RECORD OF DECISION

Operable Unit Three

Rockaway Borough Wellfield Superfund Site

Rockaway, Morris County, New Jersey

United States Environmental Protection Agency

Region II

September 2007

DECLARATION STATEMENT

RECORD OF DECISION

SITE NAME AND LOCATION

Rockaway Borough Wellfield Superfund Site (EPA ID# NJD980654115), Rockaway Borough, Morris County, New Jersey, Operable Unit 3

STATEMENT OF BASIS AND PURPOSE

This decision document presents the Selected Remedy to address the groundwater contamination source for the Klockner & Klockner Source Area (K&K Source Area), which is designated Operable Unit 3 (OU3) of the Rockaway Borough Wellfield Site. The Selected Remedy was chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended (CERCLA), and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the Administrative Record file for the Site.

The State of New Jersey concurs with the Selected Remedy.

ASSESSMENT OF THE SITE

The remedial action selected in this Record of Decision (ROD) is necessary to protect public health, welfare, or the environment from actual or threatened releases of hazardous substances from the Site into the environment.

DESCRIPTION OF THE SELECTED REMEDY

The Selected Remedy described in this document involves the active remediation of the contaminated soil at the K&K Source Area, which is contributing to the groundwater contamination at the Site. A previous ROD, signed on September 30, 1991, selected a remedy for contaminated groundwater associated with this source area, as Operable Unit 2 (OU2). This decision document addresses the source of the K&K groundwater contamination (OU3). This decision document will also serve as a notice that the operable unit designation for the Wall Street/East Main Street (WS/EM) source area, which was the subject of a ROD signed on September 29, 2006, will be changed from OU3 to Operable Unit 4 (OU4). The change is to clarify how funding for the remedy will be accounted for by EPA.

The K&K contaminated groundwater is being remediated by a Potentially Responsible Party, also as part of OU2.

The major components of the Selected Remedy include:

- Soil Vapor Extraction (SVE) of soil contaminated with volatile organic compounds (VOCs) at the Building 12 property;
- Excavation and off-site treatment and/or disposal of an estimated 150 cubic yards (yd^3) of VOC-contaminated soil at the Building 13 property; and
- Excavation and off-site treatment and/or disposal of an estimated 27 yd^3 of soil contaminated with lead located near Building 12.

DECLARATION OF STATUTORY DETERMINATIONS

Part 1: Statutory Requirements

The selected remedial action is protective of human health and the environment, complies with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. The Selected Remedy utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable.

Part 2: Statutory Preference for Treatment

SVE and excavation with off-site treatment and/or disposal for the VOCs, and excavation with off-site treatment and/or disposal for lead satisfies the statutory preference for treatment as a principal element of the remedy (i.e., reduces the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants as a principal element through treatment).

Part 3: Five-Year Review Requirements

Because this remedial action will not result in hazardous substances, pollutants, or contaminants remaining on the Site above levels that allow for unrestricted and unlimited exposure, the five-year review will not apply to this action related to the K&K Source Area.

ROD DATA CERTIFICATION CHECKLIST

The following information is included in the Decision Summary section of this ROD. Additional information can be found in the Administrative Record for this site.

- Chemicals of concern and their respective concentrations may be found in the "Site Characteristics" section.

- Current and reasonably anticipated future land and groundwater use assumptions are discussed in the "Current and Potential Future Site and Resources Uses" section.

- Baseline risk represented by the chemicals of concern may be found in the "Summary of Site Risks" section.

- A discussion of the goals of the cleanup and of cleanup levels for chemicals of concern may be found in the "Remedial Action Objectives" section.

- A description of the cleanup alternatives evaluated and estimated capital, annual operation and maintenance (O&M), and total present worth costs are discussed in the "Description of Alternatives" section.

- Key factors that led to selecting the remedy (i.e., how the Selected Remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, highlighting criteria key to the decisions) may be found in the "Comparative Analysis of Alternatives" and "Statutory Determinations" sections.

- A discussion of source area materials constituting principal threats may be found in the "Principal Threat Waste" section.

George Pavlou, Director
Emergency and Remedial Response Division

9/27/07
Date

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Decision Summary

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SITE NAME, LOCATION, AND DESCRIPTION

The Rockaway Borough Wellfield Site is located in Rockaway Borough in Morris County, New Jersey (Figure 1). Rockaway Borough is situated in the center of Morris County, approximately 10 miles north of Morristown and 20 miles northwest of Newark in the north-central portion of the state.

The Klockner & Klockner (K&K) Source Area (Figure 2) is a portion of the larger Rockaway Borough Wellfield Superfund Site. The Rockaway Borough Wellfield Superfund Site includes three municipal water supply wells (Nos. 1, 5, and 6), which are located off Union Street in the eastern section of the Borough. The groundwater at the municipal water supply wells is contaminated primarily with tetrachloroethene (PCE) and trichloroethene (TCE). Based on prior investigations, the suspected sources of the TCE and PCE contamination included industrial and commercial operations within the Borough, including the K&K facility.

The K&K Source Area is primarily a light industrial area in northwest Rockaway Borough. The K&K Source Area consists of two separate properties. The first property is located north of Stickle Avenue and is referred to as the "Building 12 property." The second portion of the K&K Source Area referred to as the "Building 13 property" is located south of Stickle Avenue. The remedial investigation and feasibility study (RI/FS) study area for OU3 encompassed businesses located on these two properties.

The developed portions of the K&K Source Area are mostly covered by impervious surfaces including roadways, driveways, parking areas, concrete buildings, and sidewalks. A limited number of small areas of exposed soil are present in the K&K Source Area.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

Investigations, conducted by the New Jersey Department of Environmental Protection (NJDEP) at the Rockaway Borough Wellfield site since 1980, indicated the presence of volatile organic compounds (VOCs), primarily TCE and PCE in the groundwater. Several inorganic compounds including chromium, lead, and nickel were also identified. This contamination, which has affected the wellfield, emanates from multiple source areas within Rockaway Borough.

The presence of VOC contamination caused the Borough of Rockaway to construct a three-bed granular activated carbon adsorption treatment system to treat the municipal water supply. The system began operating in July 1981, treating approximately 900,000 gallons per day of raw water pumped from the Borough's wells. Overall, the system has reduced the VOC contaminant concentrations in the municipal water supply to levels meeting state and federal drinking water standards.

In December 1982, the site was placed on the United States Environmental Protection Agency's (EPA's) National Priorities List of Superfund Sites. Under a cooperative agreement with EPA, NJDEP initiated an RI/FS to determine the nature and extent of contamination. The RI/FS utilized a soil gas survey that identified three potential source areas within the Borough, although the horizontal and vertical extent of groundwater and soil contamination was not defined. As part of the study, remedial alternatives were developed and evaluated to address the known contamination.

On September 29, 1986, at the conclusion of the NJDEP RI/FS, EPA signed a ROD for the first operable unit. The ROD called for the continued use of the existing carbon treatment system operated by Rockaway Borough, and directed the commencement of a supplemental RI/FS in order to identify the contaminant source(s), further delineate the full extent of the contamination, and evaluate additional remedial action alternatives to address those sources.

Based on these findings, EPA initiated a Phase II RI/FS to identify the contaminant sources, further delineate the full extent of contamination and evaluate remedial action alternatives to address the sources of contamination.

Some of the major findings and conclusions of the Phase II RI/FS were as follows:

- PCE-contaminated groundwater emanating from the Wall Street/East Main Street (WS/EM) Source Area was impacting municipal wells No. 1 and 5;
- TCE-contaminated groundwater emanating from the K&K property was impacting municipal well No. 6; and
- VOC-contaminated groundwater was present in the Roned Realty Industrial Area (an industrial park in Rockaway Borough).

On September 30, 1991, EPA issued a ROD selecting a remedy for OU2, which addressed the VOC plumes in groundwater that are migrating to the Borough Wellfield. The selected remedy called for the remediation of the K&K and WS/EM groundwater plumes, and no further action in relation to the Roned Realty Industrial Area. The selected remedy included groundwater extraction and treatment by air stripping and chemical precipitation; reinjection of the treated groundwater to the aquifer; and appropriate environmental monitoring to ensure the effectiveness of the remedy.

The OU2 ROD also directed further investigation to identify the source areas of the groundwater contamination and further delineation of the full extent of contamination. In 2003, EPA began an RI/FS with respect to the WS/EM Source Area (OU4) which was approved in August 2006. A ROD was signed on September 29, 2006 based on the results of the RI/FS.

In 1994, EPA entered into a Consent Decree with Alliant Techsystems (ATK), a Potentially Responsible Party (PRP) for the K&K groundwater plume, requiring ATK to undertake the Remedial Design (RD) for both contaminated groundwater plumes that comprise OU2 of the Rockaway Borough Wellfield site, and to perform the Remedial Action (RA) for the K&K contaminated groundwater plume. Two RDs have been completed to address the groundwater contamination (OU2).

On September 27, 1995, EPA entered into an Administrative Order on Consent with the PRP, Klockner and Klockner, who conducted the RI/FS for the K&K Source Area, which will be addressed as OU3. The RI/FS for OU3 was approved in August 2007. The results of the K&K Source Area RI/FS are the basis for the remedies selected in this ROD.

ATK completed the RA for the K&K plume in December 2005 and began operation of the groundwater treatment system in January 2006.

EPA has initiated construction of the groundwater extraction and treatment system for the WS/EM contaminated groundwater plume.

EPA is currently conducting an investigation of vapor intrusion into structures within the area that could be potentially affected by the groundwater contamination plumes, and will implement appropriate measures (such as

subslab ventilation systems) based on the investigation results.

This ROD will also serve as a notice that the operable unit designation for the WS/EM source area, which was the subject of a Record of Decision (ROD) signed on September 29, 2006, will be changed from Operable Unit 3 (OU3) to Operable Unit 4 (OU4). The change is to clarify how funding for the remedy will be accounted for by EPA.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The RI/FS Report and the Proposed Plan for OU3 of the Rockaway Borough Wellfield Site were released to the public for comment on August 16, 2007. These two documents were made available to the public as part of the administrative record maintained at EPA's Records Center, a copy of which is located at the Rockaway Borough Free Public Library. The notice of availability for these two documents was published in the Morris County Daily Record on August 17, 2007. A public comment period on the documents was held from August 16, 2007 to September 15, 2007. In addition, a public meeting was held on August 23, 2007. At this meeting, representatives from NJDEP and EPA were available to answer questions about the contamination at the K&K Source Area and the remedial alternatives that were evaluated. EPA's response to the comments and questions received during this period is included in the Responsiveness Summary, which is part of this ROD.

SCOPE AND ROLE OF RESPONSE ACTION

As with many Superfund sites, the problems at the Rockaway Borough Wellfield Site are complex. As a result, EPA has organized the remedial work into four operable units. This ROD addresses the third of four operable units for this Site.

- **OU1** was developed to protect public health by providing a reliable supply of safe, potable water to those consumers currently dependent on the Rockaway Borough Wellfield. A ROD for OU1 was signed in 1986 requiring the continuation of the activated carbon treatment system and the continuation of the attempt to identify the contaminant source(s), further delineation of the full extent of contamination, and evaluate additional remedial action alternatives to address those sources.

- **OU2** addresses the contaminated groundwater that is impacting the Rockaway Borough Wellfield. The OU2 ROD, which was signed on September 30, 1991, selected a groundwater extraction and treatment remedy to capture and treat the most contaminated groundwater before it reaches the Wellfield. The RA is currently underway.

- **OU3** addresses the remediation of the identified contaminant source in the soil at the K&K Source Area that is adversely impacting the groundwater, and is the subject of this ROD. OU3 addresses the principal threats posed by the conditions at the K&K Source Area.

- **OU4** addresses the remediation of the identified contaminant source in the soil at the WS/EM Source Area that is adversely impacting the groundwater. A ROD for the WS/EM Source Area was signed on September 29, 2006. OU4 addresses the principal threats posed by the conditions at WS/EM Source Area. The RD for OU4 is currently underway under EPA and US Army Corps of Engineers supervision.

SUMMARY OF SITE CHARACTERISTICS

The RI for the K&K Source Area portion of the Rockaway Borough Wellfield Site was initiated in 1995 to identify the source and extent of soil contamination. The RI Report, finalized in May 2004, concluded that data collected during the RI field investigation indicate that the K&K Source Area soils are contaminated at levels that warranted further evaluation in an FS.

The nature and extent of contamination was assessed as part of the Site evaluation. Due to historic operations, such as rocket manufacturing, EPA determined that areas of the Site had the potential to be contaminated with TCE and other constituents. The RI included the sampling of soil and soil gas to delineate the nature and extent of potential contamination in the soils.

The K&K Source Area is adjacent to residential homes and an apartment building on one side and a light industrial park on the other side. The site is currently zoned for light industrial use. Based on the Borough of Rockaway's 1995 Master Plan, it is anticipated that the future land use for this area will remain the same. Therefore, redevelopment

of the site as a recreational or residential area was also considered even though this is an unlikely possibility.

Based on current zoning and anticipated future use of the K&K Source Area, the health risks were evaluated for a variety of potentially exposed population: the current and future site worker and adolescent intermittent visitor; and the potential future construction worker, recreational park visitor (adult and adolescent) and resident (adult and child). As stated above, since the current land use is anticipated to remain the same, the current site worker and the hypothetical future construction worker are considered the receptors that could most likely come in contact with contaminated soil.

Data Collection and Analyses

The soil samples were analyzed by off-site laboratories for Target Compound List (TCL) VOCs and select metal constituents (chromium, lead, and nickel), as per the EPA Contract Laboratory Program (CLP) Statements of Work (SOWs) OLM04.3 and ILM04.1, respectively. In addition, eight soil samples (SSGC-1 thorough 4 and SSFC-1A through 4A) were collected, four each from the Building 12 and Building 13 properties (see Figures 3 and 4) for grain size analysis and total organic carbon content.

Previous Sampling Investigation

EPA performed a site-wide RI from 1990 to 1991. During this investigation, 17 subsurface soil samples were collected from 5 soil borings and 10 monitoring well boring locations. Soil samples were collected using split-spoon samplers. Auger refusal and poor recovery limited the number and depth of samples collected per location. The soil samples were analyzed through the EPA CLP for TCL VOCs, semi-volatile organic compounds, pesticides and polychlorinated biphenyls, and inorganics, and the data results were validated by certified personnel.

Of the samples collected during the earlier RI, only one soil sample was obtained from within the OU3 RI/FS study area, from a depth of 6 to 8 feet below ground surface (bgs). No VOCs were detected in the soil sample, and the lead, chromium and nickel detected were at low concentrations.

Contaminant Source Investigation

Soil Gas Survey

There were 54 soil gas samples taken at the Building 12 property and 47 soil gas samples taken at the Building 13 property for a total of 101 soil gas sample locations that were field screened for the presence of contamination. Soil gas survey samples were collected and analyzed for Gas Chromatographs (GC) Purgeable Halocarbons (PHAL) by modified EPA Method SW-846 8021 or GC VOCs by modified EPA Methods SW-846 8260. Soil gas samples were collected from a depth of 3 feet bgs at the Building 12 property and at a depth of 4 feet bgs at the Building 13 property.

The contaminants of concern detected during the soil gas survey at elevated levels were TCE and PCE. TCE and PCE were generally present throughout the K&K Source Area, with detected concentrations ranging from 0.19 milligrams per kilogram (mg/kg) to 90 mg/kg for TCE and 1.1 mg/kg to 23.7 mg/kg for PCE. Isoconcentration contour maps (see Figures 5-7) were developed for TCE and PCE in the soil gas samples collected and present the potential horizontal extent of soil gas contamination at the Building 12 and Building 13 properties.

SOIL INVESTIGATION

To determine potential sources and to obtain an understanding of the extent of the soil contamination at the K&K Source Area, soil was sampled during the field investigation.

Soil Contamination Adjacent to Buildings

Soils (0.5 to 12.5 feet bgs) were sampled at 33 boring locations.

Volatile Organic Compounds

While three individual VOCs were detected in the soil, PCE and TCE were the only constituents that exceeded the NJDEP Impact to Groundwater Soil Cleanup Criteria ("Impact to Groundwater Criteria"), which is 1 mg/kg for each contaminant (Table 8). The third VOC was cis-1,2-Dichloroethene detected at a maximum concentration of (10.8 mg/kg).

Two VOCs, at maximum concentrations for TCE (90 mg/kg) and PCE (23.7 mg/kg), occurred above the most conservative criteria values evaluated in the Baseline Human Health Risk Assessment (BHHRA) for the K&K Source Area and the third VOC cis-1,2-Dichloroethene was not deemed a contaminant of concern for the site (Table 9).

The primary contaminant detected exceeding its most conservative criteria value (NJDEP Impact to Groundwater Criteria) was TCE. The TCE contaminated area exceeding the NJDEP Impact to Groundwater Criteria generally extends to a depth of less than 7 feet. The TCE contaminated area is irregularly shaped and the estimated quantity of soil exceeding the Impact to Groundwater Criteria for TCE is approximately 2,000 cubic yards (yd^3) (Figure 8).

The PCE contaminated area exceeding the Impact to Groundwater Criteria generally extends to a depth of approximately 5 feet. The PCE contaminated area is also irregularly shaped and the estimated quantity of soil exceeding the Impact to Groundwater Criteria for PCE is approximately 500 yd^3 (Figure 8).

Lead

Lead is also present in soil adjacent to Building 12. Metals, however, are not associated with the groundwater contamination at the site. The lead contaminated area generally extends to a depth of less than 2 feet. The extent of the lead contaminated area is approximately 27 yd^3 (Figure 9). The highest level of lead detected was at a maximum concentration of 841 mg/kg.

Soil Contamination Beneath Building 12

Soils (5 feet to 13.5 feet bgs) were collected from 13 locations for a total of 24 subsurface soil samples.

Volatile Organic Compounds

Ten individual VOCs were detected in the soils beneath the building. Only two of the VOCs, at maximum concentration for TCE (43.9 mg/kg) and PCE (8.3 mg/kg), exceeded the NJDEP Impact to Groundwater Criteria in six depth interval samples from 13 boring locations beneath Building 12. The TCE contaminated area is irregularly shaped and the estimated quantity of soil exceeding the NJDEP Impact to

Groundwater Criteria for TCE is approximately 2,100 cubic yards (yd^3) (Figure 8).

The PCE contaminated area exceeding the NJDEP Impact to Groundwater Criteria generally extends to a depth of approximately 5 feet. The PCE contaminated area is also irregularly shaped and the estimated quantity of soil exceeding the Impact to Groundwater Criteria for PCE is approximately 750 yd^3 (Figure 8).

Summary

The nature and extent of soil contamination present in the K&K Source Area was assessed through sampling of soils adjacent to buildings as well as the soil beneath Building 12. In addition, available historical information and the results of the soil gas surveys were evaluated to assist in the determination of potential contaminant source areas.

TCE, PCE, and lead are the primary contaminants at the K&K Source Area. TCE is present at elevated concentrations in the soil (up to a maximum concentration of 90 mg/kg) adjacent to Building 12. PCE is present at elevated concentrations in the soil (up to a maximum concentration of 4.28 mg/kg) adjacent to Building 13. TCE and PCE are also present at elevated concentrations beneath Building 12.

Lead is also present in soil adjacent to Building 12. Metals, however, are not associated with the groundwater contamination at the site.

CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

Site Uses

The area has been developed by commercial businesses and light industries including metal fabrication, insulation, groundwater control company, etc. Additionally, the K&K Source Area is adjacent to residential homes and an apartment building on one side and a light industrial park on the other side. Therefore, redevelopment of the site as a recreational or residential area was also considered even though this is an unlikely possibility.

Resource Uses

The contaminated soil is located adjacent to and below a commercial building located on Stickle Avenue and adjacent to a commercial building located at 21 Elm Street, known as Building 12 and Building 13 respectively.

SUMMARY OF SITE RISKS

As part of the RI/FS, EPA conducted a baseline risk assessment to estimate the current and future effects of contaminants on human health and the environment. A baseline risk assessment is an analysis of the potential adverse human health and ecological effects of releases of hazardous substances from a site in the absence of any actions or controls to mitigate such releases, under current and future land uses. The baseline risk assessment includes a human health risk assessment and an ecological risk assessment. It provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed by the remedial action. This section of the ROD summarizes the results of the baseline risk assessment for this site.

Human Health Risk Assessment

A four-step process is utilized for assessing site-related human health risks for a reasonable maximum exposure scenario: *Hazard Identification* - uses the analytical data collected to identify the contaminants of potential concern at the site for each medium, with consideration of a number of factors explained below; *Exposure Assessment* - estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., ingesting contaminated well-water) by which humans are potentially exposed; *Toxicity Assessment* - determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response); and *Risk Characterization* - summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks. The risk characterization also identifies contamination with concentrations which exceed acceptable levels, defined by the National Contingency Plan (NCP) as an excess lifetime cancer risk greater than 1×10^{-6} to 1×10^{-4} or a Hazard Index greater than 1.0; contaminants at these concentrations are considered chemicals of concern

(COCs) and are typically those that will require remedial action at the site. Also included in this section is a discussion of the uncertainties associated with these risks.

Hazard Identification

In this step, the chemicals of potential concern (COPCs) at the site in each medium were identified based on such factors as toxicity, frequency of occurrence, fate and transport of the contaminants in the environment, concentrations, mobility, persistence, and bioaccumulation. Analytical information that was collected to determine the nature and extent of contamination revealed the presence of a number of constituents, such as PCE, TCE, lead, iron, arsenic, and chromium in soil at Building 12 at concentrations of potential concern (concentrations at Building 13 did not exceed health-based screening criteria). Based on this information, the risk assessment focused on surface soils and subsurface soils and the contaminants which may pose significant risk to human health. A comprehensive list of all COPCs can be found in the baseline human health risk assessment (BHHRA) in the administrative record. Only the COCs, or those chemicals requiring remediation at the site, are listed in Table 1. The COCs for soil at the K&K Source Area are PCE, TCE, and lead.

Exposure Assessment

Consistent with Superfund policy and guidance, the BHHRA is a baseline human health risk assessment and, therefore, assumes no remediation or institutional controls to mitigate or remove hazardous substance releases. Cancer risks and noncancer hazard indices were calculated based on an estimate of the reasonable maximum exposure (RME) expected to occur under current and future conditions at the site. The RME is defined as the highest exposure that is reasonably expected to occur at a site. For those contaminants for which the risk or hazard exceeded acceptable levels, the central tendency estimate, or the average exposure, (CTE) was also evaluated.

The site is currently zoned for light industrial use. Based on the Borough of Rockaway's 1995 Master Plan, it is anticipated that the future land use for this area will remain the same. However, the Borough has indicated the desire to create more open space. Additionally, the K&K

Source Area is surrounded by residential homes and an apartment building. Therefore, redevelopment of the site as a recreational or residential area was also considered even though this is an unlikely possibility. The BHHRA evaluated potential risks to populations associated with both current and potential future land uses.

Exposure pathways were identified for each potentially exposed population and each potential exposure scenario for the soils in the K&K Source Area. Exposure pathways assessed in the BHHRA for the soils included incidental ingestion and dermal contact with soils. Inhalation of contaminants in soil was also evaluated for the hypothetical future construction worker. Based on current zoning and anticipated future use of the K&K Source Area, the BHHRA considered a variety of possible receptors: the current and future site worker and adolescent intermittent visitor; and the potential future construction worker, recreational park visitor (adult and adolescent) and resident (adult and child). It was assumed that site workers and the intermittent adolescent visitor would be exposed to surface soils (0 to 2.5 feet), while the other receptors could be exposed to all soils (0 to 13.5 feet). Assuming current land use remains the same, the current site worker and the hypothetical future construction worker are considered the receptors that could most likely come in contact with contaminated soil. A summary of the exposure pathways included in the BHHRA can be found in Table 2.

Typically, exposures are evaluated using a statistical estimate of the exposure point concentration (EPC), which is usually an upperbound estimate of the average concentration for each contaminant, but in some cases may be the maximum detected concentration. A summary of the EPCs for the COCs in each medium can be found in Table 1, while a comprehensive list of the EPCs for all COPCs can be found in the BHHRA. The calculation of EPCs for two chemicals, TCE and PCE, required an additional level of analysis because the data sets for these chemicals had a large amount of variability. Separate EPCs were calculated for delineated areas with concentrations that were equal or greater than 1 mg/kg and for areas that were less than 1 mg/kg.

Toxicity Assessment

Under current EPA guidelines, the likelihood of carcinogenic risks and noncancer hazards due to exposure to

site chemicals are considered separately. Consistent with current EPA policy, it was assumed that the toxic effects of the site-related chemicals would be additive. Thus, cancer and noncancer risks associated with exposures to individual COPCs were summed to indicate the potential risks and hazards associated with mixtures of potential carcinogens and noncarcinogens, respectively.

Toxicity data for the human health risk assessment were provided by the Integrated Risk Information System (IRIS) database, the Provisional Peer Reviewed Toxicity Database (PPRTV), or other sources that are identified as appropriate references for toxicity values consistent with EPA's directive on toxicity values. This information is presented in Table 3 (noncancer toxicity data summary) and Table 4 (cancer toxicity data summary).

Risk Characterization

Noncarcinogenic (systemic) risks were assessed using a hazard index (HI) approach, based on a comparison of expected contaminant intakes and benchmark comparison levels of intake (reference doses, reference concentrations). Reference doses (RfDs) and reference concentrations (RfCs) are estimates of daily exposure levels for humans (including sensitive individuals) which are thought to be safe over a lifetime of exposure. The estimated intake of chemicals identified in environmental media (*e.g.*, the amount of a chemical in soil incidentally ingested) is compared to the RfD or the RfC to derive the hazard quotient (HQ) for the contaminant in the particular medium. The HI is obtained by adding the hazard quotients for all compounds within a particular medium that impacts a particular receptor population.

The HQ for oral and dermal exposures is calculated as below. The HQ for inhalation exposures is calculated using a similar model that incorporates the RfC, rather than the RfD.

HQ = Intake/RfD

Where: HQ = hazard quotient
Intake = estimated intake for a chemical (mg/kg-day)
RfD = reference dose (mg/kg-day)

The intake and the RfD will represent the same exposure period (i.e., chronic, subchronic, or acute).

As previously stated, the HI is calculated by summing the HQs for all chemicals for likely exposure scenarios for a specific population. An HI greater than 1.0 indicates that the potential exists for noncarcinogenic health effects to occur as a result of site-related exposures, with the potential for health effects increasing as the HI increases. When the HI calculated for all chemicals for a specific population exceeds 1.0, separate HI values are then calculated for those chemicals which are known to act on the same target organ. These discrete HI values are then compared to the acceptable limit of 1.0 to evaluate the potential for noncancer health effects on a specific target organ. 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 noncarcinogenic risks associated with these chemicals for each exposure pathway is contained in Table 5.

As seen in Table 5, non-cancer hazards for the receptors most likely to come in contact with contaminated site soils are below EPA's acceptable values. However, the HI for the child resident from ingestion of TCE-contaminated soil is 2, which slightly exceeds the threshold of 1. Although exposure to this receptor is considered highly unlikely given current and anticipated future land use, the non-cancer health hazard calculation supports the need for remediation at the site.

For carcinogens, risks are generally expressed as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to a carcinogen, using the cancer slope factor (SF) for oral and dermal exposures and the inhalation unit risk (IUR) for inhalation exposures. Excess lifetime cancer risk for oral and dermal exposures is calculated from the following equation, while the equation for inhalation exposures uses the IUR, rather than the SF:

Risk = LADD x SF

Where: Risk = a unitless probability (1×10^{-6}) of an individual developing cancer

LADD = lifetime average daily dose averaged over 70 years (mg/kg-day)

SF = cancer slope factor, expressed as [1/(mg/kg-day)]

These risks are probabilities that are usually expressed in scientific notation (such as 1×10^{-4}). An excess lifetime cancer risk of 1×10^{-4} indicates that one additional incidence of cancer may occur in a population of 10,000 people who are exposed under the conditions identified in the assessment. Again, as stated in the National Contingency Plan, the acceptable risk range for site-related exposure is 10^{-6} to 10^{-4}.

As shown in BHHRA and summarized in Table 6, the cancer risks for all receptors are within or below EPA's target risk range for carcinogens.

Due to the lack of toxicity values for lead, exposure was evaluated qualitatively. Although the maximum on-site concentration of lead (841 mg/kg) exceeded both the EPA health-based industrial and residential screening values of 800 mg/kg and 400 mg/kg, respectively, the average concentration (174 mg/kg), which would warrant an action, did not. Since there is a small amount of volume of contaminated soil (27 yd^3) and to avoid the site being subject to an NJDEP institutional control, EPA has decided to take an action.

The cancer risks and non-cancer hazards for the receptors most likely to come in contact with contaminated site soils are within or below EPA's acceptable values. However, lead exceeds New Jersey's direct contact values. Furthermore, the soil concentrations of PCE and TCE at Buildings 12 and 13 are above the concentrations that are associated with an adverse impact to groundwater; thus, there is a need to address the soil through a remedial action. The response action selected in the ROD is necessary to protect the public health, welfare, or the environment from actual or threatened releases of contaminants into the environment.

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:

- environmental chemistry sampling and analysis
- environmental parameter measurement
- fate and transport modeling
- exposure parameter estimation
- toxicological data.

Uncertainty in environmental sampling arises in part from the potentially uneven distribution of chemicals in the media sampled. Consequently, there is significant uncertainty as to the actual levels present. 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 COCs, the period of time over which such exposure would occur, and in the models used to estimate the concentrations of the COCs 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 risks, including a quantitative evaluation of the degree of risk associated with various exposure pathways, is presented in the risk assessment report.

Ecological Risk Assessment

A Screening Level Ecological Risk Assessment (SLERA) was performed for the WS/EM Source Area. Based on the SLERA,

the majority of the observed concentrations were comparable to background and below screening level ecological values. Additionally, the WS/EM Source Area contained limited terrestrial habitat for ecological receptors. Consequently, risks to ecological receptors were deemed to be negligible. The K&K Source Area is in close proximity to the WS/EM Source Area and has similar contaminant concentrations as well as little or no ecological habitat. Therefore, ecologically based screening criteria are not presented and will not be utilized to assist in the interpretation of the nature and extent of the K&K Source Area.

REMEDIAL ACTION OBJECTIVES

Remedial Action Objectives (RAOs) are specific goals to protect human health and the environment. These objectives are based on available information and standards such as applicable or relevant and appropriate requirements (ARARs) and risk-based levels established in the risk assessment.

The overall remediation goal for the site is to protect human health and the environment. RAOs have been identified to mitigate the potential risks associated with the K&K Source Area.

Soil

The RAOs for the contaminated soil at the K&K Source Area are:

1. Reduce the potential for further migration of TCE and PCE from the contaminated soil into groundwater.

2. Remove Direct Contact exposure to lead-contaminated soil.

The Remediation Goal (RG) for TCE and PCE in soil was derived from the New Jersey Impact to Groundwater Soil Criteria and is 1 mg/kg for each of these contaminants. The RG for lead in soil was derived from the NJDEP Residential Direct Contact Criteria of 400 mg/kg.

DESCRIPTION OF REMEDIAL ALTERNATIVES

CERCLA requires that each remedial alternative be protective of human health and the environment, be cost effective, comply with other statutory laws, and utilize

permanent solutions and alternative treatment technologies and resource recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for the use of treatment as a principal element for the reduction of toxicity, mobility or volume of hazardous substances.

CERCLA requires that if a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at a site above levels that allow for unlimited use and unrestricted exposure, EPA must review the action no less often than every five years after initiation of the action. In addition, institutional controls (e.g., a deed notice, an easement or a covenant) to limit the use of portions of the property may be required. These use restrictions are discussed in each alternative as appropriate. Consistent with expectations set out in the National Contingency Plan, none of the remedies rely exclusively on institutional controls to achieve protectiveness. The time frames below for construction do not include the time for remedial design or the time to procure contracts.

Remedial alternatives for the K&K Source Area are presented below. The first set of alternatives addresses soil contamination with volatile organic compounds, and the second set addresses soil contaminated with lead.

[NOTE: Present work estimates for several alternatives differ slightly from those shown in the Proposed Plan. See Table 10 for a comparison.]

TCE/PCE CONTAMINATED SOIL ALTERNATIVES

Alternative V-1: No Action

Estimated Capital Cost: $0
Estimated Annual O&M Cost: $0
Estimated Present Worth: $0
Estimated Construction Time Frame: None

Regulations governing the Superfund program require that the "no action" alternative be evaluated to establish a baseline for comparison. Under this alternative, EPA would take no action at the K&K Source Area to prevent the migration of the contamination to the groundwater or to prevent direct contact. Since this alternative would result in contaminants remaining at the K&K Source Area at levels that would not allow for unlimited use and

unrestricted exposure, a five-year review would be required. This alternative would result in the continued contamination of the groundwater.

Alternative V-2: Access and Use Restrictions
Estimated Capital Cost: $38,300
Estimated Annual O&M Cost: $0
Estimated Present Worth: $38,300
Estimated Construction Time Frame: None

The Access and Use Restrictions Alternative would include implementation of administrative controls such as a deed notices. The deed notices, or comparable administrative controls, would be implemented to ensure that future activities at the K&K Source Area would be performed with knowledge of the K&K Source Area conditions and implementation of appropriate health and safety concerns. Since this alternative would result in contaminants remaining at the K&K Source Area at levels that would not allow for unlimited use and unrestricted exposure, a five-year review would be required. This alternative would result in the continued contamination of the groundwater.

Alternative V-3: Capping, Access and Use Restrictions
Estimated Capital Cost: $86,700
Estimated Annual O&M Cost: $0
Estimated Present Worth: $86,700
Estimated Construction Time Frame: 3 to 6 months

This alternative includes capping contaminated soil areas with asphalt or concrete. The Access and Use Restrictions would include implementation of administrative controls such as deed notices. The deed notices, or comparable administrative controls, would be implemented to ensure that future activities at the K&K Source Area would be performed with knowledge of the K&K Source Area conditions and implementation of appropriate health and safety concerns.

Since this alternative would result in contaminants remaining at the K&K Source Area at levels that would not allow for unlimited use and unrestricted exposure, a five-year review would be required. This alternative would result in the continued contamination of the groundwater.

Alternative V-4: Excavation with Off-Site Treatment and/or Disposal

Estimated Capital Cost: $594,460
Estimated Annual O&M Cost: $0
Estimated Present Worth: $594,460
Estimated Construction Time Frame: 3 to 6 months

In this alternative, accessible TCE and PCE-contaminated soils are removed via excavation. Contaminated soil present beneath Building 12 would not be addressed. The excavated material would be transported off-site for treatment, as needed, and disposed of in accordance with federal and state regulations. The estimated volume of impacted soil, based on the information in the RI report, is approximately 1,300 yd^3 for Building 12 and 150 yd^3 for Building 13. However, additional action level exceedences could be detected during post-excavation confirmatory sampling, which could increase the scope during remedial construction.

Excavated soils would be analyzed for disposal parameters and would be containerized for off-site disposal. The excavated soils would be trucked off-site for treatment, as needed, and disposed of in accordance with federal and state regulations. Upon completion of contaminated soil removal, the excavation would be backfilled and compacted, and the surface would be restored. Excavation would remove contaminated soil and meet the Impact to Groundwater Criteria of 1 mg/kg each for TCE and PCE, and post-excavation sampling would confirm that the criteria have been met.

Since contamination would remain on-site under Building 12, a deed notice, or comparable administrative controls, would be implemented to ensure that future activities at the K&K Source Area would be performed with knowledge of the K&K Source Area conditions and implementation of appropriate health and safety concerns.

Since this alternative is only expected to achieve the cleanup goals for a portion of the site and would leave hazardous substances, pollutants or contaminants remaining at the site, specifically under Building 12, above levels that would not allow for unlimited use and unrestricted exposure, a five-year review would be required. Because the contamination beneath Building 12 would not be addressed, this alternative could result in continued contamination of the groundwater.

Alternative V-5: Soil Vapor Extraction with Excavation and Off-Site Treatment and/or Disposal

Estimated Capital Cost: $245,030
Estimated Annual O&M Cost: $120,000
Estimated Present Worth: $560,280
Estimated Construction Time Frame: 3 to 6 months
Estimated Time to Achieve RAO: 2 years

This alternative includes *in-situ* remediation via soil vapor extraction (SVE) at the Building 12 property in an effort to address the RAO by removing TCE and PCE as a potential ongoing source of groundwater contamination. SVE would be used to remediate TCE and PCE in the unsaturated (vadose) zone soil. To implement SVE, a vacuum is applied to the soil through a series of wells to induce the controlled flow of air to remove VOCs from the soil. The captured vapors are then treated, usually by granular activated carbon, to applicable air standards. The estimated area of impacted soil, based on information provided in the RI Report, is approximately 19,000 ft^2.

An excavation would occur in parallel with the SVE system to remove approximately 150 yd^3 of PCE-contaminated soil on the Building 13 property.

Excavated soils would be analyzed for disposal parameters and would be containerized for off-site disposal. The excavated soils would be trucked off-site for treatment, as needed, and disposed of in accordance with federal and state regulations. Upon completion of contaminated soil removal, the excavation would be backfilled and compacted, and the surface would be restored.

Excavation would remove contaminated soil and meet the Impact to Groundwater Criteria of 1 mg/kg each for TCE and PCE, and post-excavation sampling would confirm that the criteria have been met.

Since this alternative is expected to achieve the cleanup goals for the site and not leave hazardous substances, pollutants or contaminants remaining at the site, specifically under Building 12, above levels that would not allow for unlimited use and unrestricted exposure, a five-year review may not be required.

