RECORD OF DECISION AMENDMENT

Ellis Property Superfund Site

Evesham Township, Burlington County, New Jersey

U.S. Environmental Protection Agency

Region 2

September 2013

DECLARATION STATEMENT
RECORD OF DECISION AMENDMENT

SITE NAME AND LOCATION

Ellis Property Superfund Site (EPA ID# NJD980529085)
Evesham Township, Burlington County, New Jersey

STATEMENT OF BASIS AND PURPOSE

This decision document presents the Amended Remedy for the contaminated soil and groundwater at the Ellis Property Superfund Site located in Evesham Township, Burlington County, New Jersey (Site). The original Record of Decision (ROD) addressing contaminated soil and groundwater at the Site was issued on September 30, 1992.

The Amended Remedy was selected in accordance with the requirements of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. §9601 *et seq.*, and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300. This decision is based on the Administrative Record file for the Site, an index of which can be found in Appendix IV.

The State of New Jersey concurs with the ROD Amendment. A copy of the concurrence letter can be found in Appendix V.

ASSESSMENT OF THE SITE

The response action selected in this ROD Amendment is necessary to protect the 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 response action described in this document modifies the soil and groundwater remedy selected in the 1992 ROD. The soil cleanup called for in the 1992 ROD has been completed, and the groundwater collection and treatment system has been in operation since 2000. The U.S. Environmental Protection Agency and New Jersey Department of Environmental Protection have identified a source of volatile organic compounds (VOCs), primarily trichloroethylene (TCE) in the subsurface soil at the Site. These VOCs are contributing to groundwater contamination and are preventing the groundwater collection and treatment system from restoring the aquifer.

The major components of the Amended Remedy include the following:

- Excavation and off-site disposal of TCE contamination in the residual source area, and contaminated soil in the plume area;
- Implementation of *in-situ* treatment, where appropriate, to complement excavation;
- Continued operation of the existing collection and treatment system for a period of time (estimated to be one year) to evaluate the effectiveness of continued operation of the system to reduce residual groundwater contamination;
- Monitoring of groundwater; and
- Continuation of institutional controls to prevent exposure to contaminated groundwater until remediation goals are achieved.

DECLARATION OF STATUTORY DETERMINATIONS

Part 1 - Statutory Requirements

The Amended Remedy is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to the remedial actions to the extent practicable, and is cost-effective. EPA has determined that the Amended Remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner at the Site.

Part 2 - Statutory Preference for Treatment

The Amended Remedy meets the statutory preference for the use of remedies that involve treatment as a principal element.

Part 3 - Five-Year Review Requirements

Because the remedy will not result in hazardous substances, pollutants, or contaminants remaining above levels that allow for unlimited use and unrestricted exposure, EPA anticipates that a statutory five-year review will not be required for the groundwater remedy. However, because it may take more than five years to attain remedial action objectives and remediation goals for the groundwater at the Site, policy reviews will be conducted until the remediation goals are achieved to ensure that the groundwater remedy is, or will be, protective of human health and the environment

ROD DATA CERTIFICATION CHECKLIST

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

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

- A discussion of source materials constituting principal threats may be found in the "Principal Threat Waste" section.
- A discussion of the baseline risk represented by the chemicals of concern may be found in the "Summary of Site Risks" section. This discussion is based on the baseline risk assessment from the 1992 ROD. Cleanup goals for groundwater contamination can be found in the "Remedial Action Objectives" section.
- Current and reasonably anticipated future land use assumptions and current and potential future uses of groundwater used in the baseline risk assessment and ROD can be found in the "Current and Potential Future Site and Resource Uses" section.
- Estimated capital, operation and maintenance (O&M), and total present worth costs, discount rate, and the number of years over which the remedy cost estimates are projected can be found in the "Description of Remedial Alternatives" section.
- Key factors that led to selecting the remedy may be found in the "Comparative Analysis of Alternatives" and "Statutory Determinations" sections.

Walter E. Mugdan, Director
Emergency and Remedial Response Division
EPA Region 2

Sept. 30, 2013
Date

RECORD OF DECISION AMENDMENT

DECISION SUMMARY

Ellis Property Superfund Site

Evesham Township, Burlington County, New Jersey

U.S. Environmental Protection Agency
Region 2
New York, New York
September 2013

Table of Contents

Appendices

SITE NAME, LOCATION AND BRIEF DESCRIPTION

The Ellis Property Site (Site) is located in Burlington County, east of Sharp Road and about 2,000 feet north of Evesboro-Medford Road in Evesham Township, New Jersey (see **Figure 1**). The Site is surrounded by farmland and wooded lots, and is less than half of a mile from the nearest residential area, across Sharp Road. The property was once used as a dairy farm and is designated as Block 14, Lot 4 on the Evesham Township tax map. It comprises approximately 36 acres of land; 24 acres are located in Evesham Township and the remainder in Medford Township. A groundwater treatment plant is operating on the Site. A fence surrounds the treatment plant but the rest of the property is not fenced. The Site is overgrown with grasses and weeds.

Land in the area immediately surrounding the Site is primarily agricultural, though it is transitioning to residential. Cultivated fields bound the Site to the north and south. Another field is found to the west, across Sharp Road. To the east of the Site lies a wetland area, classified by the U.S. Fish and Wildlife Service (USFWS) as a palustrine ecological system with scrub/shrub and emergent plant classes. Although the wetlands receive surface water runoff from the Site, inundation and saturation of the wetland area is probably caused by discharge from the shallow groundwater table. Consequently, periodic drying of the wetlands occurs when the elevation of the groundwater table is reduced. The nearest free-flowing surface water is Sharps Run, approximately one-quarter mile north of the Site. Drainage from the wetlands eventually leads to Sharps Run. Sharps Run flows east through Medford Township to the southwestern branch of Rancocas Creek, approximately six miles east of the Site. The northeastern corner of the Site, which includes part of the wetlands, lies in the 100-year floodplain.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

Site History

In 1968, Irving and Reba Ellis purchased the property and used part of it as a drum storage and reconditioning (drum cleaning) operation. Used drums and containers were brought onto the Site, rinsed or cleaned, and then resold. The Site consisted of a two-story building, housing several washing tanks with troughs, three sheds, a storage area, and a boiler. Approximately four acres of the 36-acre tract were involved with this operation The reconditioning operation ceased in 1978, after a fire damaged some of the buildings. However, storage of drums at the Site continued into the 1980s.

Initial Activities

In September 1980, the New Jersey Department of Environmental Protection (NJDEP) investigated the Site following an anonymous complaint. At the time, the building contained 50 to 75 drums, many of which were full of unknown liquids. The three sheds also contained various-sized drums and chemical containers, many of which contained unknown substances. Stained soil was found in the area near the sheds, which was devoid of plant growth. About one hundred 55-gallon plastic drums were located adjacent to the sheds. A natural swale and several man-made ditches led into a wetland, located approximately 700 feet east of Sharp Road. The troughs inside the larger building drained into one of these ditches. Sediments and surface water runoff entered the wetlands from the drainage ways. Hundreds of drums and containers were spread haphazardly around the Site. Some of these drums were later found to contain oils, grease, acids, and various organic compounds. There was evidence of spills from past operations at the Site. Several drums were corroded, with the contents leaking onto the ground.

Subsequent inspections by the NJDEP indicated that chemical spills onto the ground had occurred in several areas. Soil sampling and analysis by the NJDEP revealed the presence of hydrochloric acid, heavy metals, and polychlorinated biphenyls (PCBs).

In April 1981, NJDEP issued a Directive Letter to Mr. Ellis, instructing him to remove and dispose of the drums and contaminated soil from the Site. NJDEP made numerous attempts to persuade Mr. Ellis to accept responsibility for the contamination on his property. In September 1982, the Evesham Municipal Utilities Authority (EMUA) filed a civil action in the Superior Court of New Jersey against Mr. and Mrs. Ellis for the illegal storage of drums containing hazardous substances. In December 1982, NJDEP filed a separate civil action in the Superior Court of New Jersey due to Mr. Ellis's failure to comply with the Directive Letter and the continued use of the Site for the storage of drums.

In January 1983, the Burlington County Health Department and the NJDEP conducted a survey of potable wells within an approximate one-mile radius of the Site to determine if they were affected by Site contamination. The survey tested ten potable wells, finding that the Site had not contaminated these wells and was not affecting potable water wells in the area.

The two civil cases filed against Mr. and Mrs. Ellis were consolidated, and on February 10, 1983, an Order for Partial Summary Judgment was entered in the Superior Court against Mr. Ellis in the consolidated cases in the amount of $49,084 98 The court also ordered Mr. Ellis to pay $53,000 in penalties. On June 6, 1984, in a Judgment Consent, the court ordered Mr Ellis to pay the EMUA $4,000 and forbade him to store, discharge, or spill hazardous substances at the Site.

The Site was included on the National Priorities List on September 1, 1983. On October 19, 1984, the U.S. Environmental Protection Agency (EPA) issued a General Notice Letter to Mr. Ellis, informing him of his potential liability under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), with respect to the contamination at the Site.

In May 1989, EPA initiated a search for other potentially responsible parties (PRPs). EPA has not identified other PRPs for the Site besides the Ellises

Removal Actions

In March 1983, utilizing the New Jersey Spill Compensation Fund, NJDEP removed approximately one hundred drums containing acids and disposed of them at an approved off-site facility. Containerized solids and flammable liquids were also removed and disposed of, along with contaminated soil and sludge. In an acid spill area, the highly acidic surface soils were removed, and lime was tilled into the soil to neutralize the acid. Soils in the vicinity of a PCB disposal area were removed to a depth of approximately two feet and disposed at an approved off-site facility. The large building and sheds were demolished at that time because they were structurally unsafe. Local private wells were sampled again and showed no contamination.

On February 22, 1989, NJDEP requested that EPA conduct a drum removal action at the Site. After a preliminary assessment, EPA through its removal authority began Site preparation, waste sampling, and stabilization. EPA segregated, staged and labeled a total of 218 drums containing hazardous waste material for off-site disposal. In addition, approximately 400 empty drums were crushed for off-site disposal. Removal of the drums was completed on April 17, 1990.

SUMMARY OF SITE CHARACTERISTICS

Site Geology and Hydrology

The Ellis Property Site is situated in the central portion of the Atlantic Coastal Plain, which extends from the fall line located west of the Delaware River to the Atlantic Ocean. The Coastal Plain regionally slopes gently to the southeast. Site topography is generally flat. The Site is underlain by a shallow unconfined aquifer called the Hornerstown Sand, which is comprised of silty sand and clay lenses. The water table is, on average, five feet below ground surface (bgs), and the Hornerstown formation is typically no deeper than 30 feet bgs . Underlying this shallow aquifer is the Navesink Sand, which is comprised of interbedded layers of glauconitic clay and sand, and is generally about 30 feet thick. Thus, the combined formations extend, on average, about 50 to 70 feet bgs.

The Hornerstown and Navesink formations collectively function as a confining layer, isolating shallow groundwater from the deeper Wenonah-Mount Laurel Sand, a major source of potable water for domestic wells in the vicinity of the Site. Site monitoring wells in the Wenonah-Mount Laurel Sand are screened at 90 to 100 feet bgs, and this is a typical depth for local domestic wells in the area. Deeper aquifers that underlie the Wenonah-Mount Laurel Sand, known as the Magothy-Raritan, are confined from the shallow units described here by clay formations. The Magothy-Raritan aquifers are a significant source of municipal water supply in the vicinity of the Site.

The water quality in the deeper aquifers (the Wenonah-Mount Laurel and Magothy-Raritan) are not affected by the contaminants in the shallow groundwater. A Burlington County Health Department survey found no private wells near the Site using the shallow (Hornerstown/Navesink) aquifer. A Classification Exception Area is in place to restrict the installation of wells in the shallow aquifer. The shallow aquifer is not currently used as a source of public water supply because of its low productivity; however, it is a potential source of recharge for the underlying aquifers at the Site. Groundwater beneath the Site is located in the New Jersey Coastal Plain Sole Source Aquifer, and is, therefore, classified as Class II potable water (*i e*, drinking water).

Shallow groundwater flow at the Site is to the east or east-northeast. Hydraulic conductivity values calculated for the shallow aquifer range from 0.41 to 1.63 feet per day.

Sharps Run is a tributary of the south branch of the Rancocas Creek. The NJDEP has classified the south branch of the Rancocas Creek, from Vincentown to the Delaware River, and its tributaries as FW2-NT, non-trout producing general surface waters.

Groundwater Contamination

The remedial investigation (RI) identified soils contaminated with metals, PCBs, and bis(2-ethylhexyl)phthalate, and groundwater contaminated with volatile organic compounds (VOCs), particularly tetrachloroethylene (PCE) and trichloroethylene (TCE). NJDEP completed the remedial investigation and feasibility study (RI/FS) for the Site, and worked with EPA to issue a Record of Decision (ROD) in 1992, requiring the excavation of contaminated soil and installation of a groundwater collection, treatment and discharge system. The goal of the groundwater action was to restore the groundwater to drinking water standards.

Original Remedy

The elements of the remedy selected in the original ROD included the following:

- Excavation of contaminated soil and treatment/disposal at an approved off-site facility;
- Extraction of contaminated groundwater from the shallow aquifer underlying the Site;
- Treatment of the contaminated groundwater in a facility to be constructed on Site;
- Disposal of the treated groundwater on the Site by reinjection; and
- Implementation of an environmental monitoring program to ensure the effectiveness of the remedy.

All these actions have been implemented, as discussed below.

Remedy Implementation

The remedy was implemented using public funds because viable PRPs could not be found.

With NJDEP as the lead agency, the remediation of contaminated soil was begun in 1998, excavating soils that exceeded remediation goals established in the ROD for transportation and off-site disposal. The NJDEP conducted quality assurance testing on post-excavation samples. Several rounds of post-excavation sampling led to additional excavation before the soil remediation was deemed complete. The ROD identified approximately 760 cubic yards of surface soils (within the first five feet bgs) contaminated with metals, PCBs, and bis(2-ethylhexyl)phthalate that exceeded the Site remediation goals. Site-specific, risk-based remediation goals were selected based upon an assumption of eventual unrestricted Site use. A total of 1,400 cubic yards of excavated soils were disposed of at an approved off-site facility. Excavations were backfilled with clean fill that was tested prior to being brought on Site All these excavations were performed above the water table, and all work was completed by 1999.

In addition to the soil actions identified in the ROD, an area of soil contaminated with PCE was discovered during the design phase of the groundwater remedy, and was excavated down to approximately 12 feet bgs. This work was performed in 2000.

Construction of the groundwater collection and treatment (C&T) system commenced on September 28, 1999 and was completed on June 5, 2000. The C&T system started up on June 16, 2000, and was determined to be operational and functional on August 31, 2000. The system consists of a collection trench installed near the eastern edge of the Site with two extraction points (MH-1 and MH-2), two other extraction wells (PW-1 and PW-2), a treatment plant, and a reinjection trench to the west. Groundwater is pumped from the extraction points and is then treated and discharged to the reinjection trench and to wetlands to the east and downgradient of the collection trench. The downgradient discharge is necessary because the reinjection trench cannot accept all the discharge requirements of the treatment systems.

The treatment consists of solids settling by gravity, coagulation/flocculation and co-precipitation for metals removal, sludge dewatering, and VOC removal via air stripping and carbon adsorption. The system was designed to operate at approximately five gallons per minute (gpm) with a peak flow of 15 gpm. Currently the system functions at a maximum rate of approximately seven gpm (including system recirculation) due to system flow-through limitations (*e g.*, the abundant presence of solids) and re-injection rate constraints (*e.g.*, treated water cannot be discharged as quickly as the system can extract/treat it).

System Operations/Operation and Maintenance (O&M)

O&M is being performed by NJDEP and includes the operation and maintenance of the treatment facility, sampling and analysis of the monitoring wells, groundwater level measurements, and wetland monitoring. A total of 38 monitoring wells and 14 piezometers are currently used in the monitoring of local groundwater flow and contaminant migration. These wells are screened in three distinct formations underlying the Site at the following intervals: 22 shallow wells in the Hornerstown Formation, approximately 10 to 20 feet bgs; six intermediate wells in the Navesink Formation approximately 50 to 60 feet bgs; and 10 deep wells in the Wenonah-Mount Laurel Formation approximately 90 to 100 feet bgs.

Four monitoring wells were installed in the wetland area to monitor the affect of the C&T system on water levels in the wetland. An evaluation of the wetlands was performed in 2000 and 2001, and concluded that the wetlands were not adversely affected by the groundwater treatment system. As part of the evaluation, a baseline vegetative community survey was conducted to provide an initial assessment of the vegetative communities prior to initiating groundwater remediation activities. All of the characterized species at the Site during the baseline evaluation were planted stock. Ten quadrants and six data points were established during the baseline survey. Overall the vegetation appeared vigorous and healthy. Subsequent monitoring over the next couple of years indicated that colonization of plant species native to the area had occurred. The overall heights and stem densities documented suggests that the community is healthy and experiencing vigorous growth patterns. Change other than successive growth has not occurred. Minor wildlife browsing was noted in some areas.

New Information

While the removal and remedial response actions taken to date have eliminated drums and large areas of contaminated soil, residual TCE in localized areas of the Site along the interface of the Hornerstown Formation and Navesink Formation have been consistently identified in Site monitoring wells during groundwater monitoring. TCE and other VOCs found in groundwater today were not identified as soil contaminants at the time of the ROD because they were not detected at significant concentrations.

In 2006, EPA performed a Remediation System Evaluation (RSE) of Site operations. An RSE involves an independent team of expert hydrogeologists and engineers conducting a broad evaluation of remedy performance. The recommendations are intended to help the Site team identify opportunities for improvements. The September 2006 RSE report identified several enhancements to improve the performance of the selected response action. In addition, the ROD had called for studies of the Site to identify the presence of dense nonaqueous phase liquids (DNAPLs), typically VOCs that might act as continuing sources of contamination to the groundwater. In 2007, NJDEP conducted a Pre-Design Investigation (PDI) to further delineate the residual source(s) and extent of contamination in soil and groundwater, to evaluate the presence of DNAPLs, and assess potential changes to the groundwater remedy.

Summary of PDI Results:

- A stratigraphy investigation was conducted in the vicinity of MW-2, MW-6, PW-1, and PW-2 (See **Figure 2** for a map of monitoring well locations). Cone penetrometer technology (CPT) tests confirmed the existence of a "sand channel" that could act as a preferential pathway for contamination. The sand stratum was identified between one and nine feet thick at the Site and increased in thickness moving east to west from MW-6 to MW-8.
- Source area delineation of chlorinated solvent contamination was conducted using a Membrane Interface Probe (MIP). The MIP results suggested that a residual contamination source appeared to be relatively shallow (approximately 10 feet bgs) around boring location P22 (see **Figure 3**), while it moved deeper (20 feet bgs) into the clay layer around boring locations P53 and P5.
- Investigation of groundwater quality was conducted along the sand channel and potential contamination source areas through collection of groundwater samples via direct push sampling points installed adjacent to selected MIP investigation locations. The PDI confirmed that there was no contamination in the sand channel prior to entering the extraction trench. Groundwater analytical results indicated TCE to be the primary contaminant of concern remaining at the Site and that the primary residual source areas were in the vicinity of boring location P22 and P53 and P56.
- TCE was detected in the groundwater in the residual source area up to 14,000,000 micrograms per liter (µg/L) at depths between 10 and 26 feet bgs. This concentration is two orders of magnitude higher than the highest groundwater monitoring well sample results (15,500 µg/L) since 2003. Additionally, extraction well PW-2 has shown consistently elevated TCE levels above 23,000 µg/L in the last 2 years of sampling. (See **Table 1** summarizing recent groundwater data.)
- Investigation along the suspected sand channel and contamination source areas was conducted through the collection of soil samples adjacent to selected MIP investigation locations. TCE was the only compound that exceeded NJDEP criteria, but was typically present at concentrations exceeding one milligram per kilogram (1 mg/kg).

Overall, the PDI investigation identified TCE, found predominantly between 10 and 24 feet bgs, as the primary remaining contaminant of concern (COC) at the Site, with more elevated concentrations identified during the PDI than historical groundwater results. The significant levels of TCE in the groundwater indicates the existence of a DNAPL source, but such a source has not yet been found. The DNAPL source material constitutes a principal threat waste at the Site. The influence of pumping wells PW-1 and PW-2 in extracting subsurface contamination bound in the tight soil matrix is limited. Note that these two pumping wells are well placed relative to the TCE source areas and pumping has been ongoing for more than 10 years, yet they appear to have made little progress toward addressing these sources.

The primary cause of persistent elevated levels of groundwater contamination in portions of the Site appears to be residual deep soil contamination below the water table. These contaminants, bound tightly in the soils, leach slowly out of the soils, serving as a continuing source of groundwater contamination that is not easily addressed by the existing system.

Based on a review of the groundwater monitoring results from November 1999 to October 2010, multiple residual source areas of TCE contamination appear likely at the Site. The primary potential source area in the shallow zone is in the vicinity of monitoring wells MW-2 and MW-6, continuing downgradient to the extraction trench, where relatively high TCE concentrations persist. A statistical analysis of the TCE concentrations detected at MW-2 and MW-6 was conducted for eight quarterly sampling events performed between October 2003 and September 2005. This analysis illustrated that TCE levels had not decreased at either MW-2 or MW-6 during this time period. Additionally, extraction well PW-2, which is located between MW-2 and MW-6, exhibited varying concentrations, which were persistently detected at elevated levels for TCE in 2013, as high as 47,195 µg/L. Another potential source area, based on previous investigations, is in the vicinity of extraction well PW-1, which has had elevated concentrations of TCE in the influent to the treatment plant in 2009 and 2010, as high as 31,286 µg/L in 2013.

The RSE and PDI also identified several issues likely to affect overall system performance, including the location of extraction wells in low-permeability soil formations and the presence of the sand channel on the northern part of the Site. The sand channel was believed to limit the effectiveness of the northern portion of the collection trench in adequately intercepting contamination. A cutoff wall was installed in 2012 to isolate the contaminated groundwater from the sand channel and direct it, instead, to the collection trench. This wall was also designed to be used as a shoring protection for excavation in the vicinity of the plume area.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The Proposed Plan and supporting documentation for this ROD Amendment were released to the public for comment on July 11, 2013. These documents were made available to the public at the EPA Region 2 Superfund Records Center, 290 Broadway, 18th Floor, New York, New York and at the Evesham Library, 984 Tuckerton Road, Marlton, New Jersey.

On July 11, 2013, the *Central Record,* a Burlington County newspaper, published a notice which contained information relevant to the public comment period for the Site, including the duration of the comment period, the date of the public meeting and availability of the administrative record. Postcards, containing the same information were also mailed to individuals on a mailing list maintained by EPA for the Site. The public comment period began on July 11, 2013 and ended on August 12, 2013.

EPA held a public meeting on July 24, 2013, to explain EPA's preferred remedy. The purpose of the meeting was to inform local officials and interested citizens about the Superfund process, to discuss the Proposed Plan for the ROD Amendment and receive comments on the Proposed Plan, and to respond to questions from area residents and other interested parties. Responses to the comments received at the public meeting and in writing during the public comment period are included in the Responsiveness Summary, attached as Appendix III to this ROD Amendment.

CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

The Site was originally a dairy farm and then a drum recycling operation. Currently, the Site is undeveloped and there are no building structures, except for the groundwater treatment plant. There are a series of monitoring wells located throughout the Site which are used to monitor groundwater.

The property is currently zoned IP, Industrial Park. There is potential for immediate redevelopment of portions of the Site on either side of the treatment plant, or the entire Site upon completion of the cleanup. As in the 1992 ROD, future land use scenario is assumed to be unrestricted residential.

BASIS FOR REMEDY MODIFICATION

This is an amendment to the September 30, 1992, ROD for the Ellis Property Superfund Site. The 1992 ROD selected excavation of contaminated soil and treatment/disposal at an approved off-site facility and extraction of contaminated groundwater from the shallow aquifer underlying the Site to address the threats posed by contamination at the Site.

Five-year reviews were conducted in 2005 and 2010, pursuant to CERCLA. The purpose of a five-year review is to determine whether the remedies at the Site are protective of human health and the environment and function as intended by the decision documents. The five-year reviews concluded that short-term protectiveness of human health and the environment was achieved as there is no exposure to groundwater contamination and ongoing groundwater monitoring continues to be performed. However, through this review process and subsequent investigations, NJDEP and EPA concluded that the groundwater remedy was not performing as intended by the ROD. Specifically, while the C&T system continues to perform as designed, the groundwater contaminant concentrations in the shallow aquifer have not decreased as expected, and additional remedial measures are needed to achieve the remedial action objectives. In addition, the PDI found additional residual contamination that acts as an ongoing source to the groundwater. If these source areas are not addressed, aquifer restoration cannot be achieved.

A focused feasibility study (FFS) evaluated potential remedial technologies and remedial scenarios was conducted by NJDEP and documented in "Technology Evaluation Report for the Ellis Property Superfund Site," dated May 2009.

SUMMARY OF SITE RISKS

A Baseline Human Health Risk Assessment (BHHRA), and Ecological Risk Assessment were prepared as part of the RI/FS at the time of the 1992 ROD. The conclusions and assumptions of these risk assessments were most recently reassessed by EPA as part of a five-year review for the Site in September 2010. EPA concluded that the current and future land use assumptions for the Site are still valid, with an expectation of future unrestricted land use. The basis for taking an action at the Site derived, primarily, from direct contact or groundwater exposure to a future resident.

The soil remedial action called for in the 1992 ROD removed soil contamination within approximately the first 10 feet of Site soils, alleviating the potential for direct contact. The soil remediation goals at the time of the ROD were for the following contaminants of concern (COCs), with the ROD criteria and NJDEP's current unrestricted use soil standards.

TCE was not selected as a COC for direct contact in the original ROD, and while contamination remains at depth, the expected response action would remediate TCE to levels below NJDEP's promulgated remediation goal for unrestricted use (7 mg/kg), so the original RAOs for soil would not be affected by a change to the original remedy.

A comparison of the current groundwater standards with the standards used at the time of the remedy selection indicate several changes, as shown in **Table 2**. None of these changes alter the scope of the selected remedy, or this Amended ROD.

The groundwater exposure assumptions made at the time of the 1992 ROD are still valid. The vapor intrusion pathway was not evaluated at the time of 1992 ROD; however, it is an incomplete exposure pathway because there are no receptors. A comparison of the maximum TCE and PCE concentrations with groundwater values provided in the OSWER *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils* (November 2002) was conducted as part of the 2010 Five Year Review. The screening values used in the draft guidance provide groundwater levels associated with an indoor air concentration that represents a cancer risk ranging from 1×10^{-4} and 1×10^{-6} or a noncancer hazard quotient of 1 Concentrations higher than these screening values indicate the potential for vapor intrusion. TCE and PCE concentrations found in groundwater exceed the 1×10^{-4} vapor intrusion screening values of 5.3 µg/L and 110 µg/L, respectively. For this reason, construction of any type of building within the area of contaminated groundwater may create conditions for a future vapor intrusion exposure if the groundwater is not remediated.

Previous soil testing at the Site (during the RI and remedial action) was for total chromium, not for trivalent or the more hazardous hexavalent chromium. Based on new toxicity information on hexavalent chromium, the cleanup goal for this chemical has been lowered significantly. EPA and NJDEP do not have a residential risk-based screening level for total chromium; however, EPA's screening value for trivalent chromium is 120,000 mg/kg and for hexavalent chromium is 0.29 mg/kg. It is plausible that past Site operations resulted in hexavalent chromium impacts at the Site; however, the highest soil concentration of total chromium was 493 mg/kg, and chromium was not a remedy driver either as a consequence of the RI/FS testing or during the subsequent remedial action for soils. It is highly unlikely that chromium in the soil could remain when other soil contaminants were remediated. Thus, the direct-contact pathways for the COCs identified in the 1992 ROD have been addressed by the already-implemented soil remedy; however, because some of the current levels are more stringent, they will be used when determining completeness of the remedy going forward. Confirmation sampling will be performed during the cleanup.

The 2010 five-year review also evaluated ecological risks and concluded that, while there have been changes in how risk is calculated since originally assessed in 1992, the remediation goals used for the upland portion of the Site appear to be protective of terrestrial receptors. There are concentrations of TCE in the surface water, but the concentrations are below chronic aquatic values. Therefore, there are no surface water contaminants of ecological concern.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives 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 Baseline Human Health Risk Assessment (BHHRA), prepared for the RI/FS at the time of the 1992 ROD. Because the BHHRA established that the soil and groundwater at the Site poses an unacceptable risk to human health and the environment, remedial action objectives (RAOs) were established in the 1992 ROD. EPA and NJDEP have concluded that these RAOs are still appropriate. EPA has added one additional RAO for groundwater, to address the potential for vapor intrusion exposure.

Soil

- Prevent contact with contaminated soil, which represents an unacceptable risk, or reduce contaminant concentrations in the soil below risk-based levels,
- Prevent further migration of soil contaminants into the groundwater; and
- Prevent migration of contaminated soils off Site.

Groundwater

- Prevent the migration of contaminated groundwater off Site,
- Prevent the migration of contaminated groundwater into the underlying aquifers;
- Prevent potential exposure by inhalation/vapor intrusion that presents unacceptable risk under a future land use scenario; and
- Return the aquifer to its designated use as a source of drinking water by reducing contaminant concentrations in the shallow groundwater to drinking water quality.

It should be noted that the applicable New Jersey drinking water and groundwater quality standard for the primary contaminant of concern, TCE, of 1 µg/L has not changed since the 1992 ROD. Based upon the 2007 PDI, the implemented remedy has only been partly successful in achieving the RAOs for groundwater. The results of the 2007 PDI identified the following additional areas (not known at the time of the ROD) that need to be addressed to meet the RAOs:

- **Residual Source Area:** The horizontal extent of TCE concentration s exceeding 11,000 µg/L, representing likely DNAPL source material. This area covers approximately 24,000 square feet of the Site. This area is typically found between 10 and 24 feet bgs and is estimated at approximately 22,500 cubic yards in volume.
- **Plume Area:** The area outside of the residual source area that represents the horizontal extent of TCE concentration greater than 100 µg/L. This area covers approximately 61,000 square feet of the Site. This area is typically found between 10 and 20 feet bgs and is estimated at approximately 45,000 cubic yards in volume.

These volumes do not include shallow soils (down to approximately 10 feet bgs) previously addressed under the original remedy. Combining the residual source area and the plume area, the **Full Area** covers approximately 85,000 square feet of the Site (67,500 cubic yards).

Please refer to Figure 3 showing residual source area in dotted line and the plume area in shade. The Full Area consists of the Residual Area and the plume area. The residual source area and plume area were considered separately because, while the same remedial technologies could be implemented in either area, certain technologies are more effective for higher concentration areas and others more appropriate, from a cost and effectiveness standpoint, for lower concentration areas. Within these designated areas the soil remediation goal for TCE will be 1 mg/kg, which is expected to achieve the 1 µg/L remediation goal in groundwater.

<u>DESCRIPTION OF REMEDIAL ALTERNATIVES</u>

CERCLA, 42 U.S.C. §9601 *et seq*., 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 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 the Site above levels that allow for unlimited use and unrestricted exposure, EPA must review the action no less 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 Oil and Hazardous Substances Pollution Contingency Plan (NCP), none of the remedies rely exclusively on institutional controls to achieve protectiveness. The time frames below for achieving RAOs do not include the time for remedial design or the time to procure contracts.

Technologies were screened in the FFS to select a set of remedial technologies appropriate for this site. Retained remedial technologies were then used to develop Remedial Alternatives to address contamination and achieve RAOs at the site. These Alternatives consisted of either individual or a combination of retained remedial technologies in order to best achieve the remediation goals. The FFS considered two distinct *in-situ* chemical treatment methods separately, but they have been combined (*e g* , Alternative 3 and Alternative 4 are now Alternative 3/4) for the Proposed Plan and in this document.

