	Onsite and/or Adjacent Resident	No	Yes		X	Considered insignificant given short duration of exposure and expected dilute concentrations in tap water.	
Surface Water							
Incidental Ingestion of Surface Water	Onsite and/or Adjacent Resident	No	No			Bordens Run Creek is too shallow (e.g., 6" deep) to support swimming activities, so incidental ingestion is unlikely. Anticipated activity (wading) involves negligible exposure via the oral route.	
Dermal Contact with Surface Water	Onsite and/or Adjacent Resident	Yes	Yes	X		Bordens Run Creek is a recreational attraction for youths and may be used for wading.	
Sediments							
Incidental Ingestion of Sediments from Bordens Run Creek and Adjacent Wetlands	Onsite and/or Adjacent Resident	Yes	Yes	X		Area is accessible to the public.	All sediment samples.

(1) From "Final Risk Assessment Report", by TRC Environmental, dated 5/26/93

TABLE 6 TOXICITY VALUES FOR CONTAMINANTS OF CONCERN AT THE WILSON FARM SITE (1)

Chemical	CARCINOGENIC			CHRONIC	SUBCHRONIC
	Weight of Evidence Classification		Oral Slope Factor (mg/kg/day)-1	Chronic Oral RfD (mg/kg/day)	Subchronic Oral RfD (mg/kg/day)
Volatiles					
Acetone	D	a		1.00E-01 a	1.00E+00 b
Benzene	A	a	2.90E-02 a		
2-Butanone (MEK)	D	a		5.00E-02 b	5.00E-01 b
Chloromethane	C	b	1.30E-02 b	4.00E-03 d	
Methylene chloride	B2	a	7.50E-03 a	6.00E-02 a	6.00E-02 b
Toluene	D	a		2.00E-01 a	2.00E+00 b
1,1,1-Trichloroethane	D	a		9.00E-02 b	9.00E-01 b
Vinyl Acetate	--			1.00E+00 b	2.00E-01 b
BNAs					
Bis(2-ethylhexyl)phthalate	B2	a	1.40E-02 a	2.00E-02 a	2.00E-02 b
Bis(2-Chloroethoxy)methane	--				
Diethylphthalate	D	a		8.00E-01 a	8.00E+00 b
Di-n-butyl phthalate	D	a		1.00E-01 a	
Di-n-octyl phthalate	--			2.00E-02 b	2.00E-02 b
Pesticides/PCBs					
4,4' DDD	B2	a,or	2.40E-01 a	3.00E-03 d	
4,4' DDE	B2	a	3.40E-01 a		
4,4' DDT	B2	a	3.40E-01 a	5.00E-04 a	5.00E-04 b
Dieldrin	B2	a	1.60E+01 a	5.00E-05 a	5.00E-05 b
Endrin	D	a		3.00E-04 a	3.00E-04 b
Heptachlor epoxide	B2	a	9.10E+00 a	1.30E-05 a	1.30E-05 b
Methoxyclor	D	a		5.00E-03 a	5.00E-03 b
Inorganics					
Aluminum	D	d		1.00E+00 d	1.00E+00 i
Antimony	--	a		4.00E-04 a	4.00E-04 b
Arsenic	A	a	1.75E+00 e	3.00E-04 a	3.00E-04 b
Barium	--	a		7.00E-02 a	7.00E-02 b
Cadmium	B1	a,in		5.00E-04 a,f	5.00E-04 i
Chromium, total	--			8.76E-01 h	8.77E-01 h
Chromium, VI	A	a,in		5.00E-03 a	2.00E-02 b
Cobalt	--				
Copper	D	a		5.50E-02 d	5.50E-02 i
Cyanide	D	a		2.00E-02 a	2.00E-02 b
Lead	B2	a			
Manganese	D	a		5.00E-03 a,j	1.00E-01 b
Mercury	D	a		3.00E-04 b	3.00E-04 b