Alternative V-6: Chemical Oxidation with Soil Vapor Extraction and Excavation and Off-Sit Treatment and/or Disposal

Estimated Capital Cost: $420,680
Estimated Annual O&M Cost: $144,000
Estimated Present Worth: $706,630
Estimated Construction Time Frame: 3 to 6 months
Estimated Time to Achieve RAO: 1 year

This alternative includes *in-situ* remediation via a combination of chemical oxidation with SVE at the Building 12 property in an effort to address the RAO by removing TCE and PCE as a potential ongoing source of groundwater contamination. Chemical oxidation involves the injection of an oxidizing compound into the subsurface. Then the SVE would be used to remediate the remaining TCE and PCE in the unsaturated (vadose) zone soil. To implement SVE, a vacuum is applied to the soil through a series of wells to induce the controlled flow of air to remove VOCs from the soil. The captured vapors are then treated, usually by granular activated carbon, to applicable air standards. The estimated area of impacted soil, based on information provided in the RI Report, is approximately 19,000 ft^2.

Excavation would occur in parallel with the SVE system to remove approximately 150 yd^3 of PCE-contaminated soil on the Building 13 property. Excavated soils would be analyzed for disposal parameters and would be containerized for off-site disposal. The excavated soils would be trucked off-site for treatment, as needed, and disposed of in accordance with federal and state regulations. Upon completion of contaminated soil removal, the excavation would be backfilled and compacted, and the surface would be restored.

Excavation would remove contaminated soil and meet the Impact to Groundwater Criteria of 1 mg/kg each for TCE and PCE, and post-excavation sampling would confirm that the criteria have been met.

Since this alternative is expected to achieve the cleanup goals for the site and not leave hazardous substances, pollutants or contaminants remaining at the site, specifically under Building 12, above levels that would not allow for unlimited use and unrestricted exposure, a five-year review may not be required.

Lead-Contaminated Soil Alternatives

Alternative L-1: No Action

Estimated Capital Cost: $0
Estimated Annual O&M Cost: $0
Estimated Present Worth: $0
Estimated Construction Time Frame: None

Regulations governing the Superfund program require that the "no action" alternative be evaluated to establish a baseline for comparison. Under this alternative, EPA would take no action at the K&K Source Area to prevent direct contact with contaminated soil.

Since this alternative would result in contaminants remaining at the K&K Source Area at levels that would not allow for unlimited use and unrestricted exposure, a five-year review would be required.

Alternative L-2: Access and Use Restrictions

Estimated Capital Cost: $17,550
Estimated Annual O&M Cost: $0
Estimated Present Worth: $17,550
Estimated Construction Time Frame: None

The Access and Use Restrictions Alternative would include implementation of administrative controls such as a deed notice. The deed notice, or comparable administrative controls, would be implemented to ensure that future activities at the K&K Source Area would be performed with knowledge of the K&K Source Area conditions and implementation of appropriate health and safety controls. Since this alternative would result in contaminants remaining at the K&K Source Area at levels that would not allow for unlimited use and unrestricted exposure, a five-year review would be required.

Alternative L-3: Capping with Access and Use Restrictions

Estimated Capital Cost: $92,420
Estimated Annual O&M Cost: $0
Estimated Present Worth: $92,420
Estimated Construction Time Frame: 3 to 6 months
Estimated Time to Achieve RAO: 3 to 6 months

This alternative includes capping contaminated soil areas with asphalt or concrete. The Access and Use Restrictions would include implementation of administrative controls such as a deed notice. The deed notice, or comparable

administrative controls, would be implemented to ensure that future activities at the K&K Source Area would be performed with knowledge of the K&K Source Area conditions and implementation of appropriate health and safety concerns.

Since this alternative would result in contaminants remaining at the K&K Source Area at levels that would not allow for unlimited use and unrestricted exposure, a five-year review would be required.

Alternative L-4: Excavation with Off-Site Treatment and/or Disposal

Estimated Capital Cost: $78,470
Estimated Annual O&M Cost: $0
Estimated Present Worth: $78,470
Estimated Construction Time Frame: 3 to 6 months
Estimated Time to Achieve RAO: 3 to 6 months

In this alternative, lead-contaminated soils are removed via excavation. The excavated material would be transported off-site for treatment and/or disposal, at a facility designed and permitted for disposal of lead-contaminated soil. The estimated volume of impacted soil, based on information in the RI report, is approximately 27 yd^3. However, additional action level exceedences could be detected during post-excavation confirmatory sampling, which could increase the scope during remedial construction.

Excavated soils would be analyzed for disposal parameters and would be containerized for off-site disposal. The excavated soils would be trucked off-site for treatment, as needed, and disposed of in accordance with federal and state regulations. Upon completion of contaminated soil removal, the excavation would be backfilled and compacted, and the surface would be restored.

Excavation would remove contaminated soil and meet the NJDEP Direct Contact Criterion of 400 mg/kg for lead, and post-excavation sampling would confirm that the remediation goal has been met.

Because this alternative is expected to achieve the cleanup goals and not leave hazardous substances, pollutants or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, a five-year review may not be required.

COMPARATIVE ANALYSIS OF ALTERNATIVES

In selecting the remedies, EPA considered the factors set out in CERCLA Section 121, 42 U.S.C. § 9621, by conducting a detailed analysis of the viable remedial alternatives pursuant to the NCP, 40 CFR § 300.430(e)(9) and OSWER Directive 9355.3-01. The detailed analysis consisted of an assessment of the individual alternatives against each of nine evaluation criteria and a comparative analysis focusing upon the relative performance of each alternative against those criteria.

Threshold Criteria *- The first two criteria are known as "threshold criteria" because they are the minimum requirements that each response measure must meet in order to be eligible for selection as a remedy.*

1. **Overall Protection of Human Health and the Environment**

Overall protection of human health and the environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each exposure pathway (based on a reasonable maximum exposure scenario) are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

Alternatives V-1 and L-1 would provide no protection of human health since the contamination is left on-site with no additional precautions. Alternatives V-2 and L-2 would provide limited protection of human health and the environment by reducing potential risks by utilizing institutional controls. Alternatives V-3, V-4, V-5, V-6 as well as L-3 and L-4 would provide protection of human health and the environment by eliminating, reducing, or controlling risk through the containment, removal, and/or treatment of contaminated material. Alternatives V-5 and V6 could also limit the migration of vapors into on-site buildings.

Because the "no action" alternatives (V-1 and L-1) and the "limited action" alternative (V-2 and L-2) are not protective of human health and the environment, they were eliminated from consideration under the remaining eight criteria.

2. **Compliance with applicable or relevant and appropriate requirements (ARARs)**

Section 121(d) of CERCLA, 42 U.S.C. § 9621(d), and 40 CFR §300.430(f)(1)(ii)(B) require that remedial actions at CERCLA sites at least attain legally applicable or relevant and appropriate federal laws and state environmental or facility siting laws, collectively referred to as "ARARs", unless such ARARs are waived under CERCLA Section 121(d)(4).

Applicable requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well-suited to the particular site. Only those state standards that are identified in a timely manner and are more stringent than federal requirements may be relevant and appropriate.

Compliance with ARARs addresses whether a remedy will meet all of the applicable or relevant and appropriate requirements of other federal and state environmental statutes or provides a basis for invoking a waiver.

Actions taken at any Superfund site must meet all ARARs or provide grounds for invoking a waiver of these requirements. These include chemical-specific, location-specific, and action-specific ARARs. There are no chemical-specific ARARs for soil. The New Jersey Impact to Groundwater Soil Criteria are not promulgated regulations, so they are not ARARs but To-Be-Considered (TBCs). However, EPA has identified the Impact to Groundwater Soil Cleanup Criteria of 1 mg/kg each for PCE and TCE and the Residential Direct Contact Criteria of 400 mg/kg for lead

as remediation goals. Alternatives V-4, V-5, V-6 and L-4 would meet the TBCs for the contaminated soils. Alternatives V-3 and L-3 would not meet the TBCs for the contaminated soils.

Location-specific ARARs were not identified for any of the alternatives.

Alternatives V-4, V-5, V-6 and L-4 would attain action-specific ARARs for the contaminated soils, which would include RCRA transportation and disposal requirements.

Primary Balancing Criteria - *The next five criteria are known as "primary balancing criteria". These criteria are factors with which tradeoffs between response measures are assessed so that the best option will be chosen, given site-specific data and conditions.*

3. **Long-term Effectiveness and Permanence**

Long-term effectiveness and permanence refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once clean-up levels have been met. This criterion includes the consideration of residual risk that would remain onsite following remediation and the adequacy and reliability of controls.

Of the remaining alternatives, the magnitude of residual risks is highest for Alternatives V-3 and L-3. Alternatives V-3 and L-3 both attempt to prevent direct contact as well as the migration of the ongoing source of groundwater contamination by utilizing a cap and using land use restrictions aimed at informing the public about potential hazards posed by exposure to contaminants in the soil. Alternatives V-5 and V-6 use excavation and *in-situ* treatment to reduce contaminant mass in the vadose zone. Alternatives V-4 and L-4 use excavation and off-site disposal to remove the contaminant mass from the site, except for the contamination beneath Building 12. Alternatives V-4, V-5, V-6 and L-4 are all permanent remedies and effective in the long-term.

4. **Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment**

Reduction of toxicity, mobility, or volume through treatment refers to the anticipated performance of the treatment technologies that may be included as part of a remedy.

Alternatives V-3 and L-3 would reduce direct contact as well as contaminant mobility without treatment by capping contaminated areas to reduce the infiltration of water through the contaminated soil. Alternatives V-4 and L-4 would reduce the toxicity, volume or mobility through the removal and treatment/disposal of soils at approved off-site facilities. Alternatives V-5 and V-6 would reduce toxicity, volume or mobility through *in-situ* treatment and removal and disposal of soils at approved off-site facilities. For Alternatives V-4 and L-4, pre-disposal treatment, if necessary, could potentially reduce the toxicity and volume of the contaminated soils.

5. **Short-term Effectiveness**

Short-term effectiveness addresses the period of time needed to implement the remedy and any adverse impacts that may be posed to workers, the community and the environment during construction and operation of the remedy until cleanup levels are achieved.

Alternatives V-3 and L-3 do not involve any physical treatment; there are no short-term risks to the community or workers as well as no environmental effects. Alternatives V-3 and L-3 would take 3 to 6 months to implement.

Alternatives V-4 and L-4 would present short-term risks to the community relating to exposure to contaminated soil. This exposure would be mitigated with the use of air monitoring, dust suppression, and restricted site access. Air monitoring, dust suppression, and a health and safety program would mitigate risks relating to inhalation exposure by workers. Excavation is anticipated to create minimal environmental effects since the K&K Source Area is highly developed. However, Alternative V-4 would require excavation of a large portion of the Building 12 parking lot and could cause significant disruption to the operation of the business in Building 12. Alternatives V-4 and L-4 would take 3-6 months to implement.

Alternatives V-5 and V-6 would present short-term risks to the community relating to inhalation exposure that would be mitigated by air monitoring and engineering controls. Air monitoring and a health and safety program would mitigate risks relating to inhalation exposure by workers. The *in-situ* remediation is anticipated to create minimal environmental effects since the K&K Source Area is highly

developed. Alternative V-5 would take 3 to 6 months to implement and approximately 2 years to reach remediation goals. Alternative V-6 would take 3 to 6 months to implement and approximately 1 year to reach remediation goals.

6. **Implementability**

Implementability addresses the technical and administrative feasibility of a remedy from design through construction and operation. Factors such as availability of services and materials, administrative feasibility, and coordination with other governmental entities are considered.

Alternatives V-3 and L-3 could be easily implemented. Personnel and equipment necessary to perform these activities are readily available. Coordination with state and local governments would be required for implementing institutional controls. Coordination with state and local authorities would be required for five-year reviews.

Alternatives V-4 and L-4 would be easily implemented using conventional construction equipment and materials; however, some specialized techniques may be required for excavation in close proximity to the Building 12 foundation. This alternative would also potentially impact business in Building 12 since the excavation would occur in a portion of the parking lot.

Alternatives V-5 and V-6 would be somewhat difficult to implement because of limited available space to install a treatment building or inject chemical oxidation under Building 12. Coordination with state and local governments in addition to property owners and tenants would be required for placement of extraction wells and associated treatment equipment.

7. **Cost**

Includes estimated capital and operation and maintenance costs, and net present-worth values.

The estimated present worth costs of the Alternatives are:

Alternative V-3 (Capping and Access and Use Restrictions): $86,700.

Alternative V-4 (Excavation with Off-Site Disposal): $594,460.

Alternative V-5 (Soil Vapor Extraction with Excavation): $560,280

Alternative V-6 (Chemical Oxidation with Soil Vapor Extraction and Excavation with Off-Site Disposal): $706,630

Alternative L-3 (Capping and Access and Use Restrictions): $92,420.

Alternative L-4 (Excavation with Off-Site Disposal): $78,470.

Modifying Criteria *- The final two evaluating criteria, criteria 8 and 9, are called "modifying criteria" because new information or comments from the state or the community on the Proposed Plan may lead to modification of the preferred response measure or cause another response measure to be considered.*

8. **State Acceptance**

State acceptance indicates whether, based on its review of the RI/FS reports and the Proposed Plan, the state supports, opposes, and/or has identified any reservations with the selected response measure.

The State of New Jersey concurred with the Selected Remedy on September 26, 2007. A copy of the state's concurrence letter is included in Appendix V.

9. **Community Acceptance**

Community acceptance summarizes the public's general response to the response measures described in the Proposed Plan and the RI/FS reports. This assessment includes determining which of the response measures the community supports, opposes, and/or has reservations about.

EPA solicited input from the community on the remedial alternatives proposed for the K&K Source Area of the Rockaway Borough Wellfield Site. The community was generally supportive of EPA's Proposed Plan. Appendix III, The Responsiveness Summary, addresses the comments received at the public meeting.

PRINCIPAL THREAT WASTE

EPA's findings to date indicate the presence of "principal threat" waste at the K&K Source Area. Principal threat

wastes are considered source materials, i.e., materials that include or contain hazardous substances, pollutants or contaminants that act as a reservoir for migration of contamination to groundwater, surface water, or as a source for direct exposure.

Contaminated groundwater is generally not considered to be a "principal threat". However, the contaminated soil in the K&K Source Area associated with this ROD is considered to be a "principal threat" to the groundwater. The OU3 remedy will address this "principal threat" via SVE with excavation and off-site treatment and/or disposal for the PCE and TCE, which acts as a source for groundwater contamination.

The OU3 remedy will also address the "principal threat" of direct exposure to the lead contamination via excavation with off-site treatment and/or disposal.

SELECTED REMEDY

Based upon consideration of the Site investigation results, the requirements of CERCLA, the detailed analysis of the response measures, and public comments, EPA has determined that the combination of Alternatives V-5 and L-4 are the appropriate remedies for OU3 of the Site, because they best satisfy the requirements of CERCLA Section 121 and the NCP's nine evaluation criteria for remedial alternatives, 40 CFR § 300.430(e)(9).

The major components of the Selected Remedy include:

- Soil Vapor Extraction (SVE) of soil contaminated with volatile organic compounds (VOCs) at the Building 12 property;

- Excavation and off-site treatment and/or disposal of an estimated 150 cubic yards (yd^3) of VOC-contaminated soil at the Building 13 property; and

- Excavation and off-site treatment and/or disposal of an estimated 27 yd^3 of soil contaminated with lead located near Building 12.

The estimated present worth cost of the Selected Remedy - Alternatives V-5 and L-4, is $638,750.

The selection of Alternatives V-5 and L-4 is believed to provide the best balance of trade-offs among the alternatives with respect to the evaluation criteria. EPA and NJDEP believe that the Selected Remedy will be protective of human health and the environment, comply with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action, is cost effective, and will utilize permanent solutions and treatment technologies to the maximum extent practicable.

STATUTORY DETERMINATIONS

As previously noted, CERCLA Section 121(b)(1) mandates that a remedial action must be protective of human health and the environment, cost-effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. CERCLA Section 121(b)(1) also establishes a preference for remedial actions that employ treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants, or contaminants at a site. CERCLA Section 121(d) further specifies that a remedial action must attain a degree of cleanup that satisfies ARARs under federal and state laws, unless a waiver can be justified pursuant to CERCLA Section 121(d)(4). For the reasons discussed below, EPA has determined that the Selected Remedy meets the requirements of CERCLA Section 121.

Protection of Human Health and the Environment

The Selected Remedy for the K&K Source Area will adequately protect human health and the environment through SVE with excavation and off-site treatment and/or disposal of PCE and TCE contaminated soil and excavation with off-site treatment and/or disposal of lead-contaminated soil. SVE with excavation and off-site treatment and/or disposal of the contaminated soil to the remediation goal of 1 mg/kg each for PCE and TCE will prevent the contaminants from continuing to adversely impact the groundwater, which is being drawn into the Rockaway Borough Wellfield. Excavation with off-site treatment and/or disposal of contaminated soil to the remediation goal of 400 mg/kg for lead will prevent the direct contact of contaminants.

Compliance with ARARs

The action-specific and chemical-specific criteria are shown in Appendix II, Table 7. At the completion of the response action, the Selected Remedy will meet the identified ARARs.

Cost-Effectiveness

In EPA's judgment, the Selected Remedy is cost-effective and represents reasonable value for the money to be spent. Overall effectiveness was evaluated by assessing three of the five balancing criteria in combination (long-term effectiveness and permanence; reduction in toxicity, mobility and volume through treatment; and short-term effectiveness). Overall effectiveness was then compared to costs to determine cost-effectiveness. The overall effectiveness of the Selected Remedy has been determined to be proportional to the costs, and the Selected Remedy, therefore, represents reasonable value for the money to be spent. The estimated present worth cost of Alternatives V-5 and L-4 is $638,750.

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

EPA has determined that the Selected Remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practical manner for OU3. EPA has determined that the Selected Remedy provides the best balance of trade-offs with respect to the five balancing criteria.

The Selected Remedy satisfies the criteria for long-term effectiveness and permanence by removing the VOC and lead contamination from the soil. The selected alternative presents a higher short-term risk different from the other alternatives because of the potential for exposure associated with the excavation and transportation of a greater quantity of contaminated soils. However, these short-term risks will be mitigated through implementation of measures such as engineering controls, use of personal protective equipment, safe work practices and perimeter air monitoring. The Selected Remedy is implementable since it employs standard technologies that are readily available.

Preference for Treatment as a Principal Element

Based on sampling performed to date, the contaminated soil may not require treatment to meet the requirements of off-site disposal facilities. Therefore, the Selected Remedy may not fully meet the statutory preference for the use of remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element.

Five-Year Review Requirement

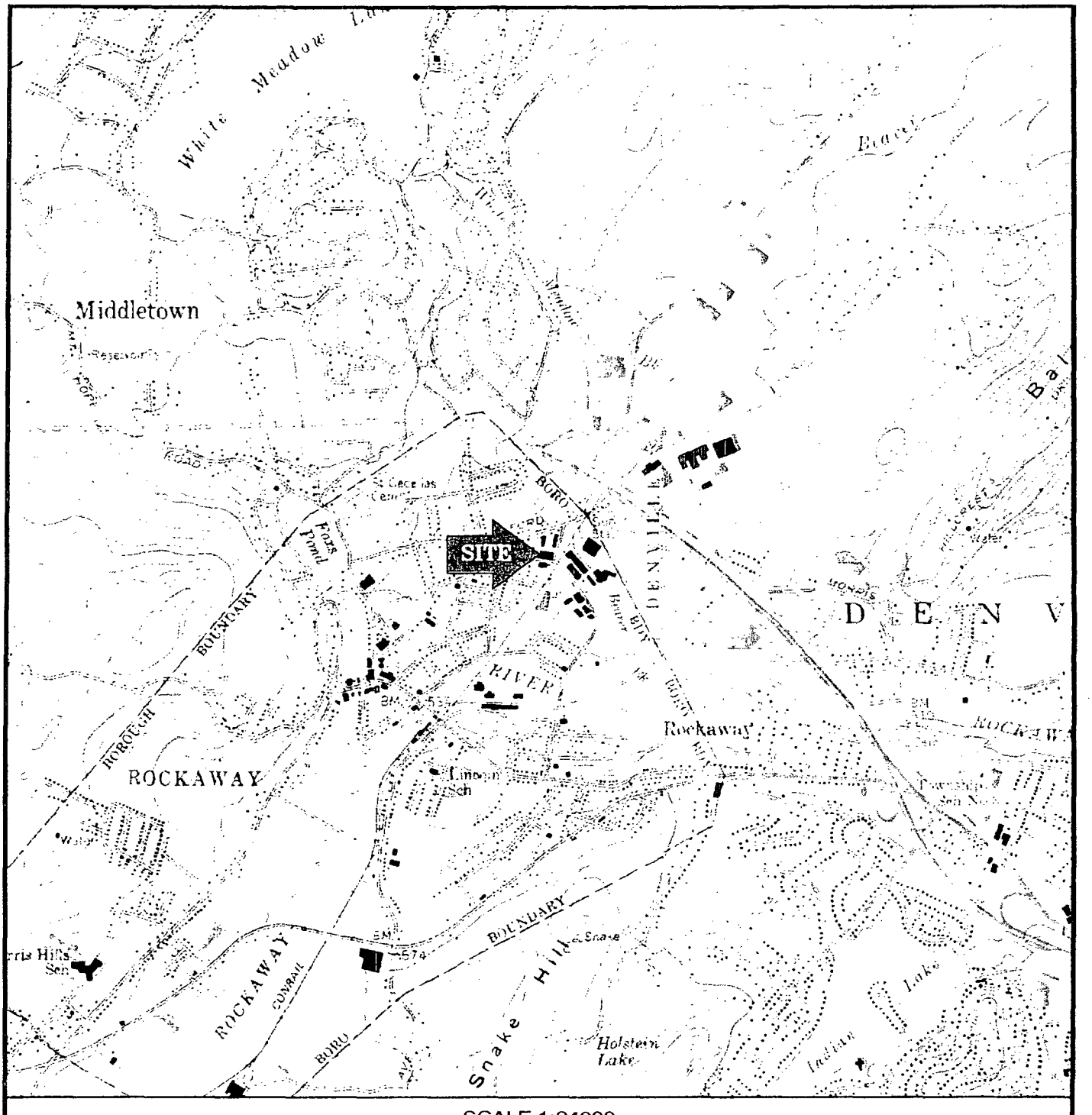
Because the selected remedy will not result in hazardous substances, pollutants, or contaminants remaining above levels that allow for unlimited use and unrestricted exposure, a five-year review will not be required. A five-year review may be required if the SVE system does not achieve the remediation goals in five years.

DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for the K&K Source Area was released to the public on August 16, 2007. The Proposed Plan identified the preferred alternative for K&K Source Area, OU3 of the Site. EPA and NJDEP reviewed all comments received during the 30-day public comment period. Upon review of these comments, EPA and NJDEP determined that no significant changes to the selected remedy as originally identified in the Proposed Plan were necessary.

APPENDIX I

FIGURES



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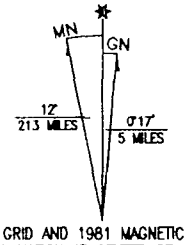


UTM GRID AND 1981 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

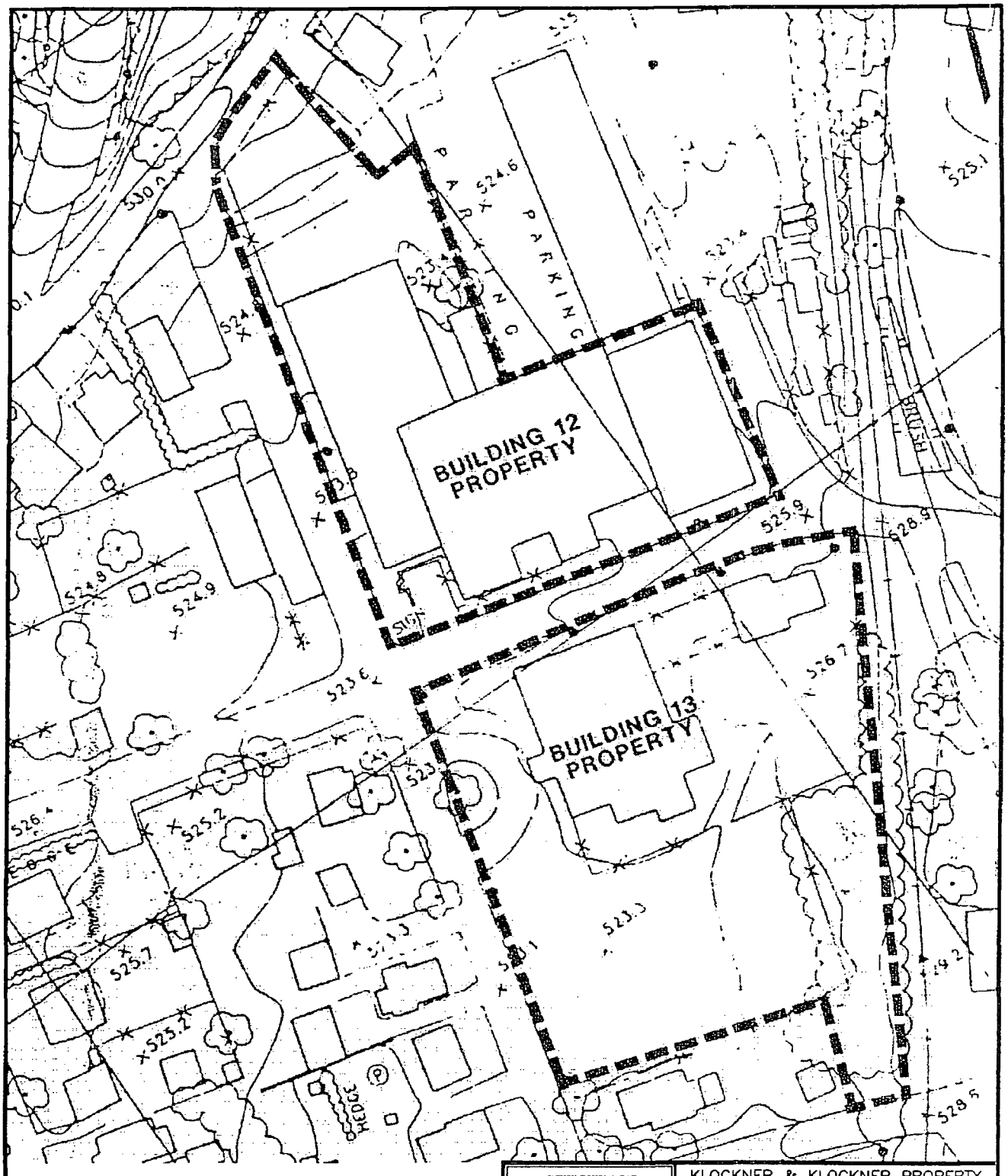
QUADRANGLE LOCATION

KLOCKNER & KLOCKNER PROPERTY
ROCKAWAY BOROUGH
MORRIS COUNTY, NEW JERSEY

SITE LOCATION ON USGS
DOVER, N.J. QUADRANGLE

ORIGINAL BY:	DRAWN BY:	DRAWING NO: 950302MAP
CHECKED BY:	DATE: APRIL 2006	FIGURE NO: 1

500042



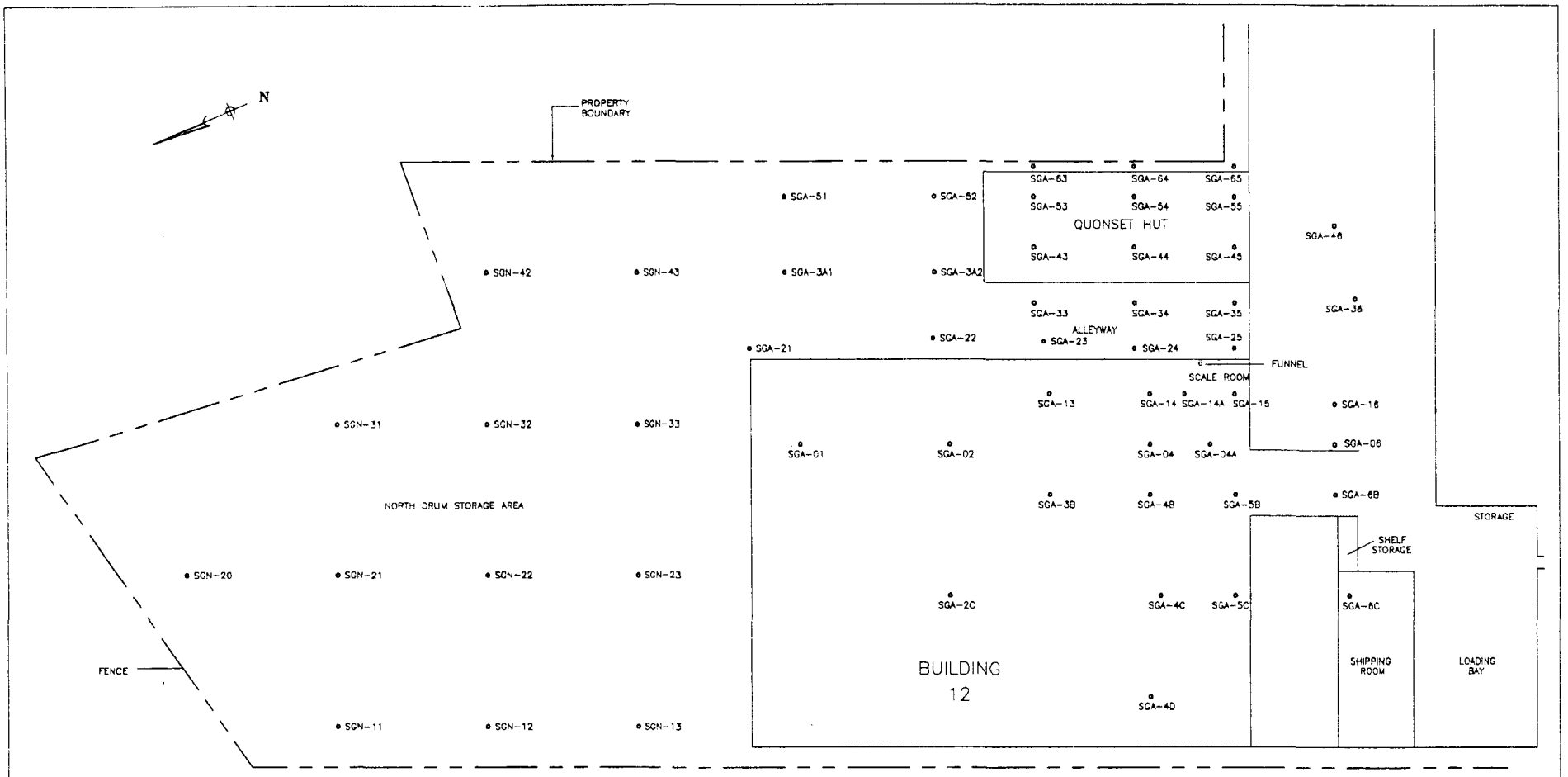
SOURCE:
AERIAL SURVEY DATED JUNE 1994, PREPARED BY ROBINSON AERIAL SURVEY'S INC. FOR CONESTOGA -ROVERS & ASSOCIATES.

THE WHITMAN Companies, INC.

KLOCKNER & KLOCKNER PROPERTY
ROCKAWAY BOROUGH
MORRIS COUNTY, NEW JERSEY

SITE MAP OF
KLOCKNER PROPERTY

ORIGINAL BY:	DRAWN BY:	DRAWING NO:
L.Z.	A.A.	950302-X10
CHECKED BY:	DATE:	FIGURE NO:
B.U.	SEPTEMBER 2007	2



LEGEND

- ∘ – SOIL GAS SAMPLE LOCATION
- SGN-23 – NORTHERN DRUM STORAGE AREA SAMPLE
- SGA-23 – ALLEYWAY AREA SAMPLE
- SGA-3A4 – GRID ROW LOCATION / GRID COLUMN LOCATION / LOCATION OFF OF GRID

SCALE

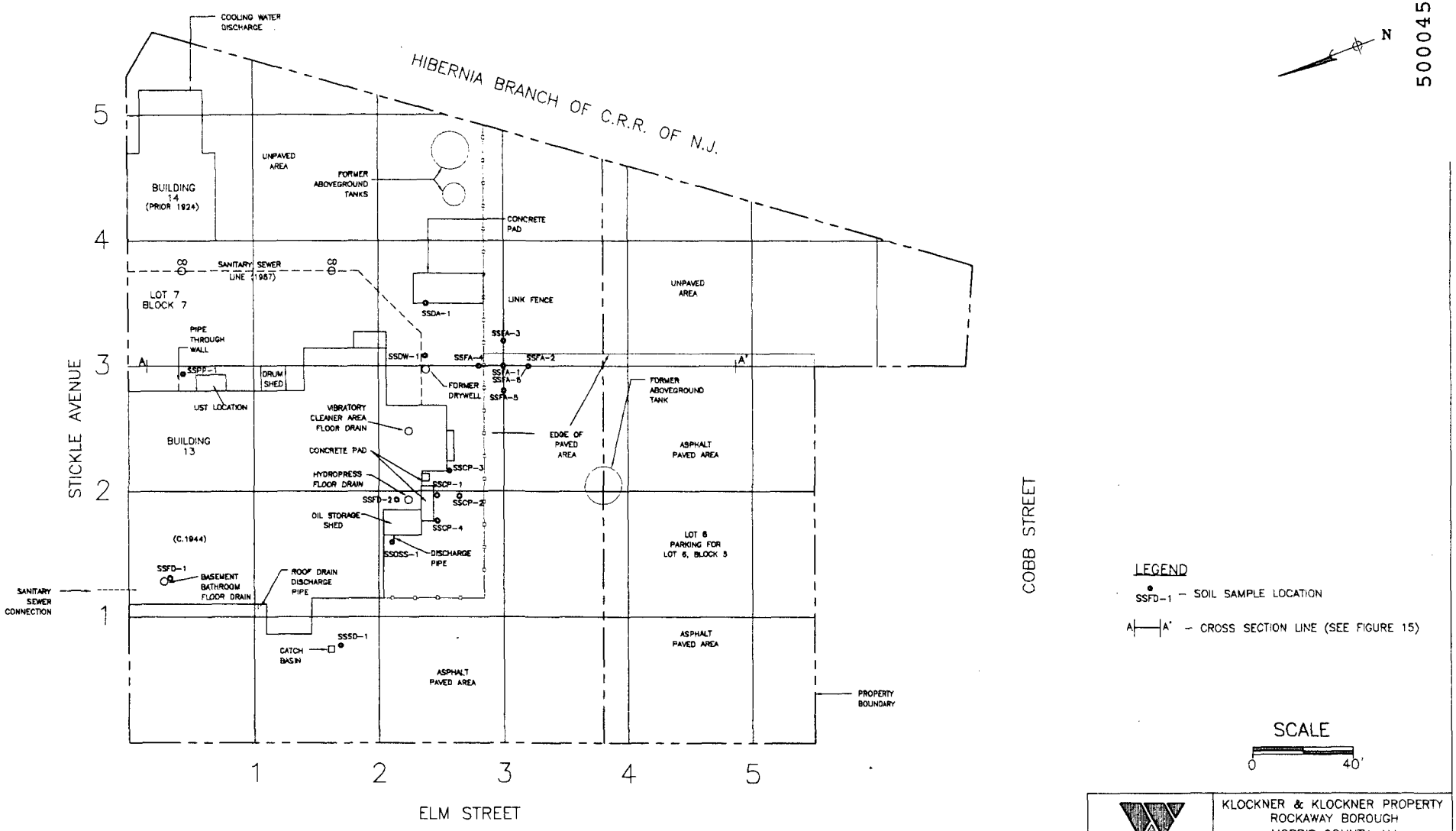
0 20'

THE WHITMAN Companies, INC.