Common Elements

Each of the remedial alternatives discussed below would continue the institutional controls that currently prevent use of the contaminated groundwater—a component of the 1992 remedy. The institutional control for groundwater is in the form of a classification exception area (CEA). These controls need to be in place until the aquifer is restored. In addition, until the RAO of aquifer restoration is achieved, each alternative would require engineering controls for vapor mitigation (vapor barriers, vapor mitigation systems and/or monitoring), if buildings come to be placed over any of the groundwater contamination zones identified for the Site.

With the exception of Alternative 1, Continuation of the Existing Collection and Treatment (C&T) System, the alternatives are designed to address the newly defined Residual Source and plume areas that need to be addressed to satisfy the RAOs.

During the implementation phase of the alternatives, the existing C&T system would remain in place and operational, preventing further contaminant migration. After completion of the remedial actions devised for each alternative, the groundwater C&T system would remain in place for some period while the aquifer recovered. The anticipated length for this stage of each alternative varies, as discussed below.

Alternative 1: Continuation of the Existing C&T System

Capital Cost – Not Applicable (N/A)
Annual O&M - $374,000
Total Present Worth – $ 10,000,000
Implementation Period – N/A

This remedial alternative assumes that no new actions will be implemented at the Site and the existing C&T system will continue to operate for a minimum of 30 years. For costing purposes, 30 years is assumed; however, the operation period of 30 years is considered to be indefinite considering the limited effectiveness of the system since operation began in 2000, and the period required to reach the RAOs may be substantially longer than 30 years. Annual groundwater monitoring would be conducted for approximately 30 years to track performance of the remediation.

Alternative 2: Full Area Excavation with Off-Site Disposal

Capital Cost – $10,518,000
Annual O&M – $783,000
Total Present Worth – $13,600,000
Implementation Period – 1 year

This remedial alternative involves excavation and off-site disposal of contaminated soil in the Full Area, which comprises the residual source area and the plume area. This alternative would provide the removal of the residual source area and contaminated soil in the plume area, reduce contamination concentrations across the Site and result in a significantly shorter operation period for the C&T system.

Contaminated soils would be excavated from an average depth interval of 10 to 20 feet bgs, and as deep as 30 feet bgs in some limited areas. Approximately 67,500 cubic yards of soil would be excavated from the Site. The upper soils (approximately 31,500 cubic yards) from zero to 10 feet bgs that are not contaminated would be excavated and stockpiled and used for backfill. Contaminated soils would be disposed as hazardous waste at an RCRA-approved off-site disposal facility. Dewatering would be necessary during the excavation of the saturated portion of the soil.

Additional excavation may be conducted in some select areas based on field screening and observation during the excavation activities. Approximately 15 new monitoring wells would be installed to replace the existing wells that would be abandoned prior to the excavation activities. Operation of the existing groundwater C&T system would be continued during the excavation; the system would be limited to extracting groundwater from collection trench only, because the extraction wells PW-1 and PW-2 are in the excavation area and would be abandoned prior to the excavation activities.

Groundwater levels are expected to reach the remediation goals within a relatively short period after completion of the soil excavation, without further remedial activities; however, the C&T system would remain in place after completion of the excavation to evaluate the effectiveness of continued operation of this system to further reduce the residual groundwater contaminants. For the purpose of the FFS, the period of operation for the C&T system was assumed to be one year after completion of the remedial action; quarterly groundwater monitoring was assumed to be conducted for the first year, followed by annual groundwater monitoring for the next nine years to monitor the remedial performance. Actual period of operation of the C&T system and groundwater monitoring schedule will be determined by EPA after completion of the remedial action and will be based on achieving the performance standards set during design.

Alternative 3/4: Full Area *In-Situ* Chemical Treatment

Capital Cost – $1,515,000- $2,185,000
Annual O&M – $783,000
Total Cost – 2,800,000-$3,600,000
Implementation Period – 1 year

This alternative includes the use of *in-situ* chemical treatment, either *in-situ* chemical reduction (ISCR) [Alternative 3] or *in-situ* chemical oxidation (ISCO) [Alternative 4] to remediate soil and groundwater contamination at the Site. Final selection of the *in-situ* treatment technology would be made after further studies in remedial design, and the Site may require a combination of different *in-situ* technologies to address Site contamination.

ISCR uses chemical reductants such as zero-valent iron (ZVI). The ZVI donates electrons, acting as the reductant in a reaction that removes chlorine atoms from chlorinated hydrocarbon contaminants such as TCE.

The ZVI reaction is a rapid process and thus requires a short time frame to reach remedial goals. The limiting factor for the technology is the delivery of the ZVI into the aquifer. It is anticipated that ZVI would be injected through a total of approximately 100 locations based on a 30-foot grid injection pattern. ZVI would be injected in a slurry using direct-push technology to the target depth interval of 10 to 30 feet bgs. It is assumed that two injection events (assuming one to two months apart) would be needed and a total of approximately 26,000 pounds of ZVI would be injected.

ISCO is a process that involves the injection of reactive chemical oxidants (such as Peroxide, Fenton's Reagent, Permanganate) into the subsurface for rapid contaminant destruction. Oxidation of organic compounds using ISCO is rapid and exothermic and results in the reduction of contaminants to primarily carbon dioxide and oxygen.

Modified Fenton's Reagent was assumed to be the oxidant, for costing purposes. Modified Fenton's process combines proprietary chelated iron complex catalysts, mobility control agents, oxidizers, and stabilizers. The process generates powerful free radicals when the catalyst reacts with hydrogen peroxide to promote co-existing oxidation-reduction (redox) conditions.

As with ISCR, ISCO is generally a rapid reaction, and the technology is limited by the ability to deliver the oxidant to the aquifer. It is anticipated that the Modified Fenton's Reagent would be injected through a total of approximately 300 points based on a 16-foot grid injection pattern using direct-push technology to the target depth interval of 10 to 30 feet bgs. It is assumed that 3 injection events (one to two months apart) would be needed and a total of approximately 240,000 gallons of the Modified Fenton's Reagent would be injected.

Delivery of the selected chemical is critical to the success of this technology. Due to the tightness of the soil matrix, results of the PDI suggest that uniform delivery of the selected chemical would be difficult.

In Alternative 3 or Alternative 4, the groundwater will be monitored during treatment to prevent the migration of reagents or free radicals.

The FFS assumes that groundwater would be extracted from the collection trench only and treated on Site through existing treatment system for one year to avoid: 1) interference with the chemical treatment in the target treatment area; and 2) impact of chemical reducing agents to the existing C&T system. Treated groundwater would be discharged mostly to surface water, with a portion being discharged via groundwater. For the purpose of the FFS, quarterly groundwater monitoring was assumed to be conducted for the first year, followed by annual groundwater monitoring for the next nine years to monitor the remedial performance. Actual period of operation of the C&T system and groundwater monitoring schedule will be determined by EPA after completion of the remedial action and will be based on achieving the performance standards set during design.

Alternative 5/6: Residual Source Area Excavation with Off-Site Disposal and Plume Area *In-Situ* Chemical Treatment

Capital Cost – $6,371,000-$6,383,000
Annual O&M – $783,000
Present Worth – $8,600,000
Implementation Period – 3 years

This remedial alternative combines the use of Excavation with Off-Site Disposal (Alternative 2) to address contamination in the residual source area followed by *in-situ* chemical treatment (either ISCR or ISCO) to address contamination in the plume area. Alternative 5 utilizes ISCR, while Alternative 6 utilizes ISCO.

In the residual source area, soils would be excavated as described in Alternative 2 from approximately 10 to 20 feet bgs with the excavation as deep as 30 feet bgs in some limited areas. Approximately 22,500 cubic yards of soil would be excavated. After excavation, contaminated soils would be disposed of at RCRA-approved off-site disposal facilities.

In-situ chemical treatment would be then be used to address the contamination in the plume area. If ISCR is used (Alternative 5), a slurry of ZVI would be injected through a total of approximately 70 locations based on a 30-foot grid injection pattern. ZVI would be injected in a slurry using direct-push technology. It is assumed that 2 injection events (assuming one to two months apart) would be needed and a total of approximately 12,000 pounds of ZVI would be injected.

ISCO is considered more implementable than ISCR, as the exposure of ZVI to air during the mixing process would reduce its effectiveness. If ISCO is used (Alternative 6), Modified Fenton's Reagent would be used to address the contamination in the plume area. The oxidant would be injected through a total of approximately 240 points based on a 16-foot grid injection pattern using direct-push technology. It is assumed that 3 injection events (assuming 1 to 2 months apart) would be needed and a total of approximately 144,000 gallons of the Modified Fenton's Reagent would be injected.

In Alternative 5 or Alternative 6, the groundwater will be monitored during treatment to prevent the migration of reagents or free radicals.

The FFS assumes that groundwater would be extracted from the collection trench only and treated on Site through existing treatment system for one year to avoid: 1) interference with the chemical treatment in the target treatment area; and 2) impact of chemical reducing agents to the existing C&T system. Treated groundwater would be discharged mostly to surface water, with a portion being discharged via groundwater. For the purpose of the FFS, quarterly groundwater monitoring was assumed to be conducted for the first year, followed by annual groundwater monitoring for the next nine years to monitor the remedial performance. Actual period of operation of the C&T system and groundwater monitoring schedule will be determined by EPA after completion of the remedial action and will be based on achieving the performance standards set during design.

Alternative 7/8: Residual Source Area *In-Situ* Chemical Treatment via Soil Mixing and Plume Area Enhanced Bioremediation

Capital Cost – $2,858,000-$3,298,000
Annual O&M – $872,000
Present Worth – $4,600,000-5,100,000
Implementation Period – 5 years

This remedial alternative involves the use of *in-situ* chemical treatment, with *in-situ* soil mixing (rather than chemical injection used in Alternatives 3/4 and 5/6), to address contamination in the residual source area, followed by the use of enhanced bioremediation to address contamination in the plume area.

High TCE concentrations in the residual source area would be addressed by *in-situ* chemical treatment (as described in Alternative 3/4). Alternative 7 utilizes ISCR, while Alternative 8 utilizes ISCO. Treatment chemicals would be applied in the residual source area using an *in-situ* soil mixing method. Prior to the soil mixing, steel sheet piles will be installed to an approximate depth of 40 feet bgs to support stability of soil in the mixing area. The uncontaminated upper soil, from zero to 10 feet bgs (approximately 9,000 cubic yards) would be excavated and stockpiled. Treatment chemicals (approximately 11,200 pounds of ZVI or 144,000 gallons of Modified Fenton's Reagent) would be mixed with contaminated soils using an excavator. Target depth zones for *in-situ* mixing of contaminated soils are from 10 to 20 feet bgs, with mixing as deep as 30 feet bgs in some limited areas. After the soil mixing is complete, the excavation area would be backfilled with the stockpiled soils.

Approximately five new monitoring wells would be installed to replace the existing wells abandoned and removed prior to the excavation and soil mixing activities.
Enhanced bioremediation would then be used to address the contamination in the plume area. The following description assumes that an edible oil substrate (EOS) would be used as the reducing agent for the treatment, though other means are used to augment biodegradation within the aquifer.

It is anticipated that the EOS would be injected at a total of approximately 150 locations based on a 20-foot grid injection pattern using direct-push technology.

Depending on the ability of intrinsic microorganisms to completely reduce Site contaminants, bioaugmentation (adding microorganisms to the aquifer) may also be used to stimulate complete reductive dechlorination of TCE's breakdown products (dichloroethylene and vinyl chloride) to ethane. The FFS assumed that one application of EOS would be required to address TCE concentrations in the plume area.

In Alternative 7 or Alternative 8, the groundwater will be monitored during treatment to prevent the migration of reagents or free radicals.

The FFS assumes that groundwater would be extracted from the collection trench only and treated on Site through existing treatment system for one year to avoid: 1) interference with the chemical treatment in the target treatment area, and 2) impact of chemical reducing agents to the existing C&T system. Treated groundwater would be discharged mostly to surface water, with a portion being discharged via groundwater. For the purpose of the FFS, quarterly groundwater monitoring was assumed to be conducted for the first year, followed by annual groundwater monitoring for the next nine years to monitor the remedial performance. Actual period of operation of the C&T system and groundwater monitoring schedule will be determined by EPA after completion of the remedial action and will be based on achieving the performance standards set during design.

Alternative 9: Full Area *In-Situ* Thermal Treatment

Capital Cost – $4,504,000
Annual O&M – $783,000
Total Cost – $6,400,000
Implementation Period – 2 years

Thermal Treatment is an *in-situ* physical treatment via subsurface heating to enhance the volatilization and subsequent capture and treatment of VOCs. Heating can be achieved via several options, including electrical-resistance heating (i.e., passing electricity through soil via electrodes), steam injection, and thermal conduction (via electrical heaters).

The FFS assumed electrical resistance heating (ERH) as the treatment method for this alternative. ERH is an *in-situ* thermal technology that passes electrical current among electrodes placed in the subsurface. Electrical resistance generates heat that eventually causes water in the subsurface to gently boil. Steam stripping, volatilization and other mechanisms, such as hydrolysis and increased chemical reaction rates, rapidly remediate subsurface contaminants. Approximately 200 electrodes would be installed to 30 feet bgs over the approximately 80,000 square feet of the Full Area. A total of 200 vapor recovery wells and 25 temperature monitoring points would also be installed. Operation of the existing groundwater C&T system was assumed to continue for one year, extracting groundwater from collection trench only, because the extraction wells PW-1 and PW-2 would need to be abandoned and removed prior to the installation activities for the thermal treatment system.

It is estimated that total heating treatment would be conducted over an eight to 10-month period and vapor and groundwater samples would be collected periodically to monitor system performance. For the purpose of the FFS, quarterly groundwater monitoring would be conducted for the first year, followed by annual groundwater monitoring for the next nine years to monitor the remedial performance. Actual period of operation of the C&T system and groundwater monitoring schedule will be determined by EPA after completion of the remedial action and will be based on achieving the performance standards set during design.

COMPARATIVE ANALYSIS OF ALTERNATIVES

In selecting a remedy, EPA considered the factors set out in CERCLA §121, 42 U.S C. §9621, by conducting a detailed analysis of the viable remedial response measures 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 response measure against each of nine evaluation criteria described below and a comparative analysis focusing upon the relative performance of each response measure against the criteria.

***Threshold Criteria** - The first two criteria are known as Athreshold 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 each alternative provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled, through treatment, engineering controls, and/or institutional controls

Alternative 1 (Continuation of the Existing C&T System) would not protect human health or the environment because it would not address the residual soil and groundwater contamination. All of the other alternatives would provide protection of human health and the environment by addressing the residual soil and groundwater contamination remaining at the site, coupled with engineering controls (including vapor mitigation, if needed, in the future), and institutional controls.

2. **Compliance with applicable or relevant and appropriate requirements (ARARs)** *Section 121(d) of CERCLA and NCP §300 430(f)(1)(ii)(B) require that remedial actions at CERCLA sites at least attain legally applicable or relevant and appropriate Federal and State requirements, standards, criteria, and limitations which are collectively referred to as "ARARs," unless such ARARs are waived under CERCLA section 121(d)(4)*

The three broad categories of ARARs include chemical-specific, location-specific and action-specific ARARs. ARARs have been established for groundwater as part of the OU1 remedial action objective to restore the unconfined aquifer to drinking water standards. A listing of these ARARs is provided in **Table 3**.

All of the remedial alternatives discussed for remediation of soil and groundwater contamination would meet their respective ARARs and are consistent with all applicable Federal, State, and local laws and regulations, in particular, the relevant parts of the New Jersey Technical Requirements for Site Remediation (N.J.A.C. 7:26E).

All of the remedial alternatives would meet the NJDEP soil cleanup standard for unrestricted use for TCE of 7 mg/kg. In addition, the active remedial alternatives are expected to achieve an Impact-to-Groundwater remediation goal of 1 mg/kg, which EPA has developed for TCE at similar sites using NJDEP's Impact to Groundwater Soil Screening guidance. While not an ARAR, this guidance is "To-Be-Considered" criteria.

RCRA land-disposal requirements would govern the disposition of excavated material designated for off-site disposal.

No other major ARARs considerations affect remedial decision-making. All the Alternatives would be completed in compliance with chemical-, action- and location-specific ARARs.

Primary Balancing Criteria *- The next five criteria, criteria 3 through 7, 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** *A similar degree of 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 will remain on-site following remediation and the adequacy and reliability of controls*

All of the remedial alternatives are capable of removing, reducing, and/or mitigating the Site contaminants. Alternatives 2 (Full Area Excavation with Off-Site Disposal) and 9 (Full Area *In-*

Situ Thermal Treatment) are considered to be the most effective over the long term because the technologies are more suitable for addressing contamination situated in the tight geological conditions present at the Site.

The tight geologic formation, which has limited the effectiveness of the current remedy to extract contaminants from the subsurface, is expected to cause problems for some of the *in-situ* treatment technologies (Alternatives 3/4 and 5/6) during injection of reagents and chemicals to the contamination zones. Alternative 7/8 (Residual Source Area *In-Situ* Chemical Treatment via Soil Mixing and plume area Enhanced Bioremediation) is more effective and reliable because high contaminant concentrations in the residual source area would be effectively reached and degraded by chemical reduction or chemical oxidation using soil mixing. Also, the enhanced bioremediation technology introduces chemical amendments into the areas to be treated that stay active for several months, and this extended contact time may overcome the low permeability of the soil formation; thus it may be more effective at addressing low concentrations in the plume area.

Alternative 5/6 (Residual Source Area Excavation with Off-Site Disposal and Plume Area *In-Situ* Chemical Treatment) is deemed to be the next most effective and permanent alternative over the long term. Soil excavation would effectively remove contaminants in the residual source area. However, *in-situ* chemical treatments tend to involve quick-acting chemicals (relative to the slower degradation processes involved in enhanced bioremedation), that do not stay active in the ground for more than a few days Small portions of the relatively low contaminant concentrations in the plume area may be untreated due to the tight formation that prevents quick contact with the treatment agents. Multiple treatments may be required to effectively treat these areas. Alternative 3/4 calls for the same *in-situ* chemical treatment, but throughout the whole treatment zone. It is expected, along with Alternative 1 (Continuation of the Existing C&T System) to have the most difficulty with effectiveness over the long term, due to untreated residues not reached by the remedial action and the difficulty of treating DNAPLs.

Alternative 1 (Continuation of the Existing C&T System) would be the least effective over the long term. Results from samples collected from monitoring wells and soil sampling locations indicate that the groundwater extraction system has not effectively extracted contaminant from the aquifer or reducing groundwater contamination.

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 3/4, 5/6, 7/8, and 9 satisfy CERCLA's preference for remedies that use treatment to reduce the contaminant mass.

Alternative 1 (Continuation of the Existing C&T System) has not demonstrated a capacity to reduce the toxicity, mobility or volume of the residual source areas within tight soil matrix at the Site.

Alternative 2 (Full Area Excavation with Off-Site Disposal) removes the residual source and contaminated material from the Site, and while some of the excavated material may require treatment before it can be land-disposed, it does not satisfy EPA's preference for remedies that use treatment as a principal element.

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

All of the proposed remedial alternatives except for Alternative 1 (Continuation of the Existing C&T System) are expected to reduce TCE contamination and achieve the RAOs within approximately five years, which is considered a relatively short duration. Alternative 2 will reduce TCE contamination in the shortest time, with the most certainty. Alternatives 3/4 and 9 are expected to reduce TCE contamination in a short amount of time (between one and two years). However, there is higher uncertainty that these technologies will be effective in this aquifer. Alternative 5/6 is expected to reduce contamination within three years. Alternative 7/8 is expected to reduce TCE contamination in about five years.

None of the remedial technologies pose insurmountable short-term risks. All the alternatives pose short-term health risks to workers that need to handle hazardous substances and work at a large-scale construction project, and these risks will need to be properly managed through worker health and safety programs. These programs are standard practice at all Superfund sites, as are health and safety measures to assure that no exposures to nearby properties occur during remedial actions.

Soil excavation in Alternatives 2, and 5/ 6 would also create the most additional truck traffic, a disruption for the nearby community. All the alternatives (with the exception of Alternative 1) will increase truck traffic, but Alternative 2 would generate more than twice the number of trucks on the road to the next nearest Alternative (Alternative 5/6, which also calls for extensive excavation and off-site disposal). EPA would need to work with the community to mitigate the traffic impacts as much as possible.

Although unlikely, Alternative 9 (Thermal Treatment) could potentially cause uncontrolled migration of contaminants vaporized by the thermal heating and not captured by the vapor extraction/recovery system. The installation and operations of the electrical system involved with the Thermal Treatment may also present significant physical hazards and would also require specific safety precautions and training.

Remedial technologies in Alternatives 3/4, 5/6 and 7/8 pose some minor short-term health risks to workers during the injection activities. Alternative 1 (Continuation of the Existing C&T System) poses the least short-term health risks to workers.

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 also considered

The materials, system components, skills and labors are readily available for all of the technologies and remedial alternatives proposed. Therefore, all alternatives are considered implementable. Alternative 9 (Full Area *In-Situ* Thermal Treatment) may be more difficult to implement due to the considerable system installation, startup and operations, including drilling, wells installation, and mechanical, electrical, and vapor extraction and treatment systems.

Alternative 2 (Full Area Excavation with Off-Site Disposal) would require a considerable amount of planning, heavy equipment, structural support (through steel sheet piles, etc.), staging areas, and overall coordination of the excavation activities to depths of 20 feet bgs, with 30 feet bgs in some limited areas. However, these deeper excavations require no specialized equipment and are typical in standard construction practice. Alternatives involving Enhanced Bioremediation, ISCR or ISCO (3/4, 5/6, and 7/8) would require a considerable number of injection locations, but all the injection points are on the property, and relatively shallow, so not difficult to implement. These *in-situ* response actions are also constrained by the ability to effectively deliver the treatment reagents to the subsurface soil and in addressing DNAPLs. For Alternative 7/8, which requires soil mixing, ISCO is considered more implementable than ISCR, as the exposure of ZVI to air during the mixing process would reduce its effectiveness.

7. **Cost**

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

Alternative 1 – Continuation of the Existing C&T System, has a comparable Total Present Worth to the highest cost Alternative 2 - Full Area Excavation with Off-Site Disposal ($10,000,000 to $13,600,000). Alternative 5/6 ($6,371,000-$6,383,000) – Residual Source Area Excavation with Off-Site Disposal and Plume Area *In-Situ* Chemical Treatment, has the next highest Total Present Worth, because it also relies on excavation and off-site disposal for part of the action. Alternative 3/4 ($2,800,000-$3,600,000) Alternative 7/8 ($4,600,000-$5,100,000) and

Alternative 9 ($6,400,000) rely primarily on *in-situ* treatment methods, with commensurate lower cost estimates.

***Modifying Criteria** - The final two evaluation 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 modify the preferred response measure or cause another response measure to be considered*

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8. **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 concurs with EPA's Selected Remedy.

9. **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 Site. The community was generally supportive of EPA's Proposed Plan for the ROD Amendment. Appendix III, The Responsiveness Summary, addresses the comments received at the public meeting and written comments received during the public comment period.

PRINCIPAL THREAT WASTE

Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained, or could present a significant risk to human health or the environment should exposure occur. The DNAPL source material constitutes a principal threat waste at the Site.

SELECTED REMEDY

Based upon consideration of the results of the recent PDI investigations at the Site, the requirements of CERCLA, the detailed analysis of the remedial alternatives and public comments, EPA has determined that Alternative 2 - Full Area Excavation with Off-Site Disposal complemented with *in-situ* treatment is the appropriate remedy for addressing the contaminated soil and groundwater at the Site. As explained below, EPA is incorporating as part of the selected remedy the option to implement an *in-situ* technology on a portion of the Site. Excavation will be the primary remedial action; however, *in-situ* treatment will be used to complement excavation where appropriate (to be determined during the remedial design).

This remedy best satisfies the requirements of CERCLA Section 121 and the NCP's nine evaluation criteria for remedial alternatives, 40 CFR §300.430 (e) (9). This remedy includes the following components:

- Excavation and off-site disposal of TCE contamination in the residual source area, and contaminated soil in the plume area;
- Implementation of *in-situ* treatment, where appropriate, to complement excavation;
- Continued operation of the existing C&T system for a period of time (estimated to be one year) to evaluate the effectiveness of continued operation of the system to reduce residual groundwater contamination;
- Monitoring of groundwater; and
- Continuation of institutional controls to prevent exposure to contaminated groundwater until remediation goals are achieved.

Within these designated areas the soil remediation goal for TCE will be 1 mg/kg, which is expected to achieve the 1 µg/L remediation goal in groundwater.

The effectiveness of the remedy will be assessed by periodic groundwater sampling and analysis Quarterly sampling is proposed initially; however, the monitoring frequency will be modified based upon the data obtained during the first year after completion of the remedial action. EPA may change to annual groundwater monitoring for the next nine years to monitor the remedial performance, if supported by data. The actual period of operation of the C&T system and groundwater monitoring schedule will be determined by EPA after completion of the remedial action and will be based on achieving the performance standards set during design.

Institutional controls, including a CEA, will also be implemented to prevent exposure to contaminated groundwater until the cleanup standards have been achieved for all COCs.

This remedy is estimated to take less than 10 years to achieve the cleanup standards. Therefore, as per EPA policy, five-year reviews will be performed until remedial goals are achieved.

The remedy was selected over other remedies because it is expected to achieve substantial and long-term risk reduction through treatment in the most efficient and timely manner.

Consistent with EPA Region 2's Clean and Green policy, EPA will evaluate the use of sustainable technologies and practices with respect to implementation of the selected remedy.

<u>Use of *In-Situ* Treatment</u>
After hearing from the community and other interested stakeholders, EPA reconsidered the approach of relying on a single technology that is the most costly and results in the most truck traffic on local roads. The cost drivers for Alternative 2 are the expense of off-site transportation

and disposal and the need to dewater, and keep dry, the deep excavation areas prior to commencing work. Using an *in-situ* technology for even a small portion of the contaminated soil would reduce soil volumes for off-site transportation and disposal and decrease the volume of groundwater that needs to be extracted and treated.

EPA has included the option of combining of *in-situ* treatment with the selected Alternative 2, (excavation and off-site disposal) if, during the remedial design, it can be determined that *in-situ* treatment can be demonstrated to be equally effective for limited areas of the Site, while providing cost savings and lessening truck traffic on local roads. *In-situ* chemical oxidation (ISCO) appears to be the best fit for this application, though this preference does not exclude the consideration of other technologies. The Agency considers components of Alternative 7/8, which uses *in-situ* chemical treatment with mixing, to have the highest potential to complement Alternative 2. For example, a combined approach could excavate the majority of the wastes, but then mix in treatment chemicals to address TCE at the extremities of the excavation. This may achieve a cost savings and reduced truck traffic while achieving the same outcome. *In-situ* chemical treatment is expected to be less effective in treating clay lenses, and more effective for sandy zones of the subsurface; thus for this combined approach to be effective, EPA expects that clay lenses, which have been the primary impediment to the effective implementation of the original C&T remedy, to be excavated, but that more permeable sectors of the aquifer may be effectively treated with *in-situ* treatment via mixing.

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 will adequately protect human health and the environment through excavation or *in-situ* treatment of the residual source area and the plume area, and continued operation of the C&T system. This process will reduce TCE concentrations in groundwater to levels that meet the NJGWQS. Institutional controls that have been implemented will continue to prevent exposure to contaminated groundwater by restricting its use until the cleanup goals are achieved for all COCs. Implementation of the Selected Remedy will not pose unacceptable short-term risks or adverse cross-media impacts.

Compliance with ARARs

The Selected Remedy is compliant with all ARARs. With respect to the primary contaminant of concern, TCE, the New Jersey drinking water and groundwater quality standard of 1 µg/L has not changed since the 1992 ROD.

The National Historic Preservation Act requires federal agencies to examine the potential impacts of their actions to these places. As part of the RI/FS activities, a Stage IA Cultural Resources Survey was conducted, focusing on a three acre portion of the Site that would be disturbed by the implementation of a planned remedial action, to identify whether any cultural resources on, or eligible for inclusion on, the National Register of Historic Places. The survey concluded that relatively undisturbed areas within 300 feet of the wetlands have a high potential for the presence of prehistoric archaeological resources; areas between 300 and 1,000 feet from the wetlands have a moderate potential for prehistoric archaeological resources, and recommended that a Stage 1B survey be conducted, consisting of test pits and shovel tests, for any such area that could be impacted by implementation of the remedy.

In 1996, a Stage IB Cultural Resources Survey was completed for the three-acre project impact area, consisting of four one square meter test unit, and six shovel test pits. All tests came up negative for prehistoric artifacts, and no archeological sites were discovered. The Stage IB survey concluded that the proposed remedy would have no effect on potentially significant archeological resources; therefore, no additional cultural resource investigations were recommended.

EPA has reviewed the potential impact area of remedial action against the areas that were surveyed in the 1996 Stage IB Cultural Resources Survey. The review indicates that the project impact area of the planned remedial activities is substantially the same as for the previous remedial activities. Accordingly, EPA concluded that the determination noted in the 1996 Stage IB remains valid, and no additional archeological investigations will be needed for the project impact area as currently proposed and delineated. Should project plans change, and the project impact area expand or encompass areas beyond what is currently delineated, a revised determination would be necessary.

The ARARs for the Selected Remedy are summarized in **Table 3**.

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 net worth cost of the Selected Remedy is expected to be $13,600,000. Cost savings is expected to be achieved through the use of *in-situ* treatment, which is cheaper to implement than excavation.

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 practicable manner at the Site. EPA has determined that the Selected Remedy provides the better 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 primary COCs, TCE, by excavation or *in-situ* treatment. The Selected Remedy, coupled with ongoing natural attenuation processes, is expected to meet cleanup standards for all COCs in the contaminated shallow aquifer.

There are no significant short-term risks associated with the implementation of the remedy. However, with respect to exposure to contaminated groundwater, institutional controls will assure short-term protectiveness by preventing or minimizing potential current and future human exposures to the contaminated groundwater until the groundwater cleanup standards are achieved.

The Selected Remedy is implementable since it employs standard technologies that are readily available.

Preference for Treatment as a Principal Element

By a combination of excavation and *in-situ* treatment, the Selected Remedy meets, to the extent practicable, the statutory preference for the use of remedies that employ treatment that reduces toxicity, mobility or volume as a principal element to address the principal threats at the Site.

Five-Year Review Requirements

Because the remedy will not result in hazardous substances, pollutants, or contaminants remaining above levels that allow for unlimited use and unrestricted exposure in groundwater, EPA anticipates that a five-year review will not be required for the soil and groundwater remedy However, because it may take more than five years to attain remedial action objectives and cleanup levels for the groundwater at the Site, policy reviews will be conducted until the remediation goals are achieved to ensure that the groundwater remedy is, or will be, protective of human health and the environment.

DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for this ROD Amendment for the Site was released for public comment on July 11, 2013. The comment period closed on August 12, 2013. All verbal and written comments submitted during the public comment period were reviewed by EPA. Upon review of the comments, EPA concluded that selecting a combined remedy of excavation and off-site disposal (as the primary remedial approach) with an *in-situ* treatment technology (as a secondary, polishing step for limited areas of the Site) provided an opportunity to be responsive to these comments. No other significant changes to the remedy, as was originally identified in the Proposed Plan, were necessary.