TABLE 6 TOXICITY VALUES FOR CONTAMINANTS OF CONCERN AT THE WILSON FARM SITE (1)

Chemical	CARCINOGENIC		CHRONIC	SUBCHRONIC
	Weight of Evidence Classification	Oral Slope Factor (mg/kg/day)-1	Chronic Oral RfD (mg/kg/day)	Subchronic Oral RfD (mg/kg/day)
Nickel	A a,in		2.00E-02 a,g	2.00E-02 b
Selenium	D a		5.00E-03 a	5.00E-03 b
Silver	D a		5.00E-03 a	5.00E-03 b
Thallium	--		7.00E-05 b	7.00E-04 b
Vanadium	D c		7.00E-03 b	7.00E-03 b
Zinc	D a		2.00E-01 b	2.00E-01 b

a. From IRIS.
b. From HEAST.
c. From MCL/Health Advisories December 1992 Update.
d. Interim value from ECAO.
e. Arsenic oral slope factor derived from unit risk in IRIS.
f. Cadmium RfD is for water; 1.0E-03 mg/kg/day is RfD for food.
g. Value is for nickel, soluble salts.
h. Value is weighted-average value of the Hex and Tri RfDs assuming 7 parts Tri to 1 part Hex.
i. Chronic RfD used as Subchronic RfD if no Subchronic value is available (per RAGs).
j. Manganese RfD is for water; RfD for food is 1.4e-1
in: EPA Weight of Evidence Classification listed in HEAST under inhalation route only.
or: EPA Weight of Evidence Classification listed in HEAST under oral route only.

(1) From "Final Risk Assessment Report", by TRC Environmental, dated 5/26/93

TABLE 7 . SUMMARY OF NONCARCINOGENIC HAZARD INDICES (HI) ESTIMATED FOR THE WILSON FARM SITE (1)

Scenario	Receptor	Present/Future	Chronic HI
Surface Soil			
Ingestion	Onsite Resident	F	2×10^{-1}
Subsurface Soil			
Ingestion	Excavation Worker	F	1×10^{-1}(a)
Ground Water			
Ingestion	Onsite and/or Adjacent Resident	F	$1 \times 10^{+0}$
Surface Water			
Dermal Contact	Onsite and/or Adjacent Resident	P/F	4×10^{-4}
Sediment			
Ingestion	Onsite and/or Adjacent Resident	P/F	3×10^{-1}

(a) - HI is based on Subchronic Protective Body Dose.

(1) From "Final Risk Assessment Report", by TRC Environmental, dated 5/26/93

TABLE 8 SUMMARY OF CARCINOGENIC RISK ESTIMATED FOR THE WILSON FARM SITE (1)

Scenario	Receptor	Present/Future	Total Risk
Surface Soil			
Ingestion	Onsite Resident	F	5×10^{-6}*
Subsurface Soil			
Ingestion	Excavation Worker	F	1×10^{-10}
Ground Water			
Ingestion	Onsite and/or Adjacent Resident	F	1×10^{-4}*
Surface Water			
Dermal Contact	Onsite and/or Adjacent Resident	P/F	NA**
Sediment			
Ingestion	Onsite and/or Adjacent Resident	P/F	3×10^{-6}*

*Exceeds 10^{-6} risk
**Absence of toxicity values precludes quantification of carcinogenic risk

(1) From "Final Risk Assessment Report", by TRC Environmental, dated 5/26/93

ATTACHMENT III
ADMINISTRATIVE RECORD INDEX

WILSON FARM
ADMINISTRATIVE RECORD FILE
INDEX OF DOCUMENTS

1.0 SITE IDENTIFICATION

1.4 Site Investigation Reports

Report: Summary of Detected Analytes: November 1992 to January 1993 Site Investigation (Non-aqueous Samples), prepared by Conestoga-Rovers & Associates, Inc., February 16, 1993.

Report: Documentation for Hazardous Ranking System, December 17, 1982.