KLOCKNER & KLOCKNER PROPERTY
ROCKAWAY BOROUGH
MORRIS COUNTY, NJ

SOIL GAS SURVEY SAMPLE LOCATION
BUILDING 12

ORIG. BY: MM	DWG. BY: AJ	CHK. BY: MM
DWG.#: 950302A1	DATE: SEPTEMBER 2007	FIGURE: 3



500045

N

LEGEND

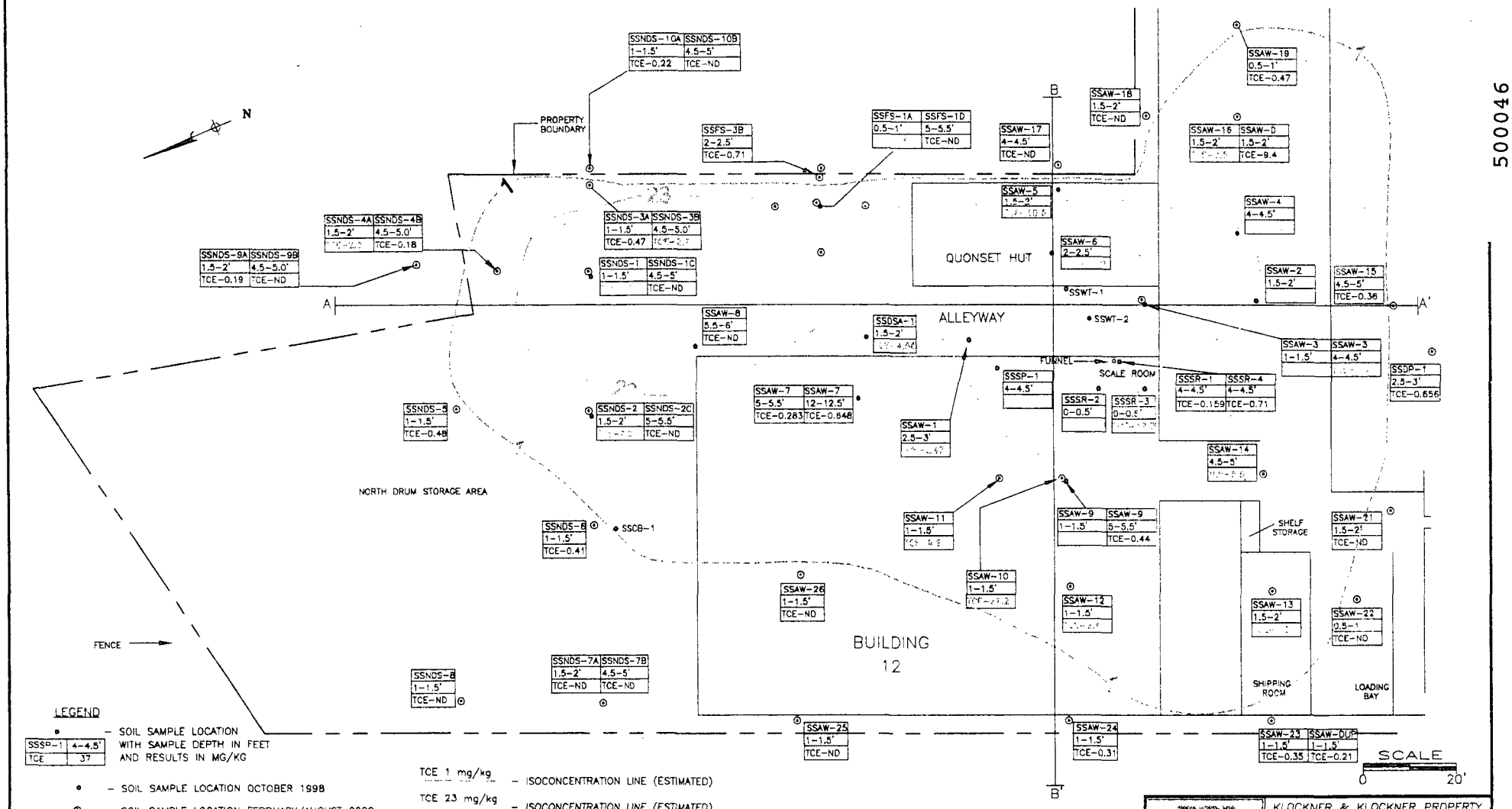
SSFD-1 – SOIL SAMPLE LOCATION

A—A' – CROSS SECTION LINE (SEE FIGURE 15)

SCALE

0 40'

THE WHITMAN Companies, INC.	KLOCKNER & KLOCKNER PROPERTY ROCKAWAY BOROUGH MORRIS COUNTY, NJ	
	SOIL SAMPLE LOCATIONS BUILDING 13	
ORIG. BY: CC	DWG. BY: A J	CHK. BY: CC
DWG.#: 950302X4	DATE: SEPTEMBER 2007	FIGURE: 4



LEGEND

SSSP-1	4-4.5'
TCE	37

– SOIL SAMPLE LOCATION WITH SAMPLE DEPTH IN FEET AND RESULTS IN MG/KG

– SOIL SAMPLE LOCATION OCTOBER 1998

– SOIL SAMPLE LOCATION FEBRUARY/AUGUST 2000

TCE – TRICHLOROETHYLENE

ND – NOT DETECTED

NOTE: RESULTS IN COLOR EXCEED NJDEP IMPACT TO GROUND WATER SOIL CLEANUP CRITERIA OF 1 mg/kg FOR TCE.

TCE 1 mg/kg – ISOCONCENTRATION LINE (ESTIMATED)

TCE 23 mg/kg – ISOCONCENTRATION LINE (ESTIMATED)

– TCE CONCENTRATION AT OR ABOVE 23 mg/kg

– TCE CONCENTRATION ABOVE 1 mg/kg

A – A' – CROSS SECTION LINE (SEE FIGURES 5, 6, AND 10)

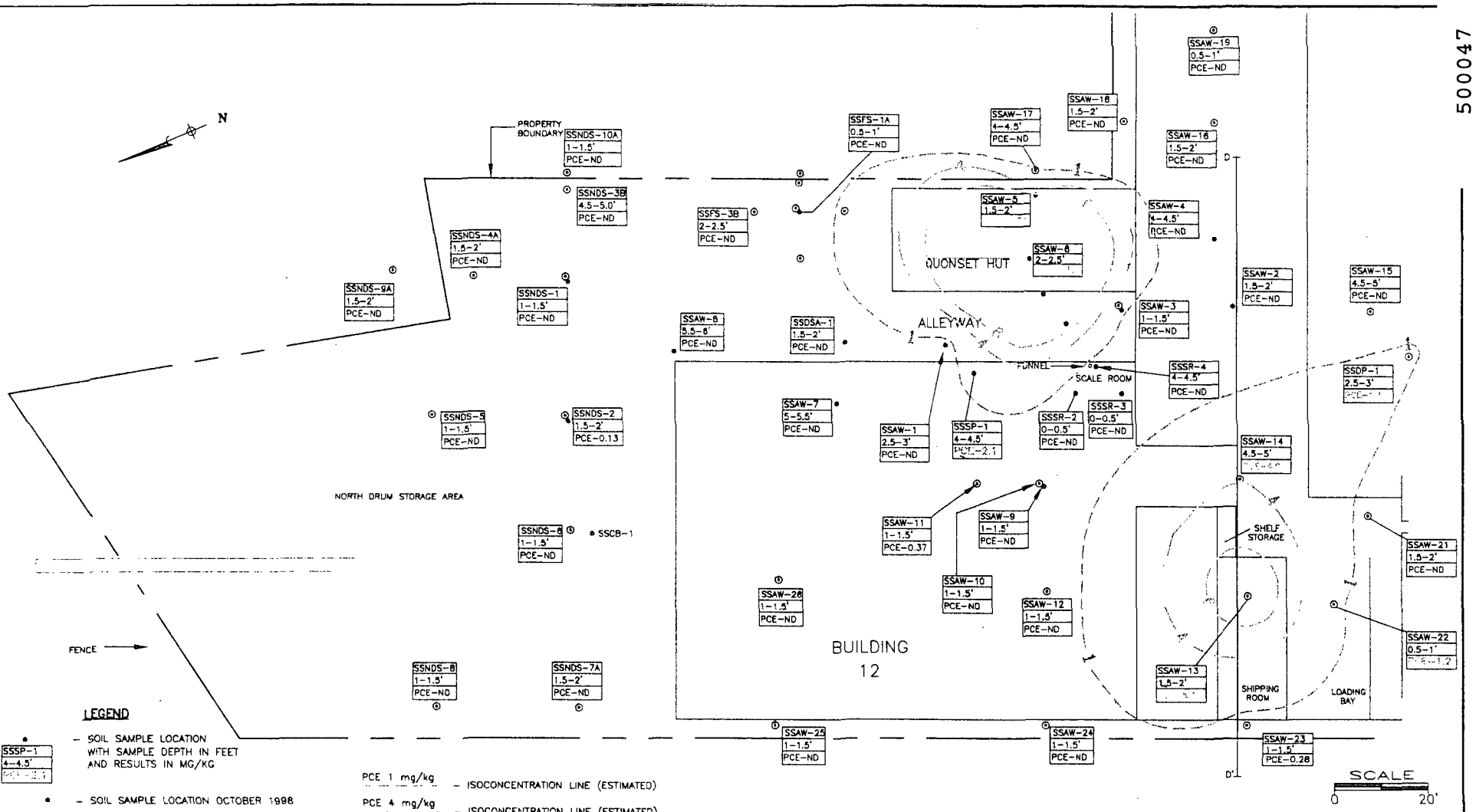
WHITMAN Companies, INC.

KLOCKNER & KLOCKNER PROPERTY
ROCKAWAY BOROUGH,
MORRIS COUNTY, NEW JERSEY

0-6 FOOT DEPTH SOIL SAMPLE RESULTS AND ISOPLETH FOR TCE BUILDING 12

ORIGINAL BY:	DRAWN BY:	DRAWING NO:
M.M.	R.R.	950302H7
CHECKED BY:	DATE:	FIGURE NO:
M.M.	SEPTEMBER 2007	5

500047



LEGEND

SSSP-1 4-4.5' PCE-2.1 – SOIL SAMPLE LOCATION WITH SAMPLE DEPTH IN FEET AND RESULTS IN MG/KG

• – SOIL SAMPLE LOCATION OCTOBER 1998

⊙ – SOIL SAMPLE LOCATION FEBRUARY/AUGUST 2000

PCE – TETRACHLORETHYLENE

ND – NOT DETECTED

PCE 1 mg/kg – ISOCONCENTRATION LINE (ESTIMATED)

PCE 4 mg/kg – ISOCONCENTRATION LINE (ESTIMATED)

PCE 6 mg/kg – ISOCONCENTRATION LINE (ESTIMATED)

PCE-3 – PCE CONCENTRATION ABOVE 1 mg/kg

– PCE CONCENTRATION AT OR ABOVE 4 mg/kg

– PCE CONCENTRATION AT OR ABOVE 6 mg/kg

P — P' – CROSS SECTION LINE (SEE FIGURE 11)

NOTE:

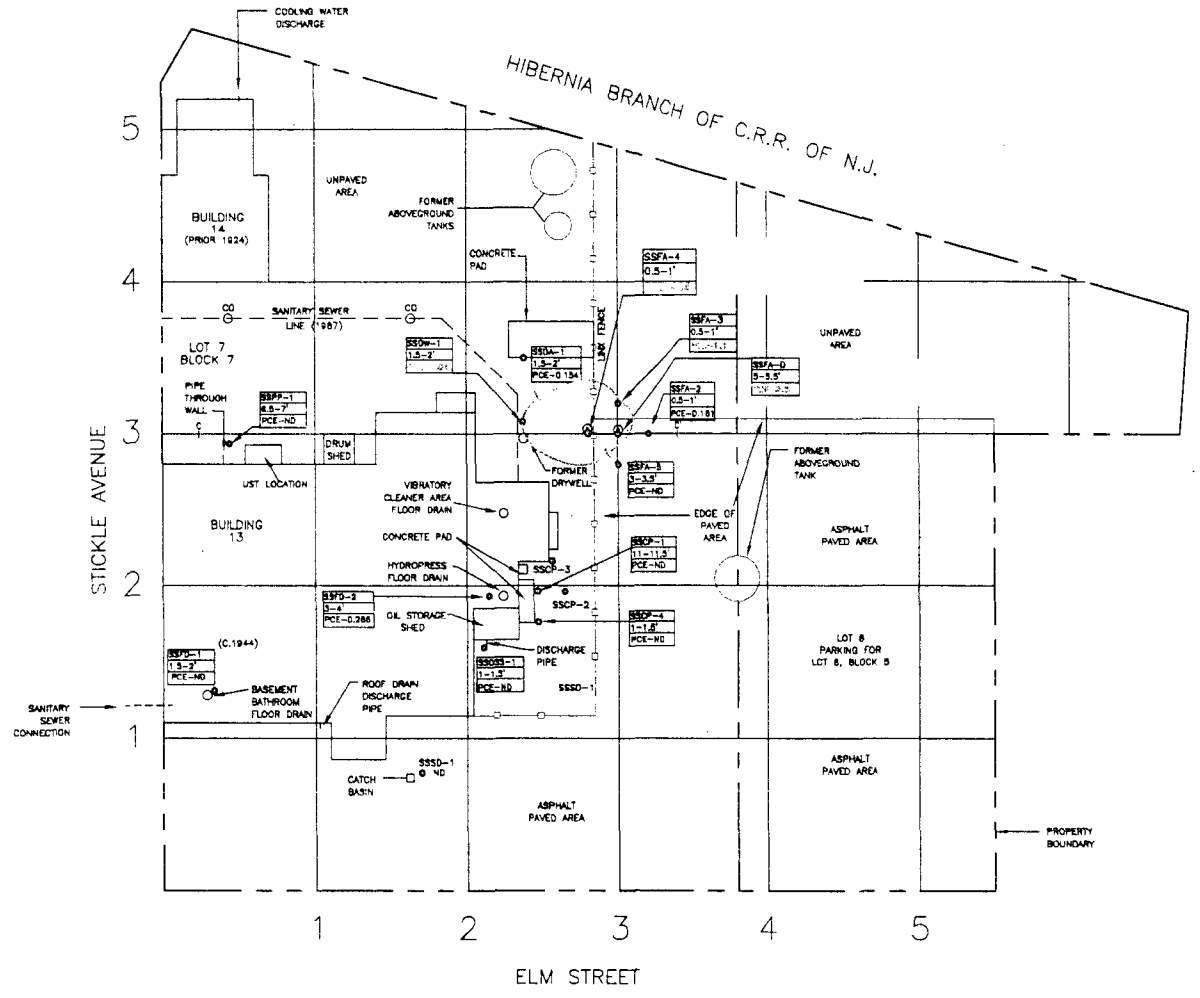
RESULTS IN COLOR EXCEED NJDEP IMPACT TO GROUND WATER SOIL CLEANUP CRITERIA OF 1 mg/kg FOR PCE

WHITMAN Companies, INC.

KLOCKNER & KLOCKNER PROPERTY
ROCKAWAY BOROUGH,
MORRIS COUNTY, NEW JERSEY

0-6 FOOT DEPTH SOIL SAMPLE RESULTS AND ISOPLETH FOR PCE BUILDING 12

ORIGINAL BY:	DRAWN BY:	DRAWING NO:
M.M.	A.A.	950302H8
CHECKED BY:	DATE:	FIGURE NO:
M.M.	SEPTEMBER 2007	6



N

LEGEND

- SSFA-4 / 4.28 / 0.5-1' – SOIL SAMPLE LOCATION, RESULTS IN MG/KG, SAMPLE DEPTH
- TCE – TRICHLOROETHYLENE
- PCE – TETRACHLOROETHYLENE
- ND – NOT DETECTED
- PCE 1 mg/kg – ISOCONCENTRATION LINE (ESTIMATED)
- PCE CONCENTRATION ABOVE 1 mg/kg
- C — C – CROSS SECTION LINE (SEE FIGURE 8)

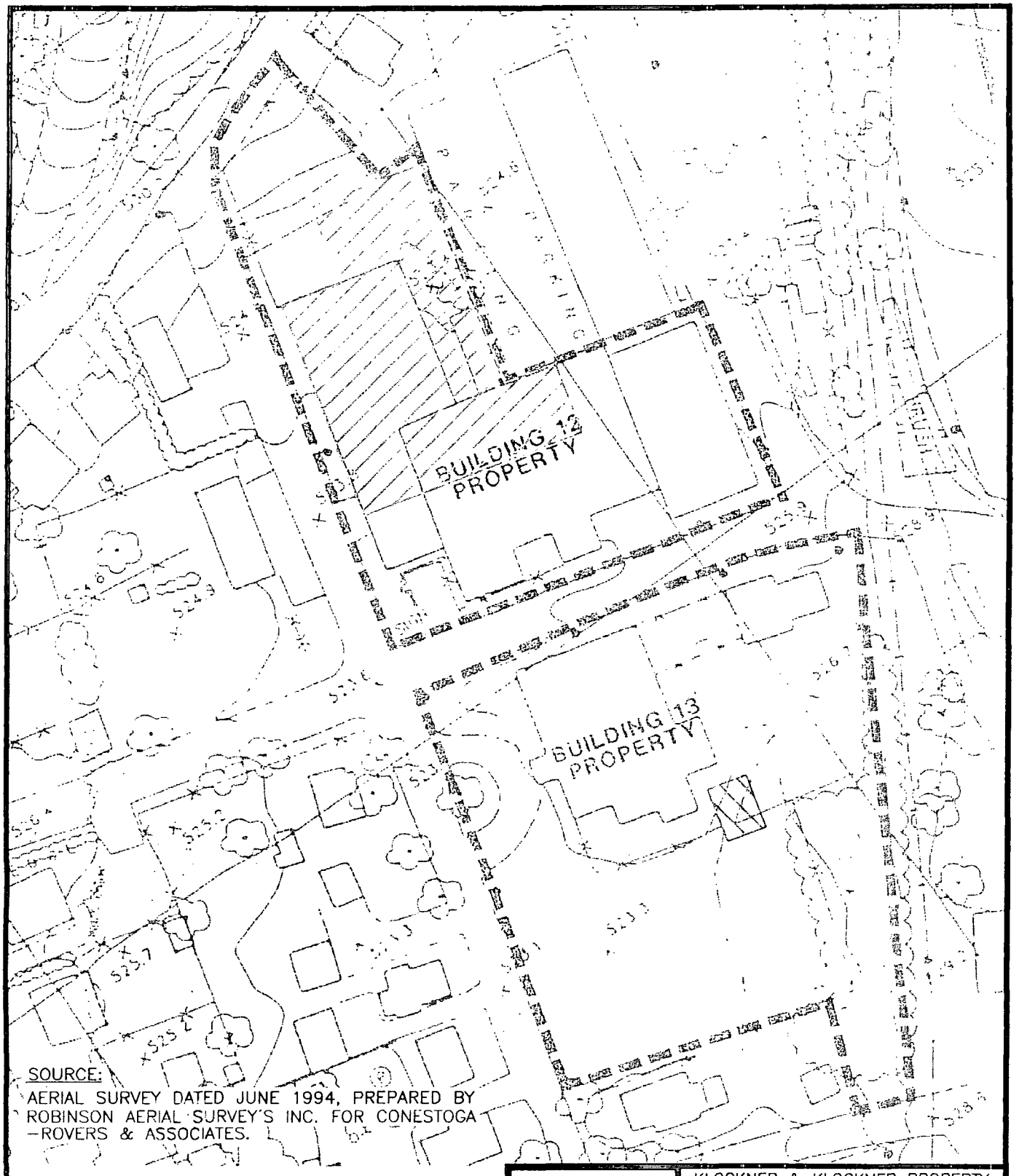
NOTE: RESULTS IN GREEN EXCEED NJDEP CRITERIA.

SCALE

0 40'

THE WHITMAN Companies, INC.	KLOCKNER & KLOCKNER PROPERTY ROCKAWAY BOROUGH MORRIS COUNTY, NJ	
	0-6 FOOT SOIL SAMPLE RESULTS & ISOPLETH FOR PCE – BUILDING 13	
ORIG. BY: B.U.	DWG. BY: A.A.	CHK. BY: B.U.
DWG.#: 950302F3	DATE: SEPTEMBER 2007	FIGURE: 7

500049



SOURCE:
AERIAL SURVEY DATED JUNE 1994, PREPARED BY ROBINSON AERIAL SURVEY'S INC. FOR CONESTOGA -ROVERS & ASSOCIATES.

-APPROX. AREA THAT WOULD BE EXCAVATED UNDER REMEDIAL ALTERNATIVE V6

-APPROX. AREA THAT WOULD BE TREATED BY CHEMICAL OXIDATION UNDER REMEDIAL ALTERNATIVE V6.

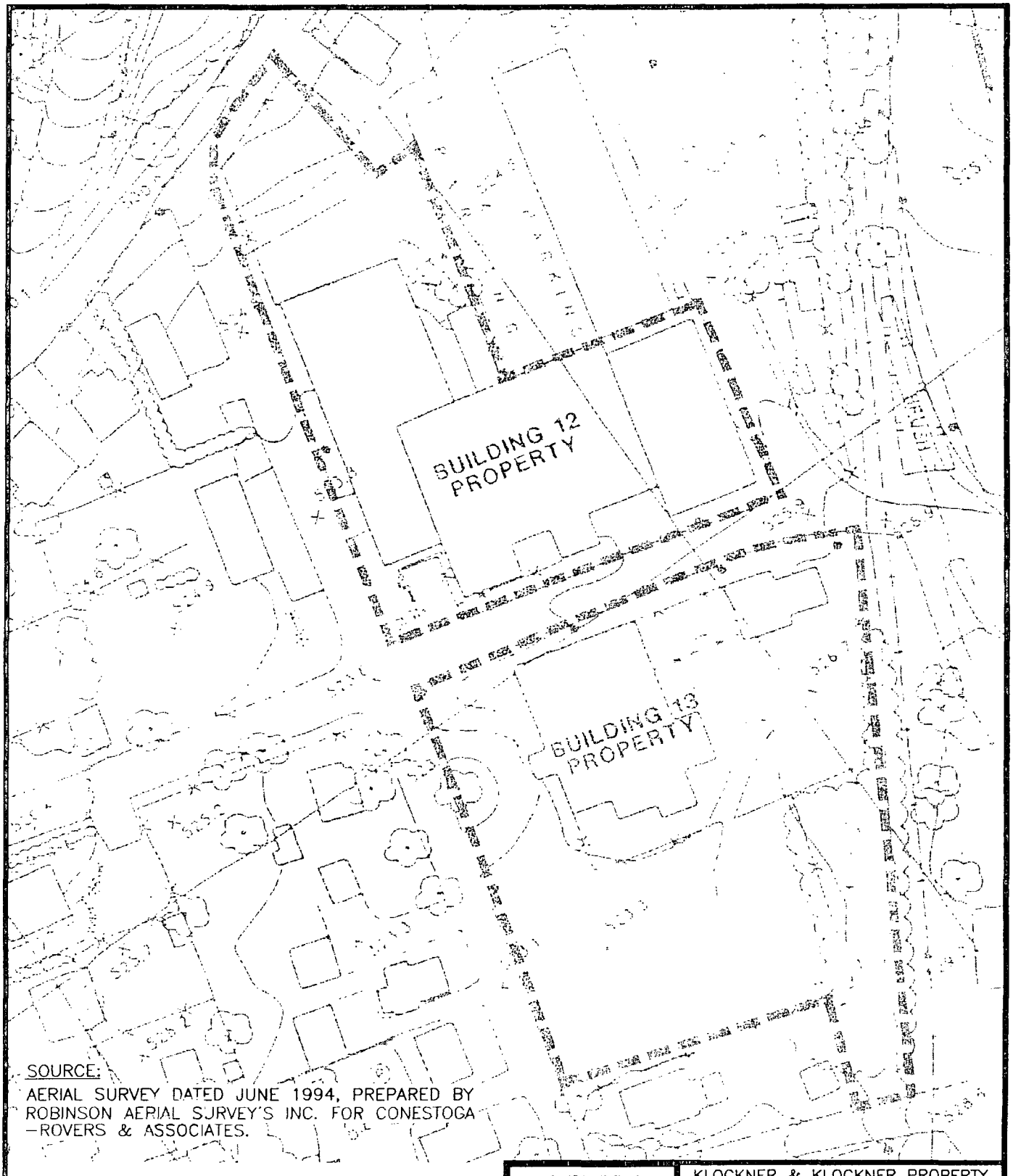
THE WHITMAN Companies, INC.

KLOCKNER & KLOCKNER PROPERTY
ROCKAWAY BOROUGH
MORRIS COUNTY, NEW JERSEY

REMEDIAL ALTERNATIVE
V6

ORIGINAL BY:	DRAWN BY:	DRAWING NO:
M.M.	A.A.	950302H1
CHECKED BY:	DATE:	FIGURE NO:
M.M.	SEPT 2007	8

500050



SOURCE:
AERIAL SURVEY DATED JUNE 1994, PREPARED BY ROBINSON AERIAL SURVEY'S INC. FOR CONESTOGA -ROVERS & ASSOCIATES.

-APPROXIMATE AREA (18'x20') THAT WOULD BE RESTRICTED UNDER REMEDIAL ALTERNATIVE L2 AND/OR CAPPED UNDER REMEDIAL ALTERNATIVE L3 OR EXCAVATED UNDER REMEDIAL ALTERNATIVE L4

THE WHITMAN Companies, INC.

KLOCKNER & KLOCKNER PROPERTY
ROCKAWAY BOROUGH
MORRIS COUNTY, NEW JERSEY

REMEDIAL ALTERNATIVES
L2, L3 & L4

ORIGINAL BY:	DRAWN BY:	DRAWING NO:
M.M.	A.A.	950302H1
CHECKED BY:	DATE:	FIGURE NO:
M.M.	SEPT 2007	9

APPENDIX II

TABLES

TABLE 1

Summary of Chemicals of Concern and Medium-Specific Exposure Point Concentrations

Scenario Timeframe: Current/Future
Medium: Soil at Building 12
Exposure Medium: Surface Soil (0-2.5 feet)

Exposure Point	Chemical of Concern	Concentration Detected		Concentration Units	Frequency of Detection	Exposure Point Concentration (EPC)	EPC Units	Statistical Measure
		Min	Max					
Surface Soil	Tetrachloroethene (PCE)	0.13	24	mg/kg	7/35	>1 mg/kg = 24 <1mg/kg = 0.02	mg/kg mg/kg	MAX 95% UCL-T
	Trichloroethene (TCE)	0.19	90	mg/kg	26/35	>1 mg/kg = 48 <1 mg/kg = 0.48	mg/kg mg/kg	95% UCL-T MAX
	Lead	8.8	840	mg/kg	14/14	630	mg/kg	95% Cheb

Maximum value detected (MAX); 95% UCL of log-transformed data (95% UCL-T); 95% Chebyshev UCL (95% Cheb)

Scenario Timeframe: Current/Future
Medium: Soil at Building 12
Exposure Medium: All Soil (0-13.5 feet)

Exposure Point	Chemical of Concern	Concentration Detected		Concentration Units	Frequency of Detection	Exposure Point Concentration (EPC)	EPC Units	Statistical Measure
		Min	Max					
All Soil	Tetrachlorothene (PCE)	0.13	24	mg/kg	43/74	>1mg/kg = 24 <1 mg/kg = 0.004	mg/kg mg/kg	MAX 95% UCL-T
	Trichloroethene (TCE)	0.14	90	mg/kg	11/74	>1mg/kg = 39 <1 mg/kg = 0.71	mg/kg mg/kg	95% H-UCL MAX
	Lead	8.8	840	mg/kg	21/21	730	mg/kg	95% Cheb

Maximum value detected (MAX); 95% UCL of log-transformed data (95% UCL-T); 95% Chebyshev UCL (95% Cheb); Land's H statistic (95% H-UCL)

Summary of Chemicals of Concern and Medium-Specific Exposure Point Concentrations

This table presents the chemicals of concern (COCs) and exposure point concentrations (EPCs) for each of the COCs detected in soil (i.e., the concentration that will be used to estimate the exposure and risk from each COC in soil). The table includes the range of concentrations detected for each COC, as well as the frequency of detection (i.e., the number of times the chemical was detected in the samples collected at the site), the EPC and how it was derived.

TABLE 2

Selection of Exposure Pathways

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	On-Site/ Off-Site	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/Future	Soil	Soil 0-2.5 feet in depth	Building 12 and 13 Property	Worker (a)	Adult	Ingestion	On-site	Quant	Site is currently operated as a business and workers are present on the site.
						Dermal	On-site	Quant	Site is currently operated as a business and workers are present on the site.
				Intermittent visitor (a)	Adolescent	Ingestion	On-site	Quant	Site is surrounded by residential homes. The potential for people, especially children, being on the site warrants assessing potential risk to this receptor population.
						Dermal	On-site	Quant	Site is surrounded by residential homes. The potential for people, especially children, being on the site warrants assessing potential risk to this receptor population.
Future	Soil	Soil - All depths (1)	Building 12 and 13 Property	Recreational Park Visitor (b)	Adult	Ingestion	On-site	Quant	The site is within a zoning area that abuts an area that is zoned for environmental conservation. Although the site proper does not abut the conservation zone, given the proximity to the river corridor, future use could potentially include open space (i.e., park).
						Dermal	On-site	Quant	The site is within a zoning area that abuts an area that is zoned for environmental conservation. Although the site proper does not abut the conservation zone, given the proximity to the river corridor, future use could potentially include open space (i.e., park).
					Adolescent	Ingestion	On-site	Quant	The site is within a zoning area that abuts an area that is zoned for environmental conservation. Although the site proper does not abut the conservation zone, given the proximity to the river corridor, future use could potentially include open space (i.e., park).
						Dermal	On-site	Quant	The site is within a zoning area that abuts an area that is zoned for environmental conservation. Although the site proper does not abut the conservation zone, given the proximity to the river corridor, future use could potentially include open space (i.e., park)
				Resident (c)	Adult	Ingestion	On-site	Quant	The site is located within a residential area and the property could potentially be developed as residential.
						Dermal	On-site	Quant	The site is located within a residential area and the property could potentially be developed as residential.
					Child	Ingestion	On-site	Quant	The site is located within a residential area and the property could potentially be developed as residential.
						Dermal	On-site	Quant	The site is located within a residential area and the property could potentially be developed as residential.
				Construction worker (b,c)	Adult	Ingestion	On-site	Quant	There is potential for construction at the site. These activities could be associated with remediation or for redevelopment of the property.
						Dermal	On-site	Quant	There is potential for construction at the site. These activities could be associated with remediation or for redevelopment of the property.
						Inhalation of dust	On-site	Quant	There is potential for construction activities at the site. These activities could be associated with remediation or for redevelopment of the property.

Summary of Selection of Exposure Pathways

The table describes the exposure pathways associated with the soil that were evaluated for the risk assessment, and the rationale for the inclusion of each pathway. Exposure media, exposure points, and characteristics of receptor populations are included.

(1) Soil exposure assumes that future use, with exception of scenario (a) could potentially lead to exposure to all soil depths. Note that the majority of samples and detects were in shallow soil <5 feet in depth
(a) Assumes site remains as is and current uses preside.
(b) Assumes redevelopment as a park and that soil would be disturbed during building demolition. Refer to text for explanation.
(c) Assumes redevelopment as a residential area and that soil would be disturbed during redevelopment. Refer to text for explanation.

TABLE 3

Non-Cancer Toxicity Data Summary

Pathway: Oral/Dermal

Chemical of Concern	Chronic/ Subchronic	Oral RfD Value	Oral RfD Units	Absorp. Efficiency (Dermal)	Adjusted RfD (Dermal)	Adj. Dermal RfD Units	Primary Target Organ	Combined Uncertainty /Modifying Factors	Sources of RfD: Target Organ	Dates of RfD:
Tetrachloroethene	Chronic	1.0E-2	mg/kg-day	NA	1.0 E-2	mg/kg-day	Liver	1000	IRIS	11/27/01
Trichloroethene	Chronic	3.0E-4	mg/kg-day	NA	3.0E-4	mg/kg-day	Liver, kidney, fetus	3000	NCEA	11/27/01
Lead	NA	NA	mg/kg-day	NA	NA	mg/kg-day	NA	NA	NA	NA

Pathway: Inhalation

Chemical of Concern	Chronic/ Subchronic	Inhalation RfC	Inhalation RfC Units	Inhalation RfD	Inhalation RfD Units	Primary Target Organ	Combined Uncertainty /Modifying Factors	Sources of RfD: Target Organ	Dates:
Tetrachloroethene	Chronic	2.0E-1	mg/m3	5.7E-2	mg/kg-day	Kidney	100	NCEA	12/10/01
Trichloroethene	Chronic	4.0E-2	mg/m3	1.1E-2	mg/kg-day	CNS	1000	NCEA	12/10/01
Lead	NA	NA	mg/m3	NA	mg/kg-day	NA	NA	NA	NA

Key

NA: No information available
IRIS: Integrated Risk Information System, U.S. EPA
NCEA: National Center for Environmental Assessment

Summary of Toxicity Assessment

This table provides non-carcinogenic risk information which is relevant to the contaminants of concern in soil. When available, the chronic toxicity data have been used to develop oral reference doses (RfDs) and inhalation reference doses (RfDi). Lead does not have toxicity values and was evaluated qualitatively in the risk assessment.

TABLE 4

Cancer Toxicity Data Summary

Pathway: Oral/Dermal

Chemical of Concern	Oral Cancer Slope Factor	Units	Adjusted Cancer Slope Factor (for Dermal)	Slope Factor Units	Weight of Evidence/ Cancer Guideline Description	Source	Date
Tetrachloroethene [1]	5.2E-2	$(mg/kg/day)^{-1}$	5.2E-2	$(mg/kg/day)^{-1}$	B2-C	NCEA	11/27/01
Trichloroethene	1.1E-2	$(mg/kg/day)^{-1}$	1.1E-2	$(mg/kg/day)^{-1}$	B1	NCEA	11/27/01
Lead	NA	$(mg/kg/day)^{-1}$	NA	$(mg/kg/day)^{-1}$	NA	NA	NA

Pathway: Inhalation

Chemical of Concern	Unit Risk	Units	Inhalation Slope Factor	Slope Factor Units	Weight of Evidence/ Cancer Guideline Description	Source	Date
Tetrachloroethene [1]	3.5E-6	$(mg/m^3)^{-1}$	1.2E-5	$(mg/kg\text{-}day)^{-1}$	B2-C	NCEA	12/10/01
Trichloroethene	1.1E-1	$(mg/m^3)^{-1}$	3.9E-1	$(mg/kg\text{-}day)^{-1}$	B1	NCEA	12/10/01
Lead	NA	$(mg/m^3)^{-1}$	NA	$(mg/kg\text{-}day)^{-1}$	NA	NA	NA

[1] Since the risk assessment was performed in December 2002, the Office of Solid Waste and Emergency Response has issued Directive 9285.7-75 recommending that California EPA's cancer slope factors for tetrachloroethene be used in Superfund risk assessments. However, the use of the Cal EPA values would not change the remedy for the site.

Key:
NA: No information available
NCEA: National Center for Environmental Assessment

EPA Weight of Evidence:
A - Human carcinogen
B1 - Probable Human Carcinogen-Indicates that limited human data are available
B2 - Probable Human Carcinogen-Indicates sufficient evidence in animals associated with the site and inadequate or no evidence in humans
C - Possible human carcinogen
D - Not classifiable as a human carcinogen
E- Evidence of noncarcinogenicity

Summary of Toxicity Assessment

This table provides carcinogenic risk information which is relevant to the contaminants of concern in soil. Toxicity data are provided for both the oral and inhalation routes of exposure. Lead does not have toxicity values and was evaluated qualitatively in the risk assessment.

TABLE 5

Risk Characterization Summary - Noncarcinogens

Scenario Timeframe: Current/Future
Receptor Population: Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogenic Risk			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil (0-2.5 feet)	Building 12	TCE > 1mg/kg	Liver, kidney, fetus	8E-02			8E-02
			TCE < 1 mg/kg	Liver, kidney, fetus	8E-04			8E-04
			PCE > 1 mg/kg	Liver	1E-03			1E-03
			PCE < 1 mg/kg	Liver	1E-06			1E-06
							Total Receptor Hazard Index [1] =	0.2

Scenario Timeframe: Future
Receptor Population: Construction worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogenic Risk			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil (all depths)	Building 12	TCE > 1mg/kg	Liver, kidney, fetus	3E-01			3E-01
			TCE < 1 mg/kg	Liver, kidney, fetus	6E-03			6E-03
			PCE > 1 mg/kg	Liver	6E-03			6E-03
			PCE < 1 mg/kg	Liver	8E-07			8E-07
							Total Receptor Hazard Index [1] =	0.7

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child (0-6 yrs)

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogenic Risk			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil (all depths)	Building 12	TCE > 1mg/kg	Liver, kidney, fetus	2.0			2.0
			TCE < 1 mg/kg	Liver, kidney, fetus	3E-02			3E-02
			PCE > 1 mg/kg	Liver	3E-02			3E-02
			PCE < 1 mg/kg	Liver	5E-06			5E-06
							Total Receptor Hazard Index [1] =	3.8
							Total Liver III	2.0

Total Kidney HI	2.0
Total Fetus HI	2.0

[1] The HI represents the summed HQs for all chemicals of potential concern at the site, not just those chemicals requiring remedial action which are shown here.

Summary of Risk Characterization - Non-Carcinogens

The table presents hazard quotients (HQs) for each route of exposure and the hazard index (sum of hazard quotients) for all routes of exposure. The Risk Assessment Guidance for Superfund states that, generally, a hazard index (HI) greater than 1 indicates the potential for adverse non-cancer effects.

TABLE 6

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil (0-2.5 feet)	Building 12	TCE > 1mg/kg	9 E-08			9E-08
			TCE < 1 mg/kg	9E-10			9E-10
			PCE > 1 mg/kg	2E-07			2E-07
			PCE < 1 mg/kg	1E-10			1E-10
						Total Risk [1]=	3E-06

Scenario Timeframe: Future
Receptor Population: Construction worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil (all soil)	Building 12	TCE > 1mg/kg	1E-08	7E-12		1E-08
			TCE < 1 mg/kg	3E-10	1E-13		3E-10
			PCE > 1 mg/kg	4E-08	1E-16		4E-08
			PCE < 1 mg/kg	6E-12	2E-20		6E-12
						Total Risk [1]=	7E-07

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil (all soil)	Building 12	TCE > 1mg/kg	5E-07			5E-07
			TCE < 1 mg/kg	9E-09			9E-09
			PCE > 1 mg/kg	1E-06			1E-06
			PCE < 1 mg/kg	2E-10			2E-10
						Total Risk [1]=	2E-05

[1] The total risk represents the summed cancer risks for all chemicals of potential concern at the site, not just those chemicals requiring remedial action which are shown here.

Summary of Risk Characterization - Carcinogens

The table presents cancer risks for each route of exposure and for all routes of exposure combined. As stated in the National Contingency Plan, the acceptable risk range for site-related exposure is 10^{-6} to 10^{-4}.