APPENDIX I - FIGURES

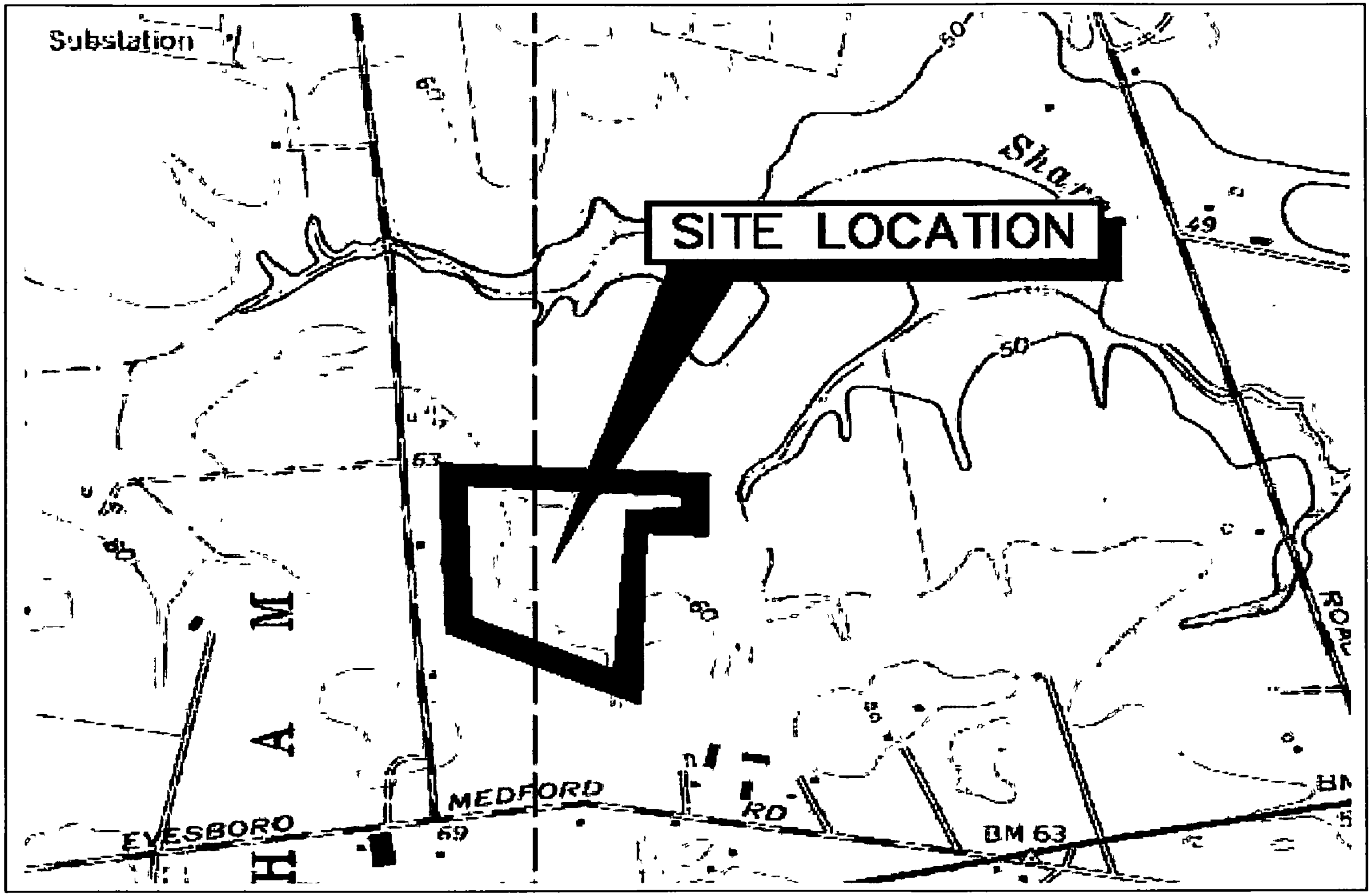

Substation
SITE LOCATION
MEDFORD
RD
EVESBORO
BM 63
H A M
50
49
63
69
ROAD

FIGURE 1

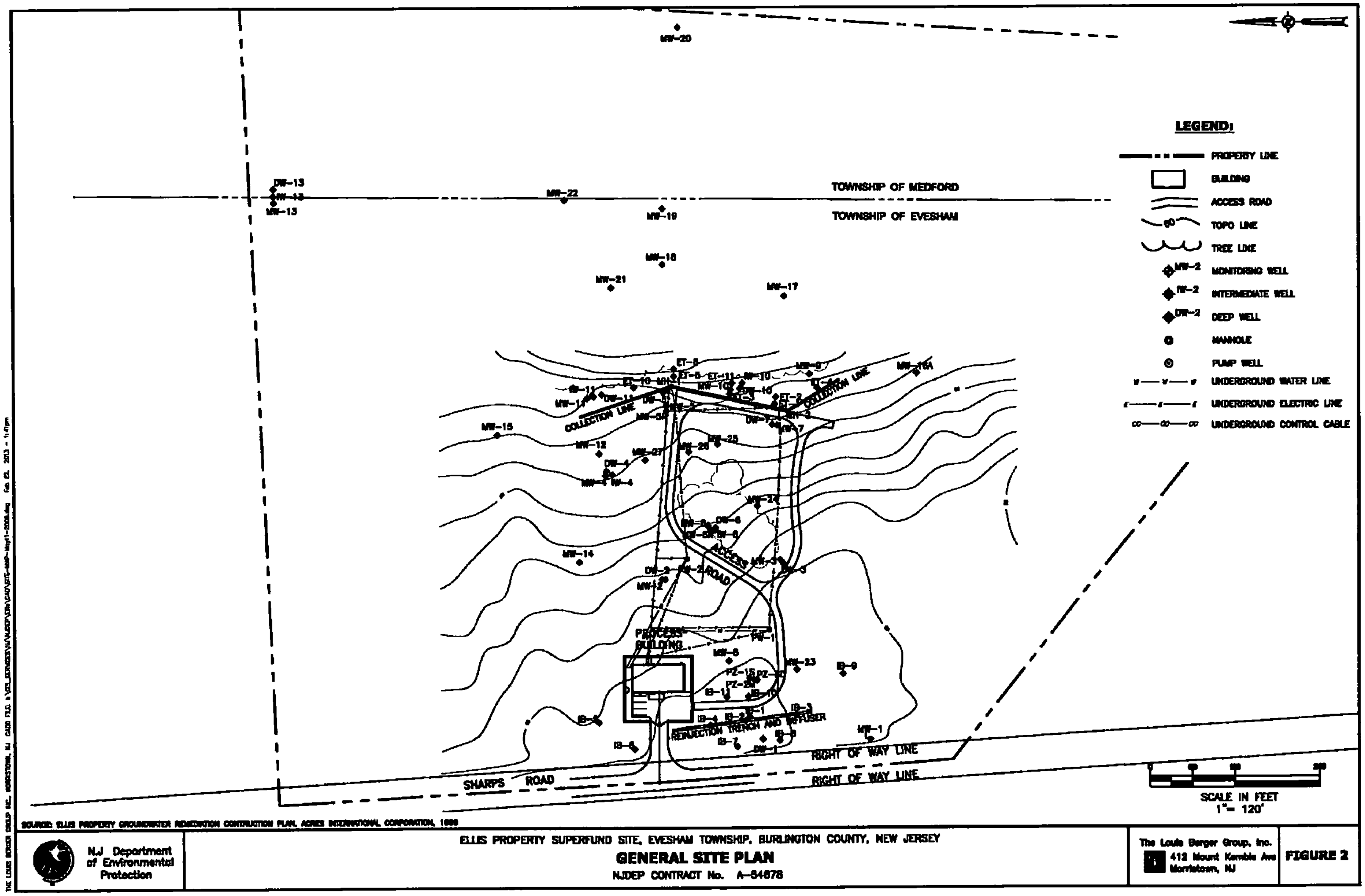


FIGURE 2 - Monitoring Well Locations

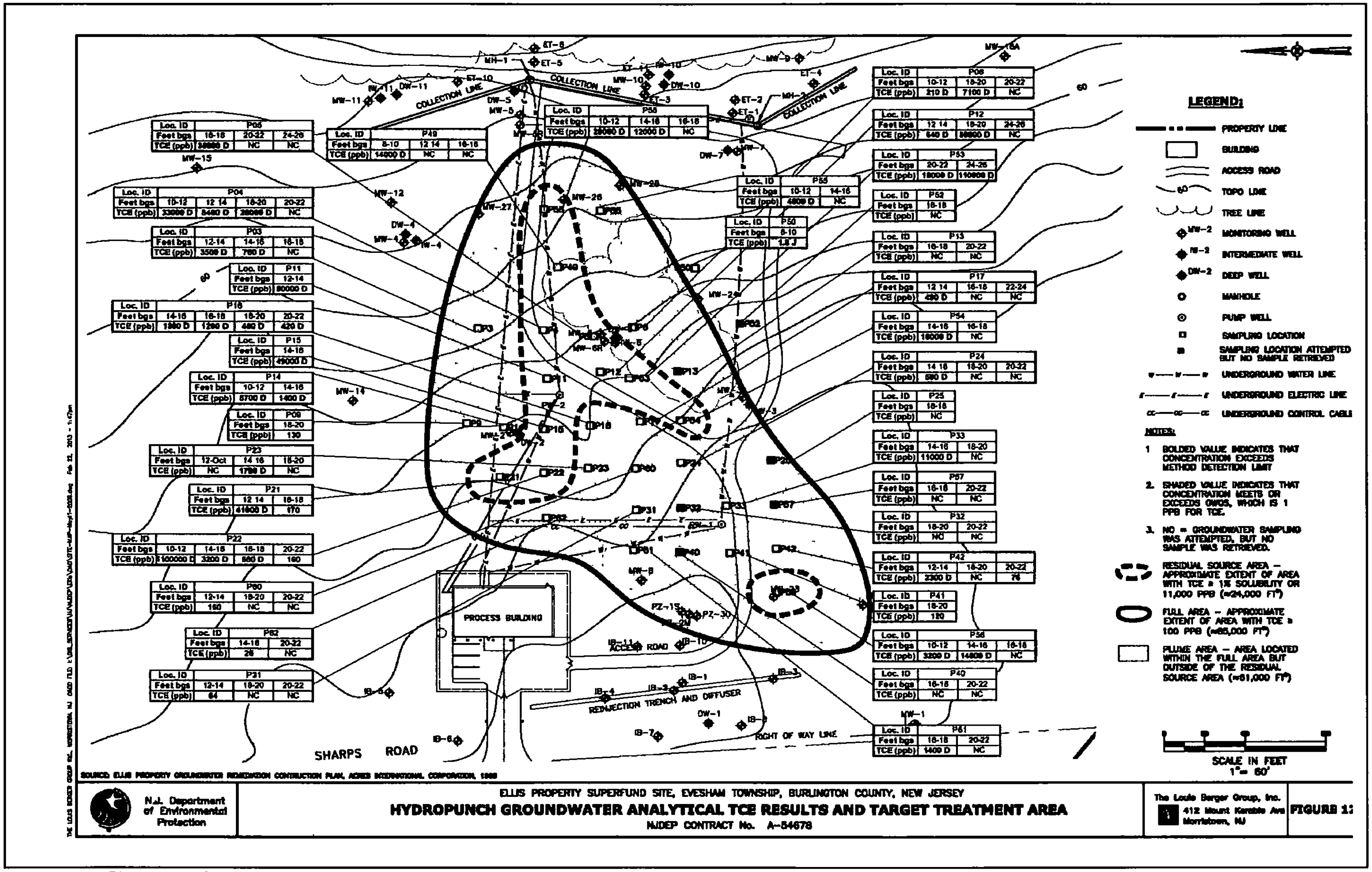


FIGURE 3 – Residual Source Area and Plume Area

R2-0004224

APPENDIX II - TABLES

Table 1 - Groundwater Monitoring Well Data (Results in µg/L)
Samples Taken 4/24/2013

	GWQS	MW-2	MW-3	MW-5R	MW-6R	MW-7	MW-8	MW-9
1,1-Dıchloroethene	2 0	ND	ND	ND	0 6	ND	ND	ND
C-1,2-Dıchloroethene	70 0	ND	ND	0 4	5 3	323 8	ND	ND
Tnchloroethene	1 0	3,307 0	ND	10 4	517 2	3 2	0 2	ND
Tetrachloroethene	1 0	ND	ND	ND	0 3	4 4	ND	ND
T-1,2-Dıchloroethene	100 0	ND	ND	ND	ND	3 0	ND	ND
Vınyl chlorıde	1 0	ND	ND	ND	ND	6 3	ND	ND

	GWQS	MW-18	MW-19	MW-20	MW-23	MW-24	MW-25	MW-26
1,1-Dıchloroethene	2 0	ND	ND	ND	ND	ND	ND	ND
C-1,2-Dıchloroethene	70 0	74 6	0 6	ND	ND	0 2	3 1	35 9
Tnchloroethene	1 0	19 7	0 8	ND	1,351 7	5 8	250 8	21,246 9
Tetrachloroethene	1 0	ND	ND	ND	ND	ND	ND	ND
T-1,2-Dıchloroethene	100 0	ND	ND	ND	ND	ND	ND	ND
Vınyl chlonde	1 0	0 7	ND	ND	ND	ND	ND	ND

	GWQS	MW-27	PW-1	PW-2	DW-2	DW-6	MH-2	MH-1R
1,1-Dıchloroethene	2 0	ND	ND	ND	ND	ND	0 6	1 5
C-1,2-Dıchloroethene	70 0	ND	256 4	ND	ND	ND	169 6	379 8
Tnchloroethene	1 0	1 1	31,286 3	47,195 5	ND	ND	690 2	1,916 5
Tetrachloroethene	1 0	ND	ND	ND	ND	ND	51 7	0 6
T-1,2-Dıchloroethene	100 0	ND	ND	ND	ND	ND	0 5	0 9
Vınyl chlonde	1 0	ND	ND	ND	ND	ND	0 8	7 0

Table 1 - Groundwater Monitoring Well Data (Results in µg/L)
Samples Taken 11/4/2011

	GWQS	MW-2	MW-3	MW-5R	MW-6R	MW-7	MW-8	MW-9
1,1-Dichloroethene	2 0	ND	ND	ND	ND	0 49	ND	ND
C-1,2-Dichloroethene	70 0	ND	ND	0 57	6 2	490	ND	ND
Trichloroethene	1 0	6200	ND	23	780	7 2	0 39	ND
Tetrachloroethene	1 0	ND	ND	ND	ND	12	ND	ND
T-1,2-Dichloroethene	100 0	ND	ND	ND	ND	2 7	ND	ND
Vinyl chloride	1 0	ND	ND	ND	ND	ND	ND	ND

	GWQS	MW-18	MW-19	MW-20	MW-23	MW-24	MW-25	MW-26
1,1-Dichloroethene	2 0	0 66	ND	ND	ND	ND	0 64	ND
C-1,2-Dichloroethene	70 0	240	1 6	ND	ND	ND	1 9	31
Trichloroethene	1 0	31	1 1	ND	5400	5 2	180	14,000
Tetrachloroethene	1 0	ND	ND	ND	ND	ND	ND	ND
T-1,2-Dichloroethene	100 0	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	1 0	3	ND	ND	ND	ND	ND	ND

	GWQS	MW-27	ET-2	ET-6	ET-10	ET-11	PW-1	PW-2	DW-2
1,1-Dichloroethene	2 0	ND	0 28	0 98	ND	ND	ND	ND	ND
C-1,2-Dichloroethene	70 0	ND	3	310	0 48	ND	63	30	ND
Trichloroethene	1 0	2 2	7	4 6	0 5	0 5	18,000	46,000	ND
Tetrachloroethene	1 0	ND	43	ND	ND	12	ND	ND	ND
T-1,2-Dichloroethene	100 0	ND	ND	4 4	ND	ND	ND	ND	ND
Vinyl chloride	1 0	ND	ND	3 8	ND	ND	ND	ND	ND

	GWQS	DW-6	MH-1	MH-2
C-1,2-Dichloroethene	2 0	ND	ND	ND
Trichloroethene	70 0	ND	21	500
Tetrachloroethene	1 0	ND	85	1200
	1 0	ND	ND	20
T-1,2-Dichloroethene	100 0	ND	ND	ND
Vinyl chloride	1 0	ND	0 3	ND

Table 2-Comparison of Groundwater Standards at Time of 1992 ROD vs. Current Standards		
Contaminant of Concern (in µg/L)	**Groundwater Cleanup Goal at Time of 1992 ROD**	**Current New Jersey Groundwater Standard**
Antimony	20	6
Arsenic	8	3
Beryllium	20	1
Bis(2-ethylhexyl)phthalate	30	3
1,2-dichloroethylene	2	1
Methylene chloride		3
Nickel		100
Tetrachloroethylene (PCE)	1	0.4
Trichloroethylene (TCE)	1	1
1,1,2-trichloroethane	5	3
Vinyl chloride		0 08
Total chromium	100	70
Lead (total)	100	5
Zinc	5,000	2,000

Table 3 – List of Applicable or Relevant and Appropriate Requirements (ARARs)

Chemical Specific ARARs

Federal

- Clean Water Act, Water Quality Criteria
- RCRA Ground Water Protection Standards (40 CFR Part 264.94)
- Federal Water Quality Criteria (51 Federal Register 436665)
- Federal MCLs

State

- New Jersey Ground Water Quality Standards (NJGWQS) (NJAC7:9-6)
- New Jersey MCLs

Action Specific ARARs

Federal

- RCRA Groundwater Monitoring and Protection Standards (40 CFR 264, Subpart F)
- EPA Action Level for Lead in Drinking Water

State

- New Jersey Pollutant Discharge Elimination System Regulations (NJPDES) and Effluent Limitations (NJAC 7:14A et seq.)
- New Jersey Well Construction and Maintenance; Sealing of Abandon Wells N.J.A.C. 7:9D

Location Specific ARARs

Federal

- Fish and Wildlife Coordination Act (16 USC 661 et seq.)
- National Environmental Policy Act (42 USC 4341 et seq.)
- Endangered Species Act
- Coastal Zone Management Act
- Farmland Protection Policy Act

State

- New Jersey Rules on Coastal Resources and Development (7:7E-1.1 et seq.)
- New Jersey Freshwater Wetlands Regulation

APPENDIX III – RESPONSIVENESS SUMMARY

APPENDIX III

RESPONSIVENESS SUMMARY

Ellis Property Superfund Site

INTRODUCTION

This Responsiveness Summary provides a summary of the public's comments and concerns regarding the Proposed Plan for the Ellis Property Superfund Site, and EPA's responses to those comments. All comments summarized in this document have been considered in EPA's final decision for the selection of the remedy 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 community involvement and concerns regarding the Site.

II. COMPREHENSIVE SUMMARY OF MAJOR QUESTIONS, COMMENTS, CONCERNS AND RESPONSES - This section includes summaries of oral comments received by EPA at the July 24, 2013 public meeting, EPA's responses to these comments, as well as responses to written comments received during the public comment period.

The Responsiveness Summary includes attachments which document public participation in the remedy selection process for the Site. The attachments are as follows:

- Attachment A – July 2013 Proposed Plan for the Site;
- Attachment B – Public Notice published in the *Central Record*;
- Attachment C – July 24, 2013 Public Meeting Attendance Sheet; and
- Attachment D – Transcript of the July 24, 2013 Public Meeting.

BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS

Prior to the selection of the original Site remedy in 1992 through the implementation of the remedy, community interest in the Site was high. A local environmental group, the

Ellis Site Task Force, met regularly with NJDEP and EPA about the Site. After the remedy implementation was complete, NJDEP, the lead agency for the OU1 remedy, has had few inquiries from the community

EPA's Proposed Plan for the OU1 groundwater remedial action was released to the public on July 11, 2013. A copy of the Proposed Plan, Focused Feasibility Study for Groundwater Remediation (FFS) and other documents that comprise the administrative record file were made available to the public in the information repository located at the Evesham Library as well as the EPA Region 2 Record Center. A public notice was published in the *Central Record*, a Burlington County newspaper, on July 11, 2013, advising the public of the availability of the Proposed Plan. This notice also announced the opening of a 30-day public comment period, from July 11 to August 12, 2013, and invited the interested parties to attend an upcoming public meeting. This public meeting, during which EPA presented the preferred alternative for the OU1 groundwater remedy, answered questions regarding the Site, and accepted oral comments regarding the Proposed Plan, was held on July 24, 2013, at the Evesham Township Municipal Courtroom located at 984 Tuckerton Road, Marlton, New Jersey.

I. COMPREHENSIVE SUMMARY OF MAJOR QUESTIONS, COMMENTS, CONCERNS AND RESPONSES

Part 1 - Oral Comments. The following is a summary of comments received during the July 11, 2013 public meeting.

1.1: A commenter asked what is the time line from the beginning of this project until the completion for the removal of the contaminated soils?

> **EPA Response:** After the remedy is selected, EPA expects to hire an environmental consultant to prepare the remedial design, in addition to other plans associated with the cleanup. The design phase typically takes 12 to 18 months, pending the availability of funding. Because there are no potentially responsible parties at this Site that can fund the cleanup, EPA will seek funding through its regular budgeting process, which is subject to Congressional approval. The remedial action will require a separate funding approval process. Once funded, EPA estimates that the active cleanup would take approximately 12 months to complete

1.2: A commenter asked if EPA had looked at the Sharp Road access for equipment. There is concern for the safety and the integrity of Sharp Road, as to whether it can meet the demands of an increase in traffic carrying heavy loads due to implementation of the proposed remedy.

EPA Response: As a small change from the Proposed Plan, EPA has selected excavation and off-site disposal as the primary action for the Site, but includes *in-situ* treatment for some component of the contaminated soil. This offers the potential to reduce the amount of soil to be trucked off Site for disposal. As part of the remedial design, a transportation plan will be prepared that will evaluate the current infrastructure to ensure that it can support remedial activities. During the remedial design, EPA will evaluate using smaller trucks to reduce the load on Sharp Road, and how that would increase the number of trucks, the cost and time to implement the remedy.

1.3: A community member noted that there are not any extraction wells on the west side of Sharp Road, and asked if the contamination plume extended that far.

EPA Response: There are no monitoring wells on the west side of Sharp Road because the contamination does not extend beyond Sharp Road. The direction of groundwater flow is to the east, away from Sharp Road.

1.4: A community member asked how many trucks would be required to transport 67,500 cubic yards of contaminated soil.

EPA Response: Dump trucks come in a variety of hauling capacities. A typical dump truck has a 10 cubic yard capacity (about 15 tons), and a large haul truck, typically used for this type of project, can carry as much as 20 tons. At the public meeting, EPA approximated 5,000 truck loads would be required to remove the contaminated soil to implement the Preferred Alternative (Alternative 2, Full Area Excavation with Off-site Disposal). Because EPA's selected remedy will include *in-situ* treatment as a complement to excavation, fewer truck loads of soil will be required for disposal. The number of truck loads of soil will be estimated during design, when the soil volume to be excavated is refined.

1.5: A commenter representing a treatment technology vendor indicated that Alternative 9 (Full Area *In-Situ* Thermal Treatment) in the Proposed Plan has some significant advantages--primarily in reduced truck loads and reduced expense, and argued that this technology has been used extensively in New Jersey.

EPA Response: After reviewing comments on the Proposed Plan, EPA remains unconvinced that thermal treatment alone is likely to be a successful treatment technology for this Site. EPA has selected a remedy that relies primarily on excavation, but allows for the option of *in-situ* treatment that may reduce the cost and truck congestion in the community. During the remedial design, several *in-situ* treatment technologies, including thermal treatment and chemical oxidation will be evaluated further.

1.6: The same commenter stated that the Proposed Plan was incorrect in stating that *in-situ* thermal treatment may have difficulty treating nonaqueous phase liquids (DNAPLs). The commenter stated that DNAPLs are easier for this technology to treat than aqueous-phase contaminants.

EPA Response: While *in-situ* thermal treatment can be effective in treating DNAPLs, EPA did not consider it to be appropriate at this Site because of the complex heterogeneity of the subsurface and uncertainties associated with the specific groundwater flow channels. Field evidence indicates that there is a wide range in sensitivity to groundwater flow rates at the Site. In some areas, groundwater flow can remove heat faster than it is added, which reduces the efficiency and effectiveness of this technology.

1.7: A nearby resident stated a concern with airborne contaminants during the excavation. What would EPA do to control the dust?

EPA Response: Routine operating procedures will be established to minimize dust generation during the cleanup. In addition, air monitoring will be implemented at the perimeter of the work zone or site, wherever is deemed to be most appropriate. Work will be halted temporarily if dust measurements exceed acceptable levels. Trucks will be covered and hosed down before they leave the Site to minimize dust and dirt on the road.

1.8: As a follow up question, a commenter said that putting air quality monitors in the field will get information after the fact, not before. The community will already have been contaminated before elevated dust levels have been identified.

EPA Response: Monitoring devices will be used that provide real-time or "instantaneous readings, so mitigative measures can be taken quickly.

1.9: There is a current concern for trespassing children and their safety since the entire site is not fenced. There are inadequate signs warning people if they approach the site from a direction other than Sharp Road.

EPA Response: The fence is currently in place around the treatment plant to protect it from vandalism and prevent exposure to trespassers to chemicals inside the plant. The entrance to the treatment plant on Sharp Road is clearly posted, advising the name of the Site and appropriate telephone numbers to learn more information. The rest of the Site is not fenced because the contamination is not at the surface—it is located 10 to 30 feet below ground surface. As a result, there is not an unacceptable risk to exposure for trespassers onto the property.

1.10: Will the remedy pose a concern for children who might trespass?

EPA Response: Yes. EPA will need to establish security measures and limit access during the implementation of the remedy, because of the equipment and physical hazards while excavating hazardous material. Among other measures, EPA expects to install a fence around the work area.

1.11: A commenter asked if the groundwater is moving towards the wetlands. Have wetlands been tested? Is the water moving from the wetlands?

EPA Response: The shallow groundwater flows towards the wetlands. NJDEP installed a series of monitoring wells that extend into the wetland area. Some of those wells have historically shown elevated concentrations of contaminants. Recent sampling data indicate those levels have diminished. Drainage from the wetland area discharges into Sharps Run, an intermittent or seasonal stream.

1.12: Why does the existing system not remediate TCE?

EPA Response: The existing system was designed to keep the groundwater plume from migrating by intercepting the contaminated groundwater and piping it to the treatment plant. Because TCE does not easily dissolve from the clay lenses in the soil, the clay will remain a perpetual source of contamination and it would take an indefinite number of years to reach the remediation goals, if ever

1.13: How will EPA address dewatering, as it is expected that water will be encountered at four or five feet below ground surface, and down to 30 feet?

EPA Response: The FS evaluated this issue, and the cost of dewatering is included in the cost estimate for the selected remedy. EPA expects to install a cutoff wall around the Full Area and pump out the water within and treat it. This will allow the soils to be excavated "in the dry."

1.14: Why was the current treatment system designed to operate at seven gallons per minute?

> **EPA Response:** The system was originally designed to treat more than twice that volume of water. However, the rate at which groundwater can be extracted in the area is limited by the permeability of the subsurface soils.

1.15: During the excavation, EPA will encounter "marl," a local subsurface soil that is very difficult to handle.

> **EPA Response:** EPA expects to encounter the organic deposit called marl or marlstone at the Site. Based upon EPA's experience at other sites, difficulties in addressing marl are not expected. Appropriate measures to address the marl will be explored during the remedial design.

1.16: Will NJDEP or EPA be the lead?

> **EPA Response:** EPA will be the lead agency for future Site activities.

1.17: Has testing been done on the deeper aquifers? Are there any plans to do additional testing of the deeper aquifer?

> **EPA Response:** Yes, NJDEP has tested the deeper aquifer. Groundwater monitoring well sampling is performed regularly. The last sampling was performed in April of this year and it included two of the deep wells. No contamination was found. The deep monitoring wells will continue to be sampled regularly.

1.18: A community member asked about backfill. Will the fill be tested before it is transported on the Site?

> **EPA Response:** Yes.

1.19: A commenter was concerned that many citizens did not receive notice of the meeting and were not aware of the public meeting.

> **EPA Response:** EPA notified the public through the news media, information on EPA's webpage, and direct mailing of 920 postcards for those on the mailing list for the Ellis Site. EPA issued a press release about the Proposed Plan and public meeting. The *Burlington County Times*, the *Central Record*, and the *Courier*

Post published articles as a result of this press release. EPA also posted the information on our webpage and the Evesham Township did so as well..

1.20: How will the public receive notification that the ROD has been published?

EPA Response: The Record of Decision will be placed on the EPA web page for Ellis Property (http:// www.epa.gov/region2/superfund/npl/ellis/) once it is signed and issued. EPA will issue a press release and also notify the township. In addition, postcards will be mailed to all parties.

1.21: If approximately 5,000 trucks are transporting contaminated soil from the Site, will the same number be required to deliver clean fill?

EPA Response: Yes, the volume of soil that is excavated needs to get filled with an equal volume of clean fill.

1.22: Does the time for implementation include this backfilling?

EPA Response: Yes, once construction begins, it is estimated to take a year to complete remedial activities.

1.23: The final sentence of page four of the Proposed Plan states that the significant level of TCE in the groundwater indicates the existence of a DNAPL source but "such source has not yet been found." Does that indicate that there is something on the site that's producing additional toxicity that hasn't been identified?

EPA Response: High levels of TCE have been detected in groundwater. From EPA's experience, these elevated levels indicate that a pool of TCE product (which is a DNAPL) is nearby, although EPA does not have direct evidence of its presence.

1.24: Are there additional hot spots on the Site that haven't been identified?

EPA Response: EPA believes that the extent of the TCE contamination has been defined and that there are no additional hot spots.

1.25: Is there a possibility that volume of contaminated soil could expand, or is the estimated quantity considered to be the upper limit?

EPA Response: There is always a degree of uncertainty associated with estimating soil volumes. EPA believes that the amount of soil needing to be trucked off Site will be reduced through the application of *in-situ* treatment. Estimates of the volume of soil that will be excavated will be refined during the design phase. The 67,500 figure may change if different conditions are encountered in the field. There is a possibility that the figure can increase.

1.26: A commenter asked, of the nine alternatives considered, why is Alternative 2 the only one that mentions protecting the excavation from collapse?

EPA Response: Alternatives 5/6 involve excavation of the Residual Source Area only, and would entail the installation of a cutoff wall. Alternative 2 is the largest excavation remedy, and poses the most challenges with subsidence during excavation.

1.27: A commenter asked about EPA's criterion for success of the remedy.

EPA Response. The goal of this action is to clean up the groundwater to drinking water standards. The Decision Summary details the Agency's measure of success, namely, achieving the Groundwater Quality Standards and the Maximum Contaminants Levels of the Safe Drinking Water Act. Note that the remediation goals that were established in the 1992 ROD have not changed.

1.28: Outside of that area, is EPA fairly confident drinking water standards are met everywhere else on that site?

EPA Response: Outside of Residual Source Area and the Plume Area, contaminant levels are slightly elevated in specific wells. By removing the TCE source, EPA expects that the levels will drop quickly. Groundwater will reach drinking water standards fairly quickly

1.29: Is the Community of Legacy Oaks (west of Sharp Road) included in this project?

EPA Response: No.

1.30: Will the remedy include installation or reinstallation of monitoring wells that may be damaged or destroyed during the remedial action, so that groundwater contaminants can be monitored?

EPA Response: Yes.

1.31: Will information and updates be made available to the public and the township?

> **EPA Response:** Yes. EPA will send periodic updates to people on its mailing list, and also inform the Township. EPA will hold public information sessions as the project progresses.

1.32: A representative of a company noted that its property was immediately south of the Site. The prevailing winds generally go from north to south towards this property. The company has several employees working outdoors with trucks and trailers and equipment, *etc* , and the air-handling equipment for the office buildings draw ambient air that could be contaminated by the Site. The company also owns an adjacent vacant lot, and its property value could be diminished by the Site. The company, therefore, has a strong interest in this particular street. In addition, the business operates a high volume of truck traffic on Sharp Road. The commenter asked for assurance that no issues would arise between the remedy and this ongoing business.