Report: Hazardous Waste Site Analysis, Wilson Farm, Plumsted Township, New Jersey, prepared by Ms. Linda Abbot, Imagery Analysis Section, Environmental Photographic Interpretation Center, July 1981.

2.0 REMOVAL RESPONSE

2.1 Sampling and Analysis Plans

Report: Interim Removal Action Plan for Properties in Plumsted and Jackson Townships, New Jersey, Prepared by Morton International Inc., October 1991.

Report: Postexcavation Sampling Plan for Properties in Plumsted and Jackson Townships, New Jersey, Interim Removal Action Plan Addendum, prepared by IT Corporation, October 2, 1991, Revised December 9, 1991.

2.7 Correspondence

Letter to Mr. Williams Weddendorf, Manager, Corporate Hazardous Materials, Morton International, Inc., from Mr. Michael Burlingame, Site Manager, Bureau of Site Management, State of New Jersey, Department of Environmental Protection and Energy, re: Hopkins, Wilson and Gravel Pit Sites, December 1991 Interim Removal Action Plan, January 3, 1992.

Letter to Mr. Michael Burlingame, Site Manager, New Jersey Department of Environmental Protection and Energy, from Mr. William K. Weddendorf, Manager, Corporate Hazardous Materials, Morton International, Inc., re: Administrative Consent Order, Wilson Farm, Hopkins Farm, and Gravel Pit Sites, December 10, 1991. Table of Contents for Interim Removal Action Plan for Properties in Plumsted and Jackson Townships attached.

3.0 REMEDIAL INVESTIGATION

3.1 Sampling and Analysis Plans

Report: Quality Assurance Review, Wilson Farm, Case 3540-0003 SDG HFFB01510, prepared by Weston Analytical Laboratory, A Division of Roy F. Weston, Inc., August 17, 1990.

Report: Quality Assurance Review, Gravel Pit and Wilson Farm, Case 3540-0003 SDG GPFB01GW, prepared by Weston Analytical Laboratory, A Division of Roy F. Weston, Inc., August 17, 1990.

Report: PD-3, Health and Safety Plan, Phase II Revisions, Remedial Investigation/Feasibility Study, Wilson Farm, Hopkins Farm, Gravel Pit, Plumsted and Jackson Townships, Ocean County, New Jersey, submitted by Acres International Corporation, April 1990.

Report: PD-3, Health and Safety Plan, Remedial Investigation/ Feasibilty Study, Wilson Farm, Hopkins Farm, Gravel Pit, Plumsted and Jackson Townships, Ocean County, New Jersey, submitted by Acres International Corporation, March 1987.

3.2 Sampling and Analysis Data

Location Map for Post-X Samples, Survey Conditions After Clean-Up, prepared by Shepherd, Weinert & Smildzens, November 21, 1991.

3.3 Work Plans

Report: PD-4, QA Project Management Plan, Phase II Revisions, Remedial Investigation/Feasibility Study, Wilson Farm, Hopkins Farm, Gravel Pit, Plumsted and Jackson Townships, Ocean County, New Jersey, submitted by Acres Internationl Corporation, April 1990.

Report: PD-5, Field Sampling/Work Plan, Phase II Revisions, Remedial Investigation/Feasibility Study, Wilson Farm, Hopkins Farm, Gravel Pit, Plumsted and Jackson Townships, Ocean County, New Jersey, submitted by Acres International Corporation, April 1990.

Report: PD-5, Field Sampling/Work Plan, Remedial Investigation/ Feasibility Study, Wilson Farm, Hopkins Farm, Gravel Pit, Plumsted and Jackson Townships, Ocean County, New Jersey, submitted by Acres International Corporation, September 1987.

Report: PD-4, QA Project Management Plan, Volume I of III, Remedial Investigation/ Feasibiltity Study, Wilson Farm, Hopkins Farm, Gravel Pit, Plumsted and Jackson Townships, Ocean County, New Jersey, submitted by Acres International Corporation, July 1987.