TABLE 7

Standards Identified as Applicable
Rockaway Borough Wellfield Site, Soil (OU-3)

Standard, Requirement, Criterion, or Limitation	Citation or Reference	Type	Description	Status	Comments
FEDERAL					
Resource Conservation and Recovery Act (RCRA) Regulations - Groundwater Protection Standards	40 CFR 264.94	Chemical specific	Maximum contaminant concentrations for groundwater protection at hazardous waste management facilities	Relevant and Appropriate	The selected remedy will meet these requirements by meeting the remediation goal of 1 kg/mg PCE for soil.
RCRA Regulations - Groundwater Protection Standards	40 CFR 264.18	Location specific	Regulates the design, construction, operation and maintenance of hazardous waste management facilities within the 100-year floodplain.	Relevant and Appropriate	The selected remedy will meet these requirements through the design of the on-site SVE system, if treatment is found to be necessary.
RCRA Regulations -Hazardous Waste Generation	40 CFR 262	Action specific	Specifies requirements for hazardous waste packaging, labeling, manifesting, and storage.	Applicable	The selected remedy will be implemented in compliance with these requirements.
RCRA Regulations - Transportation of Hazardous Waste	40 CFR 263	Action specific	Specifies requirements for transporters of hazardous waste to obtain an EPA identification number, comply with manifest procedures, and spill response.	Applicable	The selected remedy will be implemented in compliance with these requirements.
RCRA Regulations -Treatment Storage, and Disposal of Hazardous Waste	40 CFR 264/265	Action specific	Specifies requirements for the operation of hazardous waste treatment, storage, and disposal facilities.	Applicable	The selected remedy will be implemented in compliance with these requirements.
Standard, Requirement, Criterion, or Limitation	**Citation or Reference**	**Type**	**Description**	**Status**	**Comments**
RCRA Regulations – Land Disposal Restrictions	40 CFR 268	Action specific	Sets out prohibitions and establishes standards for the land disposal of hazardous waste.	Applicable	The selected remedy will meet these requirements, as no hazardous waste will remain on-site when implementation is

					complete.
Clean Air Act Regulations - National Ambient Air Quality Standards –Particulates	40 CFR 50	Action specific	Establishes maximum concentrations for particulates and fugitive dust emissions.	Applicable	The selected remedy will be implemented in compliance with these requirements.
United States Department of Transportation (USDOT) Hazardous Materials Transportation Regulations	49 CFR 171-180	Action specific	Establishes classification, packaging, and labeling requirements for shipments of hazardous materials.	Applicable	The selected remedy will be implemented in compliance with these requirements.
EPA Test Methods for Evaluation of Solid Waste	SW-846	Action specific	EPA's official compendium of analytical and sampling methods.	TBC	The selected remedy will be implemented in compliance with these requirements.

STATE OF NEW JERSEY

Standard, Requirement, Criterion, or Limitation	Citation or Reference	Type	Description	Status	Comments
NJ Soil Cleanup Criteria (SCC)	State Guidance	Chemical specific	SCC were developed based on a minimum cancer risk of one in one million and a non-cancer risk not to exceed a Hazard Index of 1. SCC were developed for Residential and Non-Residential Direct Contact and for Impact to Ground Water.	TBC	SCC for Impact to Ground Water were selected as remediation goals for TCE and PCE. SCC for Residential Direct Contact was selected as a remediation goal for lead.
NJ Hazardous Waste Management Regulations	NJAC 7:26G	Action specific	Provides requirements governing the generation, accumulation, on-site management, and transportation of hazardous wastes.	Relevant and Appropriate	The selected remedy will be implemented in compliance with these substantive requirements.
NJ Air Quality Regulations	NJAC 7:27	Action specific	Provides requirements applicable to air pollution sources.	Relevant and Appropriate	The selected remedy will be implemented in compliance with these substantive requirements.
NJ Soil Erosion and Sediment Control Act	NJSA 4:24	Action specific	Requires the implementation of soil erosion and sediment control measures for activities disturbing more than 5,000 square feet of surface area of land.	Relevant and Appropriate	The selected remedy will be implemented in compliance with these substantive requirements.

TABLE 8

Klockner & Klockner
Building 12 Underground Gasoline Storage Tank
Summary of Volatile Organic
Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth (feet) Units	Residential Direct Contact Soil Cleanup Criteria mg/kg	Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	Impact to Ground Water Soil Cleanup Criteria mg/kg	SSGT-1 88685 10/07/98 7-7.5' mg/kg	SSGT-2 88684 10/07/98 7-7.5' mg/kg	SSGT-3 88686 10/07/98 7-7.5' mg/kg
VOLATILE COMPOUNDS						
Chloromethane	520	1000	10	ND	ND	ND
Bromomethane	79	1000	1	ND	ND	ND
Vinyl Chloride	2	7	10	ND	ND	ND
Chloroethane	NS	NS	NS	ND	ND	ND
Methylene Chloride	49	210	1	ND	ND	ND
Acetone	1,000	1,000	100	ND	ND	ND
Carbon Disulfide	NS	NS	NS	ND	ND	ND
Trichlorofluoromethane	NS	NS	NS	ND	ND	ND
1,1-Dichloroethene	8	150	10	ND	ND	ND
1,1-Dichloroethane	570	1000	10	ND	ND	ND
trans-1,2-Dichloroethene	1000	1000	50	ND	ND	ND
cis-1,2-Dichloroethene	79	1000	1	ND	ND	ND
Chloroform	19	28	1	ND	ND	ND
1,2-Dichloroethane	6	24	1	ND	ND	ND
2-Butanone	1,000	1,000	50	ND	ND	ND
1,1,1-Trichloroethane	210	1000	50	ND	ND	ND
Carbon Tetrachloride	2	4	1	ND	ND	ND
Bromodichloromethane	11	46	1	ND	ND	ND
1,2-Dichloropropane	10	43	NS	ND	ND	ND
cis-1,3-Dichloropropene	4	5	1	ND	ND	ND
Trichloroethene	23	54	1	ND	ND	ND
Dibromochloromethane	110	1000	1	ND	ND	ND
1,1,2-Trichloroethane	22	420	1	ND	ND	ND
Benzene	3	13	1	ND	ND	ND
trans-1,3-Dichloropropene	4	5	1	ND	ND	ND
2-Chloroethyl Vinyl Ether	NS	NS	NS	ND	ND	ND
Bromoform	86	370	1	ND	ND	ND
4-Methyl-2Pentanone	1,000	1,000	50	ND	ND	ND
2-Hexanone	NS	NS	NS	ND	ND	ND
Tetrachloroethene	4	6	1	ND	ND	ND
1,1,2,2-Tetrachloroethane	34	70	1	ND	ND	ND
Toluene	1000	1000	500	ND	ND	ND
Chlorobenzene	37	680	1	ND	ND	ND
Ethylbenzene	1000	1000	100	ND	ND	ND
Styrene	23	97	100	ND	ND	ND
Xylene (Total)	410	1000	10	ND	ND	ND
Total Target Conc. *				0	0	0
Total Estimated Conc. VOA TICs (s)				0	0	0

- Contaminant detection above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
The data package with method detection limits is provided as Attachment 8.
* Total Target Conc. -- Total concentration of listed compounds.

THE WHITMAN COMPANIES, INC.

TABLE 8 Continued

Klockner & Klockner
Building 12 Drum Storage Shed
Summary of Volatile Organic
Results For Soil

Sample ID	Residential	Non-Residential	Impact to	SSFS-1	SSFS-1D	SSFS-3B[1]
Lab Sample Number	Direct Contact	Direct Contact	Ground Water	88560	182788	183840
Sampling Date	Soil Cleanup	Soil Cleanup	Soil Cleanup	10/06/98	2/8/2000	2/15/2000
Sample Depth (feet)	Criteria	Criteria	Criteria	0.5-1	5-5.5	1.5-2
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOLATILE COMPOUNDS						
Chloromethane	520	1000	10	ND	ND	ND
Bromomethane	79	1000	1	ND	ND	ND
Vinyl Chloride	2	7	10	ND	ND	ND
Chloroethane	NS	NS	NS	ND	ND	ND
Methylene Chloride	49	210	1	ND	ND	ND
Acetone	1,000	1,000	100	ND	---	---
Carbon Disulfide	NS	NS	NS	ND	---	---
Trichlorofluoromethane	NS	NS	NS	ND	ND	ND
1,1-Dichloroethene	8	150	10	ND	ND	ND
1,1-Dichloroethane	570	1000	10	ND	ND	ND
trans-1,2-Dichloroethene	1000	1000	50	ND	ND	ND
cis-1,2-Dichloroethene	79	1000	1	1.2 J	ND	ND
Chloroform	19	28	1	ND	ND	ND
1,2-Dichloroethane	6	24	1	ND	ND	ND
2-Butanone	1,000	1,000	50	ND	---	---
1,1,1-Trichloroethane	210	1000	50	ND	ND	ND
Carbon Tetrachloride	2	4	1	ND	ND	ND
Bromodichloromethane	11	46	1	ND	ND	ND
1,2-Dichloropropane	10	43	NS	ND	ND	0.71
cis-1,3-Dichloropropene	4	5	1	ND	ND	ND
Trichloroethene	23	54	1	23	ND	ND
Dibromochloromethane	110	1000	1	ND	ND	ND
1,1,2-Trichloroethane	22	420	1	ND	ND	ND
Benzene	3	13	1	ND	--	--
trans-1,3-Dichloropropene	4	5	1	ND	ND	ND
2-Chloroethyl Vinyl Ether	NS	NS	NS	ND	ND	ND
Bromoform	86	370	1	ND	ND	ND
4-Methyl-2-Pentanone	1,000	1,000	50	ND	---	---
2-Hexanone	NS	NS	NS	ND	---	---
Tetrachloroethene	4	6	1	ND	ND	ND
1,1,2,2-Tetrachloroethane	34	70	1	ND	ND	ND
Toluene	1000	1000	500	ND	--	--
Chlorobenzene	37	680	1	ND	ND	ND
Ethylbenzene	1000	1000	100	ND	--	--
Styrene	23	97	100	ND	---	---
Xylene (Total)	410	1000	10	ND	--	--
Total Target Conc. *				24.2	0	0.71
Total Estimated Conc. VOA TICs				240	--	--

- Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
J - The result is less than detection limit, but greater than zero.
TIC - Tentatively Identified Compound
– - Not analyzed for substance
[1] - Sample analyzed for Purgeable Halocarbons

The data package for October 1998 with method detection limits is provided as Attachment 5.
The data packages for February 2000 with method detection limits is provided as Attachments 15 and 17.
* Total Target Conc. – Total concentration of listed compounds.

TABLE 8 Continued

Klockner & Klockner
Building 12 Waste Oil Tank
Summary of Purgeable Halocarbons
Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth (feet) Units	Residential Direct Contact Soil Cleanup Criteria mg/kg	Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	Impact to Ground Water Soil Cleanup Criteria mg/kg	SSWT-1 88554 10/06/98 7-7.5 mg/kg	SSWT-2 88561 10/06/98 7-7.5 mg/kg
PHAL					
Dichlorodifluoromethane	NS	NS	NS	ND	ND
Chloromethane	520	1000	10	ND	ND
Vinyl Chloride	2	7	10	ND	ND
Bromomethane	79	1000	1	ND	ND
Chloroethane	NS	NS	NS	ND	ND
Trichlorofluoromethane	NS	NS	NS	ND	ND
1,1-Dichloroethene	8	150	10	ND	ND
Methylene Chloride	49	210	1	ND	ND
trans-1,2-Dichloroethene	1000	1000	50	ND	ND
1,1-Dichloroethane	570	1000	10	ND	ND
cis-1,2-Dichloroethene	79	1000	1	ND	ND
Chloroform	19	28	1	ND	ND
1,1,1-Trichloroethane	210	1000	50	ND	ND
Carbon Tetrachloride	2	4	1	ND	ND
1,2-Dichloroethane	6	24	1	ND	ND
Trichloroethene	23	54	1	0.237	ND
1,2-Dichloropropane	10	43	NS	ND	ND
Bromodichloromethane	11	46	1	ND	ND
2-Chloroethyl Vinyl Ether	NS	NS	NS	ND	ND
cis-1,3-Dichloropropene	4	5	1	ND	ND
trans-1,3-Dichloropropene	4	5	1	ND	ND
1,1,2-Trichloroethane	22	420	1	ND	ND
Tetrachloroethene	4	6	1	ND	ND
Dibromochloromethane	110	1000	1	ND	ND
Chlorobenzene	37	680	1	ND	ND
Bromoform	86	370	1	ND	ND
1,1,2,2-Tetrachloroethane	34	70	1	ND	ND
1,3 Dichlorobenzene	5,100	10,000	100	ND	ND
1,4 Dichlorobenzene	570	10,000	100	ND	ND
1,2 Dichlorobenzene	5,100	10,000	50	ND	ND
Total Target Conc. *				0.237	0

- Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
The data package with method detection limits is provided as Attachment 5.
* Total Target Conc. – Total concentration of listed compounds.

TABLE 8 Continued

Klockner & Klockner
Degreaser Pit
Summary of Purgeable Halocarbons
Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth (feet) Units	Residential Direct Contact Soil Cleanup Criteria mg/kg	Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	Impact to Ground Water Soil Cleanup Criteria mg/kg	SSDP-1 89310 10/08/98 2.5-3 mg/kg
PHAL				
Dichlorodifluoromethane	NS	NS	NS	ND
Chloromethane	520	1000	10	ND
Vinyl Chloride	2	7	10	ND
Bromomethane	79	1000	1	ND
Chloroethane	NS	NS	NS	ND
Trichlorofluoromethane	NS	NS	NS	ND
1,1-Dichloroethene	8	150	10	ND
Methylene Chloride	49	210	1	ND
trans-1,2-Dichloroethene	1000	1000	50	ND
1,1-Dichloroethane	570	1000	10	ND
cis-1,2-Dichloroethene	79	1000	1	ND
Chloroform	19	28	1	ND
1,1,1-Trichloroethane	210	1000	50	ND
Carbon Tetrachloride	2	4	1	ND
1,2-Dichloroethane	6	24	1	ND
Trichloroethene	23	54	1	0.656
1,2-Dichloropropane	10	43	NS	ND
Bromodichloromethane	11	46	1	ND
2-Chloroethyl Vinyl Ether	NS	NS	NS	ND
cis-1,3-Dichloropropene	4	5	1	ND
trans-1,3-Dichloropropene	4	5	1	ND
1,1,2-Trichloroethane	22	420	1	ND
Tetrachloroethene	4	6	1	1.1
Dibromochloromethane	110	1000	1	ND
Chlorobenzene	37	680	1	ND
Bromoform	86	370	1	ND
1,1,2,2-Tetrachloroethane	34	70	1	ND
1,3 Dichlorobenzene	5100	NS	100	ND
1,4 Dichlorobenzene	570	NS	100	ND
1,2 Dichlorobenzene	5100	NS	50	ND
Total Target Conc. *				1.756

- Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
The data package with method detection limits is provided as Attachment 11.
* Total Target Conc. – Total concentration of listed compounds.

TABLE 8 Continued

Klockner Klockner
Building 12 Alleyway
Summary of Purgeable Halocarbons
Results For Soil

Sample ID	Residential	Non-Residential	Impact to	SSAW-1	SSAW-1	SSAW-2	SSAW-2	SSAW-3	SSAW-3	SSAW-3	SSAW-4	SSAW-4	SSAW-5	SSAW-5	SSAW-6	SSAW-6	SSAW-7	SSAW-7	SSAW-8	SSAW-8	SSAW-9	SSAW-9
Lab Sample Number	Direct Contact	Direct Contact	Ground Water	88555	88556	88671	88672	88552	183831	88553	88678	88679	89308	89309	88569	88570	88664	88665	88651	88568	88667	182785
Sampling Date	Soil Cleanup	Soil Cleanup	Soil Cleanup	10/06/98	10/06/98	10/07/98	10/07/98	10/06/98	2/15/2000	10/06/98	10/07/98	10/07/98	10/08/98	10/08/98	10/06/98	10/06/98	10/07/98	10/07/98	10/06/98	10/06/98	10/07/98	2/8/2000
Sample Depth (feet)	Criteria	Criteria	Criteria	2.5-3	13-13.5	1.5-2	7.5-8	1-1.5	4-4.5	11.5-12	4-4.5	9.5-10	1.5-2	11-11.5	2-2.5	9-9.5	5-5.5	12-12.5	5.5-6	11-11.5	1-1.5	5.5-6
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
PHAL																						
Dichlorodifluoromethane	NS	1000	NS	ND	ND	ND	ND	ND	NC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	520	1000	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	2	7	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	79	NS	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	NS	210	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NS	NS	NS	ND	ND	ND	ND	ND	NC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	8	150	10	ND	ND	ND	ND	ND	NC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	49	1000	1	ND	ND	ND	ND	ND	NC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	1000	1000	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	570	1000	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	79	28	1	ND	ND	ND	ND	10.6	4.1	ND	ND	ND	0.406	ND	16.4	ND	ND	ND	ND	ND	ND	ND
Chloroform	19	24	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	210	1000	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	2	4	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	6	46	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	23	43	1	2.47	1.33	23.1	0.144	32.5	6.4	ND	23.2	ND	16.6	ND	65.9	ND	0.783	0.648	ND	NC	23.3	0.44
1,2-Dichloropropane	10	5	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	11	54	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethyl Vinyl Ether	NS	1000	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	4	420	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	4	13	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	22	5	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	4	NS	1	ND	ND	ND	ND	ND	ND	NC	ND	ND	5.85	ND	23.7	NC	ND	ND	ND	ND	ND	NC
Dibromochloromethane	110	370	1	ND	ND	ND	ND	ND	ND	NC	ND	ND	ND	ND	ND	NC	ND	ND	ND	ND	ND	NC
Chlorobenzene	37	6	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	86	70	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	34	1000	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	5100	660	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NC
1,4-Dichlorobenzene	570	1000	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	5100	1000	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Target Conc. *				2.47	1.33	23.1	0.144	43.1	9.5	0	23.2	0	16.856	0	106	0	0.283	0.648	0	0	23.3	0.44

- Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
The data package for October 1998 with method detection limits is provided as Attachment 5 and 8.
The data package for February 2000 with method detection limits is provided as Attachment 15 and 17
* Total Target Conc. –Total concentration of listed compounds.

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TABLE 8 Continued

Klockner Klockner
Building 12 Alleyway
Summary of Purgeable Halocarbons
Results For Soil

Sample ID	Residential	Non-Residential	Impact to	SSAW-9	SSAW-10	SSAW-11	SSAW-12	SSAW-13	SSAW-14	SSAW-15	SSAW-16	SSAW-D	SSAW-17	SSAW-18	SSAW-19	SSAW-21	SSAW-22	SSAW-23	SSAW-DUP	SSAW-24	SSAW-25	SSAW-26
Lab Sample Number	Direct Contact	Direct Contact	Ground Water	88669	88658	182785	183832	183833	183834	183835	183836	183837	183838	223537	223538	223539	223540	234144	234145	223541	223542	223543
Sampling Date	Soil Cleanup	Soil Cleanup	Soil Cleanup	10/07/98	10/07/98	2/8/2000	2/15/2000	2/15/2000	2/15/2000	2/15/2000	2/15/2000	2/15/2000	2/15/2000	8/16/2000	8/16/2000	8/16/2000	8/16/2000	10/3/2000	10/3/2000	8/16/2000	8/16/2000	8/16/2000
Sample Depth (feet)	Criteria	Criteria	Criteria	11.5-12	1-1.5	1-1.5	1-1.5	1.5-2.5	4.5-5	4-5.5	15-2	1.5-2	2.4-4.5	5-5.2	0.5-1	1.5-2	0.5-1	1-1.5	1-1.5	1-1.5	1-1.5	1-1.5
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
PHAL																						
Dichlorodifluoromethane	NS	1000	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	520	1000	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	2	7	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	79	NS	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	NS	210	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	8	150	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	49	1000	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	1000	1000	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	570	1000	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	79	28	1	ND	ND	ND	ND	0.47	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	19	24	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	210	1000	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	2	4	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	6	40	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	23	43	1	ND	21.2	9.9	2.4	5.3	5.5	0.38	7.6	9.4	ND	ND	0.47	ND	ND	0.35	0.21	0.31	ND	ND
1,2-Dichloropropane	10	5	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	11	54	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethyl Vinyl Ether	NS	1000	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	4	420	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	4	13	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	22	5	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	4	NS	1	ND	ND	0.37	ND	0.33	4.0	ND	ND	ND	ND	ND	ND	ND	1.2	0.28	0.27	ND	ND	ND
Dibromochloromethane	110	370	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	37	8	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	86	70	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	34	1000	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3 Dichlorobenzene	5100	680	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4 Dichlorobenzene	570	1000	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2 Dichlorobenzene	5100	1000	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Target Conc. *				0	21.2	10.27	2.4	14.07	9.5	0.38	7.6	9.4	0	0	0.47	0	1.2	0.63	0.43	0.31	0	0

- Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
The data package for October 1998 with method detection limits is provided as Attachment 5 and 6.
The data package for February 2000 with method detection limits is provided as Attachment 15 and 17.
* Total Target Conc. = Total concentration of listed compounds

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THE WHITMAN COMPANIES, INC.

TABLE 8 Continued

Klockner & Klockner
Building 12 Scale Room
Summary of Purgeable Halocarbons
Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth (feet) Units	Residential Direct Contact Soil Cleanup Criteria mg/kg	Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	Impact to Ground Water Soil Cleanup Criteria mg/kg	SSSR-1 88681 10/07/98 4-4.5' mg/kg	SSSR-2 88674 10/07/98 0-0.5' mg/kg	SSSR-3 88675 10/07/98 0-0.5' mg/kg	SSSR-4 88682 10/07/98 4-4.5' mg/kg
PHAL							
Dichlorodifluoromethane	NS		NS	ND	ND	ND	ND
Chloromethane	520	1000	10	ND	ND	ND	ND
Vinyl Chloride	2	7	10	ND	ND	ND	ND
Bromomethane	79	1000	1	ND	ND	ND	ND
Chloroethane	NS	NS	NS	ND	ND	ND	ND
Trichlorofluoromethane	NS	NS	NS	ND	ND	ND	ND
1,1-Dichloroethene	8	150	10	ND	ND	ND	ND
Methylene Chloride	49	210	1	ND	ND	ND	ND
trans-1,2-Dichloroethene	1000	1000	50	ND	ND	ND	ND
1,1-Dichloroethane	570	1000	10	ND	ND	ND	ND
cis-1,2-Dichloroethene	79	1000	1	ND	ND	ND	ND
Chloroform	19	28	1	ND	ND	ND	ND
1,1,1-Trichloroethane	210	1000	50	ND	ND	ND	ND
Carbon Tetrachloride	2	4	1	ND	ND	ND	ND
1,2-Dichloroethane	6	24	1	ND	ND	ND	ND
Trichloroethene	23	54	1	0.159	43.9	19.7	0.712
1,2-Dichloropropane	10	43	NS	ND	ND	ND	ND
Bromodichloromethane	11	46	1	ND	ND	ND	ND
2-Chloroethyl Vinyl Ether	NS	NS	NS	ND	ND	ND	ND
cis-1,3-Dichloropropene	4	5	1	ND	ND	ND	ND
trans-1,3-Dichloropropene	4	5	1	ND	ND	ND	ND
1,1,2-Trichloroethane	22	420	1	ND	ND	ND	ND
Tetrachloroethene	4	6	1	ND	ND	ND	ND
Dibromochloromethane	110	1000	1	ND	ND	ND	ND
Chlorobenzene	37	680	1	ND	ND	ND	ND
Bromoform	86	370	1	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	34	70	1	ND	ND	ND	ND
1,3 Dichlorobenzene	5100	10,000	100	ND	ND	ND	ND
1,4 Dichlorobenzene	570	10,000	100	ND	ND	ND	ND
1,2 Dichlorobenzene	5100	10,000	50	ND	ND	ND	ND
Total Target Conc. *				0.159	43.9	19.7	0.712

- Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
The data package with method detection limits is provided as Attachment 8.
* Total Target Conc. -- Total concentration of listed compounds.

TABLE 8 Continued

Klockner & Klockner
Building 12 Drum Storage in Alleyway
Summary of Purgeable Halocarbons
Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth (feet) Units	Residential Direct Contact Soil Cleanup Criteria mg/kg	Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	Impact to Ground Water Soil Cleanup Criteria mg/kg	SSDSA-1 88568 10/06/98 1.5-2 mg/kg
PHAL				
Dichlorodifluoromethane	NS	NS	NS	ND
Chloromethane	520	1000	10	ND
Vinyl Chloride	2	7	10	ND
Bromomethane	79	1000	1	ND
Chloroethane	NS	NS	NS	ND
Trichlorofluoromethane	NS	NS	NS	ND
1,1-Dichloroethene	8	150	10	ND
Methylene Chloride	49	210	1	ND
trans-1,2-Dichloroethene	1000	1000	50	ND
1,1-Dichloroethane	570	1000	10	ND
cis-1,2-Dichloroethene	79	1000	1	ND
Chloroform	19	28	1	ND
1,1,1-Trichloroethane	210	1000	50	ND
Carbon Tetrachloride	2	4	1	ND
1,2-Dichloroethane	6	24	1	ND
Trichloroethene	23	54	1	4.56
1,2-Dichloropropane	10	43	NS	ND
Bromodichloromethane	11	46	1	ND
2-Chloroethyl Vinyl Ether	NS	NS	NS	ND
cis-1,3-Dichloropropene	4	5	1	ND
trans-1,3-Dichloropropene	4	5	1	ND
1,1,2-Trichloroethane	22	420	1	ND
Tetrachloroethene	4	6	1	ND
Dibromochloromethane	110	1000	1	ND
Chlorobenzene	37	680	1	ND
Bromoform	86	370	1	ND
1,1,2,2-Tetrachloroethane	34	70	1	ND
1,3 Dichlorobenzene	5100	NS	100	ND
1,4 Dichlorobenzene	570	NS	100	ND
1,2 Dichlorobenzene	5100	NS	50	ND
Total Target Conc. *				4.56

- Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
The data package with method detection limits is provided as Attachment 5.
* Total Target Conc. -- Total concentration of listed compounds.

TABLE 8 Continued

Klockner & Klockner
Building 12 North Drum Storage Area
Summary of Volatile Organic
Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth (feet) Units	Residential Direct Contact Soil Cleanup Criteria mg/kg	Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	Impact to Ground Water Soil Cleanup Criteria mg/kg	SSNDS-1A 88559 10/06/98 1-1.5 mg/kg	SSNDS-2 88557 10/06/98 1.5-2 mg/kg
VOLATILE COMPOUNDS					
Chloromethane	520	1000	10	ND	ND
Bromomethane	79	1000	1	ND	ND
Vinyl Chloride	2	7	10	ND	ND
Chloroethane	NS	NS	NS	ND	ND
Methylene Chloride	49	210	1	ND	ND
Acetone	1,000	1,000	100	ND	ND
Carbon Disulfide	NS	NS	NS	ND	ND
Trichlorofluoromethane	NS	NS	NS	ND	ND
1,1-Dichloroethene	8	150	10	ND	ND
1,1-Dichloroethane	570	1000	10	ND	ND
trans-1,2-Dichloroethene	1000	1000	50	ND	ND
cis-1,2-Dichloroethene	79	1000	1	1.3 J	0.093 J
Chloroform	19	28	1	ND	ND
1,2-Dichloroethane	6	24	1	ND	ND
2-Butanone	1,000	1,000	50	ND	ND
1,1,1-Trichloroethane	210	1000	50	ND	ND
Carbon Tetrachloride	2	4	1	ND	ND
Bromodichloromethane	11	46	1	ND	ND
1,2-Dichloropropane	10	43	NS	ND	ND
cis-1,3-Dichloropropene	4	5	1	ND	ND
Trichloroethene	23	54	1	90	6.2
Dibromochloromethane	110	1000	1	ND	ND
1,1,2-Trichloroethane	22	420	1	ND	ND
Benzene	3	13	1	ND	ND
trans-1,3-Dichloropropene	4	5	1	ND	ND
2-Chloroethyl Vinyl Ether	NS	NS	NS	ND	ND
Bromoform	86	370	1	ND	ND
4-Methyl-2-Pentanone	1,000	1,000	50	ND	ND
2-Hexanone	NS	NS	NS	ND	ND
Tetrachloroethene	4	6	1	ND	0.13
1,1,2,2-Tetrachloroethane	34	70	1	ND	ND
Toluene	1000	1000	500	ND	ND
Chlorobenzene	37	680	1	ND	ND
Ethylbenzene	1000	1000	100	ND	ND
Styrene	23	97	100	ND	ND
Xylene (Total)	410	1000	10	ND	ND
Total Target Conc. *				91.3	6.423
Total Estimated Conc. VOA TICs (s)				0	0

- Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
J - The result is less than detection limit, but greater than zero.
TIC - *Tentatively Identified Compounds*
The data package with method detection limits is provided as Attachment 5.
* Total Target Conc. --Total concentration of listed compounds.

TABLE 8 Continued

Klockner & Klockner
Building 12 North Drum Storage Area
Summary of Purgeable Halocarbons
Results for Soil

Area of Concern*	NJDEP	NJDEP																				
Sample ID	Residential	Non-Residential	Impact to	SSNDS-1C	SSNDS-1D	SSNDS-2C	SSNDS-3A	SSNDS-3B	SSNDS-4A	SSNDS-4B	SSNDS-5	SSNDS-D	SSNDS-6	SSNDS-7A	SSNDS-7B	SSNDS-8	SSNDS-9A	SSNDS-9B	SSNDS-DUP816	SSNDS-10A	SSNDS-10B	SSNDS-10C
Lab Sample Number	Direct Contact	Direct Contact	Ground Water	182795	182796	182797	182798	182799	182800	182801	182802	182803	182804	182805	182806	182807	223560	223561	223562	225684	223565	223566
Sampling Date	Soil Cleanup	Soil Cleanup	Soil Cleanup	2/8/2000	2/8/2000	2/8/2000	2/8/2000	2/8/2000	2/8/2000	2/8/2000	2/8/2000	2/8/2000	2/8/2000	2/8/2000	2/8/2000	2/8/2000	8/16/2000	8/16/2000	8/16/2000	8/16/2000	8/16/2000	8/16/2000
Sample Depth (feet)	Criteria	Criteria	Criteria	4.5-5	12-12.5	5-5.5	1-1.5	4.5-5	1.5-2	4.5-5	1-1.5	1-1.5	1-1.5	1.5-2	4.5-5	1-1.5	1.5-2	4.5-5	1.5-2	1-1.5	4.5-5	7-7.5
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
PHAL																						
Dichlorodifluoromethane	NS		NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	520	1000	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	2	7	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	79	1000	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	9	190	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	49	210	1	ND	ND	ND	0.27	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	1000	1000	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	570	1000	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	79	1000	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	19	28	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1 Trichloroethane	210	1000	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	2	4	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	6	24	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	23	54	1	ND	ND	ND	0.47	2.7	2.3	0.18	0.48	ND	0.41	ND	ND	ND	0.19	ND	ND	0.22	ND	ND
1,2-Dichloropropane	10	43	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	11	46	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethyl Vinyl Ether	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis 1,3 Dichloropropene	4	6	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	4	5	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	22	420	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	4	6	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	110	1000	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	37	980	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	88	370	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	34	70	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3 Dichlorobenzene	5100000		100000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4 Dichlorobenzene	570000		100000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2 Dichlorobenzene	5100000		50000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Target Conc. *				0	0	0	0.74	2.7	2.3	0.18	0.48	0	0.41	0	0	0	0.19	0	0	0.22	0	0

[ ] - Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
NA - Not Analyzed
The data package for February 2000 with method detection limits is provided as Attachment 15
The data package for August 2000 with method detection limits is provided as Attachment 16.
* Total Target Conc. -- Total concentration of listed compounds.

THE WHITMAN COMPANIES, INC.

TABLE 8 Continued

Klockner & Klockner
Sump Area
Summary of Purgeable Halocarbons
Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth (feet) Units	Residential Direct Contact Soil Cleanup Criteria mg/kg	Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	Impact to Ground Water Soil Cleanup Criteria mg/kg	SSSP-1 88666 10/07/98 4-4.5' mg/kg
PHAL				
Dichlorodifluoromethane	NS	NS	NS	ND
Chloromethane	520	1000	10	ND
Vinyl Chloride	2	7	10	ND
Bromomethane	79	1000	1	ND
Chloroethane	NS	NS	NS	ND
Trichlorofluoromethane	NS	NS	NS	ND
1,1-Dichloroethene	8	150	10	ND
Methylene Chloride	49	210	1	ND
trans-1,2-Dichloroethene	1000	1000	50	ND
1,1-Dichloroethane	570	1000	10	ND
cis-1,2-Dichlorcethene	79	1000	1	0.79 J
Chloroform	19	28	1	ND
1,1,1-Trichloroethane	210	1000	50	ND
Carbon Tetrachloride	2	4	1	ND
1,2-Dichloroethane	6	24	1	ND
Trichloroethene	23	54	1	37
1,2-Dichloropropane	10	43	NS	ND
Bromodichloromethane	11	46	1	ND
2-Chloroethyl Vinyl Ether	NS	NS	NS	ND
cis-1,3-Dichloropropene	4	5	1	ND
trans-1,3-Dichloropropene	4	5	1	ND
1,1,2-Trichloroethane	22	420	1	ND
Tetrachloroethene	4	6	1	2.1
Dibromochloromethane	110	1000	1	ND
Chlorobenzene	37	680	1	ND
Bromoform	86	370	1	ND
1,1,2,2-Tetrachloroethane	34	70	1	ND
1,3 Dichlorobenzene	5100	10000	100	ND
1,4 Dichlorobenzene	570	10000	100	ND
1,2 Dichlorobenzene	5100	10000	50	ND
Total Target Conc. *				39.89

- Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
J - The result is less than detection limit but greater than zero
The data package with method detection limits is provided as Attachment 8.
* Total Target Conc. – Total concentration of listed compounds.

TABLE 8 Continued

Klockner & Klockner
Building 13 Dry Well Area
Summary of Purgeable Halocarbons
Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth (feet) Units	Residential Direct Contact Soil Cleanup Criteria mg/kg	Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	Impact to Ground Water Soil Cleanup Criteria mg/kg	SSDW-1 90830 10/16/98 1.5-2 mg/kg
PHAL				
Dichlorodifluoromethane	NS	NS	NS	ND
Chloromethane	520	1000	10	ND
Vinyl Chloride	2	7	10	ND
Bromomethane	79	1000	1	ND
Chloroethane	NS	NS	NS	ND
Trichlorofluoromethane	NS	NS	NS	ND
1,1-Dichloroethene	8	150	10	ND
Methylene Chloride	49	210	1	ND
trans-1,2-Dichloroethene	1000	1000	50	ND
1,1-Dichloroethane	570	1000	10	ND
cis-1,2-Dichloroethene	79	1000	1	ND
Chloroform	19	28	1	ND
1,1,1-Trichloroethane	210	1000	50	ND
Carbon Tetrachloride	2	4	1	ND
1,2-Dichloroethane	6	24	1	ND
Trichloroethene	23	54	1	ND
1,2-Dichloropropane	10	43	NS	ND
Bromodichloromethane	11	46	1	ND
2-Chloroethyl Vinyl Ether	NS	NS	NS	ND
cis-1,3-Dichloropropene	4	5	1	ND
trans-1,3-Dichloropropene	4	5	1	ND
1,1,2-Trichloroethane	22	420	1	ND
Tetrachloroethene	4	6	1	1.04
Dibromochloromethane	110	1000	1	ND
Chlorobenzene	37	680	1	ND
Bromoform	86	370	1	ND
1,1,2,2-Tetrachloroethane	34	70	1	ND
1,3 Dichlorobenzene	5100	10000	100	ND
1,4 Dichlorobenzene	570	10000	100	ND
1,2 Dichlorobenzene	5100	10000	50	ND
Total Target Conc. *				1.04

- Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
The data package with method detection limits is provided as Attachment 12.
* Total Target Conc. -- Total concentration of listed compounds.

THE WHITMAN COMPANIES, INC.

TABLE 8 Continued

Klockner & Klockner
Building 13 Oil Storage Shed
Summary of Purgeable Halocarbons
Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth (feet) Units	Residential Direct Contact Soil Cleanup Criteria mg/kg	Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	Impact to Ground Water Soil Cleanup Criteria mg/kg	SSOSS-1 89300 10/08/98 1-1.5' mg/kg
PHAL				
Dichlorodifluoromethane	NS	NS	NS	ND
Chloromethane	520	1000	10	ND
Vinyl Chloride	2	7	10	ND
Bromomethane	79	1000	1	ND
Chloroethane	NS	NS	NS	ND
Trichlorofluoromethane	NS	NS	NS	ND
1,1-Dichloroethene	8	150	10	ND
Methylene Chloride	49	210	1	ND
trans-1,2-Dichloroethene	1000	1000	50	ND
1,1-Dichloroethane	570	1000	10	ND
cis-1,2-Dichloroethene	79	1000	1	ND
Chloroform	19	28	1	ND
1,1,1-Trichloroethane	210	1000	50	7.25
Carbon Tetrachloride	2	4	1	ND
1,2-Dichloroethane	6	24	1	ND
Trichloroethene	23	54	1	ND
1,2-Dichloropropane	10	43	NS	ND
Bromodichloromethane	11	46	1	ND
2-Chloroethyl Vinyl Ether	NS	NS	NS	ND
cis-1,3-Dichloropropene	4	5	1	ND
trans-1,3-Dichloropropene	4	5	1	ND
1,1,2-Trichloroethane	22	420	1	ND
Tetrachloroethene	4	6	1	ND
Dibromochloromethane	110	1000	1	ND
Chlorobenzene	37	680	1	ND
Bromoform	86	370	1	ND
1,1,2,2-Tetrachloroethane	34	70	1	ND
1,3 Dichlorobenzene	5100	10000	100	ND
1,4 Dichlorobenzene	570	10000	100	ND
1,2 Dichlorobenzene	5100	10000	50	ND
Total Target Conc. *				7.25

- Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
The data package with method detection limits is provided as Attachment 10.
* Total Target Conc. -- Total concentration of listed compounds.