> **EPA Response:** EPA will take precautions to minimize the generation of dust and will have perimeter air monitoring to protect the community from exposure to airborne contaminants during cleanup. Because of community concerns regarding dust and truck traffic, EPA selected excavation of the Full Area along with *in-situ* treatment as a polishing step. The selected remedy is expected to reduce the volume of soil that will be excavated and reduce the number of trucks. EPA.

Part 2: Written Comments

<u>Comments from technical representative of a treatment technology vendor</u>

2.1.1: According to the Proposed Plan, the remedial alternatives considered included "Alternative 9, Full Area *In-Situ* Thermal Treatment." *In-Situ* Thermal Treatment (ISTT) is typically applied as a source area remediation technology, and much less often in plume areas. Therefore it would have been more appropriate to have also considered ISTT for the Residual Source Area, coupled with another technology such as *In-Situ* Bioremediation for the Plume Area, as was the case with Alternatives 5/6 and 7/8. This would have led to a lower-cost remedy, while still achieving remedial goals.

> **EPA Response:** Noted. Yes, that is another way that the FFS could have evaluated the technologies.

2.1.2: Under Alternative 9, Full Area In-Situ Thermal Treatment, it is stated that "The FFS assumed electrical resistance heating (ERH) as the treatment method for this alternative." Based on the information provided in the Proposed Plan and the ROD, Thermal Conductive Heating (TCH) should also have been considered given the subsurface conditions, constituents of concern, and remedial goals. Several U.S. government guidance documents have evaluated each of the ISTT technologies, and ERH and TCH are both deemed appropriate for a site such as this one. TCH has been selected numerous sites where TCE is present in moderate and low permeability soil above and below the water table, such as at the Solvent Recovery Service of New England (SRSNE) Superfund Site in Southington, Connecticut, the Dunn Field/Memphis Depot NPL Site in Memphis, Tennessee, and the Prologis Brownfields site in Teterboro, New Jersey.

> **EPA Response:** The FFS considered ERH, steam injection, and TCH as appropriate thermal treatment technologies. For the purpose of evaluating cost and comparison to other alternatives, ERH was chosen.

2.1.3: The plan states that the selected alternative, "Alternative 2 (Full Area Excavation with Off-Site Disposal) removes the residual source and contaminated material from the site, and while some of the excavated material may require treatment before it can be land-disposed, therefore it satisfies EPA's preference for remedies that use treatment as a principal element." To the degree that some of the excavated material would not require treatment prior to land disposal, treatment would not be a principal element; thus, this key contention justifying selection of Alternative 2 is invalid.

> **EPA Response:** EPA had selected Alternative 2 as the preferred remedy as per its evaluation of all nine criteria. Treatment of material is not the only justification for the preference of Alternative 2. EPA has selected excavation of the Full Area and *in-situ* treatment as a polishing step as the remedy for the Site. The bulk of the TCE contamination will be excavated and disposed of at an off-site hazardous waste landfill. *In-situ* treatment will be used to treat TCE contamination where appropriate. During the design phase, EPA will evaluate *in-situ* technologies, including ERH, TCH, steam injection, chemical reduction, chemical oxidation, and bioremediation. The evaluation will consider cost, minimizing the number of trucks, and protection of human health.

2.1.4: By contrast, Alternative 9, ISTT does provide treatment, and of all the considered remedial alternatives, ISTT holds the best prospect for achieving the remedial goals with a high confidence and within a short time frame.

EPA Response: Because of the complex heterogeneity of the subsurface and the uncertainties associated with the specific groundwater flow channels, excavation was deemed to be the most practical approach to identifying and removing contamination. However, *in-situ* treatment will be used in combination with excavation where appropriate, and can result in cost savings.

2.1.5: The plan states, "Although unlikely, Alternative 9 (Thermal Treatment) could potentially cause uncontrolled migration of contaminants vaporized by the thermal heating and not captured by the vapor extraction/recovery system. The installation and operations of the electrical system involved with the Thermal Treatment may also present significant physical hazards and would also require specific safety precautions and training." In-Situ Thermal Treatment is safe and well-controlled process. EPA has studied many ISTT projects and found a lack of evidence of uncontrolled migration of contaminants. Furthermore, ISTT presents fewer physical hazards requiring specific precautions and training than excavation and off-site treatment/disposal, which present hazards to on-site workers, neighbors and motorists.

EPA Response: Comment noted, however, what the Proposed Plan states is still true.

2.1.6: The plan states, "However, Alternative 9 (Full Area *In-Situ* Thermal Treatment)" is more difficult to implement due to the considerable system installation, startup and operations, including drilling, wells installation, and mechanical, electrical, and vapor extraction and treatment systems." ISTT has over the past 15 years become a widely-used in situ remediation technology, at over approximately 180 hazardous waste sites through 2007, and well over 200 sites today. The difficulties alluded to are no longer impediments for implementability, and therefore should not be any more of an issue than for the other considered alternatives.

EPA Response: Comment noted, however, what the Proposed Plan states is still true.

2.1.7: The Plan states, "The most cost-effective remedial alternatives are Alternatives 3/4 (($2,800,000-$3,600,000), 7/8 (($4,600,000-$5,100,000), and Alternative 9 ($6,400,000); while Alternative 1 ($10,000,000) and Alternative 2 ($13,600,000) are the least cost-effective." While Alternative 9 was considered among the most cost-effective remedial alternatives, we are confident that as we discussed in Item 1 above, had ISTT been considered for the Residual Source Area, coupled with another technology such as *In-Situ* Bioremediation for the Plume Area (as was the case with Alternatives 5/6), that ISTT would have emerged as the most cost effective alternative.

EPA Response: Comment noted.

Written Comments on Behalf of Sharps Run Home Owners Association Board Members

2.2.1: There have been different reports in the media about the amount of soil to be removed and replaced. What are the actual numbers (in cubic yards and truckloads)?

> **EPA Response:** The Proposed Plan estimated 67,500 cubic yards of soil would be excavated. EPA stated at the public meeting that an estimated 5,000 trucks would be needed to transport contaminated soil from the Site, and an equivalent number would be needed for clean fill. Please note that the selected remedy differs slightly from the preferred remedy in the Proposed Plan. Based on comments during the public meeting and comments received during the public comment period, EPA has selected excavation of soil in the Full Area with *in-situ* treatment as a polishing step. This will reduce the amount of soil to be trucked off-site for disposal. Estimates of the amount of soil to be removed will be refined in the remedial design.

2.2.2: Sharp Road is narrow, has soft shoulders and has difficulty accommodating normal traffic. Are there plans in place to widen it before the works begins?

> **EPA Response:** No. Sharp Road is rated for the type of trucks anticipated for this project.

2.2.3: Are alternate ways to get to the site being considered? What are they? Are reduced speed limits being considered?

> **EPA Response:** During the remedial design, a transportation plan will consider routes that will be used by the trucks, and may consider reduced speed limits. There are no other means of transport besides trucking.

2.2.4: If Sharp Road is used, what is the portion which would be used? South to Evesham-Medford Road or north to Church Road?

> **EPA Response:** Most likely, the southward route would be used as it is the shortest and quickest route to the highway. EPA would not select residential streets if designated truck routes are available.

2.2.5: There is very little room for parking trucks on Sharp Road. If it is used, will there be improvements made to create a staging area?

> **EPA Response:** Sharp Road is a two-lane road and indeed, it does not have enough room for parked or idling trucks. Trucks will not be parked on Sharp Road. There is enough land to create a staging area on the Site to accommodate the trucks and other equipment, if necessary.

2.2.6: The nearby developments, like Sharps Run and Legacy Oaks, should not be used in any way as thoroughfares for the necessary truck traffic. What plans are in place to prevent that?

> **EPA Response:** The communities of Sharps Run and Legacy Oaks will not be used as thoroughfares.

2.2.7: The justification for the project is that it will shorten the cleanup cycle. By how much? Does it cost more or less than the original plan?

> **EPA Response:** It is not clear that the existing groundwater treatment plant would ever achieve the remediation goals. It would certainly take many decades, based upon the existing remedy data. By removing the TCE source, EPA expects that the site would be cleaned up within a couple of years. The cost of this additional cleanup is more than the original remedy.

2.2.8: What measures are being considered to minimize/prevent contamination of nearby areas during and after the completion of the project?

> **EPA Response:** A health and safety plan will be prepared before construction begins. Periodic sampling and monitoring will be performed throughout the project to ensure that contamination does not migrate off site. In addition, dust control measures will be undertaken and all trucks will be decontaminated before they leave the Site.

2.2.9: What measures will be taken to prevent the illegal vehicle traffic through the area, which occurs regularly now?

> **EPA Response:** This is outside of EPA's jurisdiction. EPA does not regulate or enforce traffic laws.

2.2.10: The site is pretty much an eyesore now; it is sure to become more so during the project. What measures will be taken to minimize this? Could EPA plant trees in front of the Site? Could the existing metal building be replaced with something more attractive? Would the Agency consider a decorative fence with plantings?

> **EPA Response:** The Site will assume the appearance of a construction site during the cleanup. EPA does not have plans for landscaping of the Site. The existing metal building, which houses the treatment plant, is expected to remain until the treatment plant is no longer needed. The Site does not look substantially different than a number of other properties on Sharp Road.

2.2.11: Eventually, if this goes forward, Evesham Township will be taking over responsibility for the Site. What is their involvement in the project?

> **EPA Response:** The Township of Evesham is not responsible for taking over or performing any part of the cleanup of the Site. EPA supports redevelopment of the property after the completion of the remedy, and will consult with the Township at that stage of the project.

Written Comments From A Nearby Property Owner

2.3.1: As an adjoining property owner, I am greatly upset that neither the EPA nor the town felt it important to communicate with me about this meeting or the recent findings. I only found out about this important information because a concerned friend called to alert me. Property owners much farther away from the site were notified but I, as an adjoining property owner was not included in this notification? I have subsequently signed up to receive notifications via the EPA web site but kindly request that the EPA and or town please include me in such important communications.

> **EPA Response:** See EPA's response to Comment 1.19, above. The commenter has been added to the mailing list for the Site and shall receive notification of Site information in the future.

2.3.2: I have a well on my property that is 30 feet deep. This well serves my buildings. Is this well safe?

> **EPA Response:** The contamination plume is well delineated and does not extend on to neighboring properties.

2.3.3: I am most concerned for my safety and the safety of my employees. Initially after the discovery of contamination on this site, the EPA tested our water. That testing discontinued more than 20 years ago because we were told there was no concern. In light of these recent disclosures by the EPA that the current cleanup methodology is not working, and that additional plumes have been found, I have cause to worry that the pollutants have migrated and may be impacting my well. As such, I kindly ask that EPA immediately test my water and provide me with information regarding the safety of my water. I would ask that this testing be ongoing until such time as the site is deemed clean.

EPA Response: See response to Comment 2.3.2.

2.3.4: As the recent "Superfund Program Proposed Plan" dated July 2013 indicates, the current methodology to remediate the site is not working. The unique and misunderstood characteristics of this site, along with additional findings have demonstrated that much of the efforts and costs to clean the site have not yielded the projected results. To that end, the assurances we were given in the past regarding timelines and goals have proven inaccurate. Recognizing these facts and the uncertainty going forward, further development along Sharp Road should be halted until such time as the exact sources of the pollutants are positively identified and cleaned up.

EPA Response: See response to Comment 2.3.2. In addition, EPA has no comment on development of properties that are not affected by Site contamination.

2.3.5: The Town of Evesham, and its planning and zoning board members have altered the master plan to allow more and more houses to be built close to this well-known Superfund site. The master plans for Sharp Road at the time of the disclosure of the dangers restricted the entire area to commercial and industrial use. Zoning and planning board members, bowing to pressures from developers, altered the master plan. And as a result, the town directly owns the responsibility for putting many people at an increased risk of exposure to this site and the listed contaminants.

EPA Response: EPA does not get involved in local land use decisions. There is no evidence that indicates the Site poses an increased risk of exposure to these neighboring properties.

2.3.6: I have witnessed developers steer meetings away from discussions about this site. I have witnessed developers mislead the public with regard to these hazards. Most disturbingly, I have witnessed one developer go so far as to purposefully plant evergreen trees in front of the "Ellis Superfund" sign on Sharp Road in a blatant effort to conceal the sign from potential home buyers. We cannot continue to hide this site. Better and more visible signage alerting the public to the dangers of this site need to be installed immediately.

> **EPA Response:** EPA will do its best to maintain signs at the Site. Implementation of the remedy will raise the visibility of the Site, and EPA will perform more outreach during this upcoming cleanup phase. EPA is concerned that trespassing might damage Site features, like monitoring wells; however, there is no surface contamination, so exposure to trespassers is not a concern.

2.3.7: There is no barrier to the ever-expanding local population limiting access to the Site. As more and more people live closer and closer to the Site, the potential for unintended exposure to the soil and to the groundwater/ surface water has significantly increased. Increasingly and quite often I see people wandering on the site and walking dogs throughout the property. Hunters frequent the Site to hunt birds and fowl. Just this week I witnessed several youths playing in the rear of the property trying to catch frogs.

These folks are in harm's way and they do not even know it. I strongly feel that proper perimeter fencing be installed along the entire property line and that sign calling attention to the dangers be installed as soon as possible.

> **EPA Response:** See EPA response to Comment 1.9. EPA's review of the Site contamination concludes that it does not pose an unacceptable exposure to trespassers, because the contamination is not located at the surface but 10 to 30 feet below ground surface. Consequently, a fence around the perimeter of the property is not warranted to prevent exposure. Trespassers are not welcome, but are not at risk. The Site will be fenced during the cleanup.

2.3.8: As noted in the Proposed Plan on page 4 and 5, "the significant levels of TCE in the groundwater indicate the existence of a DNAPL source, but such a source has not yet been found." Clearly, the full extent of the problems and dangers on this Site are not fully understood. Recognizing this fact, and the fact that the treatment methods are ongoing, dynamic, and subject to future re-evaluation, I think it is incumbent on the EPA and the Town of Evesham to prohibit and restrict additional development of the land to prevent recreational or residential development.

> **EPA Response:** EPA presumes that this comment refers to the development of the Ellis Property land. EPA supports returning sites to beneficial use after they are cleaned up. EPA has no position on the redevelopment of neighboring properties.

2.3.9: With regard to the various proposed alternatives listed to remediate the site, I have a significant concern about any "*in-situ*" treatments. As previously discussed, my office and my employees work immediately next to this site every day. Excavation of these pollutants, and treating them above ground in close proximity to my office, my well head and the many homes in the area causes me great concern. I am worried that we will be significantly more exposed to these pollutants than we currently are.

> **EPA Response:** EPA will take precautions to control dust and eliminate exposure routes to contaminants during the cleanup. An air monitoring plan, health and safety plan, and routine operating procedures will be developed and followed to exposure to minimize dust and contaminants during cleanup *In-situ* treatment, to the degree that is it used, will take place in the ground, not above the ground.

2.3.10: I am further concerned that any additional disruption or alterations to the Site will further alter the natural flow of groundwater. Clearly, the installation of the containment wall in 2012 altered the natural flow of groundwater. Observing the property daily, especially during periods of heavy rain, suggests that water builds up on that side of the property more than ever observed prior to the construction of the wall. As an adjoining property owner, I am concerned that you are in effect altering the natural path of the water and forcing it to flow closer to my property and my shallow well.

> **EPA Response:** The presence of a sand channel limited the effectiveness of the northern portion of the collection trench. A cutoff wall was installed in 2012 to isolate the contaminated groundwater from the sand channel and direct it, instead, to the collection trench. This cutoff wall does not alter the direction of the groundwater flow, it only keeps clean groundwater from infiltrating into the collection trench. After significant rain events, surface water is seen on the property, but it is not associated with the contaminated groundwater. Because the water table is naturally high in the area and the low permeability of the sand, water collects at the surface and does not seep into the ground readily. This is not related to the cutoff wall.

2.3.11: Understanding that the Site cannot be properly remediated without some additional actions, I seek some absolute assurances from the EPA that myself and my employees, the value of my property and the value of the surrounding properties will not be compromised either in the short term or the long term in any way by the treatment methods selected.

EPA Response: EPA has no control over property values in the surrounding area. From EPA experience, property values in the vicinity of a Superfund cleanup are not influenced by a site if the properties are not directly affected. Refer to response to Comments 2.3.3 and 2.3.9.

2.3.12: As a property owner on Sharp Road, I am concerned about the quality of life during and after the chosen treatment plan. As is well known, Sharp Road is in deplorable condition. Certainly, any treatment method will necessitate heavy equipment and dump trucks traveling on Sharp Road. I would like to seek some assurance from the EPA that we, as residents and property owners, will not suffer the consequences of further degradation of our roadway.

EPA Response: Please see the response to Comment 2.2.2. In addition, EPA will make repairs if any road damage is caused by implementation of the remedy.

2.3.13: Furthermore, I seek some assurance that off-site treatment or *in-situ* treatment not cause any increased exposure to these hazards. My concerns include such things as dust, mud and airborne exposure, alterations to the groundwater or flooding of my property. We ask that EPA take these concerns into consideration when deciding on a best course of action.

EPA Response: Please see responses to Comment 2.3.9 and 2.3.10. Community participation and involvement will continue as we proceed into the design phase and cleanup phase. This will allow community members to understand the efforts that EPA will take, during remedy implementation, to meet the expectations of this commenter.

<u>Written Comments From Former Evesham Residents and Ellis Site Task Force Members</u>

2.4.1: We support Alternative #2, as recommended by EPA and NJDEP, because removing the source of contamination, particularly TCE, is the only way to effectively clean up the site. As EPA has pointed out in the site fact sheet "The Preferred Alternative will be effective in achieving the RAOs and ARARs. The potential presence of DNAPL in the Residual Source Area, which is considered the continuing source of groundwater contamination, was considered to be the most difficult problem for the other technologies to address effectively, particularly in comparison to Alternative 2. The current groundwater collection trenches and treatment system would remain in place during the implementation of the preferred alternative and for a short period thereafter, and natural bioremediation processes are expected to restore the aquifer to the cleanup goals within a period of approximately one to three years. Overall, the implementation of the Preferred Alternative is expected to reduce the duration of the operation of the existing pumping and treatment system to one year after the completion of remedial activities. In addition, the Preferred Alternative is expected to minimize the future migration of groundwater contamination; reduce or eliminate the source of future groundwater contamination; and, reduce or eliminate the direct contact threat associated with contaminated soil."

EPA Response: Comment noted. Please note that Selected Remedy is excavation of the Full Area and off-site disposal, with *in-situ* treatment as a polishing step.

2.4.2: We agree that the Residual Source Area must be removed and point out that the Ellis Site Task Force has been making this recommendation for at least 15 years. If the DNAPL source had effectively been characterized and removed during the initial soil cleanup, millions of dollars would not need to be spent on a an ineffective groundwater pump and treat system, and 13 million dollars would not be needed now to perform the needed source removal.

EPA Response: The initial soil cleanup addressed soil near the surface and is not in the same area as the DNAPL source, so it would not have addressed the Residual Source Area and the Plume Area. The original remedy addressed all direct contact exposure concerns at the Site.

2.4.3: The sooner the removal takes place the better. We urge that special efforts be made to protect the wetlands to the east of the site from groundwater contamination migration, and that EPA be prepared to enhance groundwater treatment or conduct further source removal if the levels of TCE do not "bioremediate" within the 1- 3 years as planned. If one year passes and the levels of TCE are not substantially reduced, additional measures should be implemented immediately. The delays between each step of the cleanup process have been unconscionable and have cost the public millions of dollars unnecessarily. Granted these delays are likely caused by lack of funding to the Superfund program and not from negligence on the part of program staff. Were the tax on chemicals that formerly funded the program reinstated the funding issue would not be so strained.

EPA Response: After excavation and *in-situ* treatment of the Full Area, EPA expects the levels of TCE to decrease fairly quickly. The groundwater collection and treatment plant will operate for approximately one year to ensure the contamination does not reach the wetland area. EPA intends to operate the collection and treatment plant longer if necessary to achieve the remediation goals. The existing treatment system has resulted in the cleanup of the wetland area already, by cutting off the source.

Written Comments from A Community Member

2.5.1: Considering the sequester and the claimed intense budget problems, why after so many years is this project, that was placed on the National Priorities List (NPL) December 1, 1982, suddenly coming to the fore?

EPA Response: The changes recommended to the remedy in the Proposed Plan have been under development for a number of years, and the Proposed Plan was released when the necessary studies had been completed. There is no association with any other schedule.

2.5.2: Why, of the 34 sites in Evesham, has this project been highlighted for federal remediation?

EPA Response: Ellis Property is the only Site in Evesham that is on the NPL. Non-NPL sites are not eligible for cleanup under the federal Superfund program. The letter provided no further information on the other sites, but EPA has no other sites in Evesham. Readers can speak with NJDEP about active or potential sites under state regulation.

2.5.3: Why has project management been taken over by EPA from NJDEP?

EPA Response: EPA and NJDEP have agreed to EPA's assuming the lead for this project at this stage. This decision is derived primarily from a difference in contracting methods (state vs. federal) that will allow EPA to address the Site more quickly.

2.5.4: Will 67,500 cubic yards of soil actually be removed from Evesham? Where will it go?

EPA Response: See response to Comment 1.4, above. Excavated soil will be trucked to a disposal facility approved to receive it

2.5.5: What specific area of the 36 acres is involved in the dig?

EPA Response: Please see Figure 3 of the Decision Summary (also included in the Proposed Plan). The area that is outlined with a solid black line is the Full Area. Everything within the Full Area will be involved in the excavation.

2.5.6: What are the dimensions (length, width, height) of the dig?

EPA Response: The exact dimensions of the dig are not known at time, but will be determined in the final design.

2.5.7: How has the dig depth been determined?

EPA Response: The depth has been determined from sampling results that indicate the depth of TCE contamination.

2.5.8: What testing (type, frequency, locations) will be done during the dig?

EPA Response: This will be determined during the design phase EPA typically follows NJDEP's "Technical Requirements for Site Remediation," N.J A.C. 7:26E.

2.5.9: How will the TCE be isolated?

EPA Response: The excavation area (the Full Area) is already isolated by the existing treatment system. This system will remain in place during the remedy.

2.5.10: How will it be determined that all of the TCE has been removed?

EPA Response: EPA will conduct post-excavation sampling to determine that the cleanup goals are met. Refer to the response to Comment 2.5.8.

2.5.11: What other harmful chemicals are known to reside at the site?

EPA Response: By addressing TCE, the most wide-spread contaminant, other contaminants of concern will be addressed. Please refer to the Summary of Site Risks section in the Decision Summary of this ROD that describes the contaminants of concern.

2.5.12: Will the removed soil be treated in any manner at the site? How?

EPA Response: The remedy does not require on-site treatment of excavated soils prior to transportation; however, at some sites, wastes pose transportation risks and need to be treated prior to leaving the Site to meet U.S. Department of Transportation safety regulations. EPA does not expect that to be an issue a the Ellis Site.

2.5.13: Will the removed soil be treated at its final destination? How?

EPA Response: Treatment may be required prior to land disposal, per the requirements of the permit of the disposal facility.

2.5.14: How many vehicle loads of soil will be needed to carry the dug soil away from the site?

EPA Response: See response to Comment 1.4, above.

2.5.15: How many vehicle loads will be needed to carry new replacement soil to the Site?

EPA Response: See response to Comment 1.21, above.

2.5.16: What will be the source of replacement soil? What tests will be performed on the replacement soil to assure it is contaminant free in total? Where will replacement soil tests be conducted?

EPA Response: Typical sources of clean backfill are found locally. It is tested prior to bringing it onto the Site. The samples will be analyzed in a laboratory approved by EPA and NJDEP.

2.5.17: What is the project start date?

EPA Response: EPA expects to start the remedial design of the project in 2014. Please see response to Comment 1.1, above.

2.5.18: Once started, will the project continue uninterrupted until completion?

EPA Response: EPA expects the cleanup to be performed under a regular work schedule (week days during normal business hours) without interruptions. However, there may be instances of interruptions beyond EPA's control, such as a lapse or delay in funding or severe weather conditions that warrant temporary stopping of work to protect the safety of our workers.

2.5.19: What is the estimated completion date?

EPA Response: EPA expects to complete the excavation and *in-situ* treatment within one year, once it begins.

2.5.20: On page 15 of the July 2013 Proposed Plan, "...and Alternative 2 ($13,600,000) are the least cost-effective" and "This remedial alternative has been determined to be the most cost-effective...". Please explain

EPA Response: Please refer to the Selected Remedy section of the Decision Summary of this ROD EPA uses nine criteria to evaluate the proposed remedies, cost being one of them.

Attachment A

PROPOSED PLAN

Ellis Property Superfund Site

Ellis Property Superfund Site

Evesham Township, Burlington County, New Jersey
July 2013

EPA ANNOUNCES PROPOSED PLAN

This Proposed Plan identifies the U S. Environmental Protection Agency's (EPA's) proposed change to the soil and groundwater remedy selected in the September 30, 1992, Record of Decision (ROD) for the Ellis Property Superfund site, located in Evesham Township, New Jersey.

The original ROD in 1992 addressed soil and groundwater contamination at the site. EPA, with the concurrence of the New Jersey Department of Environmental Protection (NJDEP), selected excavation and off-site disposal of contaminated soils, and construction of a groundwater collection and treatment system to restore the contaminated groundwater as the remedy for volatile organic compound (VOC) contamination in groundwater at the site The soil component of the remedy is complete and the groundwater collection and treatment system has been in operation since 2000 However, as described below, EPA and NJDEP have identified a source of VOC contamination in the subsurface soils at the site These VOCs are contributing to groundwater contamination and are preventing the groundwater collection and treatment system from restoring the aquifer

The groundwater remedy in the original ROD included extraction and treatment of contaminated groundwater, and reinjection of the treated groundwater upgradient from the site Performance monitoring of the groundwater remedy indicates that it has only been partially effective, and recent investigations reveal additional contamination at the site the presence of residual sources (Residual Source Area) and an area of contaminated soil (Plume Area). As a result, the goal of the remedy for groundwater, aquifer restoration, cannot be achieved within a reasonable time frame using the existing system

MARK YOUR CALENDAR

PUBLIC COMMENT PERIOD:
July 12, 2013– August 12, 2013
EPA will accept written comments on the Proposed Plan during the public comment period

PUBLIC MEETING:
Wednesday, July 24, 2013 6:30 p.m.
EPA and NJDEP will hold a public meeting to explain the Proposed Plan and all of the alternatives presented in the Focused Feasibility Study Oral and written comments will also be accepted at the meeting. The meeting will be held at Evesham Township Municipal Building, Municipal Courtroom, 984 Tuckerton Road, Marlton, New Jersey.

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

Evesham Library 984 Tuckerton Road Marlton, NJ 08053 (856) 983-1444 Hours: Monday - Thursday 10 00 am – 8:30 pm; Friday 10:00 am – 5:00 pm	EPA-Region 2 Superfund Records Center 290 Broadway, 18th Floor New York, NY 10007-1866 (212) 637-4308 Hours. Monday - Friday 9:00 am to 5:00 pm

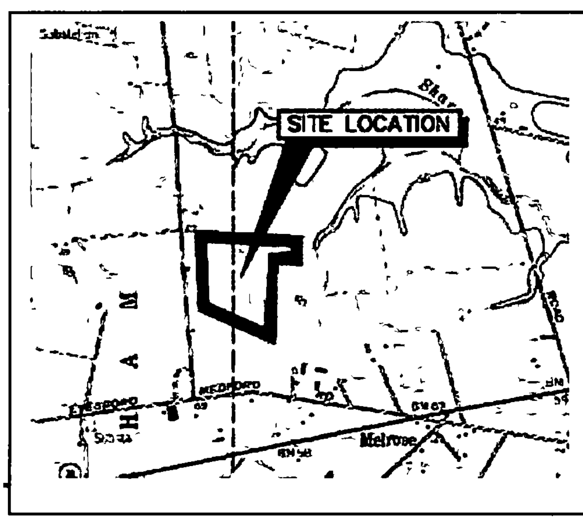
EPA's preferred remedy to address the additional contamination is excavation and off-site disposal of the Residual Source Area and contaminated soil in the Plume Area. EPA believes that it will take approximately one year to excavate the source and contaminated soil, followed by several years of monitoring to confirm the effective remediation of the groundwater plume.

This Proposed Plan includes summaries of the cleanup alternatives evaluated for use at the site This document is issued by EPA, the support agency for site activities, in conjunction with NJDEP, the lead agency for this site.

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 300.435 (c)(2)(ii) of the National Oil and Hazardous Substances Contingency Plan. This Proposed Plan summarizes information that can be found in greater detail in the June 2013 Focused Feasibility Study (FFS) and other documents contained in the Administrative Record file for this site. This Proposed Plan is being provided to inform the public of EPA's preferred alternative and to solicit public comments pertaining to the preferred alternative. Changes to the preferred alternative, or a change from the preferred alternative to another alternative, may be made if public comments or additional data indicate that such a change will result in a more appropriate remedial action The final decision regarding the selected remedy will be made after EPA has taken all public comments into consideration. The public is encouraged to review and comment on the preferred alternative considered by EPA in this Proposed Plan

SITE BACKGROUND

The Ellis Property site is located at 150 Sharp Road in Evesham Township, Burlington County, New Jersey. This property was originally used as a dairy farm, until acquired by Irving Ellis in 1968 Following the property acquisition, approximately four of the 36 acres were used in drum reconditioning operations. Surficial spills and discharges in association with drum reconditioning and chemical storage are believed to have contributed to the observed contamination of soil and groundwater at the site with chlorinated solvents and metals. Operations ceased in the late 1970s following a fire at the site.



In response to an anonymous tip, in September 1980, NJDEP conducted an inspection of the site. During this visit, numerous corroded and leaking drums were observed, in addition to dead and stressed vegetation in the vicinity of drum storage locations.

NJDEP directed the removal of over 100 drums and visibly contaminated surface soils as part of a removal action in 1983, and the site was placed on the National Priorities List (NPL). NJDEP then initiated a remedial investigation/feasibility study (RI/FS) to determine the nature and extent of the release.

Investigations during the RI identified numerous buried drums EPA performed a second removal action in 1989 that excavated and disposed of an additional 218 drums from the site

The RI identified soils contaminated with metals, polychlorinated byphenyls (PCBs), and bis(2-ethylhexyl)phthalate, and groundwater contaminated with VOCs, particularly tetrachloroethylene (PCE) and trichloroethylene (TCE) NJDEP completed the RI/FS for the site, and worked with EPA to issue a Record of Decision (ROD) in 1992, requiring the excavation of contaminated soil and installation of a groundwater collection, treatment and discharge system The goal of the groundwater action was to restore the groundwater to drinking water standards

Enforcement

Irving and Reba Ellis settled with EPA and NJDEP via Consent Decree in June 1997. No other viable potentially responsible parties have been identified for the site, and investigation and cleanup activities have been paid for with Federal and State funds, with NJDEP as the lead agency.

SITE CHARACTERISTICS and DESCRIPTION OF PROPOSED CHANGES

Original Remedy

The elements of the remedy selected in the original ROD included the following:

- Excavation of contaminated soil and treatment/disposal at an approved off-site facility;
- Extraction of contaminated groundwater from the shallow aquifer underlying the site,
- Treatment of the contaminated groundwater in a facility to be constructed on site;
- Disposal of the treated groundwater on the site by reinjection; and
- Implementation of an environmental monitoring program to ensure the effectiveness of the remedy.