Report: PD-4, QA Project Management Plan, Appendix A, Sections 1, 2, 3, Volume II of III, Remedial Investigation/ Feasibility Study, Wilson Farm, Hopkins Farm, Gravel Pit, Plumsted and Jackson Townships, Ocean County, New Jersey, submitted by Acres International Corporation, July 1987.

Report: PD-4, QA Projects Management Plan, Appendix A, Sections 4, 5, Volume III of III, Remedial Investigation/ Feasibility Study, Wilson Farm, Hopkins Farm, Gravel Pit, Plumsted and Jackson Townships, Ocean County, New Jersey, submitted by Acres International Corporation, July 1987.

3.4 Remedial Investigation Reports

Report: PD-13A, Final Remedial Investigation Report, Wilson Farm, Volume I of II and II of II, prepared by Acres International Corporation, November 1991.

Report: PD-2, Background Investigation Report, Remedial Investigation/Feasibility Study, Wilson Farm, Hopkins Farm, Gravel Pit, Plumsted and Jackson Townships, Ocean County, New Jersey, submitted by Acres International Corporation, June 1987.

3.5 Correspondence

Letter to Mr. Michael Burlingame, Site Manager, Bureau of Site Management, State of New Jersey, Department of Environmental Protection and Energy, Division of Hazardous Site Mitigation, from Mr. Samuel Jung of Conestoga-Rovers & Associates, re: Preliminary Summary Table, Morton International Inc., Wilson Farm Site, January 13, 1993. Wilson Farm Site: Summary of Detected Analytes attached.

Letter to Mr. Michael Burlingame, Site Manager, Bureau of Site Management, State of New Jersey, Department of Environmental Protection and Energy, Division of Hazardous Site Mitigation, from Mr. Nicholas P. Klumpp, Senior Environmental Engineer, Morton International, re: Wilson Farm Site, Plumsted Township, Ocean County, New Jersey, Wetlands Sediment Sampling Report, October 28, 1992. Sediment Sampling at the Wilson Farm Site attached.

Memorandum to Mr. George Jaegers, Technical Coordinator, Bureau of Environmental Evaluation and Risk Assessment, from Ms. Linda Appel, Quality Assurance Section, Bureau of Environmental Measurements and Quality Assurance, State of New Jersey, Department of Environmental Protection and Energy, re: Analytical Data Validation of the June 29 and July 2, 1992 Sampling events conducted at Wilson Farm, Plumsted Township, New Jersey, October 22, 1992. Data Validation Report attached.

Memorandum to Mr. George Jaegers, Technical Coordinator, Bureau of Environmental Evaluation and Risk Assessment, State of New Jersey, Department of Environmental Protection and Energy, from Mr. Karanvir S. Kaushal, Research Scientist, Quality Assurance Section, Bureau of Environmental Measurements and Quality Assurance, State of New Jersey, Department of Environmental Protection and Energy, re: Data Validation Review of the Analytical Package for Morton Thiokol/Lesser Sites, September 21, 1992.

Memorandum to Mr. George Jaegers, Technical Coordinator, Bureau of Environmental Evaluation and Risk Assessment, State of New Jersey, Department of Environmental Protection and Energy, from Mr. John Sacco, Ecologist, State of New Jersey, Department of Environmental Protection and Energy, re: Review of Sediment Data from Hopkins and Wilson Farms Superfund Sites, Plumsted Township, June 4, 1992.

Letter to Mr. William Weddendorf, Manager, Corporate Hazardous Materials, Morton International, Inc., from Mr. Michael Burlingame, Site Manager, Bureau of Site Management, State of New Jersey, Department of Environmental Protection and Energy, Division of Hazardous Site Mitigation, re: Hopkins, Wilson and Gravel Pit sites, Soil Clean-up Numbers, September 5, 1991. Letter and Preliminary Remediation Goals attached.