TABLE 8 Continued

Klockner & Klockner
Building 13 Storm Drain Area
Summary of Purgeable Halocarbons
Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth (feet) Units	Residential Direct Contact Soil Cleanup Criteria mg/kg	Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	Impact to Ground Water Soil Cleanup Criteria mg/kg	SSSD-1 90831 10/16/98 5-5.5' mg/kg
PHAL				
Dichlorodifluoromethane	NS	NS	NS	ND
Chloromethane	520	1000	10	ND
Vinyl Chloride	2	7	10	ND
Bromomethane	79	1000	1	ND
Chloroethane	NS	NS	NS	ND
Trichlorofluoromethane	NS	NS	NS	ND
1,1-Dichloroethene	8	150	10	ND
Methylene Chloride	49	210	1	ND
trans-1,2-Dichloroethene	1000	1000	50	ND
1,1-Dichloroethane	570	1000	10	ND
cis-1,2-Dichloroethene	79	1000	1	ND
Chloroform	19	28	1	ND
1,1,1-Trichloroethane	210	1000	50	ND
Carbon Tetrachloride	2	4	1	ND
1,2-Dichloroethane	6	24	1	ND
Trichloroethene	23	54	1	ND
1,2-Dichloropropane	10	43	NS	ND
Bromodichloromethane	11	46	1	ND
2-Chloroethyl Vinyl Ether	NS	NS	NS	ND
cis-1,3-Dichloropropene	4	5	1	ND
trans-1,3-Dichloropropene	4	5	1	ND
1,1,2-Trichloroethane	22	420	1	ND
Tetrachloroethene	4	6	1	ND
Dibromochloromethane	110	1000	1	ND
Chlorobenzene	37	680	1	ND
Bromoform	86	370	1	ND
1,1,2,2-Tetrachloroethane	34	70	1	ND
1,3 Dichlorobenzene	5100	10000	100	ND
1,4 Dichlorobenzene	570	10000	100	ND
1,2 Dichlorobenzene	5100	10000	50	ND
Total Target Conc. *				0

- Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
The data package with method detection limits is provided as Attachment 12.
* Total Target Conc. -- Total concentration of listed compounds.

TABLE 8 Continued

Klockner & Klockner
Building 13 Pipe Area
Summary of Purgeable Halocarbons
Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth (feet) Units	Residential Direct Contact Soil Cleanup Criteria mg/kg	Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	Impact to Ground Water Soil Cleanup Criteria mg/kg	SSPP-1 90828 10/16/98 6.5-7 mg/kg
PHAL				
Dichlorodifluoromethane	NS	NS	NS	ND
Chloromethane	520	1000	10	ND
Vinyl Chloride	2	7	10	ND
Bromomethane	79	1000	1	ND
Chloroethane	NS	NS	NS	ND
Trichlorofluoromethane	NS	NS	NS	ND
1,1-Dichloroethene	8	150	10	ND
Methylene Chloride	49	210	1	ND
trans-1,2-Dichloroethene	1000	1000	50	ND
1,1-Dichloroethane	570	1000	10	ND
cis-1,2-Dichloroethene	79	1000	1	ND
Chloroform	19	28	1	ND
1,1,1-Trichloroethane	210	1000	50	ND
Carbon Tetrachloride	2	4	1	ND
1,2-Dichloroethane	6	24	1	ND
Trichloroethene	23	54	1	ND
1,2-Dichloropropane	10	43	NS	ND
Bromodichloromethane	11	46	1	ND
2-Chloroethyl Vinyl Ether	NS	NS	NS	ND
cis-1,3-Dichloropropene	4	5	1	ND
trans-1,3-Dichloropropene	4	5	1	ND
1,1,2-Trichloroethane	22	420	1	ND
Tetrachloroethene	4	6	1	ND
Dibromochloromethane	110	1000	1	ND
Chlorobenzene	37	680	1	ND
Bromoform	86	370	1	ND
1,1,2,2-Tetrachloroethane	34	70	1	ND
1,3 Dichlorobenzene	5100	10000	100	ND
1,4 Dichlorobenzene	570	10000	100	ND
1,2 Dichlorobenzene	5100	10000	50	ND
Total Target Conc. *				0

- Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
The data package with method detection limits is provided as Attachment 12.
* Total Target Conc. -- Total concentration of listed compounds.

TABLE 8 Contiued

Klockner & Klockner
Building 13
Pipe Area - Underground Storage Tank
Summary of Purgeable Halocarbons
Results for Tank Contents

Sample ID	UST-1
Lab Sample Number	89298
Sampling Date	10/08/98
Units	mg/kg
PHAL	
Dichlorodifluoromethane	ND (23.6)
Chloromethane	ND (23.6)
Vinyl Chloride	ND (23.6)
Bromomethane	ND (23.6)
Chloroethane	ND (23.6)
Trichlorofluoromethane	ND (23.6)
1,1-Dichloroethene	ND (23.6)
Methylene Chloride	ND (23.6)
trans-1,2-Dichloroethene	ND (23.6)
1,1-Dichloroethane	ND (23.6)
cis-1,2-Dichloroethene	ND (23.6)
Chloroform	ND (23.6)
1,1,1-Trichloroethane	ND (23.6)
Carbon Tetrachloride	ND (23.6)
1,2-Dichloroethane	ND (23.6)
Trichloroethene	ND (23.6)
1,2-Dichloropropane	ND (23.6)
Bromodichloromethane	ND (23.6)
2-Chloroethyl Vinyl Ether	ND (23.6)
cis-1,3-Dichloropropene	ND (23.6)
trans-1,3-Dichloropropene	ND (23.6)
1,1,2-Trichloroethane	ND (23.6)
Tetrachloroethene	ND (23.6)
Dibromochloromethane	ND (23.6)
Chlorobenzene	ND (23.6)
Bromoform	ND (23.6)
1,1,2,2-Tetrachloroethane	ND (23.6)
1,3 Dichlorobenzene	ND (23.6)
1,4 Dichlorobenzene	ND (23.6)
1,2 Dichlorobenzene	ND (23.6)

ND - None Detected
The data package with method detection limits is provided as Attachment 9.
(X) Method detection limit.

TABLE 8 Continued

Klockner & Klockner
Building 13 Floor Drains
Summary of Purgeable Halocarbons
Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth (feet) Units	Residential Direct Contact Soil Cleanup Criteria mg/kg	Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	Impact to Ground Water Soil Cleanup Criteria mg/kg	SSFD-1 89304 10/08/98 1.5-2' mg/kg	SSFD-2 90829 10/16/98 3-4' mg/kg
PHAL					
Dichlorodifluoromethane	NS	NS	NS	ND	ND
Chloromethane	520	1000	10	ND	ND
Vinyl Chloride	2	7	10	ND	ND
Bromomethane	79	1000	1	ND	ND
Chloroethane	NS	NS	NS	ND	ND
Trichlorofluoromethane	NS	NS	NS	ND	ND
1,1-Dichloroethene	8	150	10	ND	ND
Methylene Chloride	49	210	1	ND	ND
trans-1,2-Dichloroethene	1000	1000	50	ND	ND
1,1-Dichloroethane	570	1000	10	ND	ND
cis-1,2-Dichloroethene	79	1000	1	ND	ND
Chloroform	19	28	1	ND	ND
1,1,1-Trichloroethane	210	1000	50	ND	ND
Carbon Tetrachloride	2	4	1	ND	ND
1,2-Dichloroethane	6	24	1	ND	ND
Trichloroethene	23	54	1	ND	ND
1,2-Dichloropropane	10	43	NS	ND	ND
Bromodichloromethane	11	46	1	ND	ND
2-Chloroethyl Vinyl Ether	NS	NS	NS	ND	ND
cis-1,3-Dichloropropene	4	5	1	ND	ND
trans-1,3-Dichloropropene	4	5	1	ND	ND
1,1,2-Trichloroethane	22	420	1	ND	ND
Tetrachloroethene	4	6	1	ND	0.266
Dibromochloromethane	110	1000	1	ND	ND
Chlorobenzene	37	680	1	ND	ND
Bromoform	86	370	1	ND	ND
1,1,2,2-Tetrachloroethane	34	70	1	ND	ND
1,3 Dichlorobenzene	5100	10000	100	ND	ND
1,4 Dichlorobenzene	570	10000	100	ND	ND
1,2 Dichlorobenzene	5100	10000	50	ND	ND
Total Target Conc. *				0	0.266

- Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
The data packages with method detection limits is provided as Attachments 10 and 12.
* Total Target Conc. -- Total concentration of listed compounds.

TABLE 8 Continued

Klockner & Klockner
Building 13 Dumpster Pad
Summary of Purgeable Halocarbons
Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth (feet) Units	Residential Direct Contact Soil Cleanup Criteria mg/kg	Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	Impact to Ground Water Soil Cleanup Criteria mg/kg	SSDA-1 90832 10/16/98 1.5-2' mg/kg
PHAL				
Dichlorodifluoromethane	NS	NS	NS	ND
Chloromethane	520	1000	10	ND
Vinyl Chloride	2	7	10	ND
Bromomethane	79	1000	1	ND
Chloroethane	NS	NS	NS	ND
Trichlorofluoromethane	NS	NS	NS	ND
1,1-Dichloroethene	8	150	10	ND
Methylene Chloride	49	210	1	ND
trans-1,2-Dichloroethene	1000	1000	50	ND
1,1-Dichloroethane	570	1000	10	ND
cis-1,2-Dichloroethene	79	1000	1	ND
Chloroform	19	28	1	ND
1,1,1-Trichloroethane	210	1000	50	ND
Carbon Tetrachloride	2	4	1	ND
1,2-Dichloroethane	6	24	1	ND
Trichloroethene	23	54	1	ND
1,2-Dichloropropane	10	43	NS	ND
Bromodichloromethane	11	46	1	ND
2-Chloroethyl Vinyl Ether	NS	NS	NS	ND
cis-1,3-Dichloropropene	4	5	1	ND
trans-1,3-Dichloropropene	4	5	1	ND
1,1,2-Trichloroethane	22	420	1	ND
Tetrachloroethene	4	6	1	0.154
Dibromochloromethane	110	1000	1	ND
Chlorobenzene	37	680	1	ND
Bromoform	86	370	1	ND
1,1,2,2-Tetrachloroethane	34	70	1	ND
1,3 Dichlorobenzene	5100	10000	100	ND
1,4 Dichlorobenzene	570	10000	100	ND
1,2 Dichlorobenzene	5100	10000	50	ND
Total Target Conc. *				0.154

- Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
The data package with method detection limits is provided as Attachment 12.
* Total Target Conc. -- Total concentration of listed compounds.

TABLE 8 Continued

Klockner & Klockner
Building 13 - Concrete Pad Area
Summary of Purgeable Halocarbons
Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth (feet) Units	NJDEP Residential Direct Contact Soil Cleanup Criteria mg/kg	NJDEP Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	Impact to Ground Water Soil Cleanup Criteria mg/kg	SSCP-1 89301 10/08/98 3.5-4' mg/kg	SSCP-1 89303 10/08/98 11-11.5' mg/kg	SSCP-4 89305 10/08/98 1-1.5' mg/kg
PHAL						
Dichlorodifluoromethane	NS	NS	NS	ND	ND	ND
Chloromethane	520	1000	10	ND	ND	ND
Vinyl Chloride	2	7	10	ND	ND	ND
Bromomethane	79	1000	1	ND	ND	ND
Chloroethane	NS	NS	NS	ND	ND	ND
Trichlorofluoromethane	NS	NS	NS	ND	ND	ND
1,1-Dichloroethene	8	150	10	ND	ND	ND
Methylene Chloride	49	210	1	ND	ND	ND
trans-1,2-Dichloroethene	1000	1000	50	ND	ND	ND
1,1-Dichloroethane	570	1000	10	ND	ND	ND
cis-1,2-Dichloroethene	79	1000	1	ND	ND	ND
Chloroform	19	28	1	ND	ND	ND
1,1,1-Trichloroethane	210	1000	50	ND	ND	ND
Carbon Tetrachloride	2	4	1	ND	ND	ND
1,2-Dichloroethane	6	24	1	ND	ND	ND
Trichloroethene	23	54	1	ND	ND	ND
1,2-Dichloropropane	10	43	NS	ND	ND	ND
Bromodichloromethane	11	46	1	ND	ND	ND
2-Chloroethyl Vinyl Ether	NS	NS	NS	ND	ND	ND
cis-1,3-Dichloropropene	4	5	1	ND	ND	ND
trans-1,3-Dichloropropene	4	5	1	ND	ND	ND
1,1,2-Trichloroethane	22	420	1	ND	ND	ND
Tetrachloroethene	4	6	1	ND	ND	ND
Dibromochloromethane	110	1000	1	ND	ND	ND
Chlorobenzene	37	680	1	ND	ND	ND
Bromoform	86	370	1	ND	ND	ND
1,1,2,2-Tetrachloroethane	34	70	1	ND	ND	ND
1,3 Dichlorobenzene	5100	10000	100	ND	ND	ND
1,4 Dichlorobenzene	570	10000	100	ND	ND	ND
1,2 Dichlorobenzene	5100	10000	50	ND	ND	ND
Total Target Conc. *				0	0	0

- Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
The data package with method detection limits is provided as Attachment 10.
* Total Target Conc. -- Total concentration of listed compounds.

TABLE 8 Continued

Klockner & Klockner
Building 13 Fence Area
Summary of Purgeable Halocarbons
Results For Soil

Sample ID	Residential Direct Contact	Non-Residential Direct Contact	Impact to Ground Water	SSFA-1	SSFA-1	SSFA-D	SSFA-1R	SSFA-2	SSFA-3	SSFA-4	SSFA-4A	SSFA-4B	SSFA-4C	SSFA-5	SSFA-6A
Lab Sample Number	Soil Cleanup	Soil Cleanup	Soil Cleanup	90823	183826	183827	223559	90824	90825	90826	183828	183829	183830	90827	90822
Sampling Date	Criteria	Criteria	Criteria	10/16/98	2/15/2000	2/15/2000	6/16/2000	10/16/98	10/16/98	10/16/98	2/15/2000	2/15/2000	2/15/2000	10/16/98	10/16/98
Sample Depth (feet)				1.5-2'	5-5.5'	5-5.5'	5-5.5'	0.5-1'	0.5-1'	0.5-1'	5-5.5'	7-7.5'	10.5-11'	3-3.5'	1.5-2'
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
PHAL															
Dichlorodifluoromethane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	520	1000	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	2	7	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	79	1000	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	8	150	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	49	210	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	1000	1000	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	570	1000	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	79	1000	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	19	28	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	210	1000	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	2	4	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	6	24	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	23	54	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	10	43	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	11	46	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethyl Vinyl Ether	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	4	5	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	4	5	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	22	420	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	4	6	1	1.51	ND	2.6	ND	0.161	1.1	4.28	ND	ND	ND	ND	3.72
Dibromochloromethane	110	1000	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	37	680	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	86	370	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	34	70	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3 Dichlorobenzene	5100	10000	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4 Dichlorobenzene	570	10000	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2 Dichlorobenzene	5100	10000	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Target Conc. *				1.51	0	2.6	0	0.161	1.1	4.28	0	0	0	0	3.72

Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
The data package for October 1998 with method detection limits is provided as Attachment 12.
The data package for February 2000 with method detection limits is provided as Attachment 16.
* Total Target Conc. – Total concentration of listed compounds.

TABLE 9

Klockner & Klockner
Building 12 Underground Gasoline Storage Tank
Summary of Lead Results for Soil

Sample ID Lab Sample Number Sampling Date Units	Residential Direct Contact Soil Cleanup Criteria mg/kg	Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	SSGT-1 88685 10/7/1998 mg/kg	SSGT-2 88684 10/7/1998 mg/kg
Lead	400	600	4.7	2.6

- Results above NJDEP Soil Cleanup Criteria

ND - None Detected

The data package with method detection limits is provided as Attachment 8.

TABLE 9 Continued

Klockner & Klockner
Waste Oil Tank
Summary of TAL Metals
Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth (feet) Units	Residential Direct Contact Soil Cleanup Criteria mg/kg	Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	SSWT-1 88567 10/06/98 7-7.5 mg/kg
TAL Metals			
Aluminum	NS	NS	4,910
Antimony	14	340	ND
Arsenic	20	20	3.2
Barium	700	47,000	20
Beryllium	2	2	0.46
Cadmium	39	100	ND
Calcium	NS	NS	622
Chromium	120,000	NS	8.7
Cobalt	NS	NS	4.1
Copper	600	600	13.8
Iron	NS	NS	16,500
Lead	400	600	10.1
Magnesium	NS	NS	1,620
Manganese	NS	NS	84.5
Mercury	14	270	0.08
Nickel	250	2,400	8.6
Potassium	NS	NS	326
Selenium	63	3,100	ND
Silver	110	4,100	ND
Sodium	NS	NS	ND
Thallium	2	2	ND
Vanadium	370	7,100	14.7
Zinc	1500	1,500	63.6

- Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected

Note - NJDEP has not published IGWSCC

The data package with method detection limits is provided as Attachment 5.

TABLE 9 Continued

Klockner & Klockner
Catch Basin/Storm Sewer
Summary of TAL Metals
Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth (feet) Units	Residential Direct Contact Soil Cleanup Criteria mg/kg	Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	SSCB-1 88566 10/06/98 2-2.5 mg/kg
TAL Metals			
Aluminum	NS	NS	8,660
Antimony	14	340	ND
Arsenic	20	20	2.6
Barium	700	47000	73.9
Beryllium	2	2	0.63
Cadmium	39	100	0.33
Calcium	NS	NS	3,320
Chromium	120,000	NS	26.4
Cobalt	NS	NS	8.3
Copper	600	600	36.9
Iron	NS	NS	19,200
Lead	400	600	104
Magnesium	NS	NS	3,150
Manganese	NS	NS	259
Mercury	14	270	0.05
Nickel	250	2400	14.9
Potassium	NS	NS	1,110
Selenium	63	3100	ND
Silver	110	4100	ND
Sodium	NS	NS	147
Thallium	2	2	ND
Vanadium	370	NS	53.8
Zinc	1500	1500	131

- Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
The data package with method detection limits is provided as Attachment 5.

TABLE 9 Continued

Klockner & Klockner
Building 12 Leaching Pit
Summary of TAL Metals
Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth (feet) Units	Residential Direct Contact Soil Cleanup Criteria mg/kg	Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	SSLP-1 88683 10/07/98 12-12.5' mg/kg
TAL Metals			
Aluminum	NS	NS	3,040
Antimony	14	340	ND
Arsenic	20	20	4.5
Barium	700	47000	15.7
Beryllium	2	2	0.52
Cadmium	39	100	ND
Calcium	NS	NS	102,000
Chromium	120,000	NS	6.1
Cobalt	NS	NS	5.3
Copper	600	600	12
Iron	NS	NS	14,200
Lead	400	600	6.6
Magnesium	NS	NS	58,000
Manganese	NS	NS	276
Mercury	14	270	ND
Nickel	250	2400	9.7
Potassium	NS	NS	876
Selenium	63	3100	ND
Silver	110	4100	ND
Sodium	NS	NS	138
Thallium	2	2	ND
Vanadium	370	NS	9.9
Zinc	1500	1500	38.2

- Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
The data package with method detection limits is provided as Attachment 8.

TABLE 9 Continued

Klockner & Klockner
Building 12 Degreaser Pit
Summary of TAL Metals
Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth (feet) Units	Residential Direct Contact Soil Cleanup Criteria mg/kg	Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	SSDP-1 89310 10/08/98 2.5-3 mg/kg
TAL Metals			
Aluminum	NS	NS	9,080
Antimony	14	340	ND
Arsenic	20	20	1.1
Barium	700	47000	54.5
Beryllium	2	2	0.52
Cadmium	39	100	0.36
Calcium	NS	NS	5,370
Chromium	120,000	NS	12
Cobalt	NS	NS	7.8
Copper	600	600	28.1
Iron	NS	NS	29,600
Lead	400	600	173
Magnesium	NS	NS	2,480
Manganese	NS	NS	446
Mercury	14	270	0.14
Nickel	250	2400	15
Potassium	NS	NS	912
Selenium	63	3100	ND
Silver	110	4100	ND
Sodium	NS	NS	ND
Thallium	2	2	ND
Vanadium	370	NS	25.5
Zinc	1500	1500	97.6

- Results above NJDEP Soil Cleanup Criteria

NS - No Standard for Individual Contaminant

ND - None Detected

The data package with method detection limits is provided as Attachment 11.

TABLE 9 Continued

Klockner & Klockner
Building 12 Drum Storage Shed
Summary of TAL Metals
Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth (feet) Units	Residential Direct Contact Soil Cleanup Criteria mg/kg	Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	SSFS-1 88565 10/06/98 0-0.5 mg/kg	SSFS-2 88677 10/07/98 0-0.5 mg/kg
TAL Metals				
Aluminum	NS	NS	7590	5550
Antimony	14	340	ND	ND
Arsenic	20	20	3.7	2.7
Barium	700	47000	252	71.4
Beryllium	2	2	0.43	0.39
Cadmium	39	100	0.78	1
Calcium	NS	NS	9660	4230
Chromium	120,000	NS	32.1	40.3
Cobalt	NS	NS	8.2	15.6
Copper	600	600	215	63.6
Iron	NS	NS	19500	25000
Lead	400	600	471	70.2
Magnesium	NS	NS	2610	3420
Manganese	NS	NS	298	217
Mercury	14	270	0.35	0.05
Nickel	250	2400	18.8	27.1
Potassium	NS	NS	979	1660
Selenium	63	3100	ND	ND
Silver	110	4100	0.72	ND
Sodium	NS	NS	ND	ND
Thallium	2	2	ND	ND
Vanadium	370	NS	32.4	53
Zinc	1500	1500	371	334

- Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
The data packages for October 1998 with method detection limits is provided as Attachments 5 and 8.

THE WHITMAN COMPANIES, INC.

TABLE 9 Continued

Klockner & Klockner
Building 12 Drum Storage Shed
Summary of Lead Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth Units	NJDEP Residential Direct Contact Soil Cleanup Criteria mg/kg	NJDEP Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	SSFS-1C 182787 2/8/2000 2-2.5 mg/kg	SSFS-3A 183839 2/15/2000 0-0.5 mg/kg	SSFS-3C 183841 2/15/2000 2-2.5 mg/kg	SSFS-4A 182789 2/8/2000 0-0.5 mg/kg	SSFS-5A 182791 2/8/2000 0-0.5 mg/kg	SSFS-6A 182793 2/8/2000 0-0.5 mg/kg	SSFS-D 182810 2/8/2000 0-0.5 mg/kg	SSFS-7A 223544 8/16/2000 0-0.5 mg/kg	SSFS-DUP816 223553 8/16/2000 0-0.5 mg/kg
Lead	400	600	77.3	841	373	128	11.1	8.8	34.6	145	111

841 - Results above NJDEP Soil Cleanup Criteria
ND - None Detected
The data package for February 2000 with method detection limits is provided as Attachment 15 and 17.
The data package for August 2000 with method detection limits is provided as Attachment 18.

500088

TABLE 8 Continued

Klockner & Klockner
Building 12 Drum Storage in Alleyway
Summary of TAL Metals
Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth (feet) Units	Residential Direct Contact Soil Cleanup Criteria mg/kg	Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	SSDSA-1 88564 10/06/98 0-0.5 mg/kg	SSDSA-2 88676 10/06/98 0-0.5 mg/kg
TAL Metals				
Aluminum	NS	NS	10,600	NA
Antimony	14	340	1.4	NA
Arsenic	20	20	5	NA
Barium	700	47000	222	NA
Beryllium	2	2	0.56	NA
Cadmium	39	100	0.76	NA
Calcium	NS	NS	3,580	NA
Chromium	120,000	NS	45.6	NA
Cobalt	NS	NS	9.8	NA
Copper	600	600	105	NA
Iron	NS	NS	21,600	NA
Lead	400	600	344	NA
Magnesium	NS	NS	2,440	NA
Manganese	NS	NS	419	NA
Mercury	14	270	0.39	NA
Nickel	250	2400	34.8	NA
Potassium	NS	NS	1,070	NA
Selenium	63	3100	ND	NA
Silver	110	4100	0.4	NA
Sodium	NS	NS	ND	NA
Thallium	2	2	ND	NA
Vanadium	370	NS	35.2	NA
Zinc	1500	1500	408	NA
Cyanide	1100	21000	ND	ND

- Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
NA - Not Analyzed
The data package with method detection limits is provided as Attachment 5.

TABLE 9 Continued

Klockner & Klockner
Building 12 North Drum Storage Area
Summary of TAL Metals
Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth (feet) Units	Residential Direct Contact Soil Cleanup Criteria mg/kg	Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	SSNDS-1A 88562 10/06/98 0-0.5 mg/kg	SSNDS-2A 88563 10/06/98 0-0.5 mg/kg
TAL Metals				
Aluminum	NS	NS	11200	8370
Antimony	14	340	ND	1
Arsenic	20	20	7.2	3.4
Barium	700	47000	152	80.6
Beryllium	2	2	0.63	0.43
Cadmium	39	100	ND	0.15
Calcium	NS	NS	5250	1180
Chromium	120,000	NS	22.9	14
Cobalt	NS	NS	7.5	7.1
Copper	600	600	69.9	25.5
Iron	NS	NS	31300	18200
Lead	400	600	343	75.7
Magnesium	NS	NS	1950	1700
Manganese	NS	NS	397	216
Mercury	14	270	0.65	0.1
Nickel	250	2400	15.3	11.1
Potassium	NS	NS	719	399
Selenium	63	3100	ND	ND
Silver	110	4100	ND	ND
Sodium	NS	NS	ND	ND
Thallium	2	2	ND	ND
Vanadium	370	NS	35.2	24.3
Zinc	1500	1500	273	195

- Results above NJDEP Soil Cleanup Criteria

NS - No Standard for Individual Contaminant

ND - None Detected

The data package with method detection limits is provided as Attachment 5.

TABLE 9 Continued

Klockner & Klockner
Sump Area
Summary of TAL Metals
Results For Soil

Sample ID Lab Sample Number Sampling Date Sample Depth (feet) Units	Residential Direct Contact Soil Cleanup Criteria mg/kg	Non-Residential Direct Contact Soil Cleanup Criteria mg/kg	SSSP-1 88666 10/07/98 4-4.5' mg/kg
TAL Metals			
Aluminum	NS	NS	8480
Antimony	14	340	ND
Arsenic	20	20	21.1
Barium	700	47000	202
Beryllium	2	2	0.52
Cadmium	39	100	0.8
Calcium	NS	NS	11400
Chromium	120,000	NS	14.6
Cobalt	NS	NS	4.9
Copper	600	600	50.4
Iron	NS	NS	14400
Lead	400	600	315
Magnesium	NS	NS	2200
Manganese	NS	NS	251
Mercury	14	270	1.9
Nickel	250	2400	10.1
Potassium	NS	NS	818
Selenium	63	3100	ND
Silver	110	4100	ND
Sodium	NS	NS	257
Thallium	2	2	ND
Vanadium	370	NS	21.4
Zinc	1500	1500	294

- Results above NJDEP Soil Cleanup Criteria
NS - No Standard for Individual Contaminant
ND - None Detected
The data package with method detection limits is provided as Attachment 8.

Table 10

Comparison of Present Worth Cost Estimates for Alternatives Presented in the Proposed Plan and the Record of Decision

Alternatives	Proposed Plan	Record of Decision
V1	$0	$0
V2	$41,050	$38,300
V3	$88,750	$86,700
V4	$650,860	$594,460
V5	$857,280	$560,280
V6	$1,029,330	$706,630
L1	$0	$0
L2	$18,000	$17,550
L3	$63,220	$92,420
L4	$78,470	$78,470

APPENDIX III

RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY
ROCKAWAY BOROUGH WELLFIELD SUPERFUND SITE
ROCKAWAY, MORRIS COUNTY, NEW JERSEY

This Responsiveness Summary summarizes the public's comments and concerns regarding the Proposed Plan and preferred cleanup alternative to address contamination at the Rockaway Borough Wellfield Superfund Site (the Site). This summary also presents the U.S. Environmental Protection Agency's (EPA's) responses to the public's comments and concerns. At the time of the public comment period, August 16, 2007 to September 15, 2007, EPA proposed a preferred alternative for remediating soil at the Site. Subsequently, EPA has considered all comments received and summarized them in this document. Based on the consideration of all comments, EPA has developed a final decision for the selection of a remedial alternative for the Site.

This Responsiveness Summary is divided into the following sections:

I. BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS: This section provides the history of the community involvement and interests regarding the Rockaway Borough Wellfield Superfund Site.

II. COMPREHENSIVE SUMMARY OF MAJOR QUESTIONS, COMMENTS, CONCERNS, AND RESPONSES: This section contains summaries of oral comments received by EPA at the public meeting. EPA did not receive any written comments on the Proposed Plan during the public comment period.

III. ATTACHMENTS: The last section of this Responsiveness Summary provides attachments that document public participation in the remedy-selection process for this Site including:

Attachment A: the Proposed Plan that was distributed to the public for review and comment;

Attachment B: the public notice that appeared in the *The Daily Record* and *The Citizen;*

Attachment C: the EPA Press Release announcing EPA to Remove Contaminated Soil from the Rockaway Borough Wellfield Site; and

Attachment D: the meeting agenda and transcript of the public meeting.

I. BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS

- On August 23, 2007, EPA held a public meeting to present the preferred remedial alternative for the Klockner & Klockner Area (K&K), OU3, at the Rockaway Borough Community Center, Rockaway, New Jersey. The meeting was attended

by 23 people and two representatives of the Borough council. Previously, EPA has held numerous meetings with local officials to update them on the status of the Site. In addition, EPA meets annually at the Site with Congressman Rodney Frelinghuysen and local and state officials to discuss the Site. Although interest in the Site by local residents has been generally low, EPA has provided the community with fact sheets and has scheduled public information sessions on the Site. Additionally, EPA has had public outreach during the residential indoor air sampling events.

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

During the August 23, 2007 public meeting, comments from the public touched upon a number of topics of concern to stakeholders including: issues relating to remedy for the K&K Area; health effects near the K&K property; schedule for remediation activities; site security; long-term EPA oversight; the plume; identification of the PRP; source of funds for remediation; and other site-related issues. A summary of the comments received during the August 23, 2007 public meeting and EPA's responses follows.

Issues relating to remedy for the K&K Area

1. Comment: A stakeholder asked if the proposed Soil Vapor Extraction (SVE) system is needed to speed up the natural degradation of the contaminants.

   EPA Response: SVE is the preferred remedy in most cases when contaminants are inaccessible for an excavation remedy. SVE will address the volatile organic contaminants in the soil by applying a vacuum to the soil that will remove the contaminants, while limiting the disruption to the business, and then process the contamination by treating the contaminants of concern at this Site. SVE by design will accelerate the cleanup of the contaminants to remove the source of groundwater contamination.

2. Comment: Will air monitoring be included with the K&K remedy?

   EPA Response: Yes. The remedial design will develop air monitoring requirements to ensure that no contaminants are released from the Site above levels that could cause a health concern.

3. A question was received regarding the potential for acquiring CERCLA liability from the prospective purchase of Building 13 at the Site?

   EPA Response: The Small Business Liability Relief and Brownfields RevitalizationAct, ("Brownfields Amendments"), Pub. L. No. 107-118, amended the

Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA") to provide important new liability limitations for landowners that qualify as a bona fide prospective purchaser ("BFPP") of contaminated property. In order for a person to avoid CERCLA liability from purchasing Building 13, one must meet the statutory requirements for a BFPP set forth in CERCLA Sections 101(40) and 107(r), some of which are continuing obligations. In particular, one must provide full cooperation, assistance, and access to EPA or persons authorized to take response actions at the property, and take reasonable steps with respect to the existing contamination. In addition, one must conduct "all appropriate inquiries" into the previous ownership and uses of the property prior to acquiring the property in accordance with EPA's final rule set forth at 40 C.F.R. Part 312. This final rule was published in the Federal Register on November 1, 2005 at 70 FR 66070 and became effective on November 1, 2006. Please note that compliance with CERCLA and the federal regulations found at 40 C.F.R Part 312 provide protection from liability under CERCLA. Prospective property owners wishing to establish protection from, or a defense to, liability under state superfund or other related laws must comply with all criteria established under state laws, including any criteria for conducting site assessments or all appropriate inquiries established under applicable state statutes and regulations.

Health Effects near K&K Property

4. Comment: What are the health effects for residents living near K&K Property?

   EPA Response: The HHRA concluded that the cancer risks and non-cancer hazards from exposure via incidental ingestion of, dermal contact with, and inhalation of constituents detected in the soil at the K&K Property were within EPA's target risk range for carcinogens and below the Hazard Index (HI) of 1 for non-carcinogens for all populations evaluated under both current and future use scenarios, except for the future resident child. The HI for this receptor slightly exceeded the threshold of 1 from ingestion of TCE-contaminated soil. However, exposure to this receptor is considered highly unlikely given current land use.

   EPA continues to evaluate homes in the area for vapor intrusion to ensure that there are no off-site impacts to residents. To date, none of the homes EPA has tested have had indoor air concentrations that pose unacceptable risk.

5. Comment: Can the site contaminants be absorbed into foliage?

   EPA Response: The volatile contaminants at the two properties are not readily absorbed into plants.

6. Comment: What activities are presently occurring at the Building 12 portion of the K&K Property? There is an odor coming from the property.

   EPA Response: The present tenants in Building 12 operate a metalworking business. Odors emanating from the property may be subject to local and New Jersey Department of Environmental Protection regulations. The odors are not related to the Superfund Site.

Schedule for remediation activities

7. Comment: When will remediation activities begin?

   EPA Response: EPA will not have a schedule for remediation until after the remedial design has been completed, which normally takes one to two years.

8. Comment: A stakeholder asked if there is a timeline for the remediation project?

   EPA Response: As indicated above, EPA will not have a schedule for remediation until after the remedial design has been completed; however, once initiated, the remedial action activities are anticipated to take three to six months.

Site security

9. Comment: Will there be on-site security at the locations of remediation activity?

   EPA Response: If it is determined during planning that on-site security is necessary, then EPA will make appropriate arrangements. EPA will coordinate with local police to determine if there is a need for additional security. EPA will also coordinate with the owners of Building 13 to secure the area to prevent unauthorized visitors on the property.

Long-term EPA oversight

10. Comment: Who would clean up the problem if contamination is found after the government agencies say the work is completed?

    EPA Response: At the conclusion of the K&K source area remediation, testing would be conducted to determine that we have met the cleanup criteria. When the cleanup criteria are met, then EPA and NJDEP would consider the source area remediated. If contamination is found at a later date unrelated to the Superfund Site, it would be subject to state and local regulations.

Plume

11. Comment: A stakeholder asked why Rockaway Borough does not test the drinking water for a chemical called PFOA?

    EPA Response: PFOA (Perfluorooctanoic Acid) is a chemical that does not currently have a state or federal drinking water standard; therefore, the Borough is not required to test for this chemical in groundwater.

12. Comment: What work is presently occurring at the corner of Maple and Halsey Avenues?

    EPA Response: A groundwater extraction well that is part of the East Main Street/Wall Street groundwater remedial action is being installed. There are a total of two more wells to be installed, one in Memorial Park and another near the Police Station. These wells will also be connected to the treatment building by forcemains that will be trenched in the road along Maple, Halsey, and Jackson Avenues.

13. Comment: A stakeholder asked if he could obtain the results of the monitoring well number 16 that is on his property?

    EPA Response: Yes. The Potentially Responsible Party (PRP) that is operating the groundwater treatment system for the K&K groundwater plume maintains the monitoring well that is located at 31 Pine Street. EPA will request that the PRP provide copies of the test results of the well.

14. Comment: A local resident asked if the groundwater contamination is diminishing.

    EPA Response: The remedial action for the K&K groundwater plume has been operating since January 2006, and EPA is presently constructing the groundwater treatment system for the East Main Street/Wall Street groundwater plume. It is too early in the cleanup effort to determine to what extent the contamination is diminishing. EPA will monitor the progress of the cleanup to determine that the remedy is operating as designed.

Identification of the PRP

15. Comment: A stakeholder asked if a PRP has been identified for the Klockner and Klockner plume and for the WS/EM Area, and if there has been any litigation or payment settlements? He asked the identities of the parties that settled.

    EPA Response: One responsible party at the Klockner and Klockner plume is the owner of the property who is responsible for the soil contamination. The tenant at the time the soil was contaminated (Alliant Techsystems, Inc.) is the one who is cleaning

up the groundwater. There was never a defined, viable responsible party for the WS/EM Area. There were a few small parties that settled, by contributing some money, because they did not have the ability to fund the cleanup of WS/EM Area. EPA is funding the cleanup for both the groundwater and the soil in the WS/EM Area..

Source of funds for remediation

16. Comment: What part of the cleanup will Rockaway Borough be responsible for paying?

    EPA Response: Rockaway Borough will not be responsible for paying for any of this cleanup.

Other site related issues

17. Comment: A local citizen asked why no vapor intrusion testing has been conducted at the Oak Street condos.

    EPA Response: EPA identified residences that potentially could be impacted by vapors from the two groundwater plumes based on their proximity to the groundwater plumes. EPA initially wrote to 70 local residents requesting access to sample their homes, but only received replies from 17 residents. In both the Klockner and Klockner Area and WS/EM Area, EPA initially took a representative sample from every other home. EPA evaluated the data and has since conducted follow-up sampling at some of the residences. EPA has attempted to obtain access to six units at the Oak Street condos and did not hear from four of the units. The other two replied that they do not own the unit any more. EPA will work with the president of the residential association to attempt to obtain access in the near future.

18. Comment: A stakeholder asked if there is a plan to install remediation systems in the basements of residents.

    EPA Response: EPA has been conducting vapor intrusion activities throughout Rockaway Borough for the last year. To date, EPA has sampled 33 homes, and some homes have levels of contamination beneath the basement floor that is of concern. However, no homes sampled had any level of contamination of concern in the indoor air, which includes the basement and first floor. Therefore, at this time, EPA does not have any plan to install remediation systems, but is ready to install a system if future indoor air sampling indicates that it is necessary.

ATTACHMENT A
PROPOSED PLAN

Superfund Program
Proposed Plan

U.S. Environmental Protection Agency
Region II

Rockaway Borough Wellfield Superfund Site

August 2007

EPA ANNOUNCES PROPOSED PLAN

This Proposed Plan identifies the Preferred Alternative for addressing soils at one of the groundwater contamination source areas at the Rockaway Borough Wellfield Superfund site and provides the rationale for this preference. This particular source area is known as the Klockner and Klockner (K&K) Area. The U.S. Environmental Protection Agency (EPA) evaluated a number of remedial measures to address contaminated soil, which is the source of the groundwater contamination. As explained below, the Preferred Alternative for addressing the Volatile Organic Compound (VOC)-contaminated soil is Soil Vapor Extraction and Excavation, and Off-Site Treatment/Disposal. For the lead-contaminated soil, the Preferred Alternative is Excavation and Off-Site Treatment/Disposal.