All these actions have been implemented. The ROD identified approximately 760 cubic yards of soils contaminated with metals, polychlorinated biphenyls (PCBs) and bis(2-ethylhexyl)phthalate that exceeded the site cleanup goals Site-specific, risk-based cleanup goals were selected based upon an assumption of eventual unrestricted site use. When the soil remedy was implemented in 1998, nearly 1,400 cubic yards of soil exceeding the site cleanup goals was excavated for off-site disposal. All the soil excavations and drum removals were performed above the water table, which is, on average, five feet below ground surface (bgs)

In addition to the soil actions identified in the ROD, an area of soil contaminated with PCE was discovered during the design phase of the groundwater remedy, and was excavated down to approximately 12 feet bgs in 2000.

The groundwater treatment system was completed in 2000 and is still in operation today. The system consists of a trench installed near the eastern edge of the site with two extraction points (MH-1 and MH-2), two other extraction wells (PW-1 and PW-2), a treatment plant, and a re-injection trench. Groundwater is pumped from the extraction points and is then treated and discharged to the wetlands to the east and downgradient of the collection trench.

The treatment consists of solids settling by gravity, coagulation/flocculation and co-precipitation for metals removal, sludge dewatering, and VOC removal via air stripping and carbon adsorption The system was designed to operate at approximately five gallons per minute (5 gpm) with a peak flow of 15 gpm Currently the system functions at a maximum rate of approximately 7 gpm (including system recirculation) due to system flow-through limitations (*e g.*, the abundant presence of solids) and re-injection rate constraints (*e g.*, treated water cannot be discharged as quickly as the system can extract/treat it)

In addition to the groundwater treatment system, a total of 38 monitoring wells and 14 piezometers are currently used in the monitoring of local groundwater flow and contaminant migration. These wells are screened in three distinct formations underlying the site at the following intervals: 22 shallow wells in the Hornerstown Formation, approximately 10 to 20 feet bgs; six intermediate wells in the Navesink Formation approximately 50 to 60 feet bgs, and 10 deep wells in the Wenonah-Mount Laurel Formation approximately 90 to 100 feet bgs

New Information

While the removal and remedial response actions taken to date have eliminated drums and large areas of contaminated soil, residual TCE in localized areas of the site along the interface of the Hornerstown Formation and Navesink Formation have been consistently identified in site monitoring wells during groundwater monitoring TCE and other VOCs found in groundwater today were not identified as soil contaminants at the time of the ROD because they were not detected at significant levels

In 2006, EPA performed a Remediation System Evaluation (RSE) of site operations An RSE involves an independent team of expert hydrogeologists and engineers conducting a broad evaluation of remedy performance. The recommendations are intended to help the site team identify opportunities for improvements. The September 2006 RSE report identified several enhancements to improve the performance of the selected response action. In addition, the ROD had called for studies of the site to identify the presence of dense nonaqueous phase liquids (DNAPLs), typically VOCs that might act as continuing sources of contamination to the groundwater. In 2007, NJDEP conducted a Pre-Design Investigation (PDI) to further delineate the residual source(s) and extent of contamination in soil and groundwater, to evaluate the presence of DNAPLs, and assess potential changes to the groundwater remedy

WHAT IS THE "CONTAMINANT OF CONCERN"?

The 1992 ROD identified a number of COCs for soils and groundwater. EPA and the NJDEP have identified trichloroethylene (TCE) as the primary contamination remaining on site that poses the greatest potential risk to human health. By addressing TCE, other groundwater contaminants would also be addressed.

TCE has been detected in groundwater at concentrations ranging from non-detectable to 14,000,000 micrograms per liter (µg/L). This level was detected in the "residual source area" of the site. TCE concentrations from recent groundwater sampling events regularly exceed 10,000 µg/L.

TCE is a halogenated organic compound that is historically used as a solvent and degreaser and was used during past drum reconditioning activities conducted at the site. Exposure to TCE has potentially harmful health effects in humans, including anemia, skin rashes, diabetes, liver conditions, and urinary tract disorders. TCE is also considered a probable carcinogen based on laboratory studies.

Summary Of PDI Results:

- A stratigraphy investigation was conducted in the vicinity of MW-2, MW-6, PW-1, and PW-2 (See Figure 2) Cone penetrometer technology (CPT) tests confirmed the existence of a "sand channel" that could act as a preferential pathway for contamination. The sand stratum was identified between one and 9 feet thick at the site and increased in thickness moving east to west from MW-6 to MW-8.
- Source area delineation of chlorinated solvent contamination was conducted using a Membrane Interface Probe (MIP) The MIP results suggested that a residual contamination source appeared to be relatively shallow (approximately 10 feet bgs) around boring location P22 (see Figure 3), while it moved deeper (20 feet bgs) into the clay layer around boring locations P53 and P5.
- Investigation of groundwater quality was conducted along the sand channel and potential contamination source areas through collection of groundwater samples via direct push sampling points installed adjacent to selected MIP investigation locations. The PDI confirmed that there was no contamination in the sand channel prior to entering the extraction trench. Groundwater analytical results indicated TCE to be the primary contaminant of concern remaining at the site and that the primary residual source areas were in the vicinity of boring location P22 and P53 and P56.
- TCE was detected in the groundwater in the residual source area up to 14,000,000 µg/L at depths between 10 and 26 feet below ground surface. This concentration is two orders of magnitude higher than the highest groundwater monitoring well sample results (15,500 µg/L) since 2003 Additionally, extraction well PW-2 has shown consistently elevated TCE levels above 15,000 µg/L in the last 2 years of sampling
- Investigation along the suspected sand channel and contamination source areas was conducted through the collection of soil samples adjacent to selected MIP investigation locations TCE was the only compound that exceeded NJDEP criteria, but was typically present at concentrations exceeding 1milligram per kilogram (1 mg/kg)

Overall, the PDI investigation identified TCE, found predominantly between 10 and 24 feet bgs, as the primary remaining concern at the site, with more elevated concentrations identified during the PDI than historical groundwater results The significant levels of TCE in the groundwater indicates the existence of a

DNAPL source, but such a source has not yet been found. The DNAPL source material constitutes a principal threat waste at the site The influence of pumping wells PW-1 and PW-2 in extracting subsurface contamination bound in the tight soil matrix is limited Note that these two pumping wells are well placed relative to the TCE source areas and pumping has been ongoing for more than 10 years, yet they appear to have made little progress toward addressing these sources. The primary cause of persistent elevated levels of groundwater contamination in portions of the site appears to be residual deep soil contamination below the water table These contaminants, bound tightly in the soils, leach slowly out of the soils, serving as a continuing source of groundwater contamination that is not easily addressed by the existing system.

Based on a review of the groundwater monitoring results from November 1999 to October 2010, multiple residual source areas of TCE contamination appear likely at the site The primary potential source area in the shallow zone is in the vicinity of monitoring wells MW-2 and MW-6, continuing downgradient to the extraction trench, where relatively high TCE concentrations persist. A statistical analysis of the TCE concentrations detected at MW-2 and MW-6 was conducted for eight quarterly sampling events performed between October 2003 and September 2005 This analysis illustrated that TCE levels had not decreased at either MW-2 or MW-6 during this time period. Additionally, extraction well PW-2, which is located between MW-2 and MW-6, exhibited varying concentrations, which were persistently detected at elevated levels for TCE in 2013, as high as 47,195 µg/L. Another potential source area, based on previous investigations, is in the vicinity of extraction well PW-1, which has had elevated concentrations of TCE in the influent to the treatment plant in 2009 and 2010, as high as 31,286 µg/L in 2013

The RSE and PDI also identified several issues likely to affect overall system performance, including the location of extraction wells in low-permeability soil formations and the presence of the sand channel on the northern part of the site. The sand channel was believed to limit the effectiveness of the northern portion of the collection trench in adequately intercepting contamination. A cutoff wall was installed in 2012 to isolate the contaminated groundwater from the sand channel and direct it, instead, to the collection trench This wall was also designed to be used as a shoring protection for excavation in the vicinity of the plume area.

SUMMARY OF SITE RISKS

A Baseline Human Health Risk Assessment (BHHRA), and Ecological Risk Assessment were prepared as part of the RI/FS at the time of the 1992 ROD. The conclusions and assumptions of these risk assessments were most recently reassessed by EPA as part of a Five Year Review for the site in September 2010 EPA concluded that the current and future land use assumptions for the site are still valid, with an expectation of future unrestricted residential land use. The basis for taking an action at the site derived, primarily, from direct contact or groundwater exposure to a future resident

The soil remedial action called for in the 1992 ROD removed soil contamination within approximately the first 10 feet of site soils, alleviating the potential for direct contact. The soil cleanup goals at the time of the ROD were for the following contaminants of concern (COCs), with the ROD criteria and NJDEP's current unrestricted use soil standards:

Table 1

Contaminant of Concern (in mg/kg)	1992 ROD Soil Cleanup Goal	Current New Jersey Residential Soil Remediation Standards
Arsenic	20	19
Lead	400	400
Polychlorinated biphenyls (PCBs)	0 49	0 22
Chromium	945	(20)*
Bis(2-ethylhexyl) phthalate	49	35

**NJDEP does not have a cleanup standard for total chromium, it has an interim guideline of 20 mg/kg for hexavalent chromium*

TCE was not selected as a COC for direct contact in the original ROD, and while contamination remains at depth, the expected response action would remediate TCE to levels below NJDEP's promulgated remediation goal for unrestricted use (7 mg/kg), so the original RAOs for soil would not be affected by a change to the original remedy.

A comparison of the current groundwater standards with the standards used at the time of the remedy selection indicate several changes, as shown in Table 2 None of these changes alter the scope of the selected remedy, or this Proposed Plan.

Table 2

Contaminant of Concern (in µg/L)	Groundwater Cleanup Goal at Time of 1992 ROD	Current New Jersey Groundwater Standard
Antimony	20	6
Arsenic	8	3
Beryllium	20	1
Bis(2-ethylhexyl)phthalate	30	3
1,2-dichloroethylene	2	1
Methylene chloride		3
Nickel		100
Tetrachloroethylene (PCE)	1	0 4
Trichloroethylene (TCE)	1	1
1,1,2-trichloroethane	5	3.
Vinyl chloride		0 08
Total chromium	100	70
Lead (total)	100	5
Zinc	5,000	2,000

The groundwater exposure assumptions made at the time of the 1992 ROD are still valid. The vapor intrusion pathway was not evaluated at the time of 1992 ROD, however, it is an incomplete exposure pathway because there are no receptors. A comparison of the maximum TCE and PCE concentrations with groundwater values provided in the OSWER *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils* (November 2002) was conducted as part of the 2010 Five Year Review The screening values used in the draft guidance provide groundwater levels associated with an indoor air concentration that represents a cancer risk ranging from 1 x 10^{-4} and 1 x 10^{-6} or a noncancer hazard quotient of 1. Concentrations higher than these screening values indicate the potential for vapor intrusion. TCE and PCE concentrations found in groundwater exceed the 1 x 10^{-4} vapor intrusion screening values of 5.3 µg/L and 110 µg/L, respectively. For this reason, construction of any type of building within the area of contaminated groundwater may create conditions for a future vapor intrusion exposure if the groundwater is not remediated. Previous soil testing at the site (during the RI and remedial action) was for total chromium, not for trivalent or the more hazardous hexavalent chromium. Based on new toxicity information on hexavalent chromium, the cleanup goal for this chemical has been lowered significantly. EPA and NJDEP do not have a residential risk-based screening level for total chromium, however, EPA's screening value for trivalent chromium is 120,000 mg/kg and for hexavalent chromium is 0.29 mg/kg. It is plausible that past site operations resulted in hexavalent chromium impacts at the site; however, the highest soil concentration of total chromium was 493 mg/kg, and chromium was not a remedy driver either as a consequence of the RI/FS testing or during the subsequent remedial action for soils. It is highly unlikely that chromium in the soil could remain when other soil contaminants were remediated. Thus, the direct-contact pathways for the COCs identified in the 1992 ROD have been addressed by the already-implemented soil remedy, however, because some of the current levels are more stringent, they will be used when determining completeness of the remedy going forward. Confirmation sampling will be performed during the cleanup

The 2010 Five-Year Review also evaluated ecological risks and concluded that while there have been changes in how risk is calculated since originally assessed in 1992, the clean-up levels used for the upland portion of the site appear to be protective of terrestrial receptors There are concentrations of TCE in the surface water, but the concentrations are below chronic aquatic values Therefore, there are no surface water contaminants of ecological concern.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives 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 BHHRA, prepared for the RI/FS at the time of the 1992 ROD Because the BHHRA established that the soil and groundwater at the site poses an unacceptable risk to human health and the environment, remedial action objectives (RAOs) were established in the 1992 ROD. EPA and NJDEP have concluded that these remedial action objectives are still appropriate. EPA has added one additional RAO for groundwater, to address the potential for vapor intrusion exposure

Soil

- Prevent contact with contaminated soil, which represents an unacceptable risk, or reduce contaminant concentrations in the soil below risk-based levels,
- Prevent further migration of soil contaminants into the groundwater; and
- Prevent migration of contaminated soils off site

Groundwater

- Prevent the migration of contaminated groundwater off site;
- Prevent the migration of contaminated groundwater into the underlying aquifers,
- Prevent potential exposure by inhalation/vapor intrusion that presents unacceptable risk under a future land use scenario, and
- Return the aquifer to its designated use as a source of drinking water by reducing contaminant concentrations in the shallow groundwater to drinking water quality

It should be noted that the applicable New Jersey drinking water and groundwater quality standard for the primary contaminant of concern, TCE, of 1 µg/L has not changed since the 1992 ROD. Based upon the 2007 PDI, the implemented remedy has only been partly successful in achieving the RAOs for groundwater The results of the 2007 PDI identified the following additional areas (not known at the time of the ROD) that need to be addressed to meet the RAOs:

- **Residual Source Area:** The horizontal extent of TCE concentration s exceeding 11,000 µg/L, representing likely DNAPL source material. This area covers approximately 24,000 square feet of the site. This area is typically found between 10 and 24 feet bgs and is estimated at approximately 22,500 cubic yards in volume
- **Plume Area:** The area outside of the Residual Source Area that represents the horizontal extent of TCE concentration greater than 100 µg/L This area covers approximately 61,000 square feet of the site. This area is typically found between 10 and 20 feet bgs and is estimated at approximately 45,000 cubic yards in volume
- **Full Area**. This area covers approximately 85,000 square feet of the site, and is the sum of the Residual Source Area plus the Plume Area (67,500 cubic yards).

Please refer to Figure 2 showing Residual Source Area in dotted line and the Plume Area in shade The Full Area consists of the Residual Area and the Plume Area. The Residual Source Area and Plume Area were considered separately because, while the same remedial technologies could be implemented in either area, certain technologies are more effective for higher concentration areas and others more appropriate, from a cost and effectiveness standpoint, for lower concentration areas. Within these designated areas the soil remediation goal for TCE will be 1 mg/kg, which is expected to achieve the 1 µg/L remediation goal in groundwater.

SUMMARY OF REMEDIAL ALTERNATIVES

Technologies were screened in the Focused Feasibility Study (FFS) to select a set of remedial technologies appropriate for this site The following five remedial technologies were retained for further evaluation:

- Excavation with Off-Site Disposal,
- Enhanced Bioremediation;
- *In-Situ* Chemical Reduction;
- *In-Situ* Chemical Oxidation; and,
- *In-Situ* Thermal Treatment

These retained remedial technologies were then used to develop Remedial Alternatives to address contamination and achieve RAOs at the site. These Alternatives consisted of either individual or a combination of the retained remedial technologies in order to best achieve the remediation goals. The following Remedial Alternatives were evaluated against all of the technology screening criteria. The FFS considered two distinct *in-situ* chemical treatment methods separately, but they have been combined (*e g*, Alternative 3 and Alternative 4 are now Alternative 3/4) for the Proposed Plan

- Alternative 1: Continuation of the Existing Pump-and-Treat (P&T) System;

- Alternative 2: Full Area Excavation with Off-Site Disposal;
- Alternative 3/4. Full Area *In-Situ* Chemical Treatment,
- Alternative 5/6: Residual Source Area Excavation with Off-Site Disposal and Plume Area *In-Situ* Chemical Treatment;
- Alternative 7/8: Residual Source Area *In-Situ* Chemical Treatment via Soil Mixing and Plume Area Enhanced Bioremediation; and,
- Alternative 9 Full Area *In-Situ* Thermal Treatment

PROPOSED REMEDIAL ALTERNATIVES

Common Elements

Each of the remedial alternatives discussed below would continue the institutional controls that currently prevent use of the contaminated groundwater—a component of the 1992 remedy. The institutional control for groundwater is in the form of a classification exception area (CEA). These controls need to be in place until the aquifer is restored. In addition, until the RAO of aquifer restoration is achieved, each alternative would require engineering controls for vapor mitigation (vapor barriers, vapor mitigation systems and/or monitoring), if buildings come to be placed over any of the groundwater contamination zones identified for the site

With the exception of Alternative 1, Continuation of the Existing P&T System, each of the other alternatives is designed to treat TCE as the main risk driver.

During the implementation phase of the alternatives, the existing P&T system would remain in place and operational, preventing further contaminant migration. After completion of the remedial actions devised for each alternative, the groundwater P&T system would remain in place for some period while the aquifer recovered The anticipated length for this stage of each alternative varies, as discussed below.

<u>Alternative 1: Continuation of the Existing P&T System</u>

Capital Cost – Not Applicable (N/A)
Total Cost – $ 10,000,000
Implementation Period – N/A

This remedial alternative assumes that no new actions will be implemented at the site and the existing P&T system will continue to operate for a minimum of 30 years For costing purposes, 30 years is assumed, however, the operation period of 30 years is considered to be indefinite considering the limited effectiveness of the system since operation began in 2000, and the period required to reach the RAOs may be substantially longer than 30 years. Annual groundwater monitoring would be conducted for approximately 30 years to track performance of the remediation.

<u>Alternative 2: Full Area Excavation with Off-Site Disposal</u>

Capital Cost – $10,518,000
Annual O&M – $783,000
Total Present Worth – $13,600,000
Implementation Period – 1 year

This remedial alternative involves excavation and off-site disposal of contaminated soil in the Full Area, which comprises the residual source area and the plume area This alternative would provide the removal of the residual source area and contaminated soil in the plume area, reduce contamination concentrations across the site and result in a significantly shorter operation period for the P&T system.

Contaminated soils would be excavated from an average depth interval of 10 to 20 feet bgs, and as deep as 30 feet bgs in some limited areas. Approximately 67,500 cubic yards of soil would be excavated from the site The upper soils (approximately 31,500 cubic yards) from zero to 10 feet bgs that are not contaminated would be excavated and stockpiled and used for backfill. Contaminated soils would be disposed as hazardous waste at an RCRA-approved off-site disposal facility Dewatering would be necessary during the excavation of the saturated portion of the soil.

Additional excavation may be conducted in some select areas based on field screening and observation during the excavation activities. Approximately 15 new monitoring wells would be installed to replace the existing wells that would be abandoned prior to the excavation activities. Operation of the existing groundwater P&T system would be continued during the excavation, the system would be limited to extracting groundwater from collection trench only, because the extraction wells PW-1 and PW-2 are in the excavation area and would be abandoned prior to the excavation activities

Groundwater levels are expected to reach the remediation goals within a relatively short period after completion of the soil excavation, without further remedial activities, however, the P&T system would remain in place after completion of the excavation to evaluate the effectiveness of continued operation of this system to further reduce the residual groundwater contaminants For the purpose of the FFS, the period of operation for the P&T system was assumed to be one year after completion of the remedial action, quarterly groundwater monitoring was assumed to be conducted for the first year, followed by annual groundwater monitoring for the next nine years to monitor the remedial performance Actual period of operation of the P&T system and groundwater monitoring schedule will be determined by EPA after completion of the remedial action and will be based on achieving the performance standards set during design.

Alternative 3/4: Full Area *In-Situ* Chemical Treatment

Capital Cost – $1,515,000- $2,185,000
Annual O&M – $783,000
Total Cost – 2,800,000-$3,600,000
Implementation Period – 1 year

This alternative includes the use of *in-situ* chemical treatment, either *in-situ* chemical reduction (ISCR) [Alternative 3] or *in-situ* chemical oxidation (ISCO) [Alternative 4] to remediate soil and groundwater contamination at the site. Final selection of the *in-situ* treatment technology would be made after further studies in remedial design, and the site may require a combination of different *in-situ* technologies to address site contamination.

ISCR uses chemical reductants such as zero-valent iron (ZVI) The ZVI donates electrons, acting as the reductant in a reaction that removes chlorine atoms from chlorinated hydrocarbon contaminants such as TCE.

The ZVI reaction is a rapid process and thus requires a short time frame to reach remedial goals. The limiting factor for the technology is the delivery of the ZVI into the aquifer It is anticipated that ZVI would be injected through a total of approximately 100 locations based on a 30-foot grid injection pattern. ZVI would be injected in a slurry using direct-push technology to the target depth interval of 10 to 30 feet bgs. It is assumed that two injection events (assuming one to two months apart) would be needed and a total of approximately 26,000 pounds of ZVI would be injected

ISCO is a process that involves the injection of reactive chemical oxidants (such as Peroxide, Fenton's Reagent, Permanganate) into the subsurface for rapid contaminant destruction. Oxidation of organic compounds using ISCO is rapid and exothermic and results in the reduction of contaminants to primarily carbon dioxide and oxygen.

Modified Fenton's Reagent was assumed to be the oxidant, for costing purposes. Modified Fenton's process combines proprietary chelated iron complex catalysts, mobility control agents, oxidizers, and stabilizers. The process generates powerful free radicals when the catalyst reacts with hydrogen peroxide to promote co-existing oxidation-reduction (redox) conditions

As with ISCR, ISCO is generally a rapid reaction, and the technology is limited by the ability to deliver the oxidant to the aquifer It is anticipated that the Modified Fenton's Reagent would be injected through a total of approximately 300 points based on a 16-foot grid injection pattern using direct-push technology to the target depth interval of 10 to 30 feet bgs. It is assumed that 3 injection events (one to two months apart) would be needed and a total of approximately 240,000 gallons of the Modified Fenton's Reagent would be injected

Delivery of the selected chemical is critical to the success of this technology. Due to the tightness of the soil matrix, results of the PDI suggest that uniform delivery of the selected chemical would be difficult.

In Alternative 3 or Alternative 4, the groundwater will be monitored during treatment to prevent the migration of reagents or free radicals.

The FFS assumes that groundwater would be extracted from collection trench only and treated on site through existing treatment system for one year to avoid: 1) interference with the chemical treatment in the target treatment area; and 2) impact of chemical reducing agents to the existing P&T system Treated groundwater would be discharged mostly to surface water, with a portion being discharged via groundwater. For the purpose of the FFS, quarterly groundwater monitoring was assumed to be conducted for the first year, followed by semi-annual groundwater monitoring for the next nine years to monitor the remedial performance Actual period of operation of the P&T system and groundwater monitoring schedule will be determined by EPA after completion of the remedial action and will be based on achieving the performance standards set during design.

Alternative 5/6: Residual Source Area Excavation with Off-Site Disposal and Plume Area *In-Situ* Chemical Treatment

Capital Cost – $6,371,000-$6,383,000
Annual O&M – $783,000
Present Worth – $8,600,000
Implementation Period – 3 years

This remedial alternative combines the use of Excavation with Off-Site Disposal (Alternative 2) to address contamination in the Residual Source Area followed by *in-situ* chemical treatment (either ISCR or ISCO) to address contamination in the Plume Area. Alternative 5 utilizes ISCR, while Alternative 6 utilizes ISCO

In the Residual Source Area, soils would be excavated as described in Alternative 2 from approximately 10 to 20 feet bgs with the excavation as deep as 30 feet bgs in some limited areas Approximately 22,500 cubic yards of soil would be excavated. After excavation, contaminated soils would be disposed of at RCRA-approved off-site disposal facilities.

In-situ chemical treatment would be then be used to address the contamination in the Plume Area If ISCR is used (Alternative 5), a slurry of ZVI would be injected through a total of approximately 70 locations based on a 30-foot grid injection pattern. ZVI would be injected in a slurry using direct-push technology. It is assumed that 2 injection events (assuming one to two months apart) would be needed and a total of approximately 12,000 pounds of ZVI would be injected

ISCO is considered more implementable than ISCR, as the exposure of ZVI to air during the mixing process would reduce its effectiveness. If ISCO is used (Alternative 6), Modified Fenton's Reagent would be used to address the contamination in the Plume Area The oxidant would be injected through a total of approximately 240 points based on a 16-foot grid injection pattern using direct-push technology. It is assumed that 3 injection events (assuming 1 to 2 months apart) would be needed and a total of approximately 144,000 gallons of the Modified Fenton's Reagent would be injected.

In Alternative 5 or Alternative 6, the groundwater will be monitored during treatment to prevent the migration of reagents or free radicals

After completion of the Plume Area remedial action, operation of the existing groundwater P&T system was assumed to operate one year, extracting groundwater only from collection trench, because the extraction wells will be abandoned and removed during the excavation activities For the purpose of the FFS, quarterly groundwater monitoring was assumed to be conducted for the first year, followed by semi-annual groundwater monitoring for the next nine years to monitor the remedial performance Actual period of operation of the P&T system and groundwater monitoring schedule will be determined by EPA after completion of the remedial action and will be based on achieving the performance standards set during design.

Alternative 7/8: Residual Source Area *In-Situ* Chemical Treatment via Soil Mixing and Plume Area Enhanced Bioremediation

Capital Cost – $2,858,000-$3,298,000
Annual O&M – $872,000
Present Worth – $4,600,000-5,100,000
Implementation Period – 5 years

This remedial alternative involves the use of *in-situ* chemical treatment, with *in-situ* soil mixing (rather than chemical injection used in Alternatives 3/4 and 5/6), to address contamination in the Residual Source Area, followed by the use of enhanced bioremediation to address contamination in the Plume Area.

High TCE concentrations in the Residual Source Area would be addressed by *in-situ* chemical treatment (as described in Alternative 3/4) Alternative 7 utilizes ISCR, while Alternative 8 utilizes ISCO. Treatment chemicals would be applied in the Residual Source Area using an *in-situ* soil mixing method. Prior to the soil mixing, steel sheet piles will be installed to an approximate depth of 40 feet bgs to support stability of soil in the mixing area The uncontaminated upper soil, from zero to 10 feet bgs (approximately 9,000 cubic yards) would be excavated and stockpiled Treatment chemicals (approximately 11,200 pounds of ZVI or 144,000 gallons of Modified Fenton's Reagent) would be mixed with contaminated soils using an excavator. Target depth zones for *in-situ* mixing of contaminated soils are from 10 to 20 feet bgs, with mixing as deep as 30 feet bgs in some limited areas. After the soil mixing is complete, the excavation area would be backfilled with the stockpiled soils.

Approximately five new monitoring wells would be installed to replace the existing wells abandoned and removed prior to the excavation and soil mixing activities.

Enhanced bioremediation would then be used to address the contamination in the Plume Area. The following description assumes that an edible oil substrate (EOS) would be used as the reducing agent for the treatment, though other means are used to augment biodegradation within the aquifer.

It is anticipated that the EOS would be injected at a total of approximately 150 locations based on a 20-foot grid injection pattern using direct-push technology. Depending on the ability of intrinsic microorganisms to completely reduce site contaminants, bioaugmentation (adding microorganisms to the aquifer) may also be used to stimulate complete reductive dechlorination of TCE's breakdown products (dichloroethylene and vinyl chloride) to ethane. The FFS assumed that one application of EOS would be required to address TCE concentrations in the Plume Area

In Alternative 7 or Alternative 8, the groundwater will be monitored during treatment to prevent the migration of reagents or free radicals.

The combined remedial action is expected to take approximately five years to complete. Operation of the existing groundwater P&T system was assumed to be continued for one additional year The system would be limited to extracting groundwater from collection trench only and on-site treatment through existing treatment system to avoid: 1) interference with the chemical reduction in the target treatment area; and 2) impact of chemical reducing agents to the existing P&T system. For the purpose of the FFS, quarterly groundwater monitoring was assumed to be conducted for the first three years, followed by semi-annual groundwater monitoring for the next nine years to monitor the remedial performance. Actual period of operation of the P&T system and groundwater monitoring schedule will be determined by EPA after completion of the remedial action and bill be based on achieving the performance standards set during design.

<u>Alternative 9: Full Area *In-Situ* Thermal Treatment</u>

Capital Cost – $4,504,000
Annual O&M – $783,000
Total Cost – $6,400,000
Implementation Period – 2 years

Thermal Treatment is an *in-situ* physical treatment via subsurface heating to enhance the volatilization and subsequent capture and treatment of VOCs. Heating can be achieved via several options, including electrical-resistance heating (i.e , passing electricity through soil via electrodes), steam injection, and thermal conduction (via electrical heaters).

The FFS assumed electrical resistance heating (ERH) as the treatment method for this alternative. ERH is an *in-situ* thermal technology that passes electrical current among electrodes placed in the subsurface Electrical resistance generates heat that eventually causes water in the subsurface to gently boil. Steam stripping, volatilization and other mechanisms, such as hydrolysis and increased chemical reaction rates, rapidly remediate subsurface contaminants.

Approximately 200 electrodes would be installed to 30 feet bgs over the approximately 80,000 square feet of the Full Area A total of 200 vapor recovery wells and 25 temperature monitoring points would also be installed Operation of the existing groundwater P&T system was assumed to continue for one year, extracting groundwater from collection trench only, because the extraction wells PW-1 and PW-2 would need to be abandoned and removed prior to the installation activities for the thermal treatment system.

It is estimated that total heating treatment would be conducted over an eight to 10-month period and vapor and groundwater samples would be collected periodically to monitor system performance For the purpose of the FFS, groundwater monitoring would be conducted for the first year, followed by semi-annual groundwater monitoring for the next nine years to monitor the remedial performance. Actual period of operation of the P&T system and groundwater monitoring schedule will be determined by EPA after completion of the remedial action and will be based on achieving the performance standards set during design.

EVALUATION OF REMEDIAL ALTERNATIVES

Nine criteria are used to evaluate the different remediation alternatives individually and against each other in order to select a remedy, (see table on following page, "Evaluation Criteria for Superfund Remedial Alternatives"). This section of the Proposed Plan profiles the relative performance of each alternative against the nine criteria, noting how each compares to the other options under consideration. A detailed analysis of alternatives can be found in the FFS.

Evaluation Criteria

Each remedial alternative was screened using the following evaluation criteria to determine which alternative will be most effective in achieving the RAOs.

Overall Protection of Human Health and the Environment

Alternative 1 (Continuation of the Existing P&T System) would not protect human health or the environment because it would not address the residual soil and groundwater contamination. All of the other alternatives would provide protection of human health and the environment by addressing the residual soil and groundwater contamination remaining at the site, coupled with engineering controls (including vapor mitigation, if needed, in the future), and institutional controls.

Compliance with ARARs

While groundwater is not currently in use, applicable drinking water standards are exceeded throughout the site for TCE and a few other constituents TCE levels at the site exceed the New Jersey Groundwater Quality Standards for a Class IIA aquifer A CEA is in place to prevent use of groundwater while it remains contaminated, and this CEA would remain in place for any of the remedial alternatives considered.

All of the remedial alternatives discussed for remediation of soil and groundwater contamination would meet their respective ARARs and are consistent with all applicable Federal, State, and local laws and regulations, in particular, the relevant parts of the New Jersey Technical Requirements for Site Remediation (N J.A C. 7:26E).

All of the remedial alternatives would meet the NJDEP soil cleanup standard for unrestricted use for TCE of 7 mg/kg. In addition, the active remedial alternatives are expected to achieve an Impact-to-Groundwater remediation goal of 1 mg/kg, which EPA has developed for TCE at similar sites using NJDEP's Impact to Groundwater Soil Screening guidance While not an ARAR, this guidance is "To-Be-Considered" criteria

RCRA land-disposal requirements would govern the disposition of excavated material designated for off-site disposal.