Memorandum to Mr. George Jaegers, Technical Coordinator, Bureau of Environmental Evaluation and Risk Assessment, State of New Jersey, Department of Environmental Protection and Energy, from Mr. James R. Plummer, Hazardous Site Mitigation Specialist II, Quality Assurance Section, Bureau of Environmental Measurements & Quality Assurance, State of New Jersey, Department of Environmental Protection and Energy, re: Data Review of Wilson Farm Tier I Deliverables. Analytical Package submitted by H2M Laboratory. Aqueous Samples Analyzed for Volatile and Semivolatile organics by U.S. EPA CLP-SOW 2/88 Methods, April 2, 1991. Target and Non Target Compound Summary List attached.

Memorandum to Mr. Michael Burlingame, Site Manager, Bureau of Site Management, State of New Jersey, Department of Environmental Protection and Energy, Division of Hazardous Site Mitigation, from Mr. James R. Plummer, Hazardous Site Mitigation Specialist II, Quality Assurance Section, Bureau of Environmental Measurements & Quality Assurance, re: Review of Wilson Farm Monitoring Well #5S for Total and Dissolved Lead. Analytical Package submitted by Envirodyne Laboratory. Sample Collected on May 15, 1990. Analysis for Lead by Contract X-408, Task IV, CLP Deliverables, Feruary 28, 1991.

4.0 FEASIBILITY STUDY

4.1 Applicable or Relevant and Appropriate Requirements (ARAR'S) Determination

Report: Applicable or Relevant and Appropriate Requirements (ARAR's) for Wilson Farm, Hopkins Farm, Gravel Pit, prepared by Acres International Corporation, February 1989.

4.3 Feasibility Study Reports

Report: PD-14A, Final Feasibility Study Report, Wilson Farm, Remedial Investigation/Feasibility Study, Plumsted Township, New Jersey, prepared by Acres International Corporation, January 1992.

7.0 ENFORCEMENT

7.6 Documentation of Technical Discussions with PRP's

Letter to Mr. Robert C. Hyndman, President, Morton Thiokol, Inc., and Morton Thiokol, Inc., c/o Corporation Trust Co., from Mr. Gerard Burke, State of New Jersey, Department of Environmental Protection, Office of Regulatory Services, re: Three Directives and Notices of Violation regarding the Hopkins Farm and Wilson Farm Waste Disposal Sites, Plumsted Township, New Jersey; and Gravel Pit Waste Disposal Site, Jackson Township, New Jersey, July 17, 1993. Three Directives and Notices of Violation attached.

Letter to Mr. Nicholas Klumpp, Project Manager, Morton International, Inc., from Mr. Robert Soboleski, Chief for Bureau of Site Management, State of New Jersey, Department of Environmental Protection and Energy, Division of Publicly Funded Site Remediation, re: Wilson Farm Site, Removal of Contaminated Soils, April 1993. Pinelands Commission approval letter and Wilson Farm Post-Ex Samples Draft Comparison to Residential Surface Soil Criteria attached.

Letter to Mr. Charles S. Locke, Chief Executive Officer, Chairman of the Board, Morton International, Inc., and Mr. Edward Garrison, Chief Executive Officer, President, Thiokol Corporation, from Mr. Dennis Hart, Assistant Director, Responsible Party Cleanup Element, State of New Jersey, Department of Environmental Protection, Division of Hazardous Waste Management, re: Enclosed Directive II regarding Hopkins Farm and Wilson Farm Waste Disposal Sites, Plumsted Township, New Jersey; and Gravel Pit Waste Disposal Site, Jackson Township, New Jersey, January 9, 1990. Directive II attached.

7.8 Correspondence

Letter to Mr. Michael Burlingame, Site Manager, Bureau of Site Management, State of New Jersey, Department of Environmental Protection and Energy, Division of Hazardous Site Mitigation, from Mr. William Weddendorf, Manager, Corporate Hazardous Materials, Morton International, Inc., re: Administrative Consent Order, Wilson Farm, Hopkins Farm and Gravel Pit sites, December 18, 1991. Proposed "Optimal Conditions" Schedule for Interim Removal Action attached.