This Proposed Plan will also serve as a notice that the operable unit designation for the Wall Street/East Main Street source area, which was the subject of a Record of Decision (ROD) signed on September 29, 2006, will be changed from Operable Unit 3 (OU3) to Operable Unit 4 (OU4). The change is to clarify how funding for the remedy will be accounted for by EPA.

The Proposed Plan includes summaries of all the soil cleanup alternatives evaluated for use at this site. EPA, the lead agency for site activities, issues this document. The New Jersey Department of Environmental Protection (NJDEP) is the support agency. EPA, in consultation with NJDEP, will select a final remedy for the site after reviewing and considering all information submitted during the 30-day public comment period. EPA, in consultation with NJDEP, may modify the Preferred Alternative or select another response

Dates to remember:
MARK YOUR CALENDAR

PUBLIC COMMENT PERIOD:
August 16 – September 15, 2007

EPA will accept written comments on the Proposed Plan during the public comment period.

PUBLIC MEETING: August 23, 2007 - 7:00 pm

EPA will hold a public meeting to explain the Proposed Plan. EPA will also accept oral and written comments at the meeting. The meeting will be held at **Rockaway Borough Community Center, 21-25 Union Street, Rockaway, New Jersey.** Prior to the start of the meeting, EPA will be available from 6:00 p.m. to 7:00 p.m. to answer questions.

For more information, see the Administrative Record at the following locations:

U.S. EPA Records Center, Region II
290 Broadway, 18th Floor
New York, New York 10007-1866
(212)-637-3261
Hours: Monday-Friday – 9:00 am to 5:00 pm

Rockaway Borough Free Public Library
82 East Main Street
Rockaway, NJ 07866
(973) 627-5709
Hours: Monday & Wednesday – 12:00 to 8:00 PM
Tuesday, Thursday and Friday – 10:00 am to 8:00 pm
Saturday – 10:00 am to 2:00 pm

Written comments and questions regarding the Rockaway Borough Wellfield site, postmarked by no later than September 15, 2007, may be sent to:

Brian Quinn, Project Manager
U.S. Environmental Protection Agency
290 Broadway, 19th Floor
New York, New York 10007-1866
Tel: (212) 637-4381
Fax: (212) 637-4393
Email: quinn.brian@epa.gov

For further information, please see the Rockaway Borough Wellfield Superfund Site website:

www.epa.gov/region02/superfund/npl/rockaway

action presented in this Plan based on new information or public comments. Therefore, the public is encouraged to review and comment on all the alternatives presented in this Proposed Plan.

EPA is issuing this Proposed Plan as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA) and Section 300.430(f) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This Proposed Plan summarizes information that can be found in greater detail in the Operable Unit 3 (OU3) Remedial Investigation/Feasibility Study (RI/FS) reports and other site-related documents contained in the Administrative Record file for this site. EPA encourages the public to review these documents to gain a more comprehensive understanding of the Rockaway Borough Wellfield Site and the Superfund process.

SITE HISTORY

The Rockaway Borough Wellfield Site is located in Rockaway Borough in Morris County, New Jersey (See Figure 1). The approximately 2.1 square-mile Rockaway Borough is situated in the center of Morris County, approximately 10 miles north of Morristown and 20 miles northwest of Newark in the north-central portion of the state. It is bordered to the north and west by Rockaway Township and to the east and south by Denville Township. Land use in the Borough is a mix of commercial, industrial, and residential.

The Rockaway Borough Wellfield Superfund Site includes three municipal water supply wells (Nos. 1, 5, and 6), which are located in the eastern section of the Borough. The municipal wells range in depth from 54 to 84 feet below ground surface (bgs) and are located in a glacial aquifer. EPA designated the aquifer a sole source aquifer for the Borough and surrounding communities. The wells supply potable water to approximately 11,000 people.

In 1981, the Borough installed a granular carbon treatment system after contamination was discovered in the municipal water supply system. The principal contaminants found in the glacial aquifer include volatile organic compounds (VOCs), primarily tetrachloroethene (PCE) and trichloroethene (TCE). In 1993, an air stripping system was added to improve the treatment of the contaminated groundwater and reduce operating costs.

The K&K Area is a portion of the larger Rockaway Borough Wellfield Superfund Site. The sources of the TCE and PCE contamination are the K&K property and a dry cleaning operation.

In 1985, the NJDEP initiated a Phase I RI/FS. The Phase I report concluded that contamination of the municipal water supply was emanating from multiple source areas within the Borough. Based on the findings of the 1986 RI/FS, EPA initiated a Phase II RI/FS to identify the contaminant sources, further delineate the full extent of contamination and evaluate remedial action alternatives to address the sources of contamination. Some of the major findings and conclusions of the Phase II RI/FS were as follows:

- Groundwater in the northeast portion of Rockaway Borough was contaminated with VOCs, primarily TCE and PCE.

- Groundwater in the Wall Street/East Main Street (WS/EM) Area contaminated with PCE was affecting Municipal Wells No. 1 and 5. However, the source area was not identified.

- Groundwater contaminated with TCE was emanating from the K&K property and impacting the Rockaway Borough Well Field, specifically Municipal Well No. 6.

The remedy selected in a September 30, 1991 ROD called for extraction and treatment of two areas of groundwater contamination referred to as the K&K and WS/EM plumes. The remedy also called for further investigations to determine the source of the plumes. On September 27, 1995, EPA entered into an Administrative Order on Consent with K&K to conduct an RI/FS for the K&K Area. In 2003, an RI/FS for the K&K Area was begun.

The K&K Area is primarily a light industrial area in northwest Rockaway Borough. The K&K Area consists of two separate properties. The first property is located north of Stickle Avenue and is referred to as the "Building 12 property." The second portion of the K&K Area referred to as the "Building 13 property" is located south of Stickle Avenue.

The developed portions of the K&K Area are mostly covered by impervious surfaces including roadways, driveways, parking areas, concrete buildings and sidewalks. A limited number of small areas of exposed soils are present in the K&K Area.

CURRENT STATUS

A private party is presently performing the groundwater cleanup for the K&K plume. Construction of the groundwater extraction and treatment system has been completed, and operation of the system began in January 2006.

The Remedial Design for the WS/EM plume Area, which was completed in February 2006, included development of engineering drawings and specifications. The U. S. Army Corps of Engineers, under an agreement with EPA, will be constructing the system. Construction of the groundwater extraction and treatment system began in April 2007.

An RI/FS for the WS/EM Area has been completed, and a Record of Decision was issued on September 29, 2006. An RI/FS has been completed that characterizes the K&K Area. The K&K Area RI/FS is the subject of this Proposed Plan.

SITE CHARACTERISTICS

There have been numerous investigations conducted at the Rockaway Borough Wellfield Superfund site to define the nature and extent of groundwater contamination, examine potential migration routes by which contamination could reach the Borough's Wellfield, and to identify potential sources of contamination.

The following discussion relates only to the results of the source area RI/FS conducted at the K&K Area.

A total of 54 soil gas sample locations were field screened for the presence of contamination. Based on the results of the soil gas samples, samples were then collected from the soil. In general, the samples were analyzed for VOCs, semivolatile organic compounds, pesticides, and metals. VOCs and lead are the only contaminants of concern at the site. Therefore, the investigations focused on just the nature and extent of VOCs and lead. A summary of the findings for the media sampled is presented below.

Soil Contamination Adjacent to Buildings

Soils (less than 5 feet below ground surface (bgs)) were sampled at 12 boring locations, along with three duplicate samples (for a total of 15 soil samples). While three individual VOCs were detected in the surface soils, PCE and TCE were the only constituents that exceeded the NJDEP Impact to Groundwater Soil Cleanup Criteria ("Impact to Groundwater Criteria").

PCE and TCE occurred at concentrations exceeding each of their most conservative criteria [the NJDEP Impact to Groundwater Criteria 1 milligram per kilogram (mg/kg)] in surface soil samples. The most elevated concentrations of PCE and TCE occurred at the Building 12 property. Lead was also detected in the surface soil at the Building 12 property at concentrations that exceeded the New Jersey Residential Direct Contact Soil Cleanup Criteria of 400 mg/kg ("Direct Contact Criteria").

Soil Contamination Beneath Building 12

Soils (5 feet to about 12 feet bgs) were sampled at thirteen locations for a total of 24 subsurface soil samples.

Although 10 VOCs were detected, TCE and PCE each exceeded the most conservative criteria (i.e., 1 mg/kg) in six depth interval samples from 13 boring locations beneath Building 12.

WHAT ARE THE POTENTIAL "CONTAMINANTS OF CONCERN"?

TCE and PCE were detected at the Site above the NJDEP Impact to Groundwater Soil Cleanup Criteria. Lead was detected at the Site above the New Jersey Residential Direct Contact Soil Cleanup Criteria. Based on validity of the analytical results, frequency of occurrence, toxicological, physical, and chemical characteristics, the Baseline Human Health Risk Assessment identified only TCE, PCE and lead as Contaminants of Concern.

WHAT IS A "PRINCIPAL THREAT"?

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a site wherever practicable (NCP Section 300.430(a)(1)(iii)(A)). The "principal threat" concept is applied to the characterization of "source materials" at a Superfund site. A source material is material that includes or contains hazardous substances, pollutants or contaminants that act as a reservoir for migration of contamination to groundwater, surface water or air, or acts as a source for direct exposure. Contaminated groundwater generally is not considered to be a source material; however, Non-Aqueous Phase Liquids (NAPLs) in groundwater may be viewed as source material. Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained, or would present a significant risk to human health or the environment should exposure occur. The decision to treat these wastes is made on a site-specific basis through a detailed analysis of the alternatives using the nine remedy selection criteria. This analysis provides a basis for making a statutory finding that the remedy employs treatment as a principal element

Contaminated groundwater is generally not considered to be a "principal threat." However, the source area associated with this Proposed Plan is considered to be a "principal threat" to the groundwater. This remedy will address this "principal threat," which acts as a source of groundwater contamination.

Summary

The nature and extent of soil contamination present in the K&K Area was assessed through sampling of surface and subsurface soils. In addition, an evaluation of available historical information and soil gas survey results was performed to assist in the determination of potential contaminant source areas.

TCE, PCE and lead are the primary contaminants at the K&K Area of the site. They are present at elevated concentrations in the soil (e.g., up to 65.9 mg/kg for TCE) specifically beneath and in the vicinity of Building 12 property and up to 4.28 mg/kg for PCE near the fence area of Building 13 property. Lead was detected up to 841 mg/kg in the vicinity of Building 12.

SCOPE AND ROLE OF ACTION

As in many complex Superfund sites, this site has been divided into three Operable Units (OUs) or phases. OU1 was the site-wide investigation to identify the contaminants in the Borough water supply. OU2 was created when the remedy was selected to treat the groundwater plumes. This action, referred to as OU3, is intended to be the final of two source area remedial actions for the site. Previously, a Record of Decision was signed for the OU4 source area located at the Wall Street/East Main Street Area. This Proposed Plan summarizes the remedial alternatives detailed in the Feasibility Study, and discusses the preferred alternative for addressing contaminated soil at OU3.

Human Health Risk Assessment:
A Superfund baseline human health risk assessment is an analysis of the potential adverse health effects caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these under current and future-land uses. A four-step process is utilized for assessing site-related human health risks for reasonable maximum exposure scenarios.

Hazard Identification: In this step, the chemicals of potential concern (COPCs) at the site in various media (*i.e.*, soil, groundwater, surface water, and air) are identified based on such factors as toxicity, frequency of occurrence, and fate and transport of the contaminants in the environment, concentrations of the contaminants in specific media, mobility, persistence, and bioaccumulation.

Exposure Assessment: In this step, the different exposure pathways through which people might be exposed to the contaminants identified in the previous step are evaluated. Examples of exposure pathways include incidental ingestion of and dermal contact with contaminated soil and ingestion of and dermal contact with contaminated groundwater. Factors relating to the exposure assessment include, but are not limited to, the concentrations in specific media that people might be exposed to and the potential frequency and duration of exposure. Using these factors, a "reasonable maximum exposure" scenario, which portrays the highest level of human exposure that could reasonably be expected to occur, is calculated.

Toxicity Assessment: In this step, the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure and severity of adverse effects are determined. Potential health effects are chemical-specific and may include the risk of developing cancer over a lifetime or other non-cancer health effects, such as changes in the normal functions of organs within the body (*e.g.*, changes in the effectiveness of the immune system). Some chemicals are capable of causing both cancer and non-cancer health effects.

Risk Characterization: This step summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site risks. Exposures are evaluated based on the potential risk of developing cancer and the potential for non-cancer health hazards. The likelihood of an individual developing cancer is expressed as a probability. For example, a 10^{-4} cancer risk means a "one-in-ten-thousand excess cancer risk"; or one additional cancer may be seen in a population of 10,000 people as a result of exposure to site contaminants under the conditions explained in the Exposure Assessment. Current Superfund regulations for exposures identify the range for determining whether remedial action is necessary as an individual excess lifetime cancer risk of 10^{-4} to 10^{-5}, corresponding to a one-in-ten-thousand to a one-in-a-million excess cancer risk. For non-cancer health effects, a "hazard index" (HI) is calculated. The key concept for a non-cancer HI is that a "threshold" (measured as an HI of less than or equal to 1) exists below which non-cancer health hazards are not expected to occur. The goal of protection is 10^{-6} for cancer risk and a HI of 1 for a non-cancer health hazard. Chemicals that exceed a 10-4 cancer risk of an HI of 1 are typically those that will require remedial action at the site and are referred to as Chemicals of Concern or COCs in the final remedial decision or Record of Decision.

SUMMARY OF SITE RISKS

As part of the RI/FS, EPA conducted a baseline risk assessment to determine the current and future effects of the contaminants on human health and the environment. The site is currently used as a commercial facility, and any future use is expected to be the same. Therefore, the baseline risk assessment focused on health effects that could result from current and future direct contact with contaminated surface and subsurface soils for populations typically associated with commercial facilities, i.e., site workers and future construction workers.

Ecological Risks

A Screening Level Ecological Risk Assessment (SLERA) was performed for the site. The SLERA determined that due to the lack of usable terrestrial habitat for ecological receptors at the site, risks would be low. Therefore, ecologically based screening criteria are not presented and will not be utilized to assist in the interpretation of the nature and extent of soil contamination at the K&K Area.

Human Health Risks

Human Health Risk Assessment Findings
The cancer risk and non-cancer health hazard estimates in the human health risk assessment (HHRA) are based on current reasonable maximum exposure scenarios and were developed by taking into account various health protective estimates about the frequency and duration of an individual's exposure to chemicals selected as chemicals of potential concern (COPCs), as well as the toxicity of these contaminants. (Please see the adjacent text box for an explanation of risk assessment terms).

The K&K Area is currently zoned for light industrial use. Future land use is expected to remain the same, although the unlikely possibility that the K&K Area would be developed into a recreational or residential area was also considered in the Human Health Risk Assessment (HHRA). The HHRA began by selecting chemicals of potential concern in the shallow and

deep soils that would be representative of site risks. The chemicals of concern for the K&K Area were PCE, TCE and lead in soil.

Based on current zoning and anticipated future use of the K&K Area, the HHRA focused on a variety of possible receptors: the current and future site worker and adolescent intermittent visitor; and the potential future construction worker, recreational user (adult and adolescent) and resident (adult and child). The HHRA concluded that the cancer risks and non-cancer hazards from exposure via incidental ingestion of, dermal contact with, and inhalation of constituents detected in the soil were within EPA's target risk range for carcinogens and below the Hazard Index (HI) of 1 for non-carcinogens for all populations evaluated under both current and future use scenarios, except for the future resident child. The HI for this receptor slightly exceeded the threshold of 1 from ingestion of TCE-contaminated soil. Although exposure to this receptor is considered highly unlikely given current land use, the non-cancer health hazard calculation supports the need for remediation at the site.

Due to the lack of toxicity values for lead, exposure was evaluated qualitatively. The maximum concentration of lead (841 mg/kg) exceeded both the health-based industrial and residential screening values of 800 mg/kg and 400 mg/kg, respectively. Therefore, exposure to site soils could result in adverse health effects.

Concentrations of PCE and TCE in soil indicate that there is potential for vapor intrusion into the on-site buildings from contaminated soil. Therefore, additional investigation of the vapor intrusion pathway is necessary and will occur during the remedial design phase.

A complete discussion of the exposure pathways and estimates of cancer risk and non-cancer hazard can be found in the *Human Health Risk Assessment* for the K&K Area in the information repository.

The cancer risks and non-cancer hazards for the receptors most likely to come in contact with contaminated site soils are within or below EPA's acceptable values. However, in addition to exceeding EPA's screening values, the maximum concentration of lead also exceeds the New Jersey Residential and Non-residential Direct Contact Cleanup Criteria of 400 mg/kg and 600 mg/kg respectively. Furthermore, the soil concentrations of PCE and TCE are above the concentrations that are associated with an adverse impact to groundwater; thus, there is a need to address the soil through a remedial action. It is the EPA's judgment that the Preferred Alternative identified in this Plan is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

Remedial Action Objectives

The overall remediation goal for this site is to protect human health and the environment. The remedial action objectives (RAOs) have been identified to mitigate the potential risks associated with the K&K Area.

The RAOs for the contaminated soil at the K&K Area are:

1. Reduce the potential for further migration of TCE/PCE from the contaminated soil into groundwater.

2. Remove Direct Contact exposure to lead-contaminated soil.

The Preliminary Remediation Goal (PRG) for TCE and PCE in soil was derived from the New Jersey Impact to Groundwater Soil Criteria and is 1 mg/kg. The PRG for lead in soil was derived from the and Residential Direct Contact Criteria of 400 mg/kg.

Summary of Remedial Alternatives

Based on technology screening and process option evaluation, the potential soil remedial alternatives developed for the site are as follows:

TCE/PCE:

- V-1: No Action
- V-2: Access and Use Restrictions
- V-3: Capping, and Access and Use Restrictions;
- V-4: Excavation and Off-Site Treatment/Disposal;
- V-5 Soil Vapor Extraction, Excavation and Off-Site Treatment/Disposal; and
- V-6 Chemical Oxidation, Soil Vapor Extraction, and Excavation with Off-Site Treatment/Disposal.

Lead:

- L-1: NoAction;
- L-2: Access and Use Restrictions;
- L-3: Capping, and Access and Use Restrictions; and
- L4: Excavation and Off-Site Treatment/Disposal.

TCE/PCE Contaminated Soil Alternatives

Alternative V-1: No Action

Estimated Capital Cost: $0
Estimated Annual O&M Cost: $0
Estimated Present Worth: $0
Estimated Construction Time Frame: None

Regulations governing the Superfund program require that the "no action" alternative be evaluated to establish a baseline for comparison. Under this alternative, EPA would take no action at the site to prevent the migration of the contamination to the groundwater.

Because this alternative results in contaminants remaining on the site above levels that would not allow for unlimited use and unrestricted exposure, a review of the site at least every five years would be required.

Alternative V-2: Access and Use Restrictions

Estimated Capital Cost: $41,050
Estimated Annual O&M Cost: $0
Estimated Present Worth: $41,050
Estimated Construction Time Frame: None

The Access and Use Restrictions Alternative would include implementation of administrative controls such as deed notices. The deed notices, or comparable administrative control, would be implemented to ensure that future activities at the K&K Area (e.g., excavation) would be performed with knowledge of the K&K Area conditions and implementation of appropriate health and safety controls.

Because this alternative results in contaminants remaining on the site above levels that would not allow for unlimited use and unrestricted exposure, a review of the site at least every five years would be required.

Alternative V-3: Capping, and Access and Use Restrictions

Estimated Capital Cost: $88,750
Estimated Annual O&M Cost: $0
Estimated Present Worth: $88,750
Estimated Construction Time Frame: 3-6 months

This alternative includes capping contaminated soil areas with asphalt or concrete. The Access and Use Restrictions would include implementation of administrative controls such as deed notices. The deed notices, or comparable administrative control, would be implemented to ensure that future activities at the K&K Area (e.g., excavation) would be performed with knowledge of the K&K Area conditions and implementation of appropriate health and safety controls.

Because this alternative results in contaminants remaining on the site above levels that would not allow for unlimited use and unrestricted exposure, a review of the site at least every five years would be required.

Alternative V-4: Excavation and Off-Site Treatment/Disposal

Estimated Capital Cost: $650,860
Estimated Annual O&M Cost: $0
Estimated Present Worth: $650,860
Estimated Construction Time Frame: 3-6 months

In this alternative, accessible TCE and PCE-contaminated soils are removed via excavation.

Contaminated soil present beneath Building 12 would not be addressed.

The excavated material would be transported off-site for treatment and/or disposal, at a facility designed and permitted for disposal of TCE and PCE-contaminated soil. The estimated volume of impacted soil, based on information in the RI report, is approximately 1,300 cubic yards (yd^3) for Building 12 and 120 yd^3 for Building 13. However, additional action level exceedences could be detected during post-excavation confirmatory sampling, which could increase the scope during remedial construction.

Excavated soils would be analyzed for disposal parameters and would be containerized for off-site disposal. The excavated soils would be trucked off-site for treatment, as needed, and disposed of in accordance with federal and state regulations. Upon completion of contaminated soil removal, the excavation would be backfilled and compacted, and the surface would be restored.

Excavation would remove contaminated soil and meet the NJDEP Impact to Groundwater criteria, and post-excavation sampling would confirm that the criteria have been met.

Because this alternative is only expected to achieve the cleanup goals for a portion of the site and would leave hazardous substances, pollutants or contaminants remaining at the site, specifically under Building 12, above levels that would allow for unlimited use and unrestricted exposure, a review of the site at least every five years would be required.

Alternative V-5: Soil Vapor Extraction with Excavation and Off-Site Treatment/Disposal

Estimated Capital Cost: $617,280
Estimated Annual O&M Cost: $120,000
Estimated Present Worth: $857,280
Estimated Construction Time Frame: 3-6 months
Estimated Time to Achieve RAO: 2 years

This alternative includes *in-situ* remediation via soil vapor extraction (SVE) at the Building 12 property in an effort to address the RAO by removing TCE and PCE as a potential ongoing source of groundwater contamination. SVE would be used to remediate TCE and PCE in the unsaturated (vadose) zone soil. To implement SVE, a vacuum is applied to the soil through a series of wells to induce the controlled flow of air to remove VOCs from the soil. The captured vapors are then treated, usually by granular activated carbon, to applicable air standards. The estimated area of impacted soil, based on information provided in the RI Report, is approximately 19,000 ft^2.

An excavation would occur in parallel with the SVE system to remove approximately 150 yd^3 of PCE-contaminated soil on the Building 13 property.
Excavated soils would be analyzed for disposal parameters and would be containerized for off-site disposal. The excavated soils would be trucked off-site for treatment, as needed, and disposed of in accordance with federal and state regulations. Upon completion of contaminated soil removal, the excavation would be backfilled and compacted, and the surface would be restored.

Excavation would remove contaminated soil and meet the NJDEP Impact to Groundwater criteria, and post-excavation sampling would confirm that the criteria have been met.

Because this alternative is expected to achieve the cleanup goals and not leave hazardous substances, pollutants or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, a five-year review may not be required.

Alternative V-6: Chemical Oxidation with Soil Vapor Extraction and Excavation with Off-Site Treatment/Disposal

Estimated Capital Cost: $765,330
Estimated Annual O&M Cost: $264,000
Estimated Present Worth: $1,029,330
Estimated Construction Time Frame: 3-6 months
Estimated Time to Achieve RAO: 1 years

This alternative includes *in-situ* remediation via a combination of chemical oxidation with soil

vapor extraction (SVE) at the Building 12 property in an effort to address the RAO by removing TCE and PCE as a potential ongoing source of groundwater contamination. Chemical oxidation involves the injection of an oxidizing compound into the subsurface and then the SVE would be used to remediate the remaining TCE and PCE in the unsaturated (vadose) zone soil. To implement SVE, a vacuum is applied to the soil through a series of wells to induce the controlled flow of air to remove VOCs from the soil. The captured vapors are then treated to applicable air standards. The estimated area of impacted soil, based on information provided in the RI Report, is approximately 19,000 ft^2.

Excavation would occur in parallel with the SVE system to remove approximately 150 yd^3 of PCE-contaminated soil on the Building 13 property. Excavated soils would be analyzed for disposal parameters and would be containerized for off-site disposal. The excavated soils would be trucked off-site for treatment, as needed, and disposed of in accordance with federal and state regulations. Upon completion of contaminated soil removal, the excavation would be backfilled and compacted, and the surface would be restored.

Excavation would remove contaminated soil and meet the NJDEP Impact to Groundwater criteria, and post-excavation sampling would confirm that the criteria have been met.

Because this alternative is expected to achieve the cleanup goals and not leave hazardous substances, pollutants or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, a five-year review may not be required.

Lead-Contaminated Soil Alternatives

Alternative L-1: No Action

Estimated Capital Cost: $0
Estimated Annual O&M Cost: $0
Estimated Present Worth: $0
Estimated Construction Time Frame: None

Regulations governing the Superfund program require that the "no action" alternative be evaluated to establish a baseline for comparison. Under this alternative, EPA would take no action at the site to prevent direct contact with contaminated soil.

Because this alternative results in contaminants remaining on the site above levels that would not allow for unlimited use and unrestricted exposure, a review of the site at least every five years would be required.

Alternative L-2: Access and Use Restrictions

Estimated Capital Cost: $18,000
Estimated Annual O&M Cost: $0
Estimated Present Worth: $18,000
Estimated Construction Time Frame: None

The Access and Use Restrictions Alternative would include implementation of administrative controls such as deed notices. The deed notices, or comparable administrative control, would be implemented to ensure that future activities at the K&K Area (e.g., excavation) would be performed with knowledge of the K&K Area conditions and implementation of appropriate health and safety controls.

Because this alternative results in contaminants remaining on the site above levels that would not allow for unlimited use and unrestricted exposure, a review of the site at least every five years would be required.

Alternative L-3: Capping with Access and Use Restrictions

Estimated Capital Cost: $63,220
Estimated Annual O&M Cost: $0
Estimated Present Worth: $63,220
Estimated Construction Time Frame: 3-6 months
Estimated Time to Achieve RAO: 3- 6 months

This alternative includes capping contaminated soil areas with asphalt or concrete. The approximate area of lead soil contamination that would be capped at the Building 12 property is 360 ft^2. The Access and Use Restrictions would include implementation of administrative controls such as deed notices. The deed notices, or

comparable administrative control, would be implemented to ensure that future activities at the K&K Area (e.g., excavation) would be performed with knowledge of the K&K Area conditions and implementation of appropriate health and safety controls.

Because this alternative results in contaminants remaining on the site above levels that would not allow for unlimited use and unrestricted exposure, a review of the site at least every five years would be required.

Alternative L-4: Excavation and Off-Site Treatment/Disposal

Estimated Capital Cost: $78,470
Estimated Annual O&M Cost: $0
Estimated Present Worth: $78,470
Estimated Construction Time Frame: 3-6 months
Estimated Time to Achieve RAO: 3-6 months

In this alternative, lead-contaminated soils are removed via excavation. The excavated material would be transported off-site for treatment and/or disposal, at a facility designed and permitted for disposal of lead-contaminated soil. The estimated volume of impacted soil, based on information in the RI report, is approximately 27 yd^3. However, additional action level exceedences could be detected during post-excavation confirmatory sampling, which could increase the scope during remedial construction.

Excavated soils would be analyzed for disposal parameters and would be containerized for off-site disposal. The excavated soils would be trucked off-site for treatment, as needed, and disposed of in accordance with federal and state regulations. Upon completion of contaminated soil removal, the excavation would be backfilled and compacted, and the surface would be restored.

Excavation would remove contaminated soil and meet the PRG of 400 mg/kg for lead, and post-excavation sampling would confirm that the PRG has been met.

Because this alternative is expected to achieve the cleanup goals and not leave hazardous substances, pollutants or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, a five-year review may not be required.

EVALUATION OF ALTERNATIVES

Nine criteria are used to evaluate the different remediation alternatives individually and against each other in order to select the best alternative. This section of the Proposed Plan profiles the relative performance of each alternative against the nine criteria, noting how it compares to the other options under consideration. The nine evaluation criteria are discussed below. A "Detailed Analysis of Alternatives" can be found in the Feasibility Study.

1. Overall Protection of Human Health and the Environment

Alternatives V-1 and L-1 would provide no protection of human health and the environment since the contamination is left on-site. Alternatives V-2 and L-2 would provide limited protection of human health and the environment by reducing potential risks by utilizing institutional controls. Alternatives V-3, V-4, V-5 V-6 as well as L-3 and L-4 would provide protection of human health and the environment by eliminating, reducing, or controlling risk through the removal or treatment of contaminated material. Alternative V-5 could also limit the migration of vapors into on-site buildings. Additional work to characterize the extent of the impact of subsurface vapors on on-site buildings will be done during the remedial design phase.

Because the "no action" alternatives (V-1 and L1) and the limited action alternatives (V-2 and L-2) are not protective of human health and the environment, they were eliminated from consideration under the remaining eight criteria.

2. Compliance with ARARs

Actions taken at any Superfund site must meet all Applicable or Relevant and Appropriate Requirements (ARARs) of federal and state law or provide grounds for invoking a waiver of these

requirements. These include chemical-specific, location-specific, and action-specific ARARs. There are no chemical-specific ARARs for soil, only To-Be-Considered cleanup numbers (TBCs). The New Jersey Impact to Groundwater Soil Criteria and New Jersey Residential Direct Contact Soil Cleanup Criteria are TBCs. Alternatives V-4, V-5, V-6 and L-4 would meet the TBCs for the contaminated soils. Alternatives V-3 and L-3 would not meet the TBCs for the contaminated soils. Location-specific ARARs would not be triggered for any of the alternatives. Alternatives V-4, V-5, V-6 and L-4 would attain action-specific ARARs for the contaminated soils, which would include RCRA transportation and disposal requirements.

3. Long-Term Effectiveness and Permanence

Of the remaining alternatives, the magnitude of residual risks is highest for Alternatives V-3 and L-3. Alternatives V-3 and L-3 both attempt to prevent direct contact as well as the migration of the ongoing source of groundwater contamination by utilizing a cap and using land use restrictions aimed at informing the public about potential hazards posed by exposure to contaminants in the soil. Alternatives V-5 and V-6 use excavation and *in-situ* treatment to reduce contaminant mass in the vadose zone. Alternatives V-4 and L-4 use excavation and off-site disposal to remove contaminant mass from the site. Alternatives V-4, V-5, V-6 and L-4 are all permanent remedies and effective in the long-term.

4. Reduction of Toxicity, Mobility, or Volume of Contaminants Through Treatment

Alternatives V-3 and L-3 would reduce direct contact as well as contaminant mobility without treatment by capping contaminated areas to reduce the infiltration of water through the contaminated soil. Alternatives V-4 and L-4 would reduce the toxicity, volume or mobility through the removal and treatment/disposal of soils at approved off-site facilities. Alternatives V-5 and V-6 would reduce toxicity, volume or mobility through *in-situ* treatment and removal and disposal of soils at approved off-site facilities. For Alternatives V-4 and L-4, pre-disposal treatment, if necessary, could potentially reduce the toxicity and volume of the contaminated soils.

5. Short-Term Effectiveness

Alternatives V-3 and L-3 do not involve any physical treatment; there are no short-term risks to the community or workers as well as no environmental effects.

Alternatives V-4 and L-4 would present short-term risks to the community relating to exposure to contaminated soil. This exposure would be mitigated with the use of air monitoring, dust suppression, and restricted site access. Air monitoring, dust suppression, and a health and safety program would mitigate risks relating to inhalation exposure by workers. Excavation is anticipated to create minimal environmental effects since the K&K Area is highly developed.

Alternatives V-5 and V-6 would present short-term risks to the community relating to inhalation exposure that would be mitigated by air monitoring and engineering controls. Air monitoring and a health and safety program would mitigate risks relating to inhalation exposure by workers. The *in-situ* remediation is anticipated to create minimal environmental effects since the K&K Area is highly developed.

6. Implementability

Alternatives V-3 and L-3 could be easily implemented. Personnel and equipment necessary to perform these activities are readily available. Coordination with state and local governments would be required for implementing institutional controls. Coordination with state and local authorities would be required for five-year reviews.

Alternatives V-4 and L-4 would be easily implemented using conventional construction equipment and materials; however, some specialized techniques may be required for

excavation in close proximity to building foundations and would require coordination with state and local governments in addition to property owners and tenants. This alternative would also potentially impact businesses since the excavation would occur near buildings.

Alternatives V-5 and V-6 would be somewhat difficult to implement because of limited available space to install a treatment building or inject chemical oxidation under Building 12. Coordination with state and local governments in addition to property owners and tenants would be required for placement of extraction wells and associated treatment equipment.

7. Cost

The estimated present worth costs of the Alternatives are:

Alternative V-3 (Capping and Access and Use Restrictions): - $88,750.

Alternative V-4 (Excavation with Off-Site Disposal): - $650,860.

Alternative V-5 (Soil Vapor Extraction with Excavation): have capital costs until RAO is achieved - $857,280

Alternative V-6 (Chemical Oxidation with Soil Vapor Extraction and Excavation with Off-Site Disposal): have capital costs until RAO is achieved - $1,029,330

Alternative L-3 (Capping and Access and Use Restrictions): potential capital costs involved with the implementation of the institutional controls - $63,220.

Alternative L-4 (Excavation with Off-Site Disposal): have capital costs until RAO is achieved - $78,470.

8. State/Support Agency Acceptance

The State of New Jersey has concurred with EPA's Preferred Alternative presented in this Proposed Plan.

9. Community Acceptance

EPA will evaluate community acceptance of the Preferred Alternative after the public comment period ends. EPA will discuss community acceptance in the Record of Decision, the document that formalizes the selection of the remedy for the Area.

SUMMARY OF THE PREFERRED ALTERNATIVE

Based on the evaluation of remedial alternatives that was presented in the previous section, EPA has selected a combination of Alternatives V-5 and L-4 as its Preferred Alternative. These alternatives involve the use of an SVE system for contamination beneath a structure on the Building 12 property, excavation and off-site treatment/disposal of lead-contaminated soil near Building 12, and excavation and off-site treatment/disposal of contaminated soils near the fence area of the Building 13 property at the K&K Area.

The Preferred Alternative satisfies the remedial action objectives and the requirements of CERCLA, as amended, and the NCP. Alternative V-5 will require an estimated 1 to 2 years of operation for the remedy to meet the cleanup criteria, which are the New Jersey Impact to Ground Water Soil Cleanup Criteria. Alternative L-4 will require and estimated 3-6 months for the remedy to meet the cleanup criteria, which is the New Jersey Residential Direct Contact Criteria.

The Preferred Alternative provides the best balance of trade-offs among alternatives with respect to the nine CERCLA evaluation criteria. The Preferred Alternative is protective of human health and the environment, comply with ARARs and cleanup criteria, are cost-effective, and use permanent solutions and alternative treatment technologies or resource recovery technologies to

the maximum extent practicable. The Preferred Alternative also meets the statutory preference for the use of treatment as a principal element to the maximum extent practicable.

COMMUNITY PARTICIPATION

EPA provides information regarding the cleanup of the Rockaway Borough Wellfield Superfund site to the public through public meetings, the Administrative Record file for the site, and announcements published in the local newspaper. EPA and the state encourage the public to gain a more comprehensive understanding of the site and the Superfund activities that have been conducted there. The front page of this Proposed Plan shows the dates for the public comment period; the date, location, and time of the public meeting; and the locations of the Administrative Record files.