No other major ARARs considerations affect remedial decision-making. All the Alternatives would be completed in compliance with chemical-, action- and location-specific ARARs.

Long-term Effectiveness and Permanence

All of the remedial alternatives are capable of removing, reducing, and/or mitigating the site contaminants.

Alternatives 2 (Full Area Excavation with Off-Site Disposal) and 9 (Full Area *In-Situ* Thermal Treatment) are considered to be effective over the long term because the technologies are more suitable for addressing contamination situated in the tight geological conditions present at the site.

EVALUATION CRITERIA FOR SUPERFUND REMEDIAL ALTERNATIVES
Overall Protectiveness of Human Health and the Environment evaluates whether and how an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.
Compliance with ARARs evaluates whether the alternative meets federal and state environmental statutes, regulations, and other requirements that are legally applicable, or relevant and appropriate to the site, or whether a waiver is justified
Long-term Effectiveness and Permanence considers the ability of an alternative to maintain protection of human health and the environment over time
Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.
Short-term Effectiveness considers the length of time needed to implement an alternative and the risks the alternative poses to workers, the community, and the environment during implementation
Implementability considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services
Cost includes estimated capital and annual operations and maintenance costs, as well as present worth cost. Present worth cost is the total cost of an alternative over time in terms of today's dollar value Cost estimates are expected to be accurate within a range of +50 to -30 percent
State/Support Agency Acceptance considers whether the State agrees with the EPA's analyses and recommendations, as described in the RI/FS and Proposed Plan
Community Acceptance considers whether the local community agrees with EPA's analyses and preferred alternative Comments received on the Proposed Plan are an important indicator of community acceptance

The tight geologic formation, which has limited the effectiveness of the current remedy to extract contaminants from the subsurface, is expected to cause problems for some of the *in-situ* treatment technologies (Alternatives 3/4 and 5/6) during injection of reagents and chemicals to the contamination zones Alternative 7/8 (Residual Source Area *In-Situ* Chemical Treatment via Soil Mixing and Plume Area Enhanced Bioremediation) is more effective and reliable because high contaminant concentrations in the Residual Source Area would be effectively reached and degraded by chemical reduction or chemical oxidation using soil mixing Also, the enhanced bioremediation technology introduces chemical amendments into the areas to be treated that stay active for several months, and this extended contact time may overcome the low permeability of the soil formation, thus it may be more effective at addressing low concentrations in the Plume Area

Alternative 5/6 (Residual Source Area Excavation with Off-Site Disposal and Plume Area *In-situ* Chemical Treatment) is deemed to be the next most effective and permanent alternative over the long term Soil excavation would effectively remove contaminants in the Residual Source Area. However, *in-situ* chemical treatments tend to involve quick-acting chemicals (relative to the slower degradation processes involved in enhanced bioremedation), that do not stay active in the ground for more than a few days Small portions of the relatively low contaminant concentrations in the Plume Area may be untreated due to the tight formation that prevents quick contact with the treatment agents Multiple treatments may be required to effectively treat these areas. Alternative 3/4 calls for the same *in-situ* chemical treatment, but throughout the whole treatment zone. It is expected, along with Alternative 1 (Continuation of the Existing P&T System) to have the most difficulty with effectiveness over the long term, due to untreated residues not reached by the remedial action and the difficulty of treating DNAPLs.

Alternative 1 (Continuation of the Existing P&T System) would be the least effective over the long term Results from samples collected from monitoring wells and soil sampling locations indicate that the groundwater extraction system has not effectively extracted contaminant from the aquifer or reducing groundwater contamination

Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment

Alternatives 3/4, 5/6, 7/8, and 9 satisfy CERCLA's preference for remedies that use treatment to reduce the contaminant mass

Alternative 1 (Continuation of the Existing P&T System) has not demonstrated a capacity to reduce the toxicity, mobility or volume of the Residual Source Areas within tight soil matrix at the site.

Alternative 2 (Full Area Excavation with Off-Site Disposal) removes the residual source and contaminated material from the site, and while some of the excavated material may require treatment before it can be land-disposed, therefore it satisfies EPA's preference for remedies that use treatment as a principal element.

Short-term Effectiveness

All of the proposed remedial alternatives except for Alternative 1 (Continuation of the Existing P&T System) are expected to reduce TCE contamination and achieve the RAOs within approximately five years, which is considered a relatively short duration Alternative 2 will reduce TCE contamination in the shortest time, with the most certainty. Alternatives 3/4 and 9 are expected to reduce TCE contamination in a short amount of time (between one and two years). However, there is higher uncertainty that these technologies will be effective in this aquifer. Alternative 5/6 is expected to reduce contamination within three years Alternative 7/8 is expected to reduce TCE contamination in about five years

None of the remedial technologies pose insurmountable short-term risks. All the alternatives pose short-term health risks to workers that need to handle hazardous substances and work at a large-scale construction project, and these risks will need to be properly managed through worker health and safety programs. These programs are standard practice at all Superfund sites, as are health and safety measures to assure that no exposures to nearby properties occur during remedial actions

Soil excavation in Alternatives 2, and 5/ 6 would also create the most additional truck traffic, a disruption for the nearby community All the alternatives (with the exception of Alternative 1) will increase truck traffic, but Alternative 2 would generate more than twice the number of trucks on the road to the next nearest Alternative (Alternative 5/6, which also calls for extensive excavation and off-site disposal). EPA would need to work with the community to mitigate the traffic impacts as much as possible.

Although unlikely, Alternative 9 (Thermal Treatment) could potentially cause uncontrolled migration of contaminants vaporized by the thermal heating and not captured by the vapor extraction/recovery system The installation and operations of the electrical system involved with the Thermal Treatment may also present significant physical hazards and would also require specific safety precautions and training.

Remedial technologies in Alternatives 3/4, 5/6 and 7/8 pose some minor short-term health risks to workers during the injection activities Alternative 1 (Continuation of the Existing P&T System) poses the least short-term health risks to workers.

Implementability

The materials, system components, skills and labors are readily available for all of the technologies and remedial alternatives proposed. Therefore, all alternatives are considered implementable. However, Alternative 9 (Full Area *In-Situ* Thermal Treatment) is more difficult to implement due to the considerable system installation, startup and operations, including drilling, wells installation, and mechanical, electrical, and vapor extraction and treatment systems

Alternative 2 (Full Area Excavation with Off-Site Disposal) would require a considerable amount of planning, heavy equipment, structural support (through steel sheet piles, etc.), staging areas, and overall coordination of the excavation activities to depths of 20 feet bgs, with 30 feet bgs in some limited areas. However, these deeper excavations require no specialized equipment and are typical in standard construction practice. Alternatives involving Enhanced Bioremediation, ISCR or ISCO (3/4, 5/6, and 7/8) would require a considerable number of injection locations, but all the injection points are on the property, and relatively shallow, so not difficult to implement. These *in-situ* response actions are also constrained by the ability to effectively deliver the treatment reagents to the subsurface soil and in addressing DNAPLs For Alternative 7/8, which requires soil mixing, ISCO is considered more implementable than ISCR, as the exposure of ZVI to air during the mixing process would reduce its effectiveness.

The groundwater P&T system is already in place at the Site. Although the system may require modification, Alternative 1 is considered easy to implement.

Cost

The most cost-effective remedial alternatives are Alternatives 3/4 (($2,800,000-$3,600,000), 7/8 (($4,600,000-$5,100,000), and Alternative 9 ($6,4000,000); while Alternative 1 ($10,000,000) and Alternative 2 ($13,600,000) are the least cost-effective.

State/Support Agency Acceptance

The State of New Jersey supports the preferred alternative as presented in this Proposed Plan.

Community Acceptance

Community acceptance of the preferred alternative will be evaluated after the public comment period ends and will be described in the Record of Decision, the document that formalizes the selection of the remedy for the site.

SUMMARY OF THE PREFERRED ALTERNATIVE

The Preferred Alternative for the remediation of TCE contamination at the Ellis Property Superfund site is Remedial Alternative 2, which involves the use of excavation and off-site disposal, to address contamination in the Full Area.

The Preferred Alternative was selected over the other remedial alternatives because it is expected to be protective of both human health and the environment while reducing/removing the residual source in a cost-effective manner. The Preferred Alternative would achieve the remediation goals for the principal threat source areas and for soils. This Remedial Alternative has been determined to be the most cost-effective and protective of human health and the environment while effectively addressing TCE contamination in a relatively short period of time This alternative is considered readily implementable to overcome the existing site conditions.

The Preferred Alternative was also determined to be effective in achieving the RAOs and ARARs. The potential presence of DNAPL in the Residual Source Area, which is considered the continuing source of groundwater contamination, was considered to be the most difficult problem for the other technologies to address effectively, particularly in comparison to Alternative 2. The current groundwater collection trenches and treatment system would remain in place during the implementation of the preferred alternative and for a short period thereafter, and natural bioremediation processes are expected to restore the aquifer to the cleanup goals within a period of approximately one to three years. Overall, the implementation of the Preferred Alternative is expected to reduce the duration of the operation of the existing P&T system to one year after the completion of remedial activities. In addition, the Preferred Alternative is expected to minimize the future migration of groundwater contamination, reduce or eliminate the source of future groundwater contamination, and, reduce or eliminate the direct contact threat associated with contaminated soil

Based on the information currently available, EPA and NJDEP believe the Preferred Alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. EPA and NJDEP expect the Preferred Alternative to satisfy the following statutory requirements of CERCLA §121(b)· (1) be protective of human health and the environment, (2) comply with ARARs (or justify a waiver), (3) be cost-effective; (4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and (5) satisfy the preference for treatment as a principal element, or explain why the preference for treatment will not be met

COMMUNITY PARTICIPATION

EPA and NJDEP provide information regarding the cleanup of the Ellis Property Superfund site to the public through public meeting, the Administrative Record file for the site, and announcements published in the local newspaper. EPA and the NJDEP encourage the public to gain a more comprehensive understanding of the site and the Superfund activities that have been conducted at the site.

For further information on the Ellis Property site please contact

Richard Ho
Remedial Project Manager
(212) 637-4372
ho richard@epa.gov

Natalie Loney
Community Relations Coordinator
(212) 637-3639
loney natalie@epa gov

Carlton Bergman
Site Manager
NJDEP
401 East State Street
Trenton, New Jersey 08625
Phone (609) 633-6621

Written comments on this Proposed Plan should be addressed and mailed to Mr. Ho at.

U S EPA Region 2
290 Broadway 19th Floor
New York, New York 10007-1866

The public liaison for U.S EPA Region 2 is

George H Zachos
Regional Public Liaison
Toll-free (888) 283-7626
(732) 321-6621

U S EPA Region 2
2890 Woodbridge Avenue, MS-211
Edison, New Jersey 08837-3679

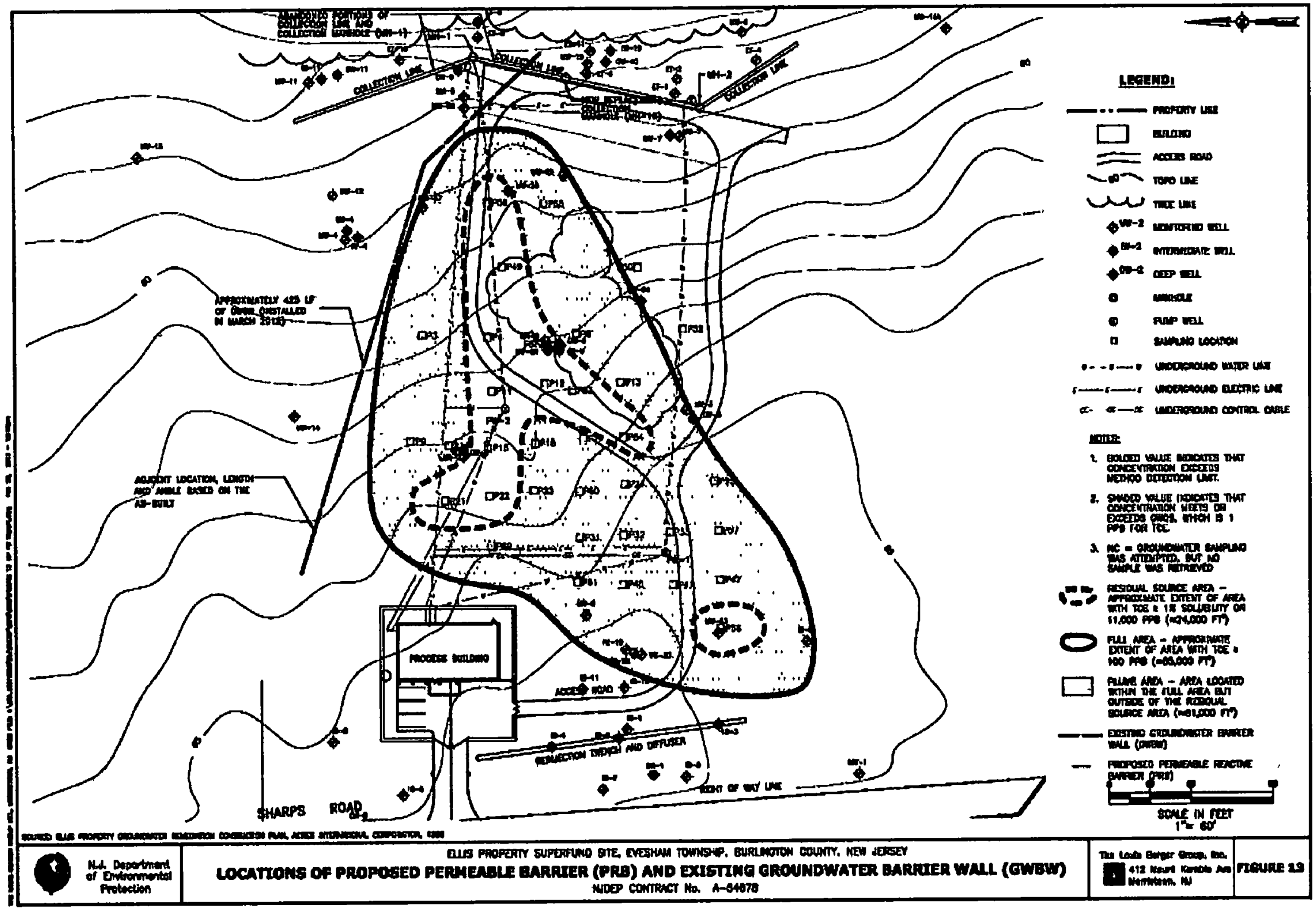

LEGEND:
PROPERTY LINE
BUILDING
ACCESS ROAD
TOPO LINE
TREE LINE
MONITORING WELL
INTERMEDIATE WELL
DEEP WELL
MANHOLE
PUMP WELL
SAMPLING LOCATION
UNDERGROUND WATER LINE
UNDERGROUND ELECTRIC LINE
UNDERGROUND CONTROL CABLE
NOTES:
1. BOLDED VALUE INDICATES THAT CONCENTRATION EXCEEDS METHOD DETECTION LIMIT.
2. SHADED VALUE INDICATES THAT CONCENTRATION MEETS OR EXCEEDS GWQS, WHICH IS 1 PPB FOR TCE.
3. NC = GROUNDWATER SAMPLING WAS ATTEMPTED, BUT NO SAMPLE WAS RETRIEVED
RESIDUAL SOURCE AREA – APPROXIMATE EXTENT OF AREA WITH TCE ≥ 1% SOLUBILITY OR 11,000 PPB (≈24,000 FT²)
FULL AREA – APPROXIMATE EXTENT OF AREA WITH TCE ≥ 100 PPB (≈85,000 FT²)
PLUME AREA – AREA LOCATED WITHIN THE FULL AREA BUT OUTSIDE OF THE RESIDUAL SOURCE AREA (≈61,000 FT²)
EXISTING GROUNDWATER BARRIER WALL (GWBW)
PROPOSED PERMEABLE REACTIVE BARRIER (PRB)
SCALE IN FEET
1" = 60'
COLLECTION LINE
APPROXIMATELY 425 LF OF GWBW (INSTALLED IN MARCH 2012)
ADJACENT LOCATION, LENGTH AND ANGLE BASED ON THE AS-BUILT
PROCESS BUILDING
ACCESS ROAD
REINJECTION TRENCH AND DIFFUSER
RIGHT OF WAY LINE
SHARPS ROAD
ELLIS PROPERTY SUPERFUND SITE, EVESHAM TOWNSHIP, BURLINGTON COUNTY, NEW JERSEY
LOCATIONS OF PROPOSED PERMEABLE BARRIER (PRB) AND EXISTING GROUNDWATER BARRIER WALL (GWBW)
NJDEP CONTRACT No. A-64678
N.J. Department of Environmental Protection
The Louis Berger Group, Inc.
412 Mount Kemble Ave
Morristown, NJ
FIGURE 13

Figure 2

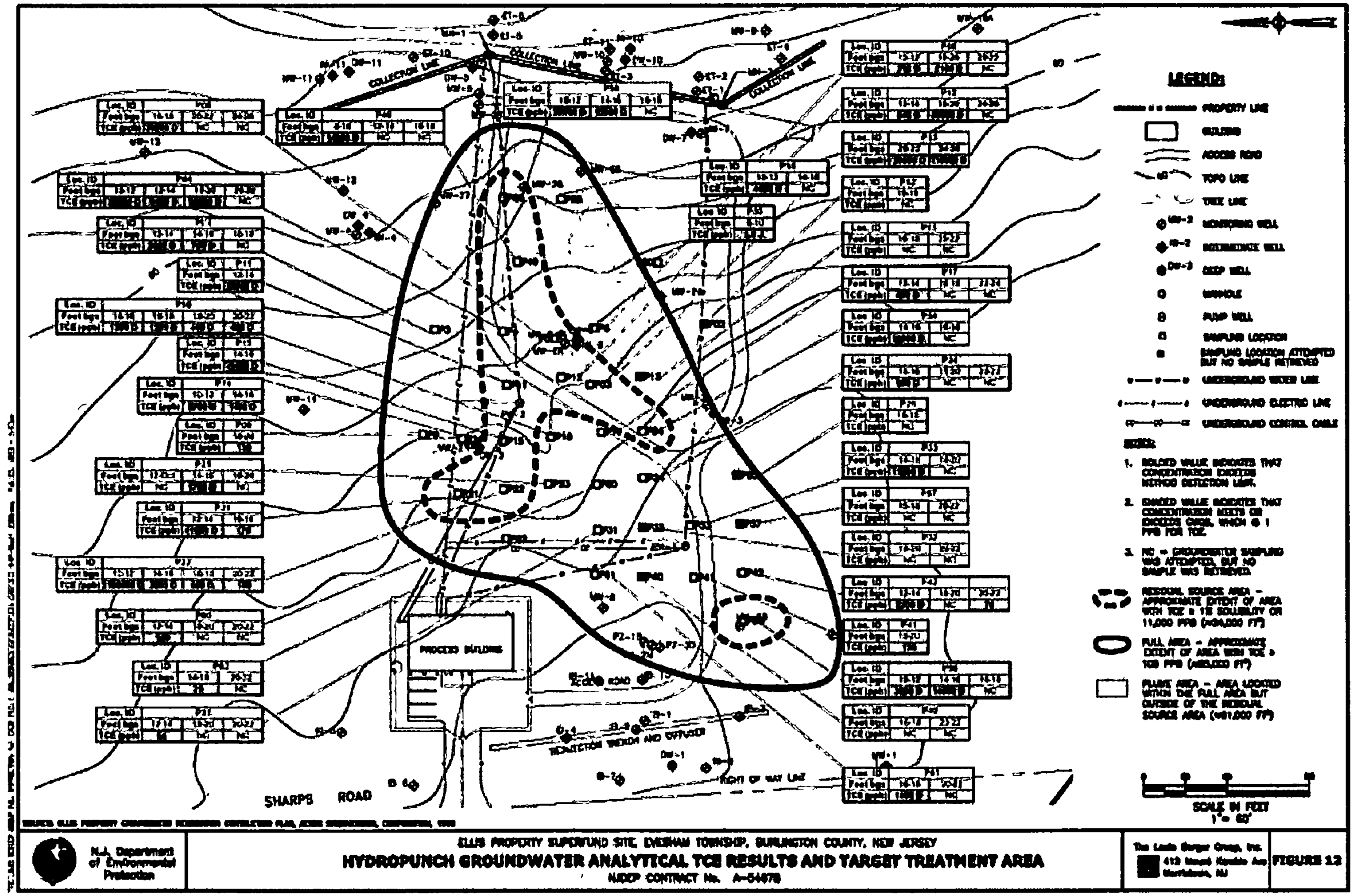

LEGEND:
SHARPS ROAD
PROCESS BUILDING
ELLIS PROPERTY SUPERFUND SITE, EVESHAM TOWNSHIP, BURLINGTON COUNTY, NEW JERSEY
HYDROPUNCH GROUNDWATER ANALYTICAL TCE RESULTS AND TARGET TREATMENT AREA
FIGURE 12

Figure 3

Attachment B

PUBLIC NOTICE

Ellis Property Superfund Site

ıight concerts this summer

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harlie

Zahm will perform maritime, Celtic, Scots and traditional music, followed by students from the NJ School of Music on July 26

August's performers are jazz band Trio of Three on Aug 2, student band M-Town Jazz Jam on Aug 9; Branin Road, playing acoustical roots-folk/bluegrass on Aug 16, acoustic soloist Mike Kaufman on Aug 23, and students from the Medford School of Music on Aug 30

The free concerts begin at 7 p m in the gazebo Several restaurants and stores will remain open during the performances, and families are encouraged to come out and make an evening of it. Bring your own lawn chairs for seating

For more information, visit www villageoftauntonforge com

ıity Notes

ly 22-25

' Bible Roundup at ı Tabernacle will run n 10 a.m. to 11 30 years olds and their dren, kindergarten sixth grade It is a , activities, games, m is free For information email t.coc@com-0576 or mail, 160 acle, NJ 08088

np begins 7/22

Rancocas United host its "Kingdom Stand Strong for 6 p.m. to 8.30 p m. rch, which is located · Road in Mount

ough grade 6 are ith and fun, featuric, science experi-:. For further information contact le camp director, at

e at library

e Mount Laurel id Media Sale will -27 at the Mount

ıds are invited to ednesday evening New members are : sale will be open ay from noon to ı a.m to 6.30 p.m n to 4 30 p.m. A day on Saturday.

Fill a bag (provided) with books for $5

All proceeds benefit the Mount Laurel Library

The library is located at 100 Walt Whitman Avenue (next to the post office) For more information, call 856-234-7319, ext. 333 or visit www mtlaurel lib.nj us

Register for arts summer camp

The Medford Arts Center's Rockin' Arts summer day camp, for children seven to 10 years old, will be held at the MAC, located at 18 North Main Street. The first session runs from Aug 5-9, 9 a.m. to noon, with a second session taking place from Aug 12-16 Poetry, art, drama, music and storytelling will provide a myriad of opportunities for creativity and fun Campers may attend one or both sessions since the activities at each will vary

Space is still available in both sessions The cost is $115 per child with preregistration required Registrations may be made online at www.medfordartscenter org or by mail Checks made out to Friends of the Medford Cultural Arts should be mailed to FMCA, P O. Box 745, Medford, NJ 08055 Please include both the child's and parent's names, address, phone number and email For more information, call 609-714-1497

Members sought for EMT squad

Browns Mills Emergency Squad is currently looking for new members Free training is provided in as little as nine months There are many advantages such as new job skills, eight college credits towards a degree and the satisfaction of giving back to your community

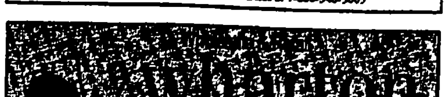
Visit www bmes189 org or pick up an application at 30 Juliustown Road in Browns Mills

Maple Shade graduation

Central Record photos by David Borrelli

MAPLE SHADE High School student government president Kacie Booth, in left photo, addresses the crowd, while in right photo, fellow graduate Deanna Duran sings the national anthem during commencement exercises.

What's Up



July 13

❑**Blueberry festival:** The Trinity Church will hold its annual Blueberry Festival from 1 to 4 p.m. at 18 Mill Street in Vincentown. Free admission. Blueberry shortcakes baked good and jam available for sale Call 609-267-4354

❑**Paulsdale tour:** The Second Saturday Tours of Paulsdale the Mount Laurel birthplace of Quaker suffragist Alice Paul, will be held at noon and 1 p.m. at 128 Hooton Road. Cost is $5 Call 856-231 1885

❑**Memorial service:** The Tabernacle Recreation Committee will present its 85th annual Carranza Memorial service at 1 p.m. rain or shine Call Betsy Piner at 609-790-7026 or email pinesfrog@aol com (put "Carranza" in subject line)

July 18

❑**Bus trip:** The Browns Mills Senior Citizens Club will sponsor a bus trip to the Spirit of Philadelphia. $65 for members, $70 for non-members Payment due by June 28 Call 609-893-0304.

July 20

❑**Fish fry:** The Willing Workers Ministry will sponsor a "Fish Fry Sandwich" from 11 a.m. to 4 p m. at St. Mark Baptist Church in Browns Mills. Cost is $8 per sandwich. To place an order, call 609-893-6178.

❑**Chicken BBQ:** The Tabernacle Rescue Squad annual chicken barbecue, from 1 to 6 p.m. at 81 Hawkins Road. Tickets are $10 per person. Call 609-760-1148

July 28

❑**Rummage sale:** The Sisterhood of Adath Emanu-El will hold its annual rummage sale from 9 a.m. to noon at 205 Elbo Lane A bag sale

Attachment C

PUBLIC MEETING ATTENDANCE SHEET

Ellis Property Superfund Site

EPA

Ellis Property Superfund Site
Public Meeting
Evesham Township Municipal Building
Municipal Courtroom
Wednesday, July 24, 2013 @ 6:30 PM

PLEASE PRINT CLEARLY

NAME	ADDRESS (with Zip Code)	E-mail
MICHAEL SULLIVAN	100 SHARP ROAD, MARLTON, NJ	MSULLIVAN@ 4 MCD.CO
JOE ROMEO	BUENA, NJ	Romeoj@cleanharbors.com
MARY COLLURO	4 JONQUIL PL. MARLTON, NJ.	
[illegible] COLLURO	4 JONQUIL [illegible] MARLTON NJ.	
A. RANAS	10 Morning Glory Dr Marlton	
R. GARDELLA	7 VIOLET CT. Marlton	
John Boyle * [illegible]	130 Sharp Rd. Marlton NJ 08053	john@boylebrothersinc.com
BOB STAMM (*)	8 CRANE DRIVE, MARLTON 08053	rjstamm1257@yahoo.com
GEORGE TENCZA	10 KENNINGTON RD. MARLTON 08053	GTFLHTC@AOL.
GERRY GAMBLE	96 LOWELL DR MARLTON	
Mark Kluger	7 Red Oak Rd Wm, NJ	mkluger@ [illegible]
Bill Green	5025 B Church Rd, MT Laurel, NJ	wgreen5530@AOL.Com
JACK LYNN	38 MITCHELL CT MARLTON	JACK AND BETTY L @verizon.net
ALBERT LUTNER	1 TULIP CT. MARLTON al.lutner@verizon.net	
Carol Marmero	40 Mitchell Court	carolmarmero@yahoo.com
Guy Sheets	4327 Point Pleasant Pike Danboro, PA 18916	gsheets@amoed.com
Joseph Romeo *please mail ROD	7726 Venice Blvd, Mays Landing NJ 08330	Romeoj@cleanharbors.com

R2-0004276

Ellis Property Superfund Site

Public Meeting

Evesham Township Municipal Building

Municipal Courtroom

Wednesday, July 24, 2013 @ 6:30 PM

PLEASE PRINT CLEARLY

NAME	ADDRESS (with Zip Code)	E-mail
JAY LEVENSON	38 LOWELL DR 08053	jay.levenson@s-s-t-l.com

Ellis Property Superfund Site
Public Meeting
Evesham Township Municipal Building
Municipal Courtroom
Wednesday, July 24, 2013 @ 6:30 PM

PLEASE PRINT CLEARLY

NAME	ADDRESS (with Zip Code)	E-mail
WM. J. ROACH	69 LOWELL DR	
David Levinsky	Burlington County Times	dlevinsky@phillyburbs.com
Fran Ridenour	414 Sedgwick Lane Marlton NJ	
JOE Boyle	271 SHARP ROAD	—
BOB DiENNA	8 EUSTACE TERRACE (COUNCILMAN)	BOBDUSMC@VERIZON.NET
* RANDALL BLUME	145 BRANDYWINE DR 08053	rblume8351@aol.com
Alla Brenner	6 Clancy Court	Alla1234@comcast.net
* FRANK GORSKI	12 KEVIN WAY, MARLTON 08053	fjg1017@verizon.net
Jeffrey Rollins	26 Christopher Dr. Marlton, NJ 08053	rollinsj@evesham-nj.gov
* Jim & Connie Kelley	45 Weaver Dr. Marlton NJ 08053	Kejote@comcast.net
CATHERINE FEIDLER	14 GOLDENROD LANE MARLTON NJ 08053	
H. FEDORKA	10 VIOLET CT MARLTON, NJ 08053	
P Ferroni		pferroni@cape-inc.com
* Nancy Jamanow	Evesham Township	jamanown@evesham-nj.gov
BOB MULLEN	7 LANEVALE CT MARLTON 08053	bdmck2@verizon.net
MR & MRS A ZIPPILLI	25 ROSS WAY TANGLEWOOD MARLTON, NJ 08053	AWZIPPILLI@GMAIL.COM
STEVE GILLESPIE	4019 YORKTOWN DR BOOTHWYN PA 19061	SGILLESPIE@SEVENSON.COM
JOHN BARTHOLOMEO	16 E Glen Circle Media PA 19063	jbartsta@verizon.net
Susan Mintz	27 Mitchell Ct, 08053	mintzsusan43@gmail.com

R2-0004278

Attachment D

TRANSCRIPT OF JULY 24, 2013 PUBLIC MEETING

Ellis Property Superfund Site

ELLIS PROPERTY SUPERFUND SITE

PROPOSED PLAN PUBLIC MEETING

\- - -

July 24, 2013 6:30p.m.

Evesham Twsp. Municipal Bldg,
984 Tuckerton Road
Marlton NJ 08053

PRESENT:

Richard Ho
Remedial Project Manager

Natalie Loney
Community Relations Coordinator

Environmental Protection Agency

John Prince

Carlton Bergman
Site Manager
NJDEP

Thomas O'Neill
Section Chief
NJDEP

MS. LONEY: Thank you everyone for coming out on this warm July evening. My name is Natalie Loney. I'm a community involvement coordinator with the EPA, Environmental Protection Agency. Today with me are some of my colleagues from the state and some of my colleagues from EPA.

From EPA this over here is Robert Alvi. Robert is a geologist. This is Richard Ho. Richard Ho is remedial project manager who has been managing the site. John Martin to my right and your left is our press officer and the person who will be presenting tonight is John Prince. John Prince is a section chief in the Super Fund Program.

We also have two folks from New Jersey Department of Environmental protection. The first is Carlton Bergman. Carlton is the former site manager for the Ellis Property Super Fund Site. And next to Carlton is Tom O'Neill. Tom is the section chief with New Jersey Department of Environmental Protection for Operation and Maintenance.

The purpose of tonight's meeting is to go over the proposed plan for the clean up of the Ellis Property Superfund Site. This is a public meeting. So after the presentation we will open the floor for question and answer. We do have a stenographer here who will be recording everything. So we do ask that when you are asking your question, just please state your name for the record and try to talk as clearly as possible.

How did we get here tonight? This slide you can follow along on your hand out. This slide kind of gives the over view of Superfund Sites. Starting with the discovery and it's placed on the Superfund list. We do our preliminary assessment and site inspection followed by, excuse me, followed by placing it on the NPL list.