Letter to Mr. Jeffrey C. Wyant, Environmental Counsel, Morton International, Inc., from Mr. Roman S. Luzecky, Section Chief, Bureau of Federal Case Management, State of New Jersey, Department of Environmental Protection and Energy, re: Administrative Consent Order for Gravel Pit, Hopkins Farm and Wilson Farm, August 26, 1991.

Letter to Gerard Burke, Esquire, Director, Office of Regulatory Services, New Jersey Department of Environmental Protection, from W. Cary Edwards, Attorney General of New Jersey, State of New Jersey, Department of Law and Public Safety, re: Wilson Farm, Hopkins Farm and Gravel Pit - Administrative Consent Order signed by Morton Thiokol, December 1, 1987. Letter and Administrative Consent Order attached.

8.0 HEALTH ASSESSMENTS

8.1 ATSDR Health Assessments

Report: Final Risk Assessment, Wilson Farm Site, Plumsted Township, New Jersey, prepared by TRC Environmental Corporation, May 26, 1993.

Report: Health Assessment for Wilson Farm prepared by Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, June 20, 1990.

10.0 PUBLIC PARTICIPATION

10.2 Community Relations Plan

Plan: Community Relations Plan, Hazardous Waste Site Remedial Action, prepared by New Jersey Department of Environmental Protection, Division of Hazardous Site Mitigation, October 1986.

10.9 Proposed Plan

Superfund Proposed Plan: Wilson Farm Site, May 1993.

ATTACHMENT IV
USEPA LETTER OF CONCURRENCE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II
JACOB K. JAVITS FEDERAL BUILDING
NEW YORK, NEW YORK 10278-0012

23 JUL 1993

Jeanne Fox, Acting Commissioner
State of New Jersey
Department of Environmental Protection and Energy
CN 402
401 East State Street
Trenton, New Jersey 08625-0402

Re: Record of Decision
Wilson Farm Site
Plumsted Township, Ocean County, New Jersey

Dear Commissioner Fox:

The United States Environmental Protection Agency, Region II (EPA) has reviewed the draft Record of Decision (ROD) dated June 1993, for the Wilson Farm Site (Site) located in Plumsted Township, Ocean County, New Jersey.

EPA concurs with the "No Action" alternative, and has determined that, based on the administrative record for the Site, the draft ROD is consistent with Section 121 of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, (CERCLA), 42 U.S.C. Section 9601 et seq. This finding shall not affect EPA's right to conduct five-year reviews of the Site, or to take or require appropriate action pursuant to such review, in accordance with Section 121(c) of CERCLA and EPA further reserves the right to take response and enforcement actions pursuant to Sections 104, 106 and 107 of CERCLA.

Sincerely,

Kathleen C. Callahan

for William J. Muszynski, P.E.
Acting Regional Administrator

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ATTACHMENT V
RESPONSIVNESS SUMMARY

RESPONSIVENESS SUMMARY

DECISION DOCUMENT

WILSON FARM SUPERFUND SITE

OVERVIEW

This is a summary of the public's comments and concerns regarding the Proposed Plan and related documents for the Wilson Farm Superfund site and the New Jersey Department of Environmental Protection and Energy's (NJDEPE) responses to those comments.

In accordance with the public participation requirements of the Comprehensive Environmental Response, Compensation and Liability Act as amended (CERCLA) the NJDEPE held a public comment period from April 30, 1993 to June 3, 1993 to provide interested parties the opportunity to comment on the Proposed Plan and documents contained in the Administrative Record for the Wilson Farm Superfund site. During the comment period, the NJDEPE held a public meeting on May 11, 1993 at 7:00 pm at the Plumsted Township Municipal Building to discuss the results of the Remedial Investigation/Feasibility Study (RI/FS) and to present the preferred no action remedy. Public comments received during the public meeting are documented in this Responsiveness Summary. No written comments were received during the comment period.