EPA Region 2 has designated a point-of-contact for community concerns and questions about the Superfund program. To support this effort, the Agency has established a 24-hour, toll-free number the public can call to request information, express concerns or register complaints about Superfund. The Public Liaison Manager for EPA's Region 2 office is:

George H. Zachos
Toll-free (888) 283-7626
(732) 321-6621

U.S. EPA Region 2
2890 Woodbridge Avenue, MS-211
Edison, New Jersey 08837

For further information on the Rockaway Borough Wellfield site, please contact:

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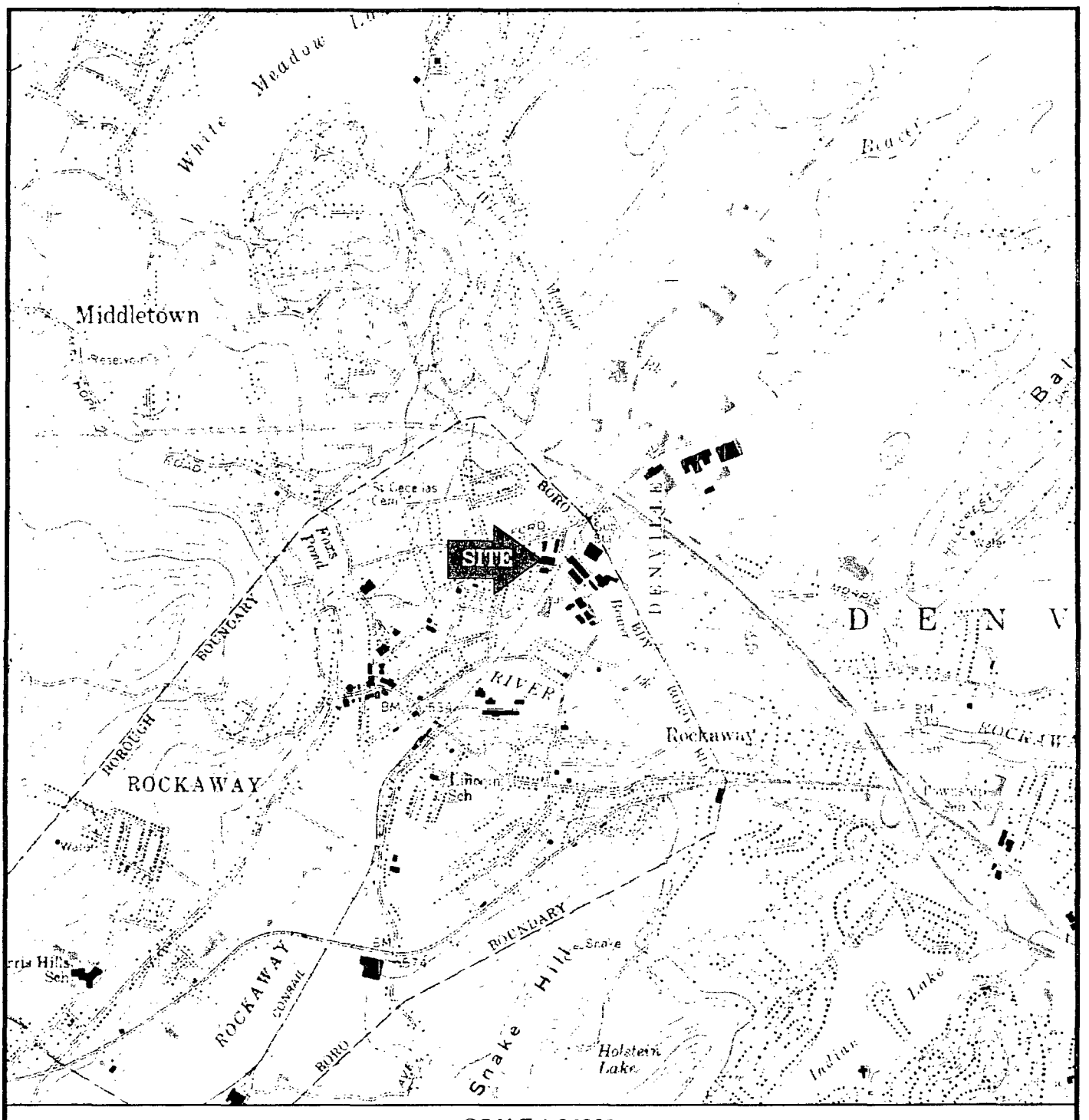

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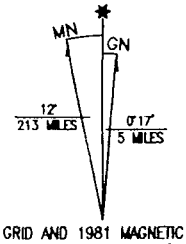

UTM GRID AND 1981 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

QUADRANGLE LOCATION

KLOCKNER & KLOCKNER PROPERTY
ROCKAWAY BOROUGH
MORRIS COUNTY, NEW JERSEY

SITE LOCATION ON USGS
DOVER, N.J. QUADRANGLE

ORIGINAL BY:	DRAWN BY:	DRAWING NO: 950302MAP
CHECKED BY:	DATE: APRIL 2006	FIGURE NO: 1

500114

ATTACHMENT B
PUBLIC NOTICE ANNOUNCING PROPOSED PLAN
AND COMMUNITY MEETING

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY INVITES PUBLIC COMMENT ON THE PROPOSED PLAN FOR THE ROCKAWAY BOROUGH WELLFIELD SUPERFUND SITE ROCKAWAY, NEW JERSEY

The U.S. Environmental Protection Agency (EPA) announces the opening of a **30-day comment period** on the Proposed Plan and preferred alternative to address contamination at the Rockaway Borough Wellfield Superfund site in Rockaway, New Jersey. The comment period **begins on August 16, 2007 and ends on September 15, 2007.** As part of the public comment period, EPA will hold a public meeting on **Thursday, August 23, 2007** at 7:00 PM at the Rockaway Borough Community Center, 21-25 Union Street, Rockaway, New Jersey. To learn more about the meeting you can contact Ms. Cecilia Echols, EPA's Community Involvement Coordinator, at 212-637-3678 or 1-800-346-5009 or visit our website to receive a copy of the Proposed Plan at www.epa.gov/region02/superfund/npl/rockaway.

The site is listed on the Superfund National Priorities List. EPA recently concluded a remedial investigation/feasibility study (RI/FS) to assess the nature and extent of contamination at the site and to evaluate alternatives to clean-up the site. Based upon the results of the RI/FS, EPA has prepared a Proposed Plan which describes the findings of the remedial investigation and potential cleanup options detailed in the feasibility study and provides the rationale for recommending the preferred alternative.

The preferred alternatives for cleanup of the site:

Installation and operation of a soil vapor extraction system; with
Excavation of volatile organic compound contaminated site soils in the source area; and
Excavation of lead contaminated soils in the source area.

Institutional controls, monitoring, and periodic reviews may also be part of the cleanup plan to ensure that the preferred cleanup plans remains protective of public health and the environment. During the **August 23rd public meeting,** EPA representatives will be available to further elaborate on the reasons for recommending the preferred cleanup plan and public comment will be taken.

The RI Report, FS Report, Risk Assessment, Proposed Plan and other site-related documents are available for public review at the information repositories established for the site at the following locations:

Rockaway Borough Free Library: 82 East Main Street, Rockaway, New Jersey 07866 (973) 627-5709
Hours: Mon. & Wed., @ 12PM - 8PM; Tues., Thurs., & Fri., @ 10AM - 8PM; and Sat. @ 10AM - 2PM.

USEPA Region 2: Superfund Records Center, 290 Broadway, 18th Floor, New York, NY 10007-1866, (212) 637-4308
Hours: Mon. - Fri., @ 9 AM - 5 PM

EPA relies on public input to ensure that the selected cleanup plan for each Superfund site meets the needs and concerns of the local community. It is important to note that although EPA has identified a preferred alternative for the site, no final decision will be made until EPA has considered all public comments received during the public comment period. EPA will summarize these comments along with EPA's responses in a Responsiveness Summary, which will be included in the Administrative Record file as part of the Record of Decision. **Written comments and questions regarding the Rockaway Borough Wellfield site, postmarked no later than September 15, 2007, may be sent to:**

Brian Quinn, Project Manager
U.S. Environmental Protection Agency
290 Broadway, 19th Floor
New York, New York 10007-1866
Tele: (212) 637-4381
Fax: (212) 637-4393
email: quinn.brian@epa.gov

ATTACHMENT C
EPA PRESS RELEASE ANNOUNCING EPA TO REMOVE CONTAMINATED SOIL
FROM THE ROCKAWAY BOROUGH WELLFIELD SITE.

Press Release

Region 2 - New York, New Jersey, Puerto Rico and the U.S. Virgin Islands

290 Broadway, New York, New York 10007-1866 www.epa.gov/region2

EPA Proposes Cleanup Plan for Rockaway Borough Wellfield Superfund Site

Contact: Elizabeth Totman 212-637-3662, totman.elizabeth@epa.gov

(New York, NY – August 10, 2007)— In a major step towards cleaning up the Rockaway Borough Wellfield Superfund Site in Morris County, New Jersey, the U.S. Environmental Protection Agency is proposing a plan for the Klockner and Klockner (K&K) facility area, which has been identified as one of the borough's sources of ground water contamination. The plan calls for soil from the area contaminated by volatile organic compounds to be remediated and for off-site disposal and treatment. The plan also calls for a small area of lead-contaminated soil to be excavated and disposed of off-site.

"By cleaning up the soil contamination, we are getting rid of one important source of contamination to the ground water," said Alan J. Steinberg, Regional Administrator. "This will bring us one step closer to cleaning up the whole site, an exciting prospect for citizens in the borough."

EPA will hold a public meeting to present and discuss the proposed cleanup plan on August 23, 2007 at 7:00 pm at the Rockaway Borough Community Center located at 21-25 Union Street in Rockaway, NJ.

The Rockaway Borough Wellfield Superfund Site includes three municipal water supply wells. The wells supply potable water to approximately 11,000 people. In 1985, the New Jersey Department of

Environmental Protection investigated the site and concluded that contamination found in the municipal water supply was emanating from multiple source areas within the borough. Based on these findings, EPA initiated a follow-up investigation to identify the sources of contamination, determine its extent, and evaluate potential cleanup methods. EPA's investigation of the area encompassed nearby businesses including dry cleaners, auto body repair shops, auto service and repair shops, banks, hardware stores, hairdressers, convenience stores, and food establishments. The borough police and fire departments, Memorial Park, and municipal parking lots were also investigated. Upon these investigations, it was determined that the sources of contamination were from industrial operations within the borough, including the K&K Facility.

The K&K facility consists of two separate properties, the first being located just north of Stickle Avenue and the second just south. The area is predominantly covered by roadways, driveways, parking areas and concrete buildings. To deal with soil contaminated by volatile organic compounds (VOCs), EPA is proposing to excavate a portion of the soil as well as to utilize vacuum wells to remove VOCs from additional soil; the approaches will be used at different locations on the site. The plan will also address soil contaminated with lead through excavation and off-site disposal.

The 30-day public comment period on the proposed plan begins August 13, 2007. EPA will select a final remedy for the site after reviewing and considering information submitted during the public comment period. Interested individuals can send comments to:

Brian Quinn, Remedial Project Manager
U.S. Environmental Protection Agency
290 Broadway, 20th floor
New York, New York 10007-1866
Quinn.brian@epa.gov

For more information on the Superfund program, go to http://www.epa.gov/region02/superfund. For further information on the Rockaway Borough Wellfield site, visit

http://www.epa.gov/region02/superfund/npl/0200766c.htm.

# # #

07-098

ATTACHMENT D
MEETING AGENDA AND TRANSCRIPT OF
23 AUGUST 2007 PUBLIC MEETING

Agenda

- Introduction
- Superfund Program and the Rockaway Site
- Remedial Investigation
- Human Health and Screening Level Ecological Risk Assessments
- Feasibility Study
- Proposed Remedy
- Questions & Answers

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II

- -x

IN RE: ROCKAWAY BOROUGH WELLFIELD SUPERFUND SITE,
OPERABLE UNIT 3
KLOCKNER & KLOCKNER SITE
STICKLE AVENUE & ELM STREET

- -x

A p p e a r a n c e s:

CECILIA ECHOLS, EPA, Community Relations Coordinator

MICHAEL METLITZ, Whitman Companies

CHLOE METZ, EPA, Risk Assessor

BRIAN QUINN, EPA, Remedial Project Manager

August 23, 2007
7:10 p.m.

Public Meeting held in the above-entitled matter at the Rockaway Borough Community Center, 21-25 Union Street, Rockaway Borough, New Jersey before Linda A. Marino, Registered Professional Reporter, Certified Court Reporter, and Notary Public within and for the State of New Jersey.

ROCKAWAY BOROUGH WELLFIELD SUPERFUND SITE

MS. ECHOLS: Good evening, everyone. We're ready to begin our presentation.

I'm Cecilia Echols, Community Involvement Coordinator for this particular Superfund site, the Rockaway Borough Wellfield Superfund Site located right here in Rockaway Borough. Thank you for coming out tonight. Our presentation shouldn't be a long one, but you will be able to follow us through one of the handouts that was provided to you. I hope everyone had an opportunity to pick up one.

I just wanted to let you know we're here to discuss the soils at the Klockner and Klockner area around the groundwater which is -- which has some contamination, and that's why we're here today.

I don't know, has anyone ever attended one of our meetings in the past?

(Some audience members raise hands.)

MS. ECHOLS: So, you know the issue here. Thank you for coming, again.

ROCKAWAY BOROUGH WELLFIELD SUPERFUND SITE

On our agenda, we'll be discussing the Superfund program and the Rockaway site. The remedial investigation will be done by Michael Metlitz. He is our contractor with Whitman Companies. Then we'll have the human health and screening level ecological risk assessments, and that's Chloe Metz. She's our risk assessor at the EPA. We'll go back to the feasibility study, which Mike will discuss, then we'll have a proposed remedy by Brian Quinn, he's the project manager on the site, then we'll open up for questions and answers.

Please always remember that we do have a stenographer. This is for public record.

And I just wanted to let you know that Community Involvement is a program within the Superfund process where we look and seek the community's input through the decision making process. So, you may have a lot of concerns, questions, about our cleanup alternatives, and we're here to address them and to hear as well

what you all feel is your alternative, and maybe you may be interested in the one that we feel would best clean up the area.

We do have a stenographer. When you are ready to ask your question, please stand, state your name clearly so she can document it. I hope everyone has signed in. It's very important to sign in with your address so whenever future mailings are mailed out, you will receive them and be kept abreast of what's going on in the community.

We do have an information repository where all of the public documents for this particular site are; at the Rockaway Borough Public Library. You can go there at your leisure to find out information about the site.

We will be discussing the proposed plan. You should also have this; either you received it in the mail or you should have picked it up from the table. In addition, a shorter version fact sheet was also mailed out to the community.

ROCKAWAY BOROUGH WELLFIELD SUPERFUND SITE

Just one more thing. There is a community relations hot line, if you would like. The number is 1-800-346-5009. You can always call into the office, ask for Brian or I, and we'll be able to address your concerns.

And now we'll open up to --

MR. METLITZ: Also, I think those numbers are in the back of the last slide.

MS. ECHOLS: Yes, the last slide of the proposed plan as well as this presentation has my number as well as Brian's. This is on the slide of the presentation here. And Brian's number is also on the proposed plan. So, you have a lot of ways of reaching us.

And now we'll open up for Mike, or you're going to go -- Brian.

MR. QUINN: Just quickly, if you have the handout, you can kind of follow along because there's a lot of information. Again, I'm Brian Quinn, the EPA manager for the site.

This is basically an overview of the site

of the area around Rockaway. And where we're discussing is the site over on the corners of Stickle and Elm in Hibernia. It's the Klockner and Klockner properties, which is known throughout the report as Building 12 and Building 13.

Years ago, a company, Diacol, used to build some rockets out there, and during the process they used certain chemicals which then got into the soils and eventually into the groundwater. Just a quick history here is that the first thing was found in 1979, contamination was found. Actually, Rockaway Borough was one of the first towns in the nation to test for chemicals and then one of the first towns to actually install a treatment system to clean up the water. So, your water has been treated since 1981. They've put carbon filter on -- a stripper, then a carbon filter on the next year.

EPA put it on the NPL, National Priorities List; a ranking system to rank Superfund sites,

how they get funded, and how soon they do things with the sites. And the first remedial investigation and feasibility study was done to just generally figure out what happened here, where the contamination came from. That led to the first record of discussion which identified groundwater contamination and that we needed to look at the source areas to find out what caused the groundwater contamination, where it came from.

Then in 1991, a second record of decision was issued which defined the contamination and said there were two source areas; one was the Klockner and Klockner portion, and one was the area of -- in the East Main Street Wall/Street area, which is what we talked about last year which was the other source area, the municipal parking lot, the one behind the police station, the dry cleaners and the rest of the stores up there and by Memorial Park.

And then in 1994, there was a consent

decree which was done with Klockner and Klockner, the responsible parties who were people who owned the property and regulated the property during the time the contamination occurred. They're the ones that hired Mike's company to do this investigatory work.

And then subsequently, it gets a little more confusing after this, but then we were doing two groundwater treatment plant designs simultaneously; one for that side of -- Klockner side of town and one for the Wall Street side of town. The one on the other side of town you may have noticed is over by Cobb Street; just before the train tracks, there's a building built there that treats the groundwater from coming from the Klockner and Klockner site.

EPA is, as you probably have noticed if you went up by Maple down by Halsey, starting to install the other groundwater treatment system for the contamination coming from the Wall Street side of town.

Subsequent to that, we were looking at both source areas as well; the one we'll talk about tonight, and the one over by Wall Street which we did last year. We're going to excavate some chemicals in the soil at Wall Street, and tonight we'll explain what we found here at Klockner and Klockner and what our proposed remedy is for the contamination there.

We just started last year the construction of our system or this year we started it and hope to have it completed by early to mid 2008 and have it start up and operational later that year as well.

So, just a little history and background, and now we'll jump into your stuff, Mike, I guess.

Just briefly, the primary objective that we're here to discuss today is remedial investigation; you want to find out what's in the ground, what causes the contamination. So, you want to find out how much you have and what you

have. And once you develop that, you can then come up with alternatives to find out the best ways to get rid of the contamination. So, that's what we did.

We looked at soil. Two methods are soil gas, which just measures the gasses that are in the voids between the soil, and the actual soil samples where you pull the core up and measure how much contamination is in the soil.

I'll let you go to your slides Mike. Mike will go over the rest of the stuff that they did for the RI, the remedial investigation.

MR. METLITZ: I'm Mike Metlitz with the Whitman Companies. And what my company has done for Klockner and Klockner under the EPA's oversight is to investigate the Klockner property, which consists of the Building 12 and Building 13 properties. These properties have similar contaminants, but they're different, and we'll get into that as we go along.

What we did as part of the investigating

of the property is look for soil contamination that can impact the groundwater that made its way to the Wellfield site. We looked at soil gas survey, topographic survey, ecological surveys, culture resources, and then field investigation with soil investigation.

What we did is -- the first step we took was a soil gas survey. We drilled holes in the ground over a grid over both of the properties and took gas samples out of the ground, about three to four feet below the ground, had those analyzed. And looking at that information, we're able to see where there are high concentrations of contamination or where there was no contamination and have that guide us into where we should be investigating further with the soil sampling that we did. That was in 1998 that we started that.

Right after we did the soil gas survey, we went right into the soil investigation work. We did soil borings at both properties, and what we

found was -- actually went down about thirteen and a half feet, which is about where the water table is. Based on this study, we took over 95 soil samples at the Building 12 property to investigate and over 27 at the Building 13 property.

The three primary contaminants that were detected at the property were trichloroethene and tetrachloroethene. These are both contaminants that will readily migrate into the groundwater and are impacting the groundwater as proven with the sampling. Tetrachloroethene is the primary contaminant at the Wellfield site. Both of these contaminants have low cleanup standards, where they would have standards where they would impact the groundwater. So, if they're above one milligram per kilogram, or part per million, New Jersey DEP, through their evaluation, has determined that concentrations when that material is going to start seeping into the groundwater and impact the groundwater. And, so, what we

looked at when we looked at the sampling results, we looked at NJ DEP criteria of one milligram per kilogram for trichloroethene and tetrachloroethene.

Another contaminant that we found at the facility was lead. Lead was found in one small area behind the Building 12 portion of the property. The DEP criteria for this contaminant is 400 milligrams per kilogram or parts per million. This is a residential context, so if you were to be out there and exposed to this soil as a resident living on the property, this is the concentration that

-- above this concentration would have a detriment or impact on you.

This is just a picture showing our drill rig that we use to collect the soil samples; in this case, it was just a small tractor with a pneumatic drill in the back of it which would drive rods into the ground and draw soil out of it and be put in special jars and sent to

laboratory for analysis.

An important part of the process besides finding the contaminants and their concentrations, defining how wide they are and how deep they go, is also the type of geology you have on the ground.

It's very important in that, for example, a sand is a looser material and contaminants are more likely to move quicker through that. Clay is a tighter type material and a lot of contaminants will not penetrate as far into the clay, depending on the contaminant.

At the site, we found a cross-section. Basically, you've got a top layer of sandy type soil, going into a silty sand, and then some clay here, and then you have more silt and sand, and then actual sand there at bottom, just where the water is sitting.

Now, this is the Building 13 property. The geology is a little bit different. On this property, there is some sand in this area, which

ROCKAWAY BOROUGH WELLFIELD SUPERFUND SITE

is where our tetrachloroethene contamination is detected; both the DEP cleanup criteria. Surrounding it is clay, and then you get down into the sand again.

MS. METZ: When we develop our human health risk assessment, what we assume is that no remediation is to take place at the site, meaning that whatever chemicals there are, people are going to be exposed at those concentrations. And then we take into consideration who might be coming into contact with the chemicals on site and how they might be doing that. So, we look at current and future exposure scenarios.

With the K and K area, our potential receptors are the current and future site workers, and this is the most realistic scenario we have because it's practically an industrial facility and in all likelihood it will remain that way. We could also have some adolescent site visitors who come on to the property for whatever reason, to visit people working there.

So, we looked at those.

Taking into consideration future uses, we looked at a construction worker and what would be the construction worker exposure if something were to be built on the site. We also considered the unlikely possibility that the site could be turned to into a recreation area or a residential area.

And in looking at those receptors, we considered what of these receptors could incidentally ingest contaminated soil or maybe absorb by coming -- absorb the contamination through their skin by coming in contact with the contaminated soil. And for the construction worker, we also looked at whether or not inhalation of contaminants might be an issue.

What our risk assessment showed is that all the likely receptors, that is, the current site worker and the future construction worker, they had cancer risks and noncancer hazards that were below EPA's level of concern. However,

there are a few things we found with the contamination of the site that leads us to the remedial action that we're proposing today.

One is that the hazard index, the noncancer potential for health effects for the child resident, even though it's an unlikely scenario, exceeds EPA threshold of one. The other is that as far as Mike mentioned, that the lead in the small area in the Building 12 area exceeds New Jersey direct contact value for lead. And the bigger issue is that the PC and TC concentrations in the soil are associated with a negative impact to groundwater. So, cleaning those up is important so we can take away the source contributing to the groundwater contamination. So, for all these reasons, we've determined there is a need to do something about the soils in the K and K area.

One additional piece of information that's going to be further investigated during our remedial design of the site is that, as you may

know, EPA has been out sampling homes in the area for potential of vapor intrusion. This is when the chemicals volatilize off those contaminated areas and potentially get indoors and into structures. So, the information we have about the soil contamination in the K and K area suggests that these vapors could be impacting the on-site building, so we'll be investigating that further as we move through the remedial phase.

As for the screening level ecological risk assessment, there isn't really much terrestrial habitat at the site because it is an industrial area, so the risk to ecological receptors are considered low, so, therefore, we don't use ecological screening criteria to make determinations on the remediation for the this site.

If I threw out any terms that didn't make sense, there's on Page 5 of the proposed plan, there's explanation of what the risk assessment process is, and I'll be happy to answer any

questions you may have after the presentation.

MR. METLITZ: Based on all this information and putting together the information about the contaminants, where they're located and concentrations, combining that with the risk assessment of the property that was done by EPA, the preliminary remediation goals were put together to identify what we should be doing at the property, what goals do we want to meet to remove the source of contamination into the groundwater.

And for the TC and PC, that number identified was the one milligram per kilogram number, which would be the impact on groundwater, and which is much lower than the direct contact number that New Jersey DEP has. So, we're going with the most stringent number in that realm.

And for the leaded soil, it was the residential direct contact number which is at low risk with the remediation standard DEP has in place.

The next step in the process once we knew what our remediation goal is going to be is the feasibility study. Under the feasibility study, we take all the information we gathered and we start looking at different ways of remediating things; do we dig it up? Do we stick something in the ground and inject something in the ground to remediate it? There are all these different methods that can be done or are out there.

We have to go through a screening process, which involves looking at the type of material contaminant you have, the amount of material you have, and does this particular methodology fit what you have?

For example, incineration, if incineration would be involved, significant equipment would be moved to the site. It may not be something that the community wants to have around the site, it's a high cost, and it's sort of like an overkill for what you have.

Now, are there other methods available?

Yes, there are. So, you kind of weed through the different methodologies, and come down to several alternatives which we presented then to EPA, and EPA, which we'll get to, will choose the appropriate combination of those methods to remediate the site.

Once again, the cleanup goals were identified as previously discussed through the soil.

Once again, screening technologies, developing and evaluating alternatives, we've gone through that process and presented this to the EPA.

Based on this, we came up with two series; there's a series for the TC and PC -- both these compounds are treated the same way, and they're volatiles and solvents, so that will vaporize into the air readily -- then we have separate for lead.

For PC and TC, we have no action; access and use restrictions; capping and access and use

restrictions; excavation and off-site disposal; soil vapor extraction, excavation, and off-site disposal; chemical oxidation soil extraction and excavation with off-site disposal. These are all things we could do to the site.

The no action alternative is basically not doing anything; just saying it's there and we're not going to do anything, which is not really acceptable for this site. It's a CERCLA requirement, which is the regulation that's driving remediation. It doesn't change anything at the site, there's still exposure at the site, and that's what that option is.

The next option that's looked at was access and use restriction. Here again, nothing active is done. What's done is a deed notice is placed on the property so that future owners or operators know that there's restrictions on the site, the contamination here, and they're aware of it. It doesn't change anything as far as contaminants, they're still there; they'll just

make the people who are there aware of them to try to avoid contact. So, it's not really a good technology because there's still potential for exposure. And there is estimated cost risk of $41,000.

The next one we looked at was capping and access and use restrictions. These kind of go hand-in-hand. Capping is when you take an impermeable material, such as asphalt or concrete, and you cover the contamination with that so that way there's no exposure to the people in the area, there's no way for water to come into contact with the soil and circulate through it and carry contaminants down to the groundwater, or it limits that. There could be some issues.

If we did that, we would be capping basically the Building 12 property, 18,900 square feet, and Building 13 property, 800 square foot area. Once again, you have to have deed notice and restrictions to let people know it's there,

let them know they have to be aware if they're going to disturb the area, you have to contact NJ DEP, talk to EPA, and let them know you're doing this. It will require that over time -- basically, New Jersey requires that every two years you have to certify that your cap is still in place, it's still in good condition, and that your deed notice is still in place, and everything is being filed appropriately. And that's every two years you submit a certification after inspecting, checking for the record that everything is in place. And this cost is $88,750.

The area Building 12 over here, this is basically the area that would be capped, and it's also the area where all the contamination is with the TC and PC, and the lead contamination is over here. We'll get to that later.

This is the Building 13 property, which now Greenway Industries is there. This is the area where the tetrachloroethene or PC, as we've

been calling it, is.

Excavation and off-site disposal, you go and dig it up and ship it off to a landfill or off-site treatment facility where it's stored somewhere else for perpetuity in the landfill for forever, or someone might treat it and destroy the chemicals. But it's the picking it up, taking it off the site. It does get rid of the material. This is a rough estimate of the amount of material needed to be removed from Building 12 and Building 13.

With this method, it would be very disruptive to the operations of the site. It's currently an active facility. There's a lot of heavy equipment inside the building, so taking account for that issue is how do you get in there and dig out all the soil with all the equipment in the way, and that's difficult. This method, if you can get rid of all the soil, you can get to your remediation goal. The cost for this would be $650,000, roughly, not including moving

all the equipment.

That would involve, if we could do it, the open areas back here in blue, and over at Building 13 are readily accessible for excavation. These red areas are inside a building and not readily accessible for excavation, and they would have to fall into some other method, possibly by capping and deed notices that we discussed earlier. So, it's kind of mixing alternatives.

The next alternative is an active alternative. It's called soil vapor extraction. Soil vapor extraction is basically like sticking a straw in the ground and sucking on it; you're pulling a vacuum, and that is pulling the vapors from the TC and PC out of the ground, capturing it, and then treating it by possibly catching it in the carbon unit to prevent it from being released into the air. And that would involve putting piping under the ground. And, so, you have a system. And typically, it's anticipated

probably to take about one to two years to work. It would reduce the volume of fill you have.

This same methodology, we would also do some excavation and off-site disposal. Over at Building 13, where we have the smaller area of tetrachloroethene, we'd just dig it up and get rid of it. It's more economical for that particular area of the property.

With respect to having the building -- going in the building, the soil vapor extraction will be more effective. And that cost of this method is $857,000.

Like I said, this is where we'd do the soil vapor extraction area in red, and the blue area we dig it out and transport off site for disposal.

The sixth and final alternative for the PC and TC would be chemical oxidation. Chemical oxidation is when you put a chemical into the ground and it actually reacts with the contaminant -- in this case, the TCE and PCE --

and breaks it down into inner components; carbon dioxide, water and probably some hydrochloric acid from these materials.

The difficulty here, this would be combined with the soil vapor extraction because as you're injecting the oxidant or chemical into the ground, you have to control where it goes; and if you strategically place points to pull vapor out, you can control where things are going to some extent.

The kind of chemicals that are typically use are ozone, which itself -- I'm sure everyone is aware of ozone and the problems that has with health effects on its own if not controlled properly; hydrogen peroxide, common household use to clean cuts and things, it's also an oxidant that works on the contaminants to break that up. The only thing with that is it does fizz and it's a liquid, so, in our case, in the soil it would be difficult to direct exactly where it would go. Ozone would be a better oxidant; the

difficulty with ozone, again, is controlling where it goes in the ground, you know, making sure it covers the whole area you're trying to treat instead of going off through a spot that may be easier for it to move through and avoiding a spot it might be difficult for it to move through, such as clay; clay is kind of tight, where sand is a loose material and things will move quicker through sand. That will be combined with the SVE, and the estimated cost of that is $1 million.

Basically, the same area would be treated as the SVE over at Building 12. And then over at Building 13, because of the size of the area, it's simpler to excavate and dispose of that material.

The next area is the lead area. This is a small area, about twenty by fifteen feet by approximately two feet deep. The alternatives they've looked at here again is the no action alternative, which we've discussed before; access

and use restrictions, again, same as we discussed before; capping and access and use restrictions, again similar to what we discussed before; and the excavation and off-site disposal.

Once again, no action, per CERCLA requirements, it's retained to serve as baseline to compare everything else to.

Access and use restrictions, again, setting up some notices and educating the public but not doing anything else about it, and that's $18,000.

Capping would be just putting asphalt or concrete over it and leave it in place with the deed notice. Again, $63,000 estimated cost.

This little red area here is where the lead contamination is. We went out there today. There's a tree located right there on the property boundary on the fence to show you where that is.

Fourth method we looked at for lead was the off-site excavation. It's a small area, 27

cubic yards of soil to be excavated, maybe two truck loads of soil. Very simple; dig it up and ship it off to a site or proper disposal facility. And the cost there would be roughly $78,000. Once again, this is just the area.

This is your realm.

MR. QUINN: Yes.

Again, I'm Brian Quinn, project manager for the site.

What we do is once we get the alternatives from the feasibility study, which Mike just presented with you, we look at each of the alternatives and weigh them against nine different criteria, including costs, reduction of mobility, toxicity of the chemicals, ease of implementation, compliance with all kinds of different regulations, and applicable laws and whatever else. And there are several ways we look at it, and we take all those nine and we try to look at which one is the best method to get rid of it, to do it the quickest and most

economical and takes care of the problem.

So by looking at that, here's what we're first discussing. We look at the first one, the no action alternative, which doesn't do anything to help the problem; it basically just acknowledges you have a problem. But you leave it in EPA cost estimate as zero, so you have a baseline of what the cost is based against.

Then we look at these other criteria, like I mentioned; long-term effectiveness, is it getting rid of it permanently? Is it just short term? Will it not get rid of all of it and not help in the long-term? Can you reduce the toxicity by injecting the chemicals? If you don't get it in the right spot, you may not reduce all the chemicals.

For the short term, are we capping it which can protect anyone from inhaling it? Is it readily, like in lead's case, something in the ground that can be flaked off and blown in the breeze that someone can inhale? And you cap

something in the meantime.

The implementability of it, how easy it is to do; you want to excavate, but the building is in the way. You're not going to take the building down just to get rid of contamination. That's not practical.

And then there's the cost of each project.

The other issues is the DEP is also involved in the process, and they -- when we come up with our options, we tell them: This is the one we like, and do you concur?

And then why we're here tonight, the community. If we presented an option that we each didn't like but somebody here makes compelling arguments for, we could definitely consider it and maybe go back and reconsider our options to see if we should change the way we're implementing our alternative.

So, what we're here to present tonight is the Option 5, which is the soil vapor extraction, excavation. It's a lot of words, sorry.

Basically, as Mike showed you on the map -- we can go back and show that for a second -- we'll be putting a cap down to make sure we seal off the area the contamination is in, put a bunch of wells in the ground to vacuum out all the gasses and treat them, and then I think if there's any liquids that are generated, they have to be permanently discharged as well into the sewer or something along those lines. We run that until we don't see anything else coming in this vapor system, then we go out and do some soil borings to confirm we got everything, and, if that's the case, we'd have had a successful cleanup.

The other part is the tiny area of lead. We have to go get that. During the remedial investigation, as we take samples we screen for metals, we screen for volatiles and a bunch of other chemicals. The lead happened to pop on our radar screen because of that. We'll go out and dig it up, just a small area, excavate it, take

it away, replace with clean fill. Like on the Building 13 property, we'll dig it up and clean it up and replace with clean fill.

Combined, these remedies will cost almost a million dollars to implement. The SVE should, hopefully, be built in less than a year and operate for about one to two years, depending on how effectively it pulls the chemicals out. And, you know, it could be a little will more, little less, but when you're designing it, you go out and do more samples prior to the actual construction to confirm some stuff, but that's our goal.

And that's pretty much what we have. And the summary, I guess I've already talked about most of it, is it will achieve what we want to get the contaminations down to zero, which is the best case scenario, but at least below the one microgram per kilogram for the volatiles and the four hundred. The lead will be completely removed, but the others we want to get as close

to one as possible and make it protective of all your health and the environmental health.

It's also going to help the groundwater cleanup because it's a source area which is continuing to go into the groundwater; so, as soon as we get that out of the way, it helps the cleanup of the groundwater go that much faster. So, it will help on two items; get rid of the contamination on the site and, hopefully, speed up the groundwater cleanup.

So, this is the information as we said before. My information is on this side, e-mail address as well as phone numbers. And Cecilia's information is here. And she can also give you out -- and if you want afterwards, if you don't have a pen on your hands, we'll give you an 800 number to make it easier to contact us.

And with that, I guess we're finished.

MS. ECHOLS: Thank you.

I know you all just heard a long presentation. It was a lot. But we're ready to

open up for questions. If anyone has a question, please stand up, state your name so the stenographer can record it properly, and we'll take one at a time.

Sir?

MR. HILER: My name is Scott Hiler, H-I-L-E-R. I am a resident of Oak Street, which is near Building 12. I'm also the president of the Homeowners' Association there. I have a couple questions regarding that property first.

First of all, what health effects do we face as residents over at Oak Street, if any?

MS. METZ: The results of our risk assessment that we did for the K and K property shows that the contamination there does not pose significant health risk to the exposed population that are there now; that is, site worker, the potential future construction worker, and the adolescent trespasser. And the only one that showed any elevated levels was for a potential child resident, and we don't expect the site to

be changed into a residential area, so that's really a hypothetical.

In terms of the people who live off the property, outside the boundary of the K and K area, we have been investigating for vapor intrusion, as I'm sure you're aware of, in the homes around the property. And so far, we have seen elevated levels underneath the homes that are -- we can attribute to contaminated groundwater and possibly contaminated soil at the K and K area, but we have not seen so far in any homes we've tested any indoor air concentrations that suggest there's any concentration that would have a negative health impact on the residents of the home.

MR. HILER: Well, I'm unaware of any testing done. They haven't come to my home.

MR. QUINN: I sent six letters to various residents in your complex there, and two people replied that they no longer lived there but didn't provide me further information to go on,

and four people never responded to my letters that I sent to them in that building there.

MR. HILER: Does that mean no testing was done?

MR. QUINN: Not yet. Because we don't have any access, we can't go in and do testing.

MR. HILER: So, how can she say she knows --

MR. QUINN: We've tested throughout Rockaway Borough, Rockaway Borough as a whole. We haven't tested your specific location.

MR. HILER: We live right on top of the plume.

I mean, don't you think that would be realistically the most obvious place to test?

MR. QUINN: There's other plumes as well; there's a plume on Maple Avenue, and coming down this way. So, we're testing all the people in there.

I can only send letters to people; if they don't reply to let us into their houses, I can't

force anybody to let people in. We sent seventy some odd letters in the first round a year ago in January to seventy people, and I got fifteen, twenty people that said yes. And we've been subsequently sending letters out to more people, but if people don't reply, I can't force them.

MR. HILER: I understand.

We are at ground zero. We are right on top of that plume. I would hope that the EPA would put a little more effort in trying to get into at least one of our 26 units.

MR. QUINN: If you can help me with that, I'd be happy to send --

MR. HILER: It's really disturbing that they said that as a whole Rockaway Borough is fine, but, yet, they can't say for sure that the people who sit right on top of this plume are safe. I think that's really irresponsible.

MS. ECHOLS: What is your address?

MR. HILER: 26 Oak Street.

MS. METZ: If I can say something too, the

plume does not extend underneath your residence, the apartment building there. It goes more in -- I'm not sure exactly what direction it is, but it's being drawn away from those buildings. So, we don't believe that you're sitting over highly contaminated

-- the wells in that area don't show that, you know --

MR. HILER: I've been there about three years now and have been president of the board. There has been no testing done through our driveway, through our parking lot.

So, I don't know how you can safely say that.

MS. METZ: We would really appreciate your help in achieving that.

MR. HILER: I absolutely will.

Second question, Building 12, what sort of activities are done there now?

Are they contributing to this contamination?

I've driven by there every day, and there's a very foul odor from whatever they're doing in there with metal; more metals which could contain lead, et cetera.

Who regulates what they do?

Have you looked at what they do currently, and is there any risk?

This question is for anybody; Brian, whoever.

MR. METLITZ: They're a metalworking operation. If there are odors coming out, that would be under the New Jersey DEP's air permitting requirements. Because there are regulations, air permit regulations in New Jersey, that if you're creating odors or discharges and they go across your property line to someone else and you smell them, then I believe that would be violation of the regulation. But you would have to call DEP and say: There's an odor coming from next door.

MR. HILER: You're saying it's at state

level, not federal.

MR. METLITZ: That's my understanding, yes. I know New Jersey does the regulations for air.

MR. QUINN: Any other chemicals they would handle have to be registered with the state and federal levels.

MR. HILER: I will pose my questions to the state then.

Third question, I've received this in an e-mail from the Star Ledger saying: Chemical found in water supply. Low levels of a likely carcinogenic chemical used to make nonstick cookware and all-weather clothing have been found in Rockaway Borough's drinking water.

You guys may see this, but this is a chemical -- I won't attempt to pronounce it, PFOA, if anyone's familiar with that. That's another chemical -- I have the water report right here -- that Rockaway Borough does not test for.

So, it leads me to question what sort of

chemicals are we not testing for in our water here that could be posing health risks?