Once a site has been identified and placed on the Superfund List we then go through a process of remedial investigation and feasibility study where we look at the nature and extent of contamination at the site and we also investigate feasible -- feasible rather options for addressing contamination at the site.

Once we come up with something called a proposed plan which looks at the alternatives that can be applicable at the site, we have a public meeting. We accept comments and then we finally make our decision as to what remedy will be implemented. So we have a proposed remedy which is a proposed plan and then the record of decision, which is where EPA makes its final decision as to what remedy will be used at the site.

Once the remedy has been selected it's

designed and actually implemented. And in many cases once contamination has been removed from the site it can qualify to be and in many cases sites have been deleted from the NPL site. In the case of the Ellis Property Superfund Site we have gone through pretty much everything on this list. We have gotten past the record of decision which happened in I believe 2003, correct?

MR. PRINCE: '92.

MS. LONEY: I'm sorry. I was talking about the implementation of the remedy. So the remedy at this site was actually built and implemented in 2003 --

MR. BLUME: 2000?

MR. PRINCE: 2000.

MR. BLUME: Ten years after the ROD.

MS. LONEY: Thank you. All these numbers begin to float in my head.

MR. BLUME: It's been a long time. It's not a surprise.

MS. LONEY: Thank you, sir. Anyway so what has happened at this site is that EPA continues to evaluate any remedy that we implement and in evaluating the remedy here it was determined that it was not acting as efficiently as originally designed. And that's why we're here today. We're actually coming out with another proposed remedial action plan. Another plan to upgrade, to fix, to correct, to remove the contamination that was identified at the site.

So what John Prince is going to be doing is he is going to be going over what that proposed remedy is. You have until August 12th to comment on it. The proposed plan is available on-line and we also have copies of it here at the library. So you have an opportunity to ask questions and comment on the plan tonight or if you prefer, you can e-mail comments to Richard Ho and on the last page of your handout is his e-mail address, along with the address of the web page that has the proposed plan on-line, as well as other site related matters.

So I'm going to turn the floor over to John right now. Once John is completed I'll come back on and we'll start the question and answer phase. Thank you so much.

MR. PRINCE: Thank you, Natalie. So I'm only going to speak for about 20 minutes, try to keep this short and give the floor over to the community. There may be some opportunities for us to clarify some issues here through questions and answers and comments that you will have and really that is the primary purpose here is to really hear from the community.

So I'm going to summarize a little more about

Superfund. You will sort of learn a little more about that process if you don't know it and then details about the site. I am -- when we get to the question and answer period I am going to be relying on Carlton Bergman and Tom O'Neill from DEP a fair amount of -- the Superfund project program requires involvement, cooperation, collaboration from the state. And projects can be led by New Jersey or they can be led by EPA.

In this case the collaboration has really been a lead from New Jersey and so some of the site specific details we will turn to them. So I'm not going to spend to too much time on some of the past history but the land was -- we are on Sharp Road. I got some maps and we will help focus exactly the locale, if you're not familiar with it, in a couple more slides. But it's on Sharp Road here in Evesham.

Was farmland up until the 1960s. A Mr. Ellis and his wife purchased the property, about 36 acres. They used a portion of that land for a drum re-condition operation and that involved getting drums from other places, cleaning them out and painting them, and re-selling them.

And by cleaning them out that meant that if they was -- it was a drum that they couldn't re-use they buried it and the material that they were cleaning out much of it seemed to end up on the land. And the material that they were using to clean the drums were industrial solvents. So we will hit on a couple of those details as we go through the process.

DEP, the state became involved around 1980 when the Superfund program was passed into law, also the same year. And so it progressed through some of those emergency response stages of the dealing with the immediate problems around the time the Superfund program was getting up and running. And it was proposed for the Superfund list and placed on the list in the early 1980s.

So I'm going to -- I'm realizing this is not the best map and this is just to make sure you're paying attention. This map was not in your handout so -- Route 70, okay. Sharp Road is about two miles north of here. We have narrowed in a little. We're still going north/south Sharp Road. You can see the site is here and actually we're really just showing a portion of the site. We're showing a portion near Sharp Road of again of a 36-acre property.

Now, what I would like you to note on this figure is that we have now turned the orientation so that Sharp Road is on the bottom. So that north is now that way and the area that we're really focusing on for the clean up is down here near Sharp Road. Is a relatively large property and much of this part further to the east is wetland, it's marsh land. The upland -- it's relatively flatland and the upland sort of former farmland and former area where Mr. Ellis was doing his operation is closer to Sharp Road and I will point out that right about here is our extraction trench, maybe halfway on this figure that you will see in later figures.

So what did we find back in the late '80s and early '90s when we were really trying to figure out what the site looked like, we found soil contamination and ground water contamination. The soil contaminates predominately were the sort of materials that we might expect from those drums being washed out and dumped on the ground. And what we saw on the ground water was really more in line with some of these industrial solvents such as PCE or trichloroethylene TCE that were probably used -- were found in some of those drums but were also used to clean them out and they're relatively soluble and get into the ground water.

So we are looking at that time relatively shallow soil contamination. It's really different than what we're finding in the ground water. So the original remedy really has two components, soils and ground water. We're referring to relatively shallow soil contamination and deeper ground water contamination but let me explain what those terms mean in terms of this site.

As we drill down through the soils in this area I'd like you to picture three sort of different zones. Nearest the surface is an area of about 30 feet of kind of a sandy shallow Aquifer. The water table is encountered about five to ten feet into the ground. This time of -- this particular season it's a little shallower because it's been a lot of rain. Then there's about 20 feet of saturated soil and so that 30 feet is where we're seeing contamination from this site. Below that a second zone is sort of a really clayey. That is actually relatively thick here, impenetrable to these sorts of contaminants moving through it.

And then deeper below that are a series of Aquifers that are actually used -- typically used for drinking water. Most prominently the Wynona, Mount Laurel and that starts at about 100 feet below ground surface. We have tested all of those zones. The one we're concerned about is really that shallowest area from ground surface to about 30 feet.

So when I talk about shallow in this presentation I'm talking about, you know, sort of that say five to ten feet surface soils and when we're talking about deep -- I'm really talking about that ground water that's down about 30 feet.

So we saw some soil contaminants. The remedy called for excavating those and taking those away. There is this ground water problem with these quite soluble industrial solvents primarily TCE. And the remedy there was to install a pumping and treating system that would extract contaminants out of the ground. Put them through a treatment system.

The excavated volumes were substantially larger than we originally expected during that remedy but that remedy was -- was done in the late 1990s and then the pump and treat system went into place in the year 2000. So what we have today is again and I'll -- we're narrowing down even farther. Sharp Road is still on the bottom and now that extraction trench that I referred to earlier is up at the top of the figure and that wetland area is off of our drawing.

We've got treatment facility. We've got a collection system and that collection system is down at the end of the direction the ground water flows. That collection line or trench and then a number of extraction wells that are placed in some of the areas where the contamination is higher. All of this work is taking place in this shallow zone between ground surface and about 30 feet below the ground surface.

So this is not a --

MR. BOWMAN: Could you clarify where the extraction wells are? I thought the extraction wells were down by the trench.

MR. PRINCE: We do extract water from the trench and then there is several locations of extraction wells that are in hot spot areas on the site.

MR. BOWMAN: Thank you.

MR. PRINCE: So this isn't an ecstatic process. The need to make changes in these sort of pump and treat systems are something that we are very mindful of. And so this started in 2000. Our first real re-visit of this, of this facility began at about 2006. It has resulted in some changes in the way the plant operates to make it more efficient. To make it get more contaminants out of the ground. But one of the things that we were finding was that there are some really persistent levels of this TCE solvent that we were not making much of an impact on. So that led to some broader studies of how the plant was performing. And that has led us today to make a couple of findings or conclusions that really are new information that we -- we were not working with when we made the original decision. Most important of which is that sandy Aquifer that I've referred to has a fairly high content of little lenses of clays. This mar, that is sort of mixed into the sand and those lenses are full of organic matter because that clay is high in organic content.

And TCE tends to adhere to it. So once it's gotten in there and in the sort of clay lenses it makes it pretty difficult for the pumping process to pull it off again. It has very little impact on those residues. So that has led us to really look at -- in much greater detail on what's remaining there. So this is a drawing. It's in your hand out. It tries to capture where we think the real core of this problem is. And I'm going to show this picture again later but essentially you'll see that our area of concern is inside kind of a contained unit. It's inside where our cut off wall is and where our extraction system is. What is the extraction system doing, it's collecting water from a couple of hot spots but then at the end pulls water out, puts it through the treatment plant and then we re-introduce that water, upgraded. So it's sort of meant to flush, sort of re-circulate and have a closed system that eventually pulls these contaminates out and if this were a sandy Aquifer that really didn't have those clays we might be done by now. But really it's that condition that is --

we think is hanging up the current system from doing what we like it to do.

So let me just talk a little bit about current risks at the site. The earlier work that we had done with regard to excavating contaminate soil, primarily focusing on direct contact from exposure from someone being out there. So those surface soil exposures have already been addressed. The residual contamination is a depth. It's generally below ten feet when you start encountering the ground water is when we start to see it.

This particular water that's contaminated. Is not being used as a drinking water source we do have -- actually let's flip back to the figure. Yes, we do have wells sort of bounding this zone on the sides. So we do know where -- what the scope of this is. That's very well understood. So we know that there isn't some well that someone might be using that we wouldn't know about.

The flow of the ground water contamination is currently easterly and has been the whole time this system has been operating. In other words, towards the marsh. And vapor intrusion is a concern that we have at some Superfund sites where there are vital organic compounds in water and the water moves under existing structures. And those vapors can actually move again and move up and appear inside buildings but because there are no buildings near the area of the ground water contamination we're not worried about that here.

And so we're really concentrating on what to do about what we have left and how to resolve this which this is TCE, is persisting at the site and the existing system is not -- look like it's going to get us there any time soon.

The remedy in 1992 established some clean up objectives. Why are we here. What are we trying to achieve. We're not proposing to change any of these. This soil objectives essentially are met with the exception there is -- some of the deeper soil has VOCs in it and we certainly want to address those. But the other remedial objectives with regard to soil have been met and then for ground water we're currently preventing migration because we have this enclosed system. We certainly wouldn't want a vapor intrusion problem to come in the future but that's not a prospect that we're looking at soon.

And then ultimately what are we after, restoration of the aquifer and that's what brings us back here because that's the one point that we're not reaching. So this is a figure that comes out of our feasibility study. The dotted areas in the middle are quite heavily contaminated zones and then the larger area in the red line encompasses a zone that's initially a 100 times the clean up standard, the drinking water standard. Relatively elevated zones. These distinctions are interesting to us in the feasibility study because some technologies that work well when concentrations are very, very high don't necessarily work well when they're lesser and vice versa.

So we divided the site into these separate units so that we could look at some different technologies. So those areas are essentially what we call the residual source area. That's that couple of really concentrated areas about a half acre in size when you put them all together. Contaminants start at about ten feet down. It's about ten or 20 feet thick that we find these residues and it's about 22,000 cubic yards of material.

The larger circle when we add all those together, the full area down here at the bottom it's about two acres in total. Again, we don't encounter these contaminants until we get down to about ten feet and it says ten -- from ten feet down to about 20, 25 feet down that we find the bulk of these constituents.

So we came up with many alternatives and I'm happy to go into the details of them in the question and answer period if you care to go into more detail. And I have slides on each one of them but I'm just going to concentrate on -- I'm going to try and keep it a little bit similar so that we can get to that part and give you some details on particular alternatives. So alternative one was -- well, let's use as a baseline that we keep the existing system operating as it's being operating and don't change anything. And our modeling of the performance of that are over a 30-year performance window.

We don't think we're going to remove a lot of contaminates because its -- every day it's pulling contaminants out of the ground but we don't see that it's going to move the ball towards actually restoring the ground water because of that intimate relationship between these clays and the ability of the pumping system to remove them.

Why don't we go to just quickly, I'll turn to -- alternative two is -- constructing a remedy where we excavate this material is not unheard of. We can dig it out and so we've reserved that as an alternative and we have also -- and then I'll just briefly mention the nature of the other alternatives and that is since we selected -- back in 1992 a pump and treat system at a site like this was pretty much the gold standard. It was the way we did business. That's, you know, pump and treat, sandy Aquifer, VOCs, soluble, you put in a pump and treat system.

Years have passed. We have learned a lot in our agency and the industry that does these sorts of clean ups has learned a lot about other options that are out there. And so today when we did this feasibility study on these remnants we found a whole variety of other things that we could look at. I'll mention just a couple chemical oxidation where you introduce chemicals into the ground that really react with and destroy these constituents.

There are many sites where we've used biological treatments by way of bacteria that use VOCs like this as food. We can introduce them into the Aquifer and kind of feed them and encourage them to break down the VOCs by consuming them. We concluded that that actually was not a good fit at this site. And then we have also at other sites used a kind of thermal heat treatment process by literally heating the ground surface. Putting electrodes into the ground and heating it to the degree where you're heating the water but also heating these volatiles and getting them into vapor state and then they rise and you collect them at the ground surface. So the other alternatives look at various combinations of those things. Excavating and chemical oxidations or heat treatment of the core area. Some other combinations that we thought were appropriate and I have details on all of them and we can talk about them if you like.

I'm going to finish up my remarks though. We'll go right to the last line and I will just talk a little about our preferred alternative which is alternative two, the excavation remedy.

And we are preferring this for a couple of reasons that really tie back to the same reason that the pump and treat system is struggling to do this job. And that is, you know, there is some clays down there. They're going to bind tightly in a chemical oxidation process too. They are going to make it somewhat more difficult for a thermal heating process to operate. And there are some uncertainties with operating that sort of system into the ground that we feel in this case are going to -- may put us in a position where we might get say 75 percent of the way there through these constituents in the ground treatment methods but still be faced with elevated levels that will still want to operate the pump and treat system and we still wouldn't be at the...

So that's our rationale for this particular alternative. I do want to mention that it is the most expensive alternative that we considered. So obviously cost is an important factor to all of us. And it does involve the most trucks needing to come to that facility. All of them are involved, some trucks. Some of the other alternatives involve some excavating. This is the one that involves it the most. Invasive and complete level it would look simply like this.

The facility would -- the pump and treat system would remain there. We would use sheeting to isolate the area of contamination and do water it so we can excavate it in the dry rather than excavating wet soils because we have to get down into the saturated zone. We move the shallow soils aside, excavate those material. It will be placed on trucks and moved to a secure disposal facility that we would select and -- that was appropriate for this sort of material and then we return the surface soils to the excavation and then backfill it up to the ground surface, pull out the sheeting and through all this process we actually leave the ground water, the existing system in place and our expectation is that we might need to operate it for some period of time. We're estimating about a year that we would continue to operate it.

And that's all we have to contribute on our side. Natalie, you're going to sort of give some summaries on what --

MS. LONEY: Exactly. On your hand out there were copies made. Is there anyone remaining that does not have a copy of the hand out. Keep your hands up. Anyway I just wanted to again go over where we are now and your involvement. The comment period for this Superfund site is 30 days. The ad was placed in the local paper on the 12th of July and the comment period closes on the 12th of August. You can e-mail your comments to Richard and his address is there. You can also fax on the 19th floor but you can send it to Richard Ho. Everybody knows who he is. You can send it to his fax or to his e-mail.

I do have some copies of the proposed plan here. It is the technical document. So if anyone is interested in looking at it I do have them. I will leave them in the back of the room. It's also available on-line if you don't want to have the hard copy. It is available at that web address. So you can e-mail and you can fax your comments if you prefer to wait or you can submit your comments tonight.

The great thing about public meetings is it offers all of you an opportunity to hear what your neighbor's concerns and questions and issues are and you also get an opportunity to hear the direct answers to any questions you may have from EPA.

So we really want you to take advantage of our presence here tonight. To ask us any questions or concerns you may have about the remedy. You're not required to submit your comments tonight. You have until the 12th of August. So I'm going to open up the floor now for question and answer. One thing when you are going to ask your question, please state your name for the stenographer and if you have a name that has a lot of vowels in it she may ask you to spell it as well. Thank you.

MS. MINTZ: Susan Mintz, 27 Mitchell Court here in Marlton. What is the time line from the beginning of this project until the completion for the removal of the contaminated soils? That's the first part of my question. The second part is have you looked at the Sharp Road access for your equipment because there is real concern for the safety on the integrity of the Sharp Road access?

MR. PRINCE: So here is our schedule as we can speak about it today and yes, your handouts say the 9th but it is the 12th. We had some last minute changes on the last page and obviously we didn't quite get them all into your house. If we receive comments this August our responsibility is to be responsive to those comments which doesn't mean we're going to change the remedy, but means that we need to demonstrate that we have responded to them. We understand them. There are lots of valuable information that we get from this comment period. And I am going to answer your question.

And after we receive those our goal would be to select the remedy which is in something called a Record of Decision by September of this year. If we receive a lot of comments we may not be able to meet that deadline but let's assume that we sign this remedy, this year, our next step is to design something that we can implement and that is something that we can put out to bid and hire a construction company to do and we call that the remedial design. That typically takes a year, at least a year to 18 months to implement. Now we're talking 2015.

When we are finished with the remedial design this is one of many projects that EPA does around the country, the funding for the clean up in this case is not coming from private party. It's coming out of the state and federal offices. So there is a budget that congress gives us each year for implementing cleanups each year. And so we will make a presentation and I'm expected 2015 that we're ready to go ahead with this project and there will be other projects and it's possible that we will not be funded that year. But we'll get funded eventually if the EPA -- if we make a commitment to implementing a remedy it will get implemented eventually. Not earlier than starting in 2015 and the projected time frame is about a year to implement it.

Your second question was about Sharp Road access?

MS. MINTZ: The integrity, because in order for it to support this equipment that you're proposing in your alternative, you would really have great concerns about the integrity of that structure. It wouldn't meet the demands of the weight and the traffic.

MR. PRINCE: So we'll -- there is two things that we do in this design process. One is develop a transportation plan that we can bring to the community and say well, okay, where do your school buses run. What are the best routes for us to come and go presuming that there will be this many, many trucks. And we also need to do engineering studies to ensure that the local infrastructure matches what we plan to do. And if it doesn't we're going to have to figure out a way to get it to match. So I'm glad you're raising this question.

MS. LONEY: Yes, sir.

MR. ROACH: William Roach of Legacy Oaks. I haven't noticed any extraction wells on the north side of Sharp Road. Am I to believe the plume doesn't go out that far?

MR. PRINCE: The ground water moves in this direction and that's north.

MR. ROACH: I'm sorry, west. I'm sorry west.

MR. PRINCE: Carlton, can you speak to wells that we have in that direction?

MR. BERGMAN: There are no wells on the west side of Sharp Road. We've never found any contamination in the ground water.

MR. ROACH: Are we to believe there is no plume on the west side of Sharp Road?

MR. BOYLE: Carlton, excuse me, isn't there a well across the street? I'm John Boyle. I own the property directly -- it's that triangular piece, one up from there.

MR. BERGMAN: Good to finally meet you.

MR. BOYLE: I believe there is one monitoring well across --

MR. BERGMAN: I don't know what it is. It is not ours.

MR. LYNN: Jack Lynn, 38 Mitchell Court, Marlton. When we talk about that many cubic yards how many truck loads is that?

MR. PRINCE: About 5,000.

MR. LYNN: 5,000.

MR. PRINCE: About three an hour 200 days, about three an hour eight hours a day. That's for about a year.

MR. SHEETZ: Guy Sheetz. Does the state of New Jersey currently hold the OME contract?

MR. O'NEILL: Yes. We contract out the operation and maintenance currently for our plant.

MR. SHEETZ: Will that continue to operate even after this remedy here is implemented?

MR. O'NEILL: The plant per this proposed plan is expected to run for approximately a year post the removal action which was removing the soil but until that is implemented we will continue to operate the plant in order to maintain control of the plumb at that site.

MR. SHEETZ: Thank you.

MR. KLUGER: I have an extensive comment. Is that okay?

MS. LONEY: That's fine.

MR. KLUGER: You say that now when you haven't heard it yet. Okay. My name is Mark Kluger and I'm the president of a company called Day Jack and Day Jack does what I do is I help companies market remediation technologies. I've worked extensively with EPA region two, with New Jersey DEP. So I have some expertise in remediation technologies and I would like to discuss one of the technologies that you folks looked at, one of the alternatives and I have comments about the proposed plan responses to that. So I would like to get all that on the record.

Everybody comfortable with that?

MR. BLUME: Could you tell us where you're from again and what your professional credentials are?

MR. KLUGER: I'm a sales and marketing technical resource graduate of Johns Hopkins University. I have been doing this now since 1970 --

MR. BLUME: Any licenses?

MR. KLUGER: No professional licenses. I'm a member of RTIC.

MR. BLUME: Have you been qualified as an expert witness in any hearings?

MR. KLUGER: No.

MR. BLUME: Thank you.

MS. LONEY: Before you start your comments I want to make it clear we want to make sure everybody else has an opportunity to ask questions. So we would ask that you try to make them as simple as possible.

MR. KLUGER: It shouldn't take long. The technology that I'm going to be talking about is electrical resistance heating which was alternative nine in the proposed plan. And I think there is some significant advantages primarily in grossly reduced truck traffic. We're talking about five percent at most of these, five to six thousand trucks and the -- another big advantage is expense and we're applying remedial, remedial solution getting funding for these things, expense is going to be significant.

This technology has been used extensively in New Jersey. We have completed four projects in mass reductions. We're talking about more than 99 percent performing in solvents. It's been used in EPA Superfund projects and besides the four already completed there are five that are actively current. I will cut to the important parts here.

It was stated by Mr. Prince that when they looked at electrical resistance heating that it would not clean up some of these clay systems. That is an incorrect statement. We have had extensive experience cleaning up clay. We've cleaned up rock. We've cleaned up sand. So the technical comment that this technology is somehow inappropriate for clay I take issue with and I'd like to understand the basis of that statement.

MR. PRINCE: We propose this as one of the alternatives. We certainly consider it a viable one when we're weighing it against some of the other alternatives and I'm not going to go into too much more detail tonight.

MR. KLUGER: Well, the vendor I work with will absolutely guarantee results. If you say I want 99 percent of the contamination mass out of that clay they will provide that and they will guarantee those results.

There's another comment about in the technical document, about difficulty of using this technology for non-aqueous phase liquids, DNAPLs specifically. It turns out that DNAPLs actually is easier for this technology than aqueous phase contaminants. It's the first thing to go. So there are technical issues with the document that we would like to address.

MS. LONEY: I will say this, that the written comment that are submitted to EPA, for example, the technical comments that will be submitted, EPA responds to all of those technical issues and those kinds of comments in something called a responsiveness summary and that responsiveness summary is part of that Record of Decision.

When EPA makes its final decision about any remedy that Record of Decision has the decision as to what remedy will be implemented and it responds to the technical questions and that particular document would be made public. So once EPA makes its decision we will have a written response to the technical questions that were raised.

MR. LEVENSON: Jay Levenson, Walway Drive. My concern is airborne contaminants both during the excavation. We have a lot of construction near our community and every time somebody starts digging we get coated with dust. You're going to have as many as 5,000 truck loads going within a half a mile of where I live, maybe a quarter of a mile. What are you going to do about controlling the dust?

MR. PRINCE: We are, as I hope might imagine, very serious about dust because we can't implement a remedy without spreading contamination around, then we shouldn't be doing it. And so we have a number of processes that we implement. We have essentially a dust control plan during the actual construction that's built into how we operate. We have perimeter air monitoring that tells us if there is a release that we need to be responsive to and then there is a whole sort of series of steps that we undertake to respond to that. Essentially stopping whatever it is that we're doing and figuring out why there would be dust.

And then with regard to truck transport issue, which I think is probably part of your question, that's something we need to take very serious as well and the trucks need to be cleaned and sealed before they leave.

So all of that information is material, whatever the implemented remedy is that's the sorts of things that we pull out in the remedial design stage and prepare so that we can clearly communicate them to the community before we implement it. So that we would actually be back here to explain how we're going to meet that specifically, whatever the implemented remedy is before we start the work. So you will actually be able to hear us describe in detail how those things would be addressed here.

MR. LEVENSON: Sounds like if you're putting air quality monitors out there you're going to get information after the fact not before. So we will already have been contaminated by the time you figure out that we've had some dust problems.

MR. PRINCE: For dust control we actually do realtime air monitoring so it's alarmed back to the work station. So if it's dust at the perimeter -- we have sort of tiers of this where there is dust monitoring at the actual excavation area and loading area and then there's perimeter air monitoring, that's a second tier.

And in each case they're real time. In other words, they actually will see dust and alarm the workers, health and safety officer who has control over stopping the job. It's independent of the actual engineer running the job, health and safety officers separate role in the way we operate these sites. And they are instantaneous. They actually measure dust and the way we run these jobs is we assume dust is contaminated even if it's very well may not be, we assume that it is. So dust we can measure.

We don't wait to see whether they're chemicals. We actually are looking for realtime. We're looking for realtime measurements.

MS. GAMBLE: Jerry Gamble. My question is this area is not fenced in or identified in any way that kids that play there or whatever; is that correct?

MR. PRINCE: It's fenced.

MS. LONEY: There are signs there as well.

MR. O'NEILL: There are signs on the main road. We do not have signs around the perimeter.

MR. PRINCE: So your concern is for trespassing children?

MS. GAMBLE: Yeah, for safety and people have a right to know if you really don't want people walking on that property.

MR. O'NEILL: We have a daily presence there currently. I mean, for -- during the week and they do keep an eye out for people trespassing on that property during the day, during the week.

MR. PRINCE: If I may, our concerns in your case our concerns would be slip, trip, fall, ticks, exposure to, going out in the woods and not to chemical contaminants because the material that we're concerned about is buried in the ground. It isn't accessible to a trespasser child coming onto the land. Okay.

Doesn't mean that I don't acknowledge that someone might be hurt by trespassing on a property, but it wouldn't be because of the contaminants.

MR. BOYLE: I'm John Boyle. We own the property at 1030 Sharp Road. My question is piggybacked off the prior question at Tom. I don't mean to dispute but the property is not fenced. The infrastructure is fenced but there is no signage. The signs were obliterated by DeLuca planting trees in the front of the signs that block it. I think maybe people never even saw them.

I would like to know what you guys are going to do? Just yesterday I chased kids off the property. I'm there every day. I'm the closest person there. There were kids in the swamp in the back collecting frogs. There is a chronic trespass issue on the property. There are chronic bird hunters who access the property. There are adult people walking their dogs. There's unfeathered access to the property and as the town has allowed more and more residential building around this site, there's just more foot traffic. There used to be -- prior to this there was never foot traffic.

There is extensive foot traffic along the property now. There is zero signage and maybe most of the people in the room would agree, did anybody see the sign when they bought their property that clarified exactly what was there. So --

MR. O'NEILL: There is a rather large sign on the fence.

MR. BOYLE: The sign was obliterated when DeLuca planted trees in front of it to purposely block the sign. Everybody here knows that. The trees died because they weren't maintained because of the soil. My question would be and again, I want to back up and say I applaud and I thank everybody for being here. We all want this cleaned up. But there is some concern that there is, you know, unfeatured access. We're all adults and we know to stay away but there are a lot of uneducated folks and there really is -- we will agree there is poor signage or poor communication relative to the hazards.

And you mentioned in your own objectives is to prevent contacts with soil and ground water contaminates. In the back of that property, I mean, it's a very swampy area. There's tons of frogs. The kids go back there and collect frogs. I know the fellows that run the site. I mean, I've been there many times. They're not there every day. There is not a presence on site every day. I know the OM manager there --

MR. O'NEILL: I didn't intend to mislead. They are there frequently.

MR. BOYLE: But I see many other EPA sites that are perimeter fenced in sites. The one that comes to example is on New Albany Road in Moorestown which was a similarly contaminated site and they blocked that off entirely. Why don't we have that and we're talking about a project that's going to be four years in advance of now. Recognizing that there is significantly more foot traffic. Again, I'm not worried about me. I'm not worried about my employees. I'm not worried about the adults here. We have a growing problem and I think it needs to be discussed at least.

MR. O'NEILL: We will acknowledge the environment is changing in the neighborhood. When we built the plant it is different than it is now. I'll bring this back. We will go over with our community relations group and we'll come up with an answer. We do fence other sites. We'll look into that for sure. Signage, we had good sign up front. I am hearing you, you want additional signage around the property. Not just for you but for people who are unfamiliar with the property. They may not approach it from Sharp Road. They may be approaching it from the fields. They may be approaching it from swampy areas.

MR. BOYLE: Well, you've got that affordable housing complex. The kids come down. They just don't know and they're straying on it. They're all out of school. They're in there.

MR. O'NEILL: Fencing comes with its own challenge.

MR. BOYLE: It's just a lack of education. It may be limited exposure. You're the scientist I'm not.

MR. O'NEILL: I'm with John. I'm not particularly concerned at all with surface contamination. It's not an issue. Outside of our enclosure, our component where we do have that fenced. That is where the plant is operated. We use chemicals in that plant to conduct the treatment. We don't want anybody inside the fenced in enclosure where we're operating. That is why we have fences there.

Outside area slip, trip, fall, physical hazards not chemical hazards. I'm really comfortable with that.

MR. BOYLE: But going forward and thank you for addressing that. Once they start excavating does that present any elevated concern with kids, you've got machines?

MR. PRINCE: Yes. There will be security around, 24-hour security around the whole facility because of the equipment that is there even at night. And just as an example that Moorestown facility that -- those soils have also been addressed and it happens that if it was fenced during the clean up and they just left up that fence. It doesn't actually protect anyone except to keep trespassers off of that particular land. It is also similarly in a state of not really being owned by anyone at the current state. We're working on that.

MR. LUTNER: My name is Al Lutner. I'm just wondering if you said that the ground water is moving towards the wetlands or the wetlands being tested and is the water moving from the wetlands where is it going?

MR. PRINCE: We have a whole series of wells that go out into the wetland beyond our cut off wall and those -- some of those wells have historically shown elevated constituents in past years. We build the system -- those numbers have just basically dropped away. They're not nothing but they're essentially going to be at nothing very soon. They're going to be all below detection levels in the near future because of the system that we've built.

MR. LUTNER: Why don't you use that system then here?

MR. PRINCE: That system is we've captured the site and enclosed the contaminants so they can't get any further away. We have done that part. It is no longer migrating away and those constituents have dissipated really very quickly after that system went in place. The problem is now what are we doing about what's in the box.

MR. LUTNER: Thank you.

MS. LONEY: Who is two?

MR. GREEN: Bill Green, Licenses and Engineer. De-watering, are you going to address the de-watering? You are going to encounter the water four or five feet probably especially right now but we definitely have five feet all the way down to 30 feet. That is a lot of water.

MR. PRINCE: A lot of water. It's a big job because we're going to have to seal up basically a box, work inside the box.

MR. GREEN: Right, the water is going to be --

MR. PRINCE: We're going to have to pump it out and treat it. There's no other way to manage it.

MR. GREEN: Why did you not consider pumping and treating and hiring seven gallons --

MR. PRINCE: The limitations --

MR. GREEN: It seems to be a very, very slow trickle. I mean, my faucet in my house is more than that.

MR. PRINCE: It gets back to what the Aquifer will actually allow us to pull out which is not much. Carlton, do you want to add anything to that? I mean, basically it's limits to what this unit will produce.

MR. BERGMAN: We have four extraction points on the property. Two of them are located within the extraction trench which gives us most of the volume that we treat. However, the high levels are actually in the extraction wells, the two other extraction wells that we have that are upgraded somewhat between the extraction trench and the ground water treatment plant itself. Very high levels in there. You have double digit PPM, double digit parts per million. Drinking water standard is one part per billion. But we pull very, very low levels. These wells only cycle on once every couple hours for a short period of time.