Comments received during the public comment period focused on: (1) technical aspects of the ground water sampling conducted during the RI/FS; (2) the Well Restriction Area; (3) the presence of endangered species at the site; (4) the actions of the Responsible Party that resulted in the contamination of the site; and (5) the schedule for delisting the site from the National Priorities List.

This Responsiveness Summary is divided into the following sections:

I Background on Community Involvement and Concerns

II Summary of Comments Received During the Public Comment Period and Agency Responses

III Community Relations Activities at the Wilson Farm Superfund Site

I. BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS

Officials from Plumsted Township were present during the initial inspection of the site by NJDEPE and the Ocean County Health Department in February 1980. Over the course of the site investigation and subsequent removal action, numerous discussions and exchanges of correspondence have taken place between NJDEPE and

Plumsted Township officials, the Plumsted Township Environmental Commission, the Ocean County Health Department, building developers, property owners and potential home buyers. Since people in that 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 NJDEPE on properties around the site.

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

Comments raised during the Wilson Farm Superfund Site public meeting held on May 11, 1993 and the NJDEPE's responses are summarized below.

GROUND WATER ISSUES

(1) COMMENT: According to the Proposed Plan volatile organic contaminants were not found consistently in the same wells between sampling events and the primary contaminants were metals, such as lead. Were the samples that you took filtered or unfiltered? Did you establish background levels of metals from both filtered and unfiltered ground water samples?

RESPONSE: The initial ground water samples were unfiltered. Unfiltered ground water samples give a much more conservative value for metals because you do not lose anything by filtering them out. In the second phase of the remedial investigation work the ground water was reanalyzed for lead using both filtered and unfiltered samples. The levels of lead in one monitoring well in particular were still elevated both for the filtered sample and the unfiltered sample, exhibiting over 100 parts per billion (ppb) of lead in each case.

At the Wilson Farm site the background levels of lead in the ground water were less than 10 ppb. However, there is a well used to obtain samples indicative of background conditions at the nearby Gravel Pit site in which the ground water has shown background levels of lead greater than 100 ppb. It is not uncommon for certain areas in South Jersey to have very high levels of naturally occurring lead in the ground water.

(2) COMMENT: (Continuation of the above comment) Is it possible then that the five year monitoring program at the site will result in millions of dollars spent just

to monitor naturally occurring substances?

RESPONSE: The estimated present worth cost for the five year monitoring program is $436,800. It might indeed be that the monitoring program will show only naturally occurring substances, however we are also looking to see if any other contaminants appear that may be trapped in the soil and were missed during the removal action at the site. Even if we did not detect any contamination in the ground water, we would probably conduct some sampling to ensure that the situation does not change in the future.

If during the monitoring period we see a constant level of lead in the ground water and no other contaminants are found, we may determine that the lead is naturally occurring and reduce the frequency of ground water monitoring to annually instead of quarterly. We can adjust our monitoring program based on the results in order to reduce costs.

(3) COMMENT: What would happen if, several years after the five year monitoring program was completed, people began to find high levels of lead or arsenic in their wells?

RESPONSE: If anyone anywhere in the State discovers hazardous, chemical contamination in their well, the NJDEPE has a mechanism to address the problem. Usually in rural areas we install a point of entry treatment system that the State pays for as long as it is not shown that the affected resident caused the contamination of their own well. If several residences in the neighborhood were found to have contaminated wells, the NJDEPE would begin investigating the source by starting at the affected residences and investigating outward, because the contamination could be coming from anywhere within a 360 degree radius of the affected residences. If as a result of the investigation, the Wilson Farm was determined to be the source of the contamination, then the remediation program for the site could be reactivated. NJDEPE would go back to Morton International Inc., the Potential Responsible Party for this site, and require them to address the problem. If they failed to respond, then remediation efforts would be publicly funded.

(4) COMMENT: What does the term "field sampling originated artifact, not site related" mean?