MS. METZ: That's a good question.

And the chemical you mention is something that's slowly being widely discovered that it's in drinking water supplies across the nation, so it's not just Rockaway Borough.

That is something to take up with your local water supply board because they test for the chemicals that they are required to test for by federal and state law, and PFOA is not one of those. It's not a chemical that was used at the sites that we're talking about, so it's not related to our site, but it is ubiquitous in the environment and could very well be in the water supply.

MR. HILER: Well, it's very unsettling that there's so many compounds out there that we don't know, that we're just beginning to discover right now, and it's really disturbing.

Fourth question, what's going on at the

corner of Maple and Halsey?

Is that drilling being done --

MR. QUINN: I started the conversation by saying you probably noticed we were starting to put wells in on the corner of Halsey as part of the groundwater cleanup.

MR. HILER: Okay. I just thought that the only two plumes were the one by Friendship Field and the one by Klockner and Klockner.

MR. QUINN: Well, the one that's coming from the Wall Street area followed the old Morris Canal and is basically going down Maple Avenue, which is basically why we're installing it there.

MR. HILER: That's all my questions for right now, but I might have more.

Thank you.

MS. ECHOLS: Any more questions?

Sir, in the back.

MR. BERLANDO: My name Arnold Berlando. I live on Union Street by Cobb.

This vapor extraction system, do you plan

on doing air monitoring when you do that?

MR. QUINN: Yes.

MR. BERLANDO: Will it be, like, not only at the site, I mean, like, a couple blocks away from the site down the street in the residential areas?

MR. QUINN: I don't believe so.

But they will be permitted to -- whatever they discharge out of the stack, that would have to be monitored. Like the treatment system has the air stripper in it to volatilize the water to make contaminants come out; that has to be monitored too to make sure there is no discharge to the air.

MR. BERLANDO: That will be a constant monitoring?

MR. QUINN: Yes.

MR. BERLANDO: The next question I have, is there any type of fencing being put up around this property in the near future?

Because anybody can walk right on it.

I've actually seen the kids play on their bikes around there. I walk my dog by there, and I always see kids in there playing.

Is there any plan to put some kind of fencing in?

MR. QUINN: Building 13, you mean the big open lot?

MR. BERLANDO: 13 and the other one.

MR. QUINN: Well, the other one, that's private property, but they have a fence around most of the property, from what I remember.

MR. BERLANDO: I don't mean fencing like when you start the job, I mean some type of fencing or security put in place in the very near future, like now.

MR. QUINN: As we mentioned earlier, most of the contamination we have at the Building 12 property is underneath the asphalt driveway or under the building. There's a couple of small areas that aren't covered.

So, the areas to be impacted -- and, also,

the contamination goes down seven, eight feet deep, so most of it is deep enough below the ground that they'd have to really dig down deep to get involved.

MR. BERLANDO: So, a kid riding a bike in there, it's not...

MR. QUINN: Right.

Building 13 is in a fenced area which is not always closed, I know that.

MR. BERLANDO: You see the kids all the time.

MR. QUINN: That's more the control of -- the facility property owner would have to be more cognizant of closing the gate.

MR. BERLANDO: Is that the building that's for sale?

MR. QUINN: I wouldn't know that.

MR. METLITZ: Greenway Industries building?

MR. QUINN: I think Building 13 is for sale. I think I got a phone call.

MR. BERLANDO: Anybody who buys that would have to know the problem with that site?

MR. QUINN: Yes.

MR. BERLANDO: One other question.

After you do this remediation -- and I realize it's going to take several years to really clean things up -- are you going to be doing ongoing monitoring, like once a year?

And the reason I ask is I actually have a well in my driveway.

MR. QUINN: I remember, yes.

MR. BERLANDO: They tested it.

My question is: Five years down the road, when all this is remediated to a safe reasonable level -- and I understand fully you can't make it one hundred percent because probably all of Jersey is pretty much a Superfund city, I don't care where you live

-- will you continue doing some type of monitoring, like, ten years down the road, still water and soil and air testing in the area?

MR. QUINN: What we usually do, we're always monitoring during the process. And once we get to a point where we have so many quarters, like every three months or whatever the sampling requires, that we show that we've gotten below the drinking water level of whatever we're looking for at the time. After a certain amount of time, we'll reduce the sampling to biannually or something to reduce the cost and stuff involved and keep an eye on it a few more years. And once we're pretty sure the contamination is gone, then the site would be delisted from the Superfund program.

And what we would do in your case, we may come and get rid of your well; like, we would cut it down.

MR. BERLANDO: What's the timeline for that, any idea?

MR. QUINN: Hard to say. Depends on how fast the cleanup is.

MR. BERLANDO: That's incumbent on how

quick you can clean it up.

MR. QUINN: Yes.

MR. BERLANDO: You do have a timeline to start once approved?

MR. QUINN: Being government --

(Laughter)

MR. QUINN: -- what happens at this point is we have -- to give you a quick synopses of the steps, after tonight, we have the end of the comment period. If everything goes good, nobody changes our mind, we choose the remedies we showed you. Then we issue a record of decision which formalizes the decision. Then the PRPs that did the investigation, we negotiate with them: Can you do it? Do you have the financial wherewithal to do it? If not, we settle with them and then we do it.

So, that will probably take until the middle of next year to negotiate because it's legal. Everybody's probably had dealings with lawyers at some time.

MR. BERLANDO: Has to pass legal muster.

MR. QUINN: Right.

Once that happens, then we get to the design phase and we get out there and do further sampling to make sure we know exactly where it is, and then we start the final decision.

So, a couple years before the actual thing would be built.

MR. BERLANDO: We're looking probably '09.

MR. QUINN: To be conservative, yes.

MR. BERLANDO: So, I go back to this again about the fencing.

Is there anything that can be done for some type of warning notices in the area, some kind of signage, just notifying people this is contaminated property, you really shouldn't have kids playing in the water or riding bikes or walking your dog?

Could we at least do that to start?

I'm not saying we want to put anybody in panic.

MR. QUINN: I understand.

MR. BERLANDO: You know, put up a sign contaminated site and have everyone screaming and afraid that their toes and fingers will fall off or whatever.

But some type of signage, at least for now?

MR. METLITZ: I know for the Building 13 property, the tetrachloroethene is fairly low level, it's not -- maybe four parts per million was maybe the highest, and it's in a small area. So, to be exposed to it and have an effect, you'd have to be sitting there and, you know, eating the dirt for quite a while.

MR. QUINN: Mike can talk, as he represents the people who own the properties, he can talk to them about maybe putting signs up.

MR. BERLANDO: Like I said, we're not here to scare people or inconvenience the business person. We definitely don't want to do that because then they may not have people come into

the business because they're afraid of it.

But I'm looking at it from a community standpoint because I live in the community. There should be some kind of posting to notify people that, you know, if you do something here, I don't know if you're digging, whatever, call this number, this is a concern for the DEP and EPA.

That's all I'm saying, is there should be some type of signage there letting people know because -- I keep going back to this, I constantly see people on the property, walking through it.

As far as, like, the animal population, there's loads of deer always on that property, not that we have to be -- I don't think anybody's going to be hunting in Rockaway Borough, but that's a concern too.

If there's deer on the property, what impact does this chemical have on the foliage on the property?

Is it absorbed into the foliage?

MS. METZ: The chemicals that we have on the two properties are not readily absorbed up into plants, so that's not a big concern for us. They're volatile chemicals and they tend not to be in the upper portion of the soil column because they volatilize off. What we're finding is that they're deeper, so they're not directly -- they can't be directly in contact.

MR. BERLANDO: Is there a problem with someone being on that site?

MS. METZ: It's not at that level. And, you know, when we've done some of the vapor intrusion sampling, we've taken ambient air samplings throughout the neighborhood, and we haven't seen any elevated concentrations in that area. So, it's very diffuse at that point.

MR. BERLANDO: Once you do start to work, you will start sampling on a regular basis?

MS. METZ: That's part of the site cleanup. It's the health and safety plan; not

only for the workers working on the site but the community at large, and that's something that will definitely be built into the remediation.

MR. QUINN: You have to realize too, as it comes out of the ground, if you're outside it will go away real quick, just like if you're pumping gas, you walk away from it, you don't smell it anymore but when you're right on top of it you will. So as soon as it comes up it's going to diffuse out.

MR. BERLANDO: That's why you're using the canisters and cement in the basements?

MR. QUINN: Yes, because it gives you a definitive look over 24 hours.

MR. BERLANDO: Did you get any readings on anybody yet?

MR. QUINN: Like we said, just underneath the slabs, but we didn't find anything inside the buildings.

MR. BERLANDO: Is there a plan to do any type of -- I'm probably using the wrong term, a

radon-type system to evacuate?

MR. QUINN: If the numbers were impacting the home and potentially impacting the residents, yes.

MR. BERLANDO: Who pays for the costs?

MR. QUINN: We pay for the sampling and any remediation that has to happen.

MS. ECHOLS: Any more questions?

MR. FORTUNATO: Paul Fortunato.

I have the Pine Street Commons on Stickle Avenue and Pine Street, and I have No. 16 monitoring well on the property. Nobody has ever told me what the readings are on that.

Are they diminishing?

Is there any migration from that site down to mine through the soil?

Nobody has told me if the soil has been tested.

Can you enlighten me on any of this?

MR. QUINN: I have to go back and see who's the people sampling the well.

MR. FORTUNATO: They're from Wisconsin, if I remember.

MR. QUINN: The people from Minnesota.

MR. FORTUNATO: Brian.

MR. QUINN: Brian Sanburg. They put a bunch of samples in back years ago, in the mid, late nineties, just to get an idea where everything was so they could define where the plumes were. And some of them we don't sample anymore because they sampled and they were nondetectable, but they keep them open just so we can watch in the future, and they may sample twice a year, as we talked about the sampling before.

So, I'd have to go back and see how often and who sampled it in order to get you a record of it.

MR. FORTUNATO: I'd like to know if the contamination has been diminishing.

What about soil migration from that site to neighboring sites?

MR. QUINN: It shouldn't be a problem because everything is under the ground and has been under buildings, so it's not like there was a pile of dirt and it could move, you know, blow off over time or rain runoff onto somebody else's property; everything is underneath the ground.

MR. FORTUNATO: But the plume is not causing any of that contamination to migrate to neighboring properties?

MR. QUINN: It's the other way. The plume is fifteen to fifty feet depending where we are in the borough in the groundwater, and that's basically not going to -- if anything, it's contaminating underground stuff, it's not contaminating, you know, anything coming up because as it comes up, it will diminish because it gets closer and closer to oxygen which breaks it down.

MR. FORTUNATO: These wells have been in twenty years or so?

MR. QUINN: Yes. Some of them were early

in our remedial investigation; about eighty something they started looking out there.

There are a couple more that are -- there's the church that's -- I forget, forgive me for not knowing the road that goes out around that way.

MR. FORTUNATO: Beach Street?

MR. QUINN: It goes past Mortrench?

MR. FORTUNATO: Yeah, it's right across the street.

MR. QUINN: There's a well down there by the church down that way, and we're actually in the process of turning it over to the owner so they can get rid of it because we don't need to use it anymore.

MR. FORTUNATO: What's happened over the twenty years with these monitoring devices?

Have the levels diminished? Stayed the same? Have they risen?

MR. QUINN: Some have diminished, some have gone up depending where they are in relation

to the plume, and some are clean and we won't use them anymore and just need to be abandoned.

So, that's why I'll have to find out exactly what's happening with your --

MR. FORTUNATO: So, I'd appreciate if you could give me a heads-up with what's happening with the well on my site, No. 16.

MR. QUINN: We have your address and everything.

Right?

MR. FORTUNATO: Okay.

MR. QUINN: Okay.

MR. FORTUNATO: Thank you.

MS. ECHOLS: Any more questions?

MR. ROUCHE: Ken Rouche.

I'm currently under contract to purchase 40 Stickle Avenue, I guess No. 13.

Do I have any exposure or risk purchasing that building; I mean, financially?

And, also, is there any restrictions for me for what I can do with that property?

MR. QUINN: Let's do the restrictions first. The restriction that you have, I think the only thing you would have a problem with is letting us on there to dig up the little piece.

Also, the treated building --

MR. ROUCHE: That's a separate property.

MR. METLITZ: There's two lots there.

MR. QUINN: Okay. So, that would be my only other restriction. Obviously, if there's any monitoring wells on the property, letting us on to sample.

MS. METZ: In terms of exposure, I mentioned that we'll be looking to see if vapor intrusion is occurring in Buildings 12 and 13, if they're being impacted by vapors that are in the soil.

So, you know, we will be testing those buildings. They have not been tested to date, and, so I can't say for sure that an intrusion isn't occurring, but, if it is, we're prepared to do something about it.

MR. QUINN: What we can actually do is we'll probably come out in fall to do some further indoor samples. We can just come to your place, if the present owners will let us in, do a couple samples in there just to rule out any issues of coming into buildings. We can just do your indoor and let you know your indoor air -- you know, there's no chemicals coming in.

That's no problem, it's just a matter of getting you in the schedule.

MR. ROUCHE: And what about as far as paving?

I can pave the parking lot if I need to?

MR. QUINN: The only thing you have two worry about is there's a vault and stuff over there by the extraction wall. They just have that little section.

MR. ROUCHE: I only own half that big parking lot.

MR. QUINN: Whatever was there as far as monitoring wells, any -- I could put you in

contact with the people that are running the treatment system to make sure there's nothing there that you would potentially harm by putting a curb or anything in there.

You gave your information as well?

MR. ROUCHE: Yes.

MR. QUINN: I'll give you my card too before you leave so you can have that.

MR. METLITZ: There's also legal ways or there's things called due diligence, where you would investigate the property, find out what the issues are on the property before you got on the property. And there are through, I guess, in the Superfund program, if you do certain things called all appropriate inquiry, which is checking the property to find out what the issues are before you got there and having the person be responsible for that, that helps protect you.

MR. ROUCHE: I understand. I'm just talking about what's been identified already is one hundred percent taken care of, right?

If I were to buy the building tomorrow, things that have been identified already are taken care of?

MR. QUINN: Well, if we know what they are, we will take care of them in the future.

MR. ROUCHE: I mean financially, there's no way I can be responsible for this?

MR. QUINN: No. You're not inheriting a binding problem.

MS. ECHOLS: Sir?

MR. HILER: Scott Hiler, three final questions.

This came from The Citizen, which is local paper, from 2003. And this is back when Mayor LeBar was here. It says that EPA wants to put a groundwater treatment system in Department of Public Works yard.

Is that still part of the plan?

MR. QUINN: No.

We initially planned to do that because space, they can give us space without impacting

anything outside the Borough, any kind of open land. Plus, we were going to give the water over to the Borough; they would take the treated water from us and treat it again and give it out to the Borough, as they do now. But there were some facts in DEP that would not allow it because you're not allowed -- you can't drop a well into contaminated water.

Makes sense, right?

But in this case, we'd be cleaning the water and they'd re-clean it again and then distribute it. But they wouldn't let us do it, so we had to find a new place.

MR. HILER: What's the new place?

MR. QUINN: The place is going to be at the corner of Jackson and Union and Ogden, where the pump house is, the brick pump house.

MR. HILER: Second out of three questions, will the carbon stripper filtration unit be removed once these two plumes are cleaned up?

MR. QUINN: The groundwater ones?

MR. HILER: The ones we have for our drinking water.

MR. QUINN: Back here most likely, but it depends on what regulations come down; as you brought up before, what new chemicals are coming out that we didn't previously know about it. Maybe that's a way of getting rid it, through carbon.

But the point is, we want the Borough to stop paying to treat the water.

MR. HILER: Is PFOA removed by carbon filtration?

MS. METZ: Probably not, but I don't know that for certain. It may be treated to a certain extent but it may not be the most effective way.

MR. HILER: When they find it in our water, does that mean that's prefiltration or postfiltration?

MS. METZ: I'd have to look at the report you have. I'm pretty sure it's postfiltration.

MR. HILER: And my last question is who is

the responsible party for all this from the beginning?

I know you mentioned a rocket fuel company or whatever over there, but how about the one on Friendship Field?

MR. QUINN: It was never exactly determined. The dry cleaner was one of the smaller parties that contributed to it, there was a couple of other people that settled; you know, they couldn't do the cleanup so they end up paying a small amount, which happens all the time. There could be a landfill that seventy people dumped stuff in and contaminated it, so they all pay a portion of it. That's what ended up happening.

There's nobody definitive, like Diacol that was -- they did it and they could pay for it, which is what they did. So, that's why EPA ended up cleaning up.

MR. HILER: And you're stuck with the bill, not the polluter?

MR. QUINN: What we try to do is we try to settle with the people, their insurance companies, whatever we can to get money back.

MR. HILER: The Superfund program theoretically makes the polluter pay.

Correct, that's the theory behind it?

MR. QUINN: Yes.

MR. HILER: But that's now how it ends up.

MR. QUINN: Not a hundred percent, but we try to get as much as we can, as much as we legally can.

MR. HILER: Thank you.

MR. QUINN: But you don't want to bankrupt people either.

MR. HILER: I would. If they caused damage to the town, I absolutely would.

And I would boycott Bizzardi's Cleaners.

MR. QUINN: They just closed actually.

MS. FREIERMUTH: My name is Joyce Freiermuth, F-R-E-I-E-R-M-U-T-H.

Who is paying for the cleaning of the

filters that we have in the back now?

MR. QUINN: Diacol. Diacol was the original people, they were then bought and sold by several people and now it's a company called Alliance Tech Systems.

MS. FREIERMUTH: How often are those filters cleaned and changed?

MR. QUINN: I don't know. I don't know what their daily business is. As soon as they get to a point where they know the breakthrough, which is what it's called, that's when they change them out.

MS. FREIERMUTH: But the Borough is not paying for that?

MR. QUINN: No, the Borough does not.

MS. ECHOLS: Sir, state your name, please.

FATHER CHENDORAIN: Father Michael Chendorain, C-H-E-N-D-O-R-A-I-N, 64 Beach Street, the church you were talking about.

The Borough currently pays what, just to treat the water as any municipality would?

Do they go anywhere above and beyond?

MR. QUINN: They get a check from Diacol, I don't know how often, to basically cover the majority of the treatment. And that's as far as I know what happens.

How much Rockaway pays, I'm not specifically sure. The mayor or somebody else would have to answer that.

FATHER CHENDORAIN: After the whole process is done, I know your monitoring goes down as the years go on. Pardon my skepticism, I know it's hard to believe that a government agency could not do a job all the way, but say ten years after you stop monitoring, the problem is still there.

Who then is responsible financially, and is it still the original -- I guess once you sign off and say you've done your responsibilities and it creeps back up, say, who's responsible then, the Borough?

If they want a cleanup they have to do it

or does Superfund come in and take over again?

MR. QUINN: That's a good question. I'm not quite sure.

I would think, for instance, I know, like -- the best example I can think of would be, like, a Ringwood; Ringwood was supposedly cleaned up, we thought we had it cleaned up, and then they found out they didn't have everything cleaned up. So, I believe that Ford is now back on the hook; they were let off the hook back then, but they were brought back in because they didn't clean it up thoroughly.

FATHER CHENDORAIN: That's something Ford themselves did?

MR. QUINN: I don't remember how it all came about. I just remember hearing they found the problem was back, and then I think the DEP actually took the lead to get it back in going, and then we started back up again.

FATHER CHENDORAIN: The SVE process, that's basically you're speeding it up, getting

it out of there quicker?

MR. QUINN: Yes.

FATHER CHENDORAIN: Other than the excavation, you're just speeding up the outgassing in a controlled fashion.

Correct?

MR. QUINN: Yes, sir.

MR. BERLANDO: Is there anything that can be done to speed up this whole process; you know, hasten getting this done?

MR. QUINN: Unfortunately, with the groundwater you can't do much because groundwater is just going to respond as groundwater does; it's just the way the hydrology works. We can try to do the best we can to direct it to the plant and get it all in there, and that just takes the amount of time that mother nature will let us pull it away and let us do that.

The soil we have better control on because we can pull it, you know, we can have more control on that, it's just a finite amount. It's

pretty -- it's not moving like the plume is moving. The contaminant stays there and it's trickling but it's pretty much in place, so you have more control on that. That's really all we have control on, speeding that up.

MR. BERLANDO: As far as speeding up the starting of this remediation, is there anything that the community can do to put pressure on anybody to get this -- get the building started to get this ball rolling and get this cleaned up and get this excavated and, you know, get the project moving?

Is there anything that we can do as members of this community to get this project rolling short of -- screaming and yelling at you is not going to help me.

MR. QUINN: It helps get some of the process out.

MR. BERLANDO: Can we write letters?

Should we call someone up and say: Hey, look, you know, let's get rolling.

MR. QUINN: This is America, and you guys can do that, and I wouldn't discourage you at all. It's not going to hurt. Pressure never hurts getting some things done. The squeaky wheel gets the grease.

MR. BERLANDO: Who do we call?

MR. QUINN: You can call your congressman, your local congressman, your state -- I don't remember, Lautenberg? I'm in New York, so I'm not sure who's out here.

You can start at DEP. Everybody can send letters to everybody and go from that.

Also, I don't know how many of you know, but Congressman Freilinghausen comes out here once a year-- sorry if I mispronounced it -- and we meet with him here and present all the projects we're doing and how fast we're going. So, he has active knowledge of this and he comes out every year.

So, he's actually yelled at a bunch of people on a tour in the past, saying: What the

heck are you doing? We need to move along.

MR. BERLANDO: How about, like, a petition that the community signs, who would we send that to?

If someone got a petition and had people sign, who would we send that to to say: Look, let's kick you in the pants and get you moving to start this construction to clean this mess up?

MS. ECHOLS: Probably I would start with your elected officials.

MR. BERLANDO: Local or state?

MS. ECHOLS: Federal.

We're federal, EPA. We're the ones overseeing the site.

MR. BERLANDO: The DEP is not involved?

MS. ECHOLS: They're involved. If you want, you can send it to them, cc them.

MR. BERLANDO: Thank you.

MR. QUINN: What will happen, somebody will get it, and eventually it will come back to EPA.

Like a FOIA, if you send a Freedom of Information looking for something, you might send it to the wrong person, but eventually I'll get it if it was meant for me, and we would address it.

I've gotten letters that were addressed to Bush that came to me eventually because, obviously, he's not going to answer something about Rockaway or some other Superfund site. Some people take it to the extreme and it still gets back to us.

MR. BERLANDO: Thank you.

MS. FREIERMUTH: Joyce Freiermuth. I have a question about the cleanup going on at Friendship Field.

When you're taking the water out and cleaning it, where are you putting it?

The reason I'm asking that ridiculous question is because I heard you're dumping it in the Rockaway River.

MR. QUINN: We put it into the sewer

treated and then it's eventually going to go in the river.

MS. FREIERMUTH: So we're losing all that drinking water?

MR. QUINN: We can't re-inject it around here because there's no place to put wells because everything is pretty developed around here. And re-injection doesn't really work that well because of the -- a lot of technical issues, but that's why.

MS. FREIERMUTH: So, is that causing us to have a decrease in our water supply?

MR. QUINN: No.

You guys have more than ample water around here. That's part of the investigation.

MS. FREIERMUTH: Okay. Just wondering.

MS. ECHOLS: Any more questions?

Ma'am?

MS. ABBOTT: Lee Abbott, 57 Keller.

How long will the groundwater extraction at Friendship Field take?

Is everything on the same timeline as the site remediation here?

MR. QUINN: Groundwater takes a lot longer because it's just -- the plume is a lot longer and we have to try to get control of it and get that cleaned up as quick as we can.

We can't guess. Usually with groundwater, they estimate twenty to thirty years as an estimate because you'd rather tell people that than tell them ten and still be here in ten more years. We'll rather tell you we got it ten years earlier than we need ten years more.

Just in general, it's located behind there. We're putting a well in Friendship Field because that's in line with the plume. It's going to be down below the ground. We'll put a picnic table on top of it so the kids can't come near it but we can still access it. So, it will be like nothing is there.

MS. ABBOTT: Is that going to be closed off for use?

MR. QUINN: Just temporarily for short terms. They're going to be here in I think about a week or two putting a well in there, come back again to hook up pipes and stuff. It's just going to be short-term stuff.

But the playground will be wide open; just the area between that and the concession stand will be closed occasionally.

MS. ABBOTT: I'm not concerned about it being open as soon as possible as much as when it's prudent.

My kids and everyone else in town running around this field; wet field, muddy field, we talked about dogs being walked, drinking water, everything.

MR. QUINN: The groundwater there is, like, sixty feet deep, something like that around there -- thirty to forty feet deep.

What we're doing there is vapor intrusion study. We've been going down Maple, basically taking samples along the plume line to see if

there are impacts there.

We've done the police station and found nothing underneath the police station. So, we've been doing other areas around there, and that's how we're looking at that end of it. And anything that did come up would eventually be volatilized by the time it gets to the surface.

MS. ABBOTT: So, that site is specifically groundwater.

MR. QUINN: Yes.

We also did ambient samples to measure the air in the area too.

MS. ABBOTT: When was that?

MR. QUINN: November and again March, earlier that March.

MS. ABBOTT: That will continue to be done?

MR. QUINN: That's a separate issue, but they will be watching the air and stuff during the construction and anything else.

MS. ABBOTT: Okay.

MS. ECHOLS: Okay.

FATHER CHENDORAIN: When Scott brought up earlier about PFOA wasn't tested for in the Borough report, who mandates what the municipality has to test for?

That's something done in-house?

Anything extra, who do they have to answer to?

MR. QUINN: The health state regulations for the drinking water, and then anything new that would come out, that would be something else that comes down the pike would have to be developed and a regulation, like a temporary regulation, would be looked at and eventually one promulgated.

MR. HILER: That's not something the municipal mayor and counsel or anyone can request to be done or enforce it?

MR. QUINN: If they know about it, they can surely sample for it.

Like I told you earlier, they're one of

the first people to test the water for volatiles. They were literally one of the first two or three towns in the country to sample for volatiles. So, they've been pretty proactive and they really work well with me as far as working with this stuff.

So, I would say that if they knew about it, they could feel free to test for it. But, unfortunately, if you test for it and you find a number, what does the number say unless you have something that shows you a certain number is bad and a certain number is good?

MS. METZ: That's the problem with that chemical; that we don't have any state or federal standards for it, so if we find it in the groundwater we don't know what that means.

MR. QUINN: Yet.

MS. FREIERMUTH: The Friendship Field set-up staging area, how long is that going to be there?

The reason I ask, I'm a little confused;

you said you can go on cleaning the groundwater plume for twenty, thirty years.

MR. QUINN: What happens is a well will be brought on site. It will be there for roughly a week to drill the well down to the depth we need it to go to, then it will go away --

MS. FREIERMUTH: The staging site will go away?

MR. QUINN: Yes.

Then we'll come back again and place a vault that will be flush with the ground, the piping to the street to bring the water to the treatment plant --

MS. FREIERMUTH: Where is the treatment plant?

MR. QUINN: Again, it's going to be down at the corner of Ogden, Jackson, Union.

MS. FREIERMUTH: Now I get it. So, you get the plume up there and you'll pipe the water down to the treatment plant.

MR. QUINN: Correct.

And the vault that will be there, we've designed a picnic table on top of it so it's not a metal thing that can get hot in the summer and the kids touch it.

MS. FREIERMUTH: I think some of us all might have been confused on how would you pump all that water out.

So, it's really not an inconvenience for twenty years, it's just a constant moving the water down there.

MR. QUINN: Correct; it's a short-term inconvenience and then a long-term treatment.

MS. FREIERMUTH: Okay. Thank you.

MS. ECHOLS: Any more questions?

Are you all sure?

Sir?

MR. WURFEL: Larry Wurfel.

As far as carbon filtration, who maintains it?

MR. QUINN: The Borough.

MR. WURFEL: Who's responsible for noisy

shutdowns like last weekend, 10 o'clock on Saturday night?

MR. QUINN: As far as I know, the Borough.

MR. WURFEL: Who do I call on the weekend?

I called the police, they hang up.

MR. QUINN: Best thing you can do is call Sheila Seider, the town clerk, and probably Joe Rossi --

MR. WURFEL: She's not in on Sunday.

MR. QUINN: My recommendation would be call her tomorrow, she's in tomorrow, and bring your question to her saying: On a Saturday or Sunday, is there a hot line somebody answers?

It's the same number you would probably have to call if a water main broke. You should know that number, or they can give you that number.

MS. ECHOLS: It's an emergency number.

MR. QUINN: Yeah, an emergency number.

MS. ECHOLS: Any more questions?

ROCKAWAY BOROUGH WELLFIELD SUPERFUND SITE

Okay. EPA and the contractor would like to thank you all for coming out this evening to discuss the Rockaway Borough Wellfield Superfund Site.

As stated up here, public comment goes on until September 15, 2007. You can send your questions, if you have any more, or you can -- to EPA, to Brian Quinn, or you can call him. If you can't reach him, you can call me; most people do that.

I also have an 800 number. The number is 1-800-346-5009. You can call into that number, and someone will transfer you to me. It's also on this fact sheet, the short version of the proposed plan, underneath my name.

After EPA reviews all of your questions and comments, a record of decision is prepared by the regional administrator which will encompass all of your concerns, questions, and our remedy, and it will be available at the information repository once it's complete.

MR. QUINN: Which is the public library, free public library.

MS. ECHOLS: I would say sometime in the beginning of October.

MR. QUINN: The record has to be in the end of September. Once completed, we'll make a copy and put it in there.

MS. ECHOLS: Thank you very much for coming out.

(Time noted: 8:26 p.m.)

C E R T I F I C A T E

STATE OF NEW JERSEY)ss.:

I, LINDA A. MARINO, a Registered Professional Reporter, Certified Shorthand Reporter, and Notary Public within and for the State of New Jersey do hereby certify:

I reported the proceedings in the within-entitled matter to the best of my ability, and that the within transcript is a true record of such proceedings.

I further certify that I am not related, by blood or marriage, to any of the parties in this matter and that I am in no way interested in the outcome of this matter.

IN WITNESS WHEREOF, I have hereunto set my hand this 27th day of August, 2007.

Linda A. Marino

LINDA A. MARINO, RPR, CCR

APPENDIX IV

ADMINISTRATIVE RECORD INDEX

ROCKAWAY BOROUGH WELL FIELD
OPERABLE UNIT 3
ADMINISTRATIVE RECORD
INDEX OF DOCUMENTS

3.0 REMEDIAL INVESTIGATION

3.3 Work Plans

P. 300001 - 300044 Report: Site Management Plan for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, October 1995.

P. 300045 - 300261 Report: Draft Summary Report and Conceptual RI/FS Work Plan Outline for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, December 1995.

P. 300262 - 300352 Report: Remedial Investigation/Feasibility Study Work Plan for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, May 1996.

P. 300353 - 300539 Report: Remedial Investigation/Feasibility Study Work Plan, Field Operations Plan, Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, Volume 2, Envirotech Research, Inc.'s Quality Assurance Manual, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, May 1996.

P. 300540 - 300722 Report: Remedial Investigation/Feasibility Study Work Plan, Field Operations Plan, Rockaway Borough

Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, Part 1 - Sampling and Analysis Plan, Part 2 - Quality Assurance Project Plan, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, June 1997.

P. 300723 - 300781 Report: Remedial Investigation/Feasibility Study Work Plan, Field Operations Plan, Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, Part 3 - Health and Safety Plan, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, June 1997.

3.4 Remedial Investigation Reports

P. 300782 - 300966 Report: Progress Report #38, November 1998 Activities for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, December 1998.

P. 300967 - 301033 Report: Technical Memorandum, Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, February 1999.

P. 301034 - 301128 Report: Technical Memorandum #2 for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, May 2000.

P. 301129 - 301560 Report: Characterization Report for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, Volume 1B Attachments, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, January 2001.

P. 301561 - 302213 Report: Characterization Report for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, Volume 2 Data Validation, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, January 2001.

P. 302214 - 302387 Report: Final Remedial Investigation Report for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, Volume 1, Text, Tables, and Figures, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, May 2004.

P. 302388 - 302997 Report: Final Remedial Investigation Report for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, Volume 1B, Attachments 1-26, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, May 2004.

P. 302998 - 303530 Report: Final Remedial Investigation Report for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, Volume 2, Data Validation, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, May 2004.

P. 303531 - 303870 Report: Final Remedial Investigation Report for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, Volume 3A, Laboratory QA/QC Data Package, 10/6/98 - Job #H941, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, May 2004.

P. 303871 - 304283 Report: Final Remedial Investigation Report for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, Volume 3B, Laboratory QA/QC Data Package, 10/6/98 - Job #H941, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, May 2004.

Data Package, 10/8/98 - Job #I052, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, May 2004.

P. 305487 - 305729 Report: Final Remedial Investigation Report for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, Volume 9, Laboratory QA/QC Data Package, 10/8/98 - Job #I053, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, May 2004.

P. 305730 - 305840 Report: Final Remedial Investigation Report for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, Volume 10, Laboratory QA/QC Data Package, 10/16/98 - Job #I279, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, May 2004.

P. 305841 - 306341 Report: Final Remedial Investigation Report for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, Volume 11, Laboratory QA/QC Data Package, 10/16/98 - Job #I280, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, May 2004.

P. 306342 - 306349 Report: Final Remedial Investigation Report for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, Volume 12, Laboratory QA/QC Data Package, 10/16/98 - Job #I279GS, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, May 2004.

P. 306350 - 306570 Report: Final Remedial Investigation Report for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, Volume 13, Laboratory QA/QC Data Package, 2/8/00 - Job #303, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, May 2004.

P. 306571 - 306621 Report: Final Remedial Investigation Report for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, Volume 14, Laboratory QA/QC Data Package, 2/15/00 - Job #455, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, May 2004.

P. 306622 - 306960 Report: Final Remedial Investigation Report for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, Volume 15, Laboratory QA/QC Data Package, 2/15/00 - Job #X456, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, May 2004.

P. 306961 - 307163 Report: Final Remedial Investigation Report for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, Volume 16, Laboratory QA/QC Data Package, 8/16/00 - Job #C924, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, May 2004.

P. 307164 - 307212 Report: Final Remedial Investigation Report for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, Volume 17, Laboratory QA/QC Data Package, 10/9/00 - Job #E510, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, May 2004.

P. 307213 - 307293 Report: First Amended Technical Memorandum for Development and Screening of Alternatives for Site Remediation for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, March 2005.

P. 307294 - 307376 Report: Second Amended Technical Memorandum for Development and Screening of Alternatives for Site Remediation for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner &

Klockner, Rockaway Borough, New Jersey, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, October 2005.

P. 307377 - 307479 Report: Third Amended Technical Memorandum for Development and Screening of Alternatives for Site Remediation for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, April 2006.

3.5 Correspondence

P. 307480 - 307504 Letter to Chief, New Jersey Superfund Branch I, Attention: Mr. Brian Quinn, Project Manager, Emergency & Remedial Response Division, U.S. EPA, Region 2, from Mr. Michael N. Metlitz, Project Manager and Ms. Cheryl L. Coffee, Senior Hydrogeologist, The Whitman Companies, Inc., re: Klockner & Klockner, Rockaway Borough Wellfield Superfund Site, Administrative Order on Consent ("AOC"), Index No. II-CERCLA-95-0104, Whitman Project #95-03-02, October 12, 2001.

ROCKAWAY BOROUGH WELL FIELD
OPERABLE UNIT 3
ADMINISTRATIVE RECORD UPDATE
INDEX OF DOCUMENTS

4.0 FEASIBILITY STUDY

4.3 Feasibility Study Reports

P. 400001 - 400154 Report: Final Feasibility Study Report for Rockaway Borough Well Field Site, Operable Unit #3 for Property of Klockner & Klockner, Rockaway Borough, New Jersey, prepared by The Whitman Companies, Inc., on behalf of Klockner & Klockner, prepared for U.S. EPA, Region 2, August 2007.

10.0 PUBLIC PARTICIPATION

10.9 Proposed Plan

P. 10.00001- 10.00014 Superfund Program Proposed Plan, Rockaway Borough Wellfield Superfund Site, prepared by U.S. EPA, Region 2, August 2007.

APPENDIX V

NJDEP'S LETTER OF CONCURRENCE

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JON S. CORZINE
Governor

LISA P. JACKSON
Commissioner

Honorable Alan J. Steinberg, Administrator
USEPA, Region II
290 Broadway
New York, NY 10007-1866

SEP 26 2007

RE: Record of Decision
Klockner & Klockner Source Area Soils Operable Unit 3
Rockaway Borough Wellfield Superfund Site, Morris County

Dear Mr. Steinberg:

I am pleased to notify you that the New Jersey Department of Environmental Protection (NJDEP) has evaluated the selected final remedy for Operable Unit 3, Klockner & Klockner Source Area Soils, at the Rockaway Borough Wellfield Superfund Site, Morris County, New Jersey and concurs with the remedy as stated in the Record of Decision (ROD) dated September 2007.

The major components of the selected remedy include:

- Soil vapor extraction with excavation and off-site treatment and/or disposal of an estimated 150 yd^3 of soil contaminated with trichloroethene and tetrachloroethene, and
- Excavation and off-site treatment and/or disposal of approximately 27 yd^3 of soil contaminated with lead.

In addition, EPA will evaluate the potential for vapor intrusion from the contaminated soil.

The Selected Remedy is believed to provide the best balance of tradeoffs among remedial actions while still providing overall protection of human health and the environment. NJDEP understands that Operable Unit 3 is only one component of the remediation of the Rockaway Borough Wellfield site.

New Jersey fully appreciates the importance of the ROD in the cleanup process and looks forward to the completion of the remedial activities. If you have any questions please feel free to contact Assistant Director Leonard Romino at 609-984-2902.

Sincerely,

Irene Kropp, Assistant Commissioner
Site Remediation and Waste Management Program

c. Gary Sondermeyer, NJDEP Chief of Staff
Stephen Maybury, NJDEP/BCM