So while we're drawing good contamination from there it just doesn't -- it just really doesn't come out of the soil.

MR. O'NEILL: We have Sharp Road is down here again. The extraction trench is up here. The Wetlands is up here. Most of our water is out of the extraction trench back by the wetlands. It's approximately here and another one approximately here. We also draw water that is treated by the plant. The extraction well points are where we get most of our water.

MR. BERGMAN: That's where the volume comes from but the high concentrations come from the other two extraction points.

MR. GREEN: My next question then is why so few wells?

MR. BERGMAN: Because we didn't feel it was a good idea to really dock the whole thing with a whole bunch of extraction wells. Are we really getting that? Is that the best way to go?

MR. GREEN: Now, you're telling us that it didn't work, twenty years down the road. You want to extract a little soil. You did some extraction soil, huge amount of that 20 years ago and that didn't work. Why would I believe that is going to work now? You missed it the first time. How do we know you're going to get it this time?

MR. BERGMAN: Well, because that was surface soil. It was surface soil.

MR. GREEN: It is in your document what it is you did. You extracted, I don't know, some huge amount of soil. It's not that big of a site.

MR. PRINCE: Well, there are limitations --

MR. BERGMAN: Again, this is surface soil. We're talking about mostly zero to four feet. The highest we really see at ground level is five feet. Now we're talking about ten feet below ground surface. They're two entirely different areas which is what I was trying to get at.

MR. PRINCE: Thank you.

MR. COYLE: I listen to everybody here. There is a lot of concerns. You guys cannot have a lot of experience dealing with mar, okay. Any kind of major excavation you're going to have ground to the left to the right, to the north, to the south collapsing on you. This mar gets in there, it's air pockets in it and you don't even know until you get down there.

Do it one site, something like this. You solve the problem with beating up the roads. You solve the problem of, you know, a couple different areas that were addressed tonight. Option seven, satisfy the concern about disturbing the road surface. That was that lady's question. You also should eliminate the dust issue that the other fellow asked about, you know. If you contain this site and then you got to get help from the township. Here that says once you're done in five years they don't do anything with that ground for another 20. Until we see if it's true or not. We don't want to find 20 years from now you made another mistake. Amen. Thank you. I didn't give my name. Joe Coyle, Sharp Road.

MS. LONEY: Thank you, Joe.

MR. BLUME: Randall Blume, B-L-U-M-E. I was on the Ellis Site Task Force that the township created back even prior to the ROD and I was on it until about 2007/2008 when the township ceased funding technical expert. Alternative two is the alternative that we pushed for from the very beginning. So I'm glad to see that it's finally happening.

We know more about the site now where the contamination is and where it is not and we knew that the pump and treat was just not working. So again, I'm pleased to see that something happened, something is happening.

When we move into the rest of the phases of this project, the bureaucratic phases of it, who is going to be the lead, will it be NJDEP or EPA?

MR. PRINCE: EPA.

MR. BLUME: Has testing been done on the

deeper Aquifers?

MR. PRINCE: Yes.

MR. BLUME: In the vicinity of recent testing, I should say on the deeper Aquifers in the vicinity that's been done or is it all through testing?

MR. PRINCE: We do, at least every five years we go and re-visit all those old wells.

MR. BLUME: So it would have been probably prior to the 2010 second five-year review the testing was done?

MR. PRINCE: Yes

MR. BLUME: Are there any plans in the immediate future to do additional testing?

MR. BERGMAN: We did monitor well sampling in April of this year and it did include two of the deep wells --

MR. BLUME: So it's been done more recently than the five year --

MR. BERGMAN: Yes.

MR. BLUME: Will the fill be tested before it's transported or is that a decision not yet -- the fill that's going to have to come back in?

MR. PRINCE: Yes. We test it before we bring it in. That's a good question.

MR. BLUME: I don't want to assume anything because it's been way too long. I'm glad somebody brought up the questioning of de-watering. With the ROD and subsequent documents that come out -- I mean, there is a lot of people here at this meeting. I'm pleasantly surprised but I think many of them got personal post cards as opposed to citizens that have been involved in this project.

I didn't find out about it -- my township let me down. My state let me down. Thank goodness for the press because if they had not called to ask for comment and caught totally off guard I would not have known, wouldn't have been here. So how is the ROD going to be published?

MS. LONEY: The Record of Decision will be placed on the web page. We would also whenever we come out with a ROD we have a press release so there will be press notification and we would also notify the township.

MR. BLUME: How about citizens who took the time to come here, is there anyway for us --

MS. LONEY: To get notification of the ROD?

MR. BLUME: To get notification.

MS. LONEY: We can easily send out a mailing just like the post cards that were sent. If you didn't receive one that you put your name on our sign-in sheet.

I will add you to our mailing list.

MR. BLUME: Okay. Other than just saying it's about time and that I whole-heartily support alternative two, I don't have any further questions. Thanks.

MR. ZEPPELLI: Anthony Zeppelli. With regard to the fill that they're putting back in. There will be 5,000 trucks taking it out, it will be 5,000 trucks putting it back in?

MR. PRINCE: Something like that.

MR. ZEPPELLI: So that would be 200 and some days you said?

MR. PRINCE: Yep.

MR. ZEPPELLI: Plus another 200 and some days?

MR. PRINCE: Nope. The whole process -- 200 working days in a year.

MR. BOYLE: John, this is a question for you. Thanks for all of you taking the time to speak with us. On page four of the information that we pulled off the website, there's a final paragraph on page four.

MS. LONEY: You're talking about the proposed plan?

MR. BOYLE: Yes. The final sentence of page four reads the significant level of TCE in the ground water indicates the existence of a DNAPL source but "such source has not yet been found." Does that indicate that there is something on the site that's producing additional toxicity that hasn't been identified? I don't know what that means.

MR. PRINCE: These environmental studies have their limitations and one of them is that we sometimes see evidence of certain properties in the contaminates. DNAPL refers to dense non-aqueous phase liquid. So literally not water, a liquid in the ground. That is TCE essentially separate phase, TCE.

There are lots of different tests that we can do to find it short of just digging something up. There are some sites you can literally open it up and so there it is. And TCE isn't like that and we didn't actually see that. So we did a lot of diagnostic tests to see whether we actually had this separate phase of material laying somewhere. Didn't see it.

However, the concentrations we find in the aqueous phase are sufficiently elevated to say well, it's in there. It's in there somewhere or the concentrations in the water wouldn't be so high. So we got a little jargony there. Sorry about that but that's how -- we're pretty sure it's there but we didn't actually visually or diagnostically see it in the ground.

MR. BOYLE: I've got to process that in my laymen's terms. Does that mean -- again, the way my brain thinks is, is there additional -- is there a concern that there is additional hot spots on the site that haven't been identified or you've identified them and they're just -- they're substrata?

MR. PRINCE: They're all within these, the confines of these zones. And where we're finding these really, really high levels are in the inner circles of this particular figure. And there is a couple characteristics of DNAPLs. It's a separate phase liquid that tends to sink by itself. Doesn't act like water does necessarily.

Once it's dissolved in the water that dissolved phase can move with the water. DNAPL tends to have a life of its own. We think a lot of it is kind of absorbed right on the clay surfaces down in the ground and then where is it going. To some degree it sunk all the way to the bottom laying on top of that clay that distinguishes this shallow zone to this deeper sort of confining layer.

So in some cases we're going to be, you know, this is remedy we're selecting. In any case the remedy needs to -- whatever the implemented remedy is going to be we're going to have to be able to get down onto for instance that clay surface where we expect to find kind of that layer and really treat that stuff because that will continue to leak out contaminant if it permeates.

MR. BOYLE: Just to conclude I'm a proponent -- I mean, I'm with excavating I think that's a good idea. But does that problem suggest that or indicate that possibly 67,000 cubic yards could expand or is that at the upper limit. Is there a potential -- once you start digging and as your report suggest you're not quite sure. My concern is when do you stop digging?

MR. PRINCE: Yeah, well, that's another phase of our remedial design. The reason this has boundaries is because we have areas around this where we didn't find these constituents and the nature of the material is limited to approximately this zone. And we're kind of hoping that it's actually smaller when we do more testing. So that this scan of the excavation might not be quite as large. We might need more excavation or whatever we select but that's -- we will be working through that in the remedial design phase to implement that.

MR. BERGMAN: One of the things I would like to point out is we got into the surface soils. We talked about that a little bit. If you take a look at what the original Record of Decision cited. I think the number they cited was 760 cubic yards of soil. And by the time we got done we were over 12,000. And that was the RI, which is kind of what this investigation is somewhat similar to and it gives you a basic idea. Basically characterizes it, said here is the levels of contamination. Here is how deep they are. Here is how far out they go but we had to refine it. When we went out to do the remedial design which is what John is talking about as next beyond -- the next step in this phase, we had areas we felt we had defined the levels, you know, where does the lead contamination stop. That was the biggest offender, if you will, biggest contaminate in the surface soils.

MR. BOYLE: Was lead.

MR. BERGMAN: Was lead. We went out. We did one round, almost every location we had to go out far. So we started collecting two samples. If the one that was closest to the contamination was contaminated then we run the next one. We went out seven steps in some locations until we found clay.

In this instance I feel a little bit better about it but I just want to point out really in the RI for the surface soils that really got much larger too. So there is always that possibility.

MR. COYLE: You said that the post card recipients will automatically get the ROD information?

MS. LONEY: What I'm going do -- since there was a request that you wanted to be notified about the Record of Decision I'll send out another post card. That's not something we normally do but we can do it.

MR. COYLE: The other thing was you talked about hot spots and you've identified a couple. You may find another half of a dozen hot spots once you start digging. You seem to think like that was not possible. Explain that to me.

MR. PRINCE: Well, we've done many, many rounds of sampling to get to this stage of deeper soils that we haven't done before and they're in and outside that red zone. And this is the extent to which we found these constituents and we find them at certain depths and they are in sort of a continuous blend.

MR. COYLE: But it could be as deep as 30 feet down?

MR. PRINCE: There are a couple spots where you would need to go all the way to the clay, yeah.

MR. COYLE: And from what I got off of the website here, if you do the on-site thing you're willing to put something like steel walls to protect collapses of the other ground. Why is that the only -- of the seven or nine remedies that's the only one that mentions protecting further collapses when you dig?

MR. PRINCE: There are a couple of the alternatives that do involve excavation. One of the alternatives that involve treating this red zone with chemical oxidation and then excavating just these hot spots. That's one of the alternatives that we looked at. And we believe that we can do that scale of excavation by stepping it back rather than putting cut off walls. The cut off walls do what you expect them to do, which is to resist that collapse but they also allow us to do water inside the box. We attach it to the clay at the bottom and create a zone that we can work within and actually pull the water out.

MR. COYLE: Why don't you want to take all the soil out?

MR. PRINCE: Again, you may comment. I'm not necessarily here to stand up here and argue with you, defending visopherially one alternative after another. Partly your role here is to say, you know, what I think there are some things you, EPA, you DEP should take more seriously. Please don't expect me to be argumentative about this.

Our reasoning does have to do with the attaining a level of certitude that we can through excavation, that given our experience with the struggles with the clays in the existing system, we think have some value here.

MR. COYLE: Thank you.

MR. EVERSON: Dave Everson here. In a context like this what is your criteria for success? How will you know you did it?

MR. PRINCE: Ultimately we're aiming to achieve ground water standards in the Aquifer. The ultimate goal is to -- the ultimate goal of this action is to cleanup the ground water. So that's our ultimate measure, have we achieved that standard. That actually was established in 1992 and hasn't changed. There is a level of excavation that we expect will remove if that's the selected alternative. There is a target zone that we plan on treating and the feasibility study concludes that if we go after that zone that, after some period of recovery shorter or longer that the Aquifer will recover to the drinking water standard that involves us selecting a clean up number in the soils. It's one part per million and that is something we define as we go by testing. That will allow us to measure whether what we're performing here is going to reach that goal at the end of the day.

UNKNOWN SPEAKER: So at the end of this project we can expect to see a bunch of EPA people out there with glasses of water drinking it?

MR. PRINCE: Well, I'm not sure that's a fair question. The goal is to reach drinking water standards. so that's our intention.

MR. GORSKI: Frank Gorski, I was also on the task force. I think we're going to be here another ten years getting to this. I would like to reiterate also the modification was under publicized, more newspaper. I would like to see the township be more active, put it on their website.

MS. LONEY: It was posted on the township website.

MR. GORSKI: I did not see it. Just a general article in the newspaper. I too support the removal of the soil as the task force did 15 years ago. This site is not a nice site. It reacts weird. It always has. TCE is known to be there. I think the prediction it was going to take you 100 years to pump and treat to get it out of there. I think that is on the record somewhere and I think anything short of removal. And there is no guarantee we're going to get there. So I clearly support that also. Piggy-back the other answer whether we have to go deeper. But can I also say outside of that area you're fairly confident drinking water standards everywhere else on that site?

MR. PRINCE: Outside of this we have levels --

if we address this simply to what happens, you know, beyond the cut off wall right, that this will recover pretty quickly.

MR. GORSKI: Within a year you're predicting that, right?

MR. PRINCE: We're going to leave this. This is staying in place as a stop gap but the prediction was a year in the feasibility study stage.

MR. GORSKI: The entire site should be a drinking water standard within a year after excavation, is the goal?

MR. PRINCE: That's the goal. Thank you for leaving me that window to have it not be entirely true after a year.

MR. ROACH: I want to get back to the very first question about the extraction wells and this gentleman said there is one on his property. Does that mean that you're going to maybe excavate across Sharp Road onto his property?

MR. BERGMAN: That's a monitor well, not an extraction.

MR. ROACH: So that's not an extraction level? That's what I'm saying. No extraction wells on the west side of Sharp Road, correct?

MR. PRINCE: That's correct.

MR. ROACH: So we, who are living in Legacy Oaks, are breathing a sigh of relief. We are not included in this project; am I correct?

MR. PRINCE: Correct.

MR. BLUME: When the plan is developed, whatever remediation is chosen, will a part of it be installation or re-installation of monitoring wells that got disturbed so that you can do the testing to know what your levels of contamination are?

MR. PRINCE: Yes.

MR. BERGMAN: It may not be in the same exact locations.

MR. BLUME: It is going to depend on what is done and how it's done. I mean, you know, folks are rightfully concerned about ground water contamination and how are you going to know it's clean and how you're going to know you're going to do more testing, you will make available to the public and the township so that we'll have some confidence you did get that chunk of gunk.

MR. SOLDEN: I'm Lain Solden. I'm representing Krista Enterprises which is the property just to the north adjacent to it, also another property on 100 Sharp Road. Obviously we have a concern about airborne soil. The 100 Sharp Road side which prevailing winds generally go from north to south towards our property. We have several employees, field employees that are in contact with trucks and trailers and equipment, et cetera, on a daily basis. As well as our office building we have the ability, we bring fresh air in. We change the air over every ten hours in our buildings.

We have a concern that if something really does blow up we can have a potential somewhere in the neighborhood of 150 to 200 of our employees to be exposed to this. So we have a concern as to the safety of our people also investment in our properties which exceeds over eight millions dollars on one site. And we also have a vacant property as a potential for development of over three-and-a-half to four million.

So obviously we have a vested interest on the street and we just want to make sure that it's safe for us, in addition to we have a tremendous amount of traffic in and out of our site. And hoping there is no issues and conflict with the trucks going in and out. Obviously we're used to being on construction sites. One of our functions are -- we are developers. So we understand construction. We understand intricacies of making these things work. I just want for the record to place a concern for our employees with dust and preserve the value of our properties.

MR. PRINCE: Thank you. Appreciate it.

MS. LONEY: Are there any further questions? Well, I would like to thank you all for coming out again. For those who did not receive the mailing and you signed it in the back could you just make an asterisk next to your name so I know to add you to our mailing list. Again, the comment period closes on the 12th of August and so you can e-mail or send us a snail mail version of your comments or fax them. All right. Thank you all for coming.

(Whereupon, the hearing concluded 8:09 p.m.)

C E R T I F I C A T I O N

I, Micheline Brown, a Court Reporter and Notary Public for the Commonwealth Of Pennsylvania, do hereby certify the foregoing to be a true and accurate transcript of my original stenographic notes taken at the time and place herein before set forth.

Micheline Brown

Micheline Brown
Court Reporter
Notary Public
DATED: July 24, 2013

(The foregoing certification of this transcript does not apply to any reproduction of the same by any means, unless under the direct control and/or supervision of the certifying shorthand reporter.)

APPENDIX IV – ADMINISTRATIVE RECORD INDEX

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

DRAFT
09/19/2013

REGION ID 02

Site Name ELLIS PROPERTY
CERCLIS ID NJD980529085
OUID 01
SSID 02D9
Action

DocID	Doc Date	Title	Image Count	Doc Type	Beginning Bates	Ending Bates	Addressee Name	Addressee Organization	Author Name	Author Organization
682205	06/14/2013	COMPREHENSIVE ADMINISTRATIVE RECORD INDEX FOR OU1 FOR THE ELLIS PROPERTY SITE	4	[INDEX]			[]	[]	[,]	[US ENVIRONMENTAL PROTECTION AGENCY]
101537	01/01/1111	ELLIS PROPERTY SITE, ADMINISTRATIVE RECORD, INDEX OF DOCUMENTS	3	[INDEX]			[]	[]	[,]	[EPA, REGION 2]
111920	01/01/1111	ELLIS PROPERTY SITE, ADMINISTRATIVE RECORD FILE UPDATE, INDEX OF DOCUMENTS	1	[INDEX]			[]	[]	[,]	[EPA, REGION 2]
111869	05/06/1986	Report Ellis Property Health and Safety Plan, prepared by Roy F Weston, Inc., May 1986	12	[REPORT]	R2-0000001	R2-0000012	[RICHARDSON, FRANK]	[NJ DEPT OF ENVIRONMENTAL PROTECTION]	[CLAVPOOL, JOHN E]	[Roy F Weston, Inc]
111853	06/01/1986	Report Field Sampling Plan for the Ellis Property RI/FS, Evesham Township, New Jersey, prepared by Roy F Weston, Inc , June 1986	108	[REPORT]	R2-0000013	R2-0000120	[]	[]	[,]	[ROY F WESTON, INC]
111854	02/01/1987	Report QA/QC Project Management Plan for the Ellis Property, Evesham Township, New Jersey, prepared by Roy F Weston, Inc , Feb 1987	114	[REPORT]	R2-0000121	R2-0000234	[]	[]	[,]	[ROY F WESTON, INC]
111852	06/27/1988	Memorandum Ellis Property Site, Proposed Phase II Sampling Plan, prepared by Anne Hayton, June 1988	18	[MEMORANDUM]	R2-0000235	R2-0000252	[RICHARDSON, FRANK]	[NJ DEPT OF ENVIRONMENTAL PROTECTION]	[DECICCO, ANNE]	[NJ DEPT OF ENVIRONMENTAL PROTECTION]
111858	12/01/1988	Report Remedial Investigation Report, Ellis Property Site (Phase I), prepared by Roy F Weston, Inc , December 1988	693	[REPORT]	R2-0000253	R2-0000945	[]	[]	[,]	[ROY F WESTON, INC]
111855	01/01/1990	Report Proposal for Remedial Investigation at the Ellis Property Site, prepared by Roy F Weston, Inc , January 1990	77	[REPORT]	R2-0000946	R2-0001022	[]	[]	[,]	[ROY F WESTON, INC]
111864	06/20/1990	Report Health Assessment for Ellis Property, prepared by ATSDR, June 1990	12	[REPORT]	R2-0001023	R2-0001034	[,]	[AGENCY FOR TOXIC SUBSTANCES AND DISEASES REGISTRY]	[,]	[ENVIRONMENTAL HEALTH SERVICE, NEW JERSEY DEPARTMENT OF HEALTH]
111867	08/01/1990	Guidance A Guide on Remedial Actions at Superfund Sites with PCB Contamination, prepared by EPA, August 1990	5	[REPORT]	R2-0001035	R2-0001039	[]	[]	[,]	[EPA]
111856	01/01/1991	Report Final Field Sampling - Quality Assurance Project Plan for the Ellis Property Site, Medford, New Jersey, prepared by Roy F Weston Inc , January 1991	188	[REPORT]	R2-0001040	R2-0001227	[]	[]	[,]	[ROY F WESTON, INC]

622805

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

DRAFT
09/19/2013

REGION ID 02

Site Name ELLIS PROPERTY
CERCLIS ID NJD980529085
OUID 01
SSID 02D9
Action

DocID	Doc Date	Title	Image Count	Doc Type	Beginning Bates	Ending Bates	Addressee Name	Addressee Organization	Author Name	Author Organization
111859	07/01/1991	Report Preliminary Data Report, Ellis Property Phase II Remedial Investigation, prepared by NJDEPE, July 1991	116	[REPORT]	R2-0001228	R2-0001343	[]	[]	[,]	[NJ DEPT OF ENVIRONMENTAL PROTECTION]
111862	01/01/1992	Report. A Stage 1A Archeological Survey of the Ellis Property Site, prepared by John P McCarthy and Thomas A.J Crist, 1992	38	[REPORT]	R2-0001344	R2-0001381	[,]	[NJ DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY, ROY F WESTON, INC]	[CRIST, THOMAS , MCCARTHY, JOHN]	[JOHN MILNER ASSOCIATES, INC]
111866	01/01/1992	Memorandum Update on OSWER Soil Lead Cleanup Guidance, prepared by EPA, 1992	4	[MEMORANDUM]	R2-0001382	R2-0001385	[,]	[ADDRESSEES]	[CLAY, DON R]	[EPA]
111870	03/02/1992	Report Ellis Property Site RI/FS, Data Analysis/Validation, prepared by Roy F Weston, Inc , March 1992	63	[REPORT]	R2-0001386	R2-0001448	[BRAUN, GERALD]	[NJ DEPT OF ENVIRONMENTAL PROTECTION]	[VELEZ, VICTOR G]	[ROY F WESTON, INC.]
111860	04/01/1992	Report Phase II Remedial Investigation Report for the Ellis Property Site, prepared by Roy F Weston, Inc , April 1992	855	[REPORT]	R2-0001449	R2-0002303	[,]	[NJ DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY]	[CORBIN, M , VELEZ, V]	[Roy F Weston, Inc]
111861	04/01/1992	Report Wetland Delineation Report, Ellis Property, prepared by John Sacco, NJDEPE, April, 1992	29	[REPORT]	R2-0002304	R2-0002332	[]	[]	[SACCO, JOHN]	[NJ DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY]
111863	04/01/1992	Report Feasibility Study Report for the Ellis Property Site prepared by Roy F Weston, Inc , April 1992	333	[REPORT]	R2-0002333	R2-0002665	[,]	[NJ DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY]	[CORBIN, M , VELEZ, V]	[Roy F Weston, Inc]
111857	04/06/1992	Memorandum to Gerald Braun from Caren Kline, Re Well Point Installation and Sampling Event, Ellis Property, April 1992	48	[MEMORANDUM]	R2 0002666	R2-0002713	[BRAUN, GERALD]	[NJ DEPT OF ENVIRONMENTAL PROTECTION]	[KLINE, CAREN]	[NJ DEPT OF ENVIRONMENTAL PROTECTION AND ENERGY]
111865	04/12/1992	Report Baseline Risk Assessment for Ellis Property Site, prepared by Roy F Weston, Inc , April 1992	478	[REPORT]	R2-0002714	R2-0003191	[,]	[NJ DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY]	[BHATLA, M N, VELEZ, V]	[ROY F WESTON, INC., Roy F Weston, Inc]
111876	04/29/1992	Letter From Richard Ho, USEPA to Gerald Braun, NJDEPE "Comments on Baseline Risk Assessment and Risk Based Soil Remediation Levels for the Administrative Record", April 29, 1992	3	[LETTER]	R2-0003192	R2-0003194	[BRAUN, GERALD]	[NJ DEPT OF ENVIRONMENTAL PROTECTION]	[HO , RICHARD]	[EPA, REGION 2]
111868	05/01/1992	Proposed Plan Ellis Property Superfund Site, prepared by EPA, May 1992	15	[PLAN]	R2-0003195	R2-0003209	[]	[]	[,]	[EPA]

R2-0004339

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09/19/2013

REGION ID 02

Site Name ELLIS PROPERTY
CERCLIS ID NJD980529085
OUID 01
SSID 02D9
Action

DocID	Doc Date	Title	Image Count	Doc Type	Beginning Bates	Ending Bates	Addressee Name	Addressee Organization	Author Name	Author Organization
111877	05/29/1992	Letter From Richard Ho, USEPA to Gerald Braun, NJDEPE "Clarification of Risk Based Soil Cleanup Levels"	2	[LETTER]	R2-0003210	R2-0003211	[BRAUN, GERALD]	[NJ DEPT OF ENVIRONMENTAL PROTECTION]	[HO , RICHARD]	[EPA, REGION 2]
99984	09/30/1992	Report Declaration Statement, Record of Decision, Ellis Property, Evesham and Medford Townships, Burlington County, New Jersey, prepared by U S Environmental Protection Agency, Region 2, September 30, 1992	97	[REPORT]	R2-0003212	R2-0003308	[]	[]	[,]	[EPA, REGION 2]
111925	09/30/1992	Letter to Mr Constantine Sidamon-Eristof, Administrator, U S Environmental Protection Agency, Region 2, from Mr Scott A. Weiner, Commissioner, State of New Jersey, Department of Environmental Protection and Energy, re The Department of	2	[LETTER]	R2-0003309	R2-0003310	[SIDAMON-ERISTOFF, CONSTANTINE]	[EPA, REGION 2]	[WEINER, SCOTT]	[NJ DEPT OF ENVIRONMENTAL PROTECTION]
205086	09/01/1995	STAGE 1B ARCHAEOLOGICAL SURVEY FOR THE ELLIS PORPERTY SITE	25	[REPORT]			[,]	[ACRES INTERNATIONAL CORP]	[,]	[ARCHAEOLOGICAL & HISTORICAL CONSULTANTS, INC]
139686	09/29/2005	FIVE YEAR REVIEW REPORT, ELLIS PROPERTY SUPERFUND SITE, BURLINGTON COUNTY, EVESHAM AND MEDFORD TOWNSHIPS, NEW JERSEY	28	[REPORT]			[]	[]	[,]	[EPA, REGION 2]
684225	09/01/2006	REMEDIATION SYSTEM EVALUATION FINAL REPORT FOR THE ELLIS PROPERTY SUPERFUND SITE	37	[REPORT]	R2-0003311	R2-0003347	[,]	[US ENVIRONMENTAL PROTECTION AGENCY]	[,]	[DYNAMAC CORP, GEO TRANS INC]
123784	11/01/2007	REVISED PRELIMINARY PDI RESULTS REPORT FOR THE ELLIS PROPERTY SITE	316	[REPORT]	R2-0003348	R2-0003663	[,]	[STATE OF NEW JERSEY, DEPARTMENT OF ENVIRONMENTAL PROTECTION]	[,]	[THE LOUIS BERGER GROUP, INC]
123785	05/01/2009	TECHNOLOGY EVALUATION REPORT FOR THE ELLIS PROPERTY SITE	169	[REPORT]	R2-0003664	R2-0003832	[,]	[STATE OF NEW JERSEY, DEPARTMENT OF ENVIRONMENTAL PROTECTION]	[,]	[THE LOUIS BERGER GROUP, INC]
109724	09/28/2010	SECOND FIVE-YEAR REVIEW REPORT, ELLIS PROPERTY SUPERFUND SITE, EVESHAM AND MEDFORD TOWNSHIPS, NEW JERSEY, BURLINGTON COUNTY	33	[REPORT]			[]	[]	[,]	[EPA, REGION 2]
123774	06/01/2013	FOCUSED FEASIBILITY STUDY REPORT FOR THE ELLIS PROPERTY SITE	183	[REPORT]	R2-0003833	R2-0004015	[,]	[STATE OF NEW JERSEY]	[,]	[THE LOUIS BERGER GROUP, INC]

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09/19/2013

REGION ID 02

Site Name ELLIS PROPERTY
CERCLIS ID NJD980529085
OUID 01
SSID 02D9
Action

DocID	Doc Date	Title	Image Count	Doc Type	Beginning Bates	Ending Bates	Addressee Name	Addressee Organization	Author Name	Author Organization
686646	06/13/2013	UPDATED MONITORING WELL SAMPLING DATA AND TREATMENT PLANT DATA FOR THE ELLIS PROPERTY SITE	64	[CHART / TABLE]	R2-0004016	R2-0004079	[]	[]	[]	[]
686647	07/10/2013	PROPOSED PLAN OU1 FOR THE ELLIS PROPERTY SITE	18	[PLAN]	R2-0004080	R2-0004097	[]	[]	[,]	[US ENVIRONMENTAL PROTECTION AGENCY]
205087	07/16/2013	CORRESPONDENCE REGARDING REVIEW OF THE INFORMATION PERTAINING TO THE CULTURAL RESOURCE SURVEYS CONDUCTED AT THE SITE FOR THE ELLIS PROPERTY SITE	1	[LETTER]			[HO, RICHARD]	[EPA]	[FERREIRA, STEVEN J]	[EPA]

APPENDIX V – STATE LETTER OF CONCURRENCE

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SITE REMEDIATION PROGRAM
Mail Code 401-06
P O Box 420
Trenton, New Jersey 08625-0420
Tel. #: 609-292-1250
Fax # 609-777-1914

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt Governor

BOB MARTIN
Commissioner

September 27, 2013

Mr. Walter Mugdan, Director
Emergency and Remedial Response Division
U.S. Environmental Protection Agency
Region II
290 Broadway
New York, NY 10007-1866

Re: Ellis Property Superfund Site
Record of Decision Amendment
EPA ID# NJD980529085
DEP PI#G000042009

Dear Mr. Mugdan:

The New Jersey Department of Environmental Protection (DEP) completed its review of the "Record of Decision Amendment, Ellis Property Superfund Site, Evesham Township, Burlington County, New Jersey" prepared by the U.S. Environmental Protection Agency (EPA) Region II in September 2013 and concurs with the selected remedy to address contaminated soil and groundwater at the site. The original ROD addressing contamination at the site was issued on September 30, 1992.

DEP supports excavation and off-site removal of contaminated soil and in-situ treatment under the selected remedy estimated at a cost of $13.6 million. DEP completed a soil cleanup as required by the 1992 ROD and has been operating a groundwater collection and treatment system since 2000 at the site. More recently, DEP and EPA have identified a source of volatile organic compounds (VOCs), primarily trichloroethylene (TCE) in the subsurface soil at the site that requires additional remedial measures. The VOC source contributes to groundwater contamination and prevents the groundwater collection and treatment system from restoring the aquifer.

The selected remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan. This decision is based on is necessary to protect the public health or welfare and the environment from actual releases of hazardous substances into the environment.

The components of the amended remedy include:

- Excavation and off-site disposal of TCE contamination in the residual source area, and contaminated soil in the plume area;
- Implementation of in-situ treatment, where appropriate, to complement excavation;
- Continued operation of the existing collection and treatment system for a period of time (estimated to be one year) to evaluate the effectiveness of continued operation of the system to reduce residual groundwater contamination;
- Monitoring of groundwater; and,
- Continuation of institutional controls to restrict use of contaminated groundwater until remediation goals are achieved.

DEP appreciates the opportunity to participate in the decision making process to select an appropriate remédy and is looking forward to future cooperation with EPA in remedial action at this site.

If you have any questions, please call me at 609-292-1250.

Sincerely,

Mark J. Pedersen
Acting Assistant Commissioner
Site Remediation Program

C: Ken Kloo, Director, Division of Remediation Management, DEP
Ed Putnam, Assistant Director, Publicly Funded Response Element, DEP
Carole Petersen, Chief, New Jersey Remediation Branch, EPA Region II