RESPONSE: The analytical methods that we use allow us to detect compounds down to the parts per billion level, which is equivalent to nine decimal points past zero, or one ten millionth of a percent. We use very sensitive equipment which can pick-up compounds that are not related to the site. For example, we clean our equipment with acetone to make sure its free of organics. Unfortunately, when equipment is cleaned in this way, residual acetone is left on the equipment. Therefore, this compound can show up in the analysis as a "field originated artifact" or "field induced artifact". Commercial acetone also contains methyl-ethyl-ketone, which also appears as a field induced artifact. The bis(2-ethylhexyl)phthalate, which often shows up in our analysis, is a plasticizer that is present in the gloves that are worn when that samples are collected. It is also in the tubing used in the laboratory and often leaches into the samples.

To help to determine if contaminants are being introduced into the samples which are not related to the site, we take samples in the field that are known as field and trip blanks. Laboratory personnel also take similar quality assurance samples that are called method blanks. By analyzing these "blank" samples along with the samples collected at the site it is possible to identify compounds that are introduced artificially.

WELL RESTRICTION

(5) COMMENT: Are there any restrictions on the construction of the wells in the Well Restriction Area other than the fact that they should be at least 150 feet deep?

RESPONSE: Yes. The well should be double-cased into the confining layer separating the shallow and deep aquifers. This will seal the well drill hole from any potential downward migration of contamination from the shallow to the deep aquifer.

ENDANGERED SPECIES

(6) COMMENT: Has the Wilson Farm site had any effect on the endangered species in the area, such as the pine snake or the bog turtle?

RESPONSE: No. Two separate surveys of the site were

performed to look for endangered species. Neither found any unique endangered species habitats or threatened or endangered species at the site.

RESPONSIBLE PARTY

(7) COMMENT: Why did Morton (Thiokol) dump there in the first place and who gave them permission to do so?

RESPONSE: Our understanding of the situation is that it was the decision of the Thiokol Corporation's plant manager in Trenton to dispose of the waste in this way. Some of the people that did the dumping, or owned property on which the material was found, were farmers who worked at the Thiokol plant. At the time that the dumping occurred, these materials were not regulated by State or Federal laws and so it was not a matter of obtaining permission.

DELISTING PROCEDURE

(8) COMMENT: When will the Wilson Farm site come off the Superfund List?

RESPONSE: If the decision to take no further remedial action is formalized in the Record of Decision then steps will be taken to remove the site from the National Priorities List (NPL). After that process is complete, the site would be placed in a category known as "construction complete", and would no longer be listed on the NPL. However, even after delisting, the site can be reactivated at any time should a problem develop.

III. COMMUNITY RELATIONS ACTIVITIES AT THE WILSON FARM SUPERFUND SITE

* NJDEPE prepared a Community Relations Plan in October 1986.

* NJDEPE established information repositories at the following locations:

New Egypt Library
10 Evergreen Road
New Egypt, NJ 08533

New Jersey Department of Environmental Protection and Energy
401 East State Street
Trenton, NJ 08625

The repository at NJDEPE contains a comprehensive collection

of records relating to the site which comprise the Administrative Record. The index to the Administrative Record is Attachment III of the Record of Decision.

* NJDEPE held a public meeting regarding the Wilson Farm Superfund site at the Plumsted Township Municipal Building to discuss the initiation of the RI/FS and to respond to citizens' questions on March 31, 1987.

* NJDEPE participated in a Township meeting in New Egypt on May 14, 1990 to update concerned persons on the status of the site, and held a meeting for this same purpose in New Egypt on August 27, 1990.

* NJDEPE held a public meeting at Plumsted Township Municipal Building to discuss the completion of the RI/FS and present the Proposed Plan for the no action remedy on May 11, 1993. Approximately 20 people attended. A transcript of the meeting can be found in the records repositories at the NJDEPE in Trenton and the New Egypt Library.

* NJDEPE held a public comment period from April 30, 1993 to June 3, 1